

GENBA SOPANRAO MOZE COLLEGE OF ENGINEERING Balewadi, Pune - 411045.

Civil Engineering Department

2015 Pattern

Sr. No.	Course Code	Course Name
Semester - III		
1	201001	Building Technology and Material
2	201002	Mechanics of structure
3	201003	Geotechnical Engineering
4	207001	Engineering Mathematics III
5	201006	Survey
Semester - IV		
6	201004	Fluid Mechanics-I
7	201005	APDB
8	201008	Structural Analysis-I
9	207009	Engineering Geology
10	201007	Concrete Technology
Semester - V		
11	301001	Hydrology and Water Resources Engineering
12	301002	Infrastructure Engineering & Construction Techniques
13	301003	Structures Design-I
14	301004	Structural Analysis-II
15	301005	Fluid Mechanics-II
Semester - VI		
16	301007	Advanced Surveying
17	301008	Project Management and Engineering Economics
18	301009	Foundation Engineering
19	301010	Structures Design-II
20	301011	Environmental Engineering I
Semester - VII 2015 pattern		
21	401 001	Environmental Engineering II
22	401002	Transportation Engineering
23	401 003	Structural Design and Drawing-III
24	401004	Elective I [ACT]
25	401 005	Elective II [TQM-MIS]
Semester - VIII 2015 pattern		
26	401007	Dams and Hydraulics Structure
27	401008	Quantity Surveying, Contract
28	401 009	Elective III (APC)
29	401010	Elective-IV CM -2015 PATTERN




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Sr. No.	Course Code	Course Name
Semester - III		
1	201001	Building Technology and Architectural Planning
2	201002	Mechanics of structure
3	201003	Fluid Mechanics
4	207001	Engineering Mathematics III
5	207009	Engineering Geology
Semester - IV		
6	201008	Geotechnical Engineering
7	201009	Survey
8	201010	Concrete Technology
9	201011	Structural Analysis
10	201012	Project management
Semester - V		
11	301001	Hydrology and Water Resources Engineering
12	301002	Water Supply Engineering
13	301003	Design of Steel Structures
14	301004	Engineering Economics and Financial Management
15	301005	Solid Waste Management
16	301006	Seminar
Semester - VI		
17	301012	Waste Water Engineering
18	301013	Design of RC Structures
19	301014	Remote Sensing and GIS
20	301015	ATP
Semester - VII		
21	401001	Foundation Engineering
22	401002	Transportation Engineering
23	401003	APC
24	401004	ACT
Semester - VIII		
25	401011	Dams and Hydraulics Structure
26	401012	Quantity Surveying, Contract and Tenders
27	401013	HPE
28	401014	TQM-MIS





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Civil Engineering Department

Academic Year 2018-19

Semester - III

Course Code	Name of Course																
201001	Building Technology and Materials	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	
201001.1	Identify types of building and basic requirements of building components.	3.15	2.1	3.15	2.1	2.1	0	2.1	0	2.1	2.1	2.1	0	2.1	1.05	1.05	
201001.2	Explain types of masonry, formwork, casting procedure and necessity of underpinning and scaffolding.	3.15	2.1	2.1	2.1	2.1	0	2.1	0	2.1	2.1	2.1	0	0	1.05	1.05	
201001.3	Elucidate different types of flooring and roofing materials.	2.1	2.1	2.1	1.4	1.4	0	1.4	0	0.7	0	0.7	0	0	0	0	
201001.4	Describe types of doors, windows, arches and lintel.	1.4	1.4	1.4	0	0	0	0	0	0.7	0	0	0	0	1.4	1.4	
201001.5	Choose appropriate vertical circulation and protective coatings.	1.4	1.4	0.7	0	0	0	0	0	0	0	0	0	0	0	0	
201001.6	Explain different materials especially eco-friendly materials and safety measures to be adopted at any construction site.	2.1	2.1	3.15	1.05	2.1	0	1.05	0	2.1	0	2.1	0	0	0	0	
	Avg PO attainment.	2.22	2.24	3.15	2.22	1.93	0	2.22	0	1.28	0.84	1.4	0	2.1	1.75	1.75	
201002	Strength of Materials	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	
201002.1	Compute different type of stresses in determinate, indeterminate, homogeneous and composite members.	5.7	5.7	0	0	3.8	1.9	0	0	0	0	0	0	1.9	1.9	1.9	
201002.2	Develop bending stress and shear stress distribution diagrams across beam section	2.85	2.85	2.85	0	0.95	0.95	0	0	0	0	0	0	2.85	0.95	0.95	
201002.3	Determine stresses due to torsion, strain energy under different loading conditions and stresses due to impact loading	1.9	1.9	1.9	0	0.63	0.63	0	0	0	0	0	0	1.9	0	0	
201002.4	Explain the concept of principal stresses and stresses due to combined loading	1.9	1.27	0	0	1.27	1.9	0	0	0	0	0	0	0	0.63	0.63	
201002.5	Plot loading diagram, Shear Force Diagram (SFD) and Bending Moment Diagram (BMD).	1.9	1.27	0	0	1.27	1.27	0	0	0	0	0	0	0	0.63	0.63	
201002.6	Analyze axially and eccentrically loaded column	2.85	1.9	0	0	1.9	1.9	0	0	0	0	0	0	0.95	0.95	0.95	
	Avg PO attainment.	2.85	2.98	1.19	0	2.45	1.43	0	0	0	0	0	0	7.6	2.53	2.53	



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201003	Geotechnical Engineering															
201003.1	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	
Differentiate the different types of soil and their engineering properties and classify them	1.73	0.86	0	0.86	0	0	0	0	0	0	0	0	1	0	0	
201003.2	2	2	0	1	0	0	0	0	0	0	0	0	2	0	0	
201003.3	2.2	1.46	1.46	0.73	0	0	0	0	0	0	0	0	2	0	0	
201003.4	2.6	1.73	1.73	1	0	0	0	0	0	0	0	0	2	0	0	
201003.5	2.6	1.73	2	0.86	0	0	0	0	0	0	0	0	2	2	2	
201003.6	2	2	1.73	0.86	0	0	0	0	0	0	0	0	1	2	2	
Avg PO attainment.																
	2	1.96	1.73	1.33	0	0	0	0	0	0	0	0	1	1	1	
207003	Engineering Mathematics III															
207003 .1	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	
Solve higher order linear differential equation using appropriate techniques for modeling and analyzing electrical circuits.	1.73	0.86	0	0.86	0	0.86	0	0	0	0	0	0	2	0	0	
207003 .2	1.73	2	0	1	0	1	0	0	0	0	0	0	1	0	0	
207003 .3	2.2	1.46	1.46	0.73	0	0.73	0	0	0	0	0	0	1	0	0	
207003 .4	2.6	1.84	1.73	0.86	0	2.1	0	0	0	0	0	0	0	1	1	
207003 .5	2.6	1.84	1.46	0.9	0	0.86	0	0	0	0	0	0	0	1	1	
207003 .6	1.73	1.84	1.73	0.86	0	0.86	0	0	0	0	0	0	1	0	0	
Avg PO attainment.																
	2.1	1.97	1.6	1.3	0	1.07	0	0	0	0	0	0	0.83	0.33	0.33	



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201006	Surveying	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
201006.1	Operate and use surveying equipment.	1.73	1.73	1.73	0.86	0.86	0.86	1.73	0	0	0.86	0	0.86	0.1	0.1	0.1
201006.2	Apply knowledge of leveling to draw plan or map of the existing permanent features on the ground.	0.86	0.86	0.86	0.86	0.86	1	1.73	0.1	0	0.86	0	0.86	0.1	0.1	0.1
201006.3	Analyze temporary adjustments and check permanent adjustments of the Theodolite.	2.2	1.46	1.46	0.73	0.86	0.73	1.73	0.1	0	0.86	0	0.86	0.1	0.1	0.1
201006.4	Determining reduced level and distance using tacheometry and use of Electronic surveying equipment for measurement.	2.5	1.65	1.8	0.86	0.86	1.95	1.83	0.1	0	0.86	0	0.86	0.1	0.1	0.1
201006.5	Analyze and design of simple curves	2.6	1.73	1.73	0.86	0.86	0.86	1.73	0	0	0.86	0	0	0.1	0.1	0.1
201006.6	Relating space base positioning systems for construction survey.	1.73	1.73	1.73	0.86	0.86	0.86	0.86	0	0	0.86	0	0	0.1	0.1	0.1
	Avg PO attainment.	1.94	1.83	2.33	1.26	1.29	1.04	3.2	0.06	0	0.86	0	0.57	0.1	0.1	0.1

Semester - IV


201004	Fluid Mechanics -I	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
201004.1	Understand Fluid properties and dimensional analysis for solving fluid flow problems	1.73	1.73	1.73	0.86	0	0	0	0	0	0	0	0	0.86	0	0
201004.2	Apply knowledge to solve fluid static problems	0.86	0.86	0.86	0.63	0	0	0	0	0.83	0	0	0	0.86	0	0
201004.3	Interpret the concept of fluid kinematics and classify types of fluid flow	2.6	1.46	1.35	0.73	0	0.73	0	0	0	0	0.83	0	1.73	0	0
201004.4	Interpret fluid dynamics and understand the application of Bernoullis Equation	2.6	1.22	1.73	0.86	0	0	0	0	0	0	0	0	0.86	0	0
201004.5	Understnd the concept of boundary layer development	2.6	1.73	1.73	0.86	0	0	0	0	0	0	0	0	0.86	0	0
201004.6	Apply the concept of turbulent flow through pipes and determine the varius losses in pipes	1.73	1.4	1.85	0.99	0	0.12	0	0	0.14	0	0.14	0	0.86	0	0
	Avg PO attainment.	2.02	1.4	1.54	0.8217	0	0.142	0	0	0.1617	0	0.1617	0	1.005	0	0




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201005	APDB	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
201005.1	Implementing principles of architectural planning.	1.73	1.73	1.73	0.86	0.86	0.86	1.73	0.86		0.86	1.73	0.73	1.73	1.73	1.73
201005.2	Analyze the available primary or secondary data and plan different types of structures considering futuristic need of an area.	0.86	0.86	0.86	0.86	0.86	0.9	1.73	0.1	0.92	0.92	1.73	1.33	0	2.6	2.6
201005.3	Improve the status of existing structures by proposing appropriate green measures.	1.73	1.46	1.46	0.73	0.86	0.73	1.73	0.1	0.92	0.86	0.86	0	0.73	0	0
201005.4	Plan effectively various types of buildings according to their utility.	2.6	1.73	1.73	0.86	0.86	1.33	1.73	0.1	0.86	0.86	0.73	1.73	1.33	0.1	0.1
201005.5	Understand and resolve contemporary issues at multi-dimensional functional levels.	2.6	1.7	1.73	0.86	0.86	0.86	0.83	0.1	0.86	0.86	1.33	1.73	0	0	0
	Avg PO attainment.	1.88	1.84	2.31	1.26	1.29	0.92	2.58	0.25	0.59	0.87	0.72	0.87	0.29	0.02	0.02
201008	Structural Analysis-I	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
201008.1	Evaluate static and kinematic indeterminacy of structures. Determine slope and deflection in determinate beams using double integration method, area moment theorem, conjugate	4.2	1.4	2.8	2.8	4.2	3	2.8	3	0	0	0	2.8	1.4	1.4	1.4
201008.2	Analyze indeterminate beams and frames using three moment theorem and castigliano's theorem	1.7	1.8	2.8	0	1.8	1.8	0	0	0	0	0	0	0.93	0	0
201008.3	Analyze determinate and indeterminate trusses using castigliano's theorem	1.73	1.73	2	0	1.7	1.7	0	0	0	0	0	0		0	0
201008.4	Apply influence line diagrams for the analysis of structures under moving load.	1.73	0.9	2	0	1.8	1.8	0	0	0	0	0	0	0.93	0	0
201008.5	Analyze two and three hinged parabolic and circular arches	1.4	2.8	2.8	0	0	0	0	0	0	0	0	0		0	0
201008.6	Apply static and kinematic method to find collapse load in indeterminate beams and frames using plastic analysis	1.4	2.8	2.8	0	0	0	0	0		0	0	0		1.4	1.4
	Avg PO attainment.	2.03	1.91	2.53	0.47	1.58	1.38	0.47	0.5	0	0	0	0.47	0.54	0.47	0.47




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207009	Engineering Geology	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
207009.1	Explain the basic concepts of engineering geology in terms of rock types and their applications in civil engineering.	1.73	1.73	1.73	1.73	0	0.86	0	0	0	0	0	0	0.2	0	0
207009.1	Discuss physical properties and classification of minerals. Describe Structural geology, mountain building activity and plate tectonics.	0.86	0.86	1.73	1.73	0	1	0	0	0	0	0	0	0	0	0
207009.1	Illustrate Geomorphology and historical geology with physiographic divisions of india, principles of stratigraphy and geological time scale.	2.3	1.46	1.46	1.73	0	0.73	0	0	0	0	0	0	0	0.83	0.83
207009.1	Describe methods of preliminary geological explorations and applications of Remote sensing and GIS in civil engineering.	2.6	1.84	1.84	1.82	0	1.84	0	0	0	0	0	0	1.82	0	0
207009.1	Assess the Importance of geological nature of the site, precautions and treatments to improve the site conditions for dams, reservoirs and tunnels.	2.6	1.73	1.73	1.73	0	0.86	0	0	0	0	0	0	1.73	0	0
207009.1	Explain geological hazards and importance of ground water and uses of common building stones.	1.73	1.73	1.73	1.73	0	0.86	0	0	0	0	0	0	1.73	0	0
	Avg PO attainment.	1.97	1.87	2.56	2.62	0	1.03	0	0	0	0	0	0	0.91333	0.83	0.83
201007	Concrete Technology	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
201007.1	Understand chemistry, properties, and classification of cement, fly ash, aggregates and admixtures, and hydration of cement in concrete.	1.73	4.2	4.2	0	1.1	0	0	0	0	0	0	0	0	0	0
201007.2	Prepare and test the fresh concrete	0.1	2.1	4.2	0	1.1	0.1	0	0	0	0	0	0	0	0	0
201007.3	Test hardened concrete with destructive and nondestructive testing instruments	0.7	1.4	4.2	0	2.1	0	0.1	0	0	0	0	0	0.1	0	0
201007.4	Get acquainted to concrete handling equipments and different special concrete types.	0.1	1.73	2.1	0	1.1	0	0	0	0	0	0	0	0	0	0
201007.5	Design concrete mix of desired grade	0.1	2.1	1.93	0	1.4	4.2	0	0	0	0	0	0	0	0	0
201007.6	Predict deteriorations in concrete and repair it with appropriate methods and techniques.	0	0	2.1	0	0.1	0	0	2.1	0	0	0	0	0	0	0
	Avg PO attainment.	0.46	2.31	4.68	0	1.73	0.72	0.03	0.42	0	0	0	0	0.1	0	0



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Semester - V

Course Code	Name of Course																
301001	Hydrology & Water Resource Engineering	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	
301001.1	Estimating missing rainfall data	2.6	1.73	1.73	1.73	1.73	0	0	0	0	0	0	0	1.73	1.6	1.6	
301001.2	Compute water requirement of crops	0.86	0.86	1.73	1.84	2.6	0	0	0	0	0	0	0	0	1.67	1.67	
301001.3	Recognize various ground water distribution systems	2.2	1.34	1.46	1.73	2.6	0	0	0	0	0	0	0	0	0.83	0.83	
301001.4	Identify the concepts of hydrographs	2.6	1.73	1.65	1.6	1.62	0	0	0	0	0	0	0	1.73	2.6	2.6	
301001.5	DescribeApply the flood routing techniques to find flood frequency	2.6	1.73	1.73	1.73	1.84	0	0	0	0	0	0	0	1.73	1.73	1.73	
301001.6	Discuss water management, water logging & drainage concepts.	1.63	1.73	1.73	1.73	0	0	0	0	0	0	0	0.1	1.73	1.73	1.73	
	Avg PO attainment.	2.08	1.82	2.51	2.59	2.6	0	0	0	0	0	0	0.02	1.15	1.69	1.69	
301002	Infrastructure Engineering and Construction Techniques	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	
301002.2	Describe the meaning and importance of Infrastructure Engineering	2.1	0.67	2.1	0	0.86	0	0	1.4	0	0	0	2.1	3.15	0.1	0.1	
301002.3	Classify railway systems and to select appropriate construction techniques	2.1	2.1	1.9	0	2.1	0	0	1.73	0.2	0	0	2.1	2.1	2.1	2.1	
301002.3	Interpret construction techniques	1.4	0	1.4	0		0	0	1.73	0	0	0	0.7	0.7	0	0	
301002.4	Differentiate tunneling and its construction techniques	1.9	0	0	0		0	0	1.73	0	0	0	2.1	0			
301002.5	Compare docks and harbours along with their importance	0.7	0	0	0	0.7	0	0	1.73	0	0	0	0.7	0.7	0	0	
301002.6	Appraise various construction equipment's in Civil Engineering	2.1	0	0	0	0	0	0	1.73	0	0	0	0	0	0.1	0.1	
	Avg PO attainment.	1.6	1.39	2.2		1.2	0	0	1.14	1.14	0	0	1.28	6.65	2.1	2.1	




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301003	Structural Design-I	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
301003.1	Identify various limit states, load combinations, material properties, types of section, safety factors from IS:800-2007. Designing of tension member in steel structures	2.9	2	1.1	2.2	2.2	1.1	0	0	0	0	0	1.1	1.5	1.1	1.1
301003.2	Analyse and design various Compression members in steel Structure.	2.6	2.5	2.2	1.1	0	0	0	0	1.1	2.2	0	1.5	0	1.1	1.1
301003.3	Designing of various column bases in steel Structure.	2.2	1.47	2.2	0.73	1.47	0.73	0	0.73	0.73	0.73	0.73	0.73	0	0.73	0.73
301003.4	Analyse and design a flexural member and beam to column connections	2.2	2.97	0	1.1	0	1.1	1.1	2.2	1.1	1.1	0	1.1	1.1	0	0
301003.5	Designing of Welded plate girder	1.47	1.47	1.47	0.73	0.73	0.73	0.73	1.47	0.73	0.63	0	0.73	0	0.73	0.73
301003.6	Analyse and design a Steel Truss and a Gantry Girder	2.2	1.1	1.1	1.1	2.2	1.1	1.1	1.1	1.1	0	0	1.1	0	0	0
	Avg PO attainment.	2.26	2.3	2.02	2.32	1.65	0.79	0.98	1.1	0.79	0.93	0.15	1.04	2.6	1.83	1.83
301004	Structural Analysis-II	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
301004.1	Analyse the indetermiant beams and frames by Slope Deflection method	2.88	0	1.92	0	1.92	0.96	0	0.96	0	0	0.96	0	0.96	0.96	0.96
301004.2	Construct moment diagrams for indetermiant beams and frames by Moment Distribution method	1.92	0	1.92	0	0.64	0	0	0.64	0	0	0.64	0	1.28	0.64	0.64
301004.3	Determine stress resultants in the indetermiant beams and frames by Flexibility method	0	2.66	1.92	0.96	0	0.96	0	0.96	0	0	0.96	0	0	0	0
301004.4	Analyse the indetermiant beams and frames by Stiffness method	0	5.76	1.92	3.84	0	2.3	0	1.83	0	0	1.92	0	0	0	0
301004.5	Construct BMD in highly indeterminate frames using cantilever and portal frame method. Determine slope and deflection in indeterminate beams using Finite Difference	3.84	1.92	0.83	0	2.98	2.3	0	0	0	0	1.83	0	1.82	0	0
301004.6	Apply basic concepts of finite element method to solve elementary problems	2.78	0	0	0	0.96	0	0	0	0	0	0.96	0	0.96	0.96	0.96
	Avg PO attainment.	1.9	2.07	2.13	1.6	1.63	1.09	0	0.88	0	0	1.45	0	5.02	1.28	1.28



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301005	Fluid Mechanics -II	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
301005.1	Describe fluid flow around submerged objects and classify the unsteady flow	2.3	2	1.1	0	0	0	0	0	0	2.2	0	1.1	0.83	0.6	0.6
301005.2	Discuss open channel flow and derive depth energy relationship	3.3	3.3	2.2	2.2	1.1	0	0	0	0	2.2	0	2.2	0.1	0.83	0.83
301005.3	Design the most economical channel section, demonstrate hydraulic jump	2.2	2.2	2.2	0.73	0.73	0	0	0	0	1.47	0	1.47	0.73	0.73	0.73
301005.4	Understand the concept impact of jet, study of centrifugal pumps	3.3	2.2	2.2	2.2	1.1	0	0	0	0	1.83	0	1.93	0.33	0.82	0.82
301005.5	Understand, analyse and design various types of Turbines.	2.2	2.2	1.47	1.47	0.73	0	0	0	0	1.47	0	1.47	0.2	1.47	1.47
301005.6	Recognize and compute the GVF profiles by various methods	2.2	2.2	0	0	0	0	0	0	0	2.2	0	1.1	0.1	1.1	1.1
	Avg PO attainment.	2.58	2.82	2.29	2.2	0.92	0	0	0	0	2.27	0	1.54	2.29	2.78	2.78

Semester - VI

301007	Advanced Surveying	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
301007.1	Perform Geodetic Survey and understand the GNSS and triangulation survey.	2.1	0.67	2.1	1.05	0	1.05	0	0	0	3.15	2.1	2.1	3.15	0	0
301007.2	Explain the concept of hydrographic surveying	2.1	2.1	2.1	1.05	2.1	2.1	0	0	0	3.15	2.1	2.1	2.1	2.1	2.1
301007.3	Relate the concept of modern surveying techniques and their applications in various field of Civil Engineering.	1.4	1.4	1.4	0	0.7	0.7	0	0	0	1.4	0.7	0.7	0.7	0	0
301007.4	Solve to adjust geodetic traverse and understand laws of weights	2.1	1.05	2.1	2.1	1.05	0	0	0	0	2.1	1.05	2.1	0	2.1	2.1
301007.5	Interpret aerial photography data to study terrain.	0.7	0.7	1.4	1.4	0.7	0.7	0	0	0	1.4	0.7	0.7	0.7	0	0
301007.6	Calculate the relative altitudes and distances of different points on ground.	2.1	1.05	1.05	1.05	0	2.1	0	0	0	1.05	0	0	0	0	0
	Avg PO attainment.	1.75	1.39	2.54	2.22	1.14	1.11	0	0	0	2.45	1.33	1.28	6.65	2.1	2.1



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301008	Project Management Engineering Economics	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
301008.1	Understand the project planning & scheduling.	1.9	1.33	2.85	0	0	0	0	0	0	0	0	0	0.95	0.95	0.95
301008.2	Implement appropriate resources at right time in project.	1.9	0.95	2.85	0	1.9	0	0	0	0	0	0	0	0	1.9	1.9
301008.3	Examine the Team work and its impact on project progression.	0.63	0.63	1.9	0	1.27	0	0	0	0	0	0	0	0	0	0
301008.4	Judge correct alternative in sells and purchase activities by understanding basics of engineering economics	0.95	0.95	2.85	0	1.9	0	0	0	0	0	0	0	0	0	0
301008.5	Defend Investment and its stages in suggesting resource allocation	0.63	1.27	1.27	0	0	0	0	0	0	0	0	0	0	0	0
301008.6	Summarize types of project appraisal and project reports	0.95	1.9	1.9	0	0	0	0	0	0	0	0	0	0	0	0
	Avg PO attainment.	1.16	1.41	3.4	0	1.27	0	0	0	0	0	0	0	0.95	1.43	1.43
301009	Foundation Engineering	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
301009.1	Complete site investigation program,including types,number,and location of boring	2.9	0	0	0	1.93	0	0	0	0	0	0	0	0.1	0	0
301009.2	Evaluate bearing capacity and settlement for both shallow and deep foundation	2.9	0	0	0	2.9	0	0	0	0	0	0	0	0	1.93	1.93
301009.3	Relate and study drilled piers and caisson.	1	0.64	1.93	1.29	0	0	0	0	0	0	0	0	0.64	0	0
301009.4	Select appropriate design principles of foundation on black cotton soil	0	0	1.93	0	2.9	1.93	0	0	0	0	0	0	0.97	0	0
301009.5	Prioritize and suggest geosynthetic- reinforced soil structures	0	1.93	1.29	1.29	1.93	0	0	0	0	0	0	0	0.64	0	0
301009.6	Adapt effect of earthquake techniques on structures	0	0	5.79	0	0	0	0	0	0	0	0	0	0	0	0
	Avg PO attainment.	1.13	0.51	2.73	0.86	2.41	0.32	0	0	0	0	0	0	2.35	0.97	0.97



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301010	Structural Design-II	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
301010.1	Compare the design philosophies – WSM, ULM, and LSM	2.7	1.73	1	0	1	1	1	0	0	0	0	0	0.86	1	1
301010.2	Compute the moment of resistance of rectangular / flanged section by WSM and LSM	2.9	2.1	1	0	1	1	1	0	0	0	0	0	0.1	0.12	0.12
301010.3	Examine or Select the cross section for slabs, beam, column and foundation conforming to IS 456:2000	1.73	1.73	0.67	0	0.67	0.67	0.67	0	0	0	0	0	0.67	0.67	0.67
301010.4	Design the G+2 storey residential/commercial/public building conforming to IS 456:2000	3	2	1	0	1	1	1	0	0	0	0	0	0.6	1	1
	Avg PO attainment.	2.12	1.99	1.58	0	1.58	1.06	2.11	0	0	0	0	0	2.99	1.79	1.79
301011	Environmental Engineering-I	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
301011.1	To explain the source, control and effect of air and noise pollution	2.1	0	0	0	0	2.1	1.05	0	0	0	0	0	0	0	0
301011.2	To describe the fundamentals of water treatment units and parts of water supply system.	2.1	0	0	0	0	1.05	0	0	0	0	0	0	0	0	0
301011.3	To explain and design of Water treatment units	1.4	0	0	0	0	1.4	0.7	0.7	0	0	0	0	0.7	0.7	0.7
301011.4	To describe the fundamentals of coagulation, flocculation and filtration in water supply system.	0	1.05	1.05	0	0	2.1	2.1	0	1.05	0	0	0	0.73	2.1	2.1
301011.5	Describe the Miscellaneous treatment systems for drinking water	0	0.7	0	0	0.7	1.4	1.4	0	0.7	0	0	0	0.6	0.7	0.7
301011.6	Demonstrate water distribution system, rain water harvesting and PWTP	0	1.05	0	0	1.05	0	1.05	0	2.1	1.05	1.05	1.05	0.3	0	0
	Avg PO attainment.	0.93	0.56	0.26	0	0.44	1.34	2.1	0.14	0.64	0.21	0.21	0.18	2.33	1.75	1.75



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		Semester - VII														
401001	Environmental Engineering-I	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
401001.1	Explain the quality and characteristics of sewage and the concept of stream sanitation.	1.9	0	4.2	0	0	3	0	3	0	0	0	1.4	0	0	0
401001.2	Describe the sewage treatment processes with the design of screen chamber, grit chamber, and primary sedimentation tank.	0.9	2.8	0	1.9	0	0	0	0	2.8	1.8	0	0.9	0.9	0	0
401001.3	Describe and design the secondary treatment units with special emphasis on activated sludge process and trickling filter.	0.9	0.9	2	0	1.8	0	0	0	2.8	1.8	0.93	0.9	0	0	0
401001.4	Explain low cost treatment methods with the design of oxidation pond, aerated lagoon.	0.9	0.9	2	0	1.8	0	0	0	2.8	1.8	0	0.9	0.9	0	0
401001.5	Describe anaerobic treatment processes as anaerobic digester, up flow anaerobic sludge blanket and they also able to design septic tank.	2.8	0.93	1.9	0	1.9	1.9	0	0	0.9	1.8	0	0.9	0	0	0
401001.6	Explain the characteristics and the treatment process of industrial wastewater of sugar,dairy and distillery industry .	0	1.4	1.4	0	0	1.9	0	0	0.9		0	0.9	0.9	0	0
	Avg PO attainment.	1.23	1.16	1.92	0.32	0.92	1.13	0	0.5	1.7	1.2	0.16	0.98	0.45	0	0
401002	Transportation Engineering	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
401002.1	Interpretation and study of rural road development vision and on-going road development projects.	3.18	1.06	1.06	2.12	2.12	2.12	2.12	1.06	1.06	1.06	1.06	1.06	0.63	1.06	1.06
401002.2	Evaluate Geometric design of highways.	3.18	1.96	3.12	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	0.2	1.06	1.06
401002.3	Categorizing road traffic regulation and control devices.	2.12	2.12	2.12	1.41	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71
401002.4	Experimenting and Validating Pavement materials suitability in mix-design.	1.12	2.12	1.41	0.71	0.71	0.71	1.41	0.71	0.71	0.71	0.71	0.71	0.1	0.71	0.71
401002.5	Design of pavement using IS Code and IRC guidelines.	2.12	2.12	1.41	0.71	0.71	0.71	1.41	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71
401002.6	Adapting the Modern Trends in Pavement Construction.	3.18	2.12	2.12	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	0.1	1.06	1.06
	Avg PO attainment.	2.48	2.3	2.81	2.36	1.59	1.06	2.59	1.06	0.88	1.06	1.06	0.88	2.44	2.65	2.65



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401003		Structural Design-III														
401003.1		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Compute the stresses and losses in PSC Structures		2.85	1.9	2.85	1.9	1.9	0	1.9	0	1.9	1.9	1.9	0	1.9	0.95	0.95
401003.2		Designing of PSC rectangular and flanged beams with end block, one way and 2 way post tensioned slabs conforming to IS: 1343:2012														
		2.85	1.9	1.9	1.9	1.9	0	1.9	0	1.9	1.9	1.9	0	0	0.95	0.95
401003.3		Designing of PT flat slab conforming to IS:456-2000, IS: 1343:2012														
		1.9	1.9	1.9	1.27	1.27	0	1.27	0	0.63	0	0.63	0	0	0.95	0.95
401003.4		Analysis and design of RCC cantilever T and L shape retaining walls conforming to IS 456:2000														
		1.27	1.27	1.27	0	0	0	0	0	0.63	0	0	0	0	0	0
401003.5		Analyze and Design Liquid Retaining Structures resting on ground conforming to IS:3370-2009														
		1.27	1.27	0.63	0	0	0	0	0	0	0	0	0	0	1.27	1.27
401003.6		Derive the equations of motion for free, forced, un-damped and damped vibrations. Estimate the EQ forces by seismic coefficient method conforming to IS 1893:2002														
		1.9	1.9	2.85	0.95	1.9	0	0.95	0	1.9	0	1.9	0	0	0	0
		Avg PO attainment.														
		2.01	2.03	2.85	2.01	1.74	0	2.01	0	1.16	0.76	1.27	0	1.9	1.58	1.58
401005		IWRPM														
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
401005.1		An ability to apply different water recourses and full fill water demand & understand the water laws.														
		2.9	0	2.9	0	0	0.97	0	0	0	0	0	0.97	0	0	0
401005.2		An ability to do proper financing, estimation, planning all regarding water recourses. An understand of fundamentals of blue water, green water and virtual water and their role in water														
		0.97	2.9	0	1.93	0	0	0	0	2.9	1.93	0	0.97	0.97	0	0
401005.3		An understanding of recycling, reuse and storage of water.														
		1.29	1.29	0.64	0	1.29	0	0	0.64	1.29	0.64	0.64	1.29	0	0	0
401005.4		Students development regarding water demand and supply schemes.														
		0	0	0	0	0	1.29	0.64	1.29	0.64	0.64	0	0.64	0.64	0	0
401005.5		Development of social aspect in each and every student regarding water recourse and its development.														
		1.93	0.64	1.29	0	0.64	1.29	0	0	0.64	0.64	0	0.64	0	0	0
401005.6		An ability of students to choose plan and developed watershed and application of RS,GIS and other data driven techniques.														
		0	0.97	0.97	0	1.93	0.97	0	0	0.97	0	0	0.97	0.97	0	0
		Avg PO attainment.														
		1.18	1.16	1.45	0.64	0.97	0.75	0.21	0.39	1.07	0.77	0.13	0.91	2.57	0	0





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401005	Elective-II -TQM MIS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
401005.1	Recognise quality & contribution of quality gurus.	2.73	0	1.93	1.1	1.1	0	0	0	0	0	0	0	0.73	0.1	0.1
401005.2	Relate the functioning and application of TQM & Six Sigma	1.75	2	2	1.2	1.3	0	0	0	0	0	0	0	1.73	0.73	0.73
401005.3	Implement ISO 9001 principles in preparation of quality manual	1.75	0	2	1.1	1.1	0	0	0	0	0	0	2	0.33	2	2
401005.4	Construct & apply management control & certification systems.	2	1.6	1.8	1.1	1.8	0	0	0	0	2	0	0	2	0	0
401005.5	Execute TQM Implementation and various Quality Awards	2	1.73	1.93	1.93	1.93	0	0	0	0	0	0	0	0	0.7	0.7
401005.6	Justify MIS & its application in construction sector.	3	1.73	2	1.9	1.9	0	0	0	0	0	0	0	0.33	0	0
	Avg PO attainment.	2.21	1.41	2.92	2.78	2.28	0	0	0	0	0.4	0	0.33	1.22	1.77	1.77

Semester - VIII

401007	Dams & hydraulic Structures	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
401007.1	Differentiate the types of dams and explain the importance of instrumentation for safety of dams	2.1	2.4	0	2.4	0	0	0	0	0	0	0	0	1.2	0	0
401007.2	Analyze the Stability of gravity dam and describe the Concept of Arch Dam	2.4	3.6	2.4	3.6	0	0	0	0	0	0	0	0	0	0	0
401007.3	Design the spillways with appropriate given data and explain the concept of Spillway gates	2.4	1.6	2.4	2.4	0	0	0	0	0	0	0	0	0	0.8	0.8
401007.4	Explain the types Earthen dam ,failures and Diversion head works.	3.6	2.4	3.6	3.6	0	0	0	0	0	0	0	0	1.2	0	0
401007.5	Describe and use of the canal lining and canal structures.	3.6	2.63	2.1	2.1	0	0	0	0	0	0	0	0	1.2	0	0
401007.6	Explain the importance of River training works and CD works.	0.8	2.4	0	2.4	0	0	0	0	0	0	0	0	0.8	0	0
	Avg PO attainment.	2.48	2.51	1.75	2.75	0	0	0	0	0	0	0	0	0.73	0.4	0.4




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401008	Quantity Surveying contracts & Tenders	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
401008.1	Choose the appropriate principles of computations related to quantity surveying.	3.15	3.15	1.05	0	1.05	1.05	1.05	0	0	0	0	0	1.05	1.05	1.05
401008.2	Formulate the detail estimates and bill of quantities for various civil engineering projects.	3.15	3.15	1.05	0	1.05	1.05	1.05	0	0	0	0	0	1.05	1.05	1.05
401008.3	Excercise computer software for schedule of rates and specifications	2.1	2.1	0.7	0	1.4	0.7	0.7	0	0	0	0	0	1.4	0.7	0.7
401008.4	Analyses the rates and prepare valuation report.	3.15	3.15	1.05	0	1.05	1.05	1.05	0	0	0	0	0	1.05	1.05	1.05
401008.5	Draft tender and work execution processes.	3.15	3.15	1.05	0	1.05	2.1	1.05	0	0	0	0	0	1.05	1.05	1.05
401008.6	Apply the skill to defend a contract by knowing arbitration laws.	3.15	3.15	1.05	0	1.05	1.05	1.05	0	0	0	0	0	1.05	1.05	1.05
	Avg PO attainment.	2.98	2.98	0.99	0	1.66	1.17	1.98	0	0	0	0	0	1.11	2.98	2.98
401009	Air Pollution & Control	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
401009.1	Explore the meteorological aspects, Gaussian model and Emission inventory.	3.6	3.6	0	0	3.6	0	0	0	0	0	0	0	0	0	0
401009.2	Classify and analyze Air sampling methods.	3.6	3.6	3.6	0	0	0	0	0	0	0	0	0	0	0	0
401009.3	Select methods for control and prevention of air pollution.	1.6	2.4	0.8	0	0	0	0	0	0	0	0	0	0	0	0
401009.4	Design of air pollution control equipment's.	2.4	2.4	2.4	0	0	0	0	0	0	0	0	0	1.2	0	0
401009.5	Discuss Air Pollution prevention and control Act.	2.4	3.6	3.6	2.4	3.6	0	0	0	0	0	0	0	0	0	0
401009.6	Explore the Environmental impact assessment and management.	2.4	2.4	3.6	3.6	3.6	0	0	1.2	0	0	0	0	1.2	0	0
	Avg PO attainment.	2.67	3	2.33	1	2.7	0	0	0.24	0	0	0	0	0.4	0	0



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401010	Construction Management	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
401010.1	Appraise the basic concepts of construction management such as types and functions of management, project participants and	3.15	3.15	1.05	0	1.05	1.05	1.05	0	0	0	0	0	1.05	1.05	1.05
401010.2	Evaluate the progress of projects by using WBS breakdown Structure (WBS) and line of balance technique.	3.15	3.15	1.05	0	1.05	1.05	1.05	0	0	0	0	0	1.05	1.05	1.05
401010.4	Implement the labour laws and various financial aspects for smooth functioning of project	2.1	2.1	0.7	0	1.4	0.7	0.7	0	0	0	0	0	1.4	0.7	0.7
401010.4	Apply the risk management and value analysis models	3.15	3.15	1.05	0	1.05	1.05	1.05	0	0	0	0	0	1.05	1.05	1.05
401011.5	Apply material management and HR management techniques	3.15	3.15	1.05	0	1.05	2.1	1.05	0	0	0	0	0	1.05	1.05	1.05
401011.6	Recognize the importance and application of artificial intelligence technique	3.15	3.15	1.05	0	1.05	1.05	1.05	0	0	0	0	0	1.05	1.05	1.05
	Avg PO attainment.	2.98	2.98	0.99	0	1.66	1.17	1.98	0	0	0	0	0	1.11	2.98	2.98

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Civil Engineering Department

Academic Year 2019-20

Semester - III

Course Code	Name of Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
201001	Building Technology and Materials															
201001.1	Identify types of building and basic requirements of building components.	3.15	2.1	3.15	2.1	2.1	0	2.1	0	2.1	2.1	2.1	0	2.1	1.05	1.05
201001.2	Explain types of masonry, formwork, casting procedure and necessity of underpinning and scaffolding.	3.15	2.1	2.1	2.1	2.1	0	2.1	0	2.1	2.1	2.1	0	0	1.05	1.05
201001.3	Elucidate different types of flooring and roofing materials.	2.1	2.1	2.1	1.4	1.4	0	1.4	0	0.7	0	0.7	0	0	0	0
201001.4	Describe types of doors, windows, arches and lintel.	1.4	1.4	1.4	0	0	0	0	0	0.7	0	0	0	0	1.4	1.4
201001.5	Choose appropriate vertical circulation and protective coatings.	1.4	1.4	0.7	0	0	0	0	0	0	0	0	0	0	0	0
201001.6	Explain different materials especially eco-friendly materials and safety measures to be adopted at any construction site.	2.1	2.1	3.15	1.05	2.1	0	1.05	0	2.1	0	2.1	0	0	0	0
	Avg PO attainment.	2.22	2.24	3.15	2.22	1.93	0	2.22	0	1.28	0.84	1.4	0	2.1	1.75	1.75
201002	Strength of Materials															
201002.1	Compute different type of stresses in determinate, indeterminate, homogeneous and composite members.	5.7	5.7	0	0	3.8	1.9	0	0	0	0	0	0	1.9	1.9	1.9
201002.2	Develop bending stress and shear stress distribution diagrams across beam section	2.85	2.85	2.85	0	0.95	0.95	0	0	0	0	0	0	2.85	0.95	0.95
201002.3	Determine stresses due to torsion, strain energy under different loading conditions and stresses due to impact loading	1.9	1.9	1.9	0	0.63	0.63	0	0	0	0	0	0	1.9	0	0
201002.4	Explain the concept of principal stresses and stresses due to combined loading	1.9	1.27	0	0	1.27	1.9	0	0	0	0	0	0	0	0.63	0.63
201002.5	Plot loading diagram, Shear Force Diagram (SFD) and Bending Moment Diagram (BMD).	1.9	1.27	0	0	1.27	1.27	0	0	0	0	0	0	0	0.63	0.63
201002.6	Analyze axially and eccentrically loaded column	2.85	1.9	0	0	1.9	1.9	0	0	0	0	0	0	0.95	0.95	0.95
	Avg PO attainment.	2.85	2.98	1.19	0	2.45	1.43	0	0	0	0	0	0	7.6	2.53	2.53



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201003	Geotechnical Engineering	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
201003.1	Differentiate the different types of soil and their engineering properties and classify them	1.73	0.86	0	0.86	0	0	0	0	0	0	0	0	1	0	0
201003.2	Determine the soil properties in laboratory and develop a proficiency in handling experimental data	2	2	0	1	0	0	0	0	0	0	0	0	2	0	0
201003.3	Understand of the concept of effective stress and its influence on soil behavior.	2.2	1.46	1.46	0.73	0	0	0	0	0	0	0	0	2	0	0
201003.4	Develop an understanding of the influence of water flow on the engineering behaviour of soils.	2.6	1.73	1.73	1	0	0	0	0	0	0	0	0	2	2	2
201003.5	Analyze engineering properties like compaction, permeability, soil shear strength.	2.6	1.73	2	0.86	0	0	0	0	0	0	0	0	1	2	2
201003.6	Compute the lateral thrust and classify soil slopes.	2	2	1.73	0.86	0	0	0	0	0	0	0	0	1	1	1
	Avg PO attainment.	2	1.96	1.73	1.33	0	0	0	0	0	0	0	0	1.5	0.83	0.83
207003	Engineering Mathematics III	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
207003 .1	Solve higher order linear differential equation using appropriate techniques for modeling and analyzing electrical circuits.	1.73	0.86	0	0.86	0	0.86	0	0	0	0	0	0	2	0	0
207003 .2	Solve problems related to Fourier transform, Z-Transform and applications to Signal and Image processing.	1.73	2	0	1	0	1	0	0	0	0	0	0	1	0	0
207003 .3	Apply statistical techniques like correlation, regression analysis and probability theory for analysis and prediction of a given data as applied to machine intelligence.	2.2	1.46	1.46	0.73	0	0.73	0	0	0	0	0	0	1	0	0
207003 .4	Perform vector differentiation and integration to analyze the vector fields and apply to compute line, surface and volume integrals.	2.6	1.84	1.73	0.86	0	2.1	0	0	0	0	0	0	0	1	1
207003 .5	Analyze conformal mappings, transformations and perform contour integration of complex functions required in Image processing, Digital filters and Computer graphics.	2.6	1.84	1.46	0.9	0	0.86	0	0	0	0	0	0	0	1	1
207003 .6	Analyze conformal mappings, transformations and perform contour integration of complex functions required in Image processing, Digital filters and Computer graphics.	1.73	1.84	1.73	0.86	0	0.86	0	0	0	0	0	0	1	0	0
	Avg PO attainment.	2.1	1.97	1.6	1.3	0	1.07	0	0	0	0	0	0	0.83	0.33	0.33



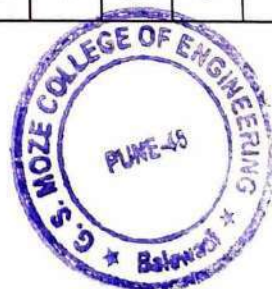
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201006	Surveying	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
201006.1	Operate and use surveying equipment.	1.73	1.73	1.73	0.86	0.86	0.86	1.73	0	0	0.86	0	0.86	0.1	0.1	0.1
201006.2	Apply knowledge of leveling to draw plan or map of the existing permanent features on the ground.	0.86	0.86	0.86	0.86	0.86	1	1.73	0.1	0	0.86	0	0.86	0.1	0.1	0.1
201006.3	Analyze temporary adjustments and check permanent adjustments of the Theodolite.	2.2	1.46	1.46	0.73	0.86	0.73	1.73	0.1	0	0.86	0	0.86	0.1	0.1	0.1
201006.4	Determining reduced level and distance using tacheometry and use of Electronic surveying equipment for measurement.	2.5	1.65	1.8	0.86	0.86	1.95	1.83	0.1	0	0.86	0	0.86	0.1	0.1	0.1
201006.5	Analyze and design of simple curves	2.6	1.73	1.73	0.86	0.86	0.86	1.73	0	0	0.86	0	0	0.1	0.1	0.1
201006.6	Relating space base positioning systems for construction survey.	1.73	1.73	1.73	0.86	0.86	0.86	0.86	0	0	0.86	0	0	0.1	0.1	0.1
	Avg PO attainment.	1.94	1.83	2.33	1.26	1.29	1.04	3.2	0.06	0	0.86	0	0.57	0.1	0.1	0.1

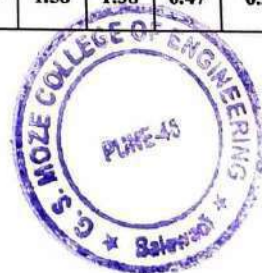
Semester - IV

201004	Fluid Mechanics -I	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
201004.1	Understand Fluid properties and dimensional analysis for solving fluid flow problems	1.73	1.73	1.73	0.86	0	0	0	0	0	0	0	0	0.86	0	0
201004.2	Apply knowledge to solve fluid static problems	0.86	0.86	0.86	0.63	0	0	0	0	0.83	0	0	0	0.86	0	0
201004.3	Interpret the concept of fluid kinematics and classify types of fluid flow	2.6	1.46	1.35	0.73	0	0.73	0	0	0	0	0.83	0	1.73	0	0
201004.4	Interpret fluid dynamics and understand the application of Bernoullis Equation	2.6	1.22	1.73	0.86	0	0	0	0	0	0	0	0	0.86	0	0
201004.5	Understd the concept of boundary layer development	2.6	1.73	1.73	0.86	0	0	0	0	0	0	0	0	0.86	0	0
201004.6	Apply the concept of turbulent flow through pipes and determine the various losses in pipes	1.73	1.4	1.85	0.99	0	0.12	0	0	0.14	0	0.14	0	0.86	0	0
	Avg PO attainment.	1.73	1.4	1.85	0.99	0	0.12	0	0	0.14	0	0.14	0	0.86	0	0



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201005	APDB	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
201005.1	Implementing principles of architectural planning.	1.73	1.73	1.73	0.86	0.86	0.86	1.73	0.86		0.86	1.73	0	1.73	0	0
201005.2	Analyze the available primary or secondary data and plan different types of structures considering futuristic need of an area.	0.86	0.86	0.86	0.86	0.86	0.9	1.73	0.1	0.92	0.92	1.73	0	0	0	0
201005.3	Improve the status of existing structures by proposing appropriate green measures.	1.73	1.46	1.46	0.73	0.86	0.73	1.73	0.1	0.92	0.86	0.86	0	0	0.1	0.1
201005.4	Plan effectively various types of buildings according to their utility.	2.6	1.73	1.73	0.86	0.86	1.33	1.73	0.1	0.86	0.86	0	1.73	0	0.1	0.1
201005.5	Understand and resolve contemporary issues at multi-dimensional functional levels.	2.6	1.7	1.73	0.86	0.86	0.86	0.83	0.1	0.86	0.86	0	1.73	0	0	0
	Avg PO attainment.	1.88	1.84	2.31	1.26	1.29	0.92	2.58	0.25	0.59	0.87	0.72	0.87	0.29	0.02	0.02
201008	Structural Analysis-I	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
201008.1	Evaluate static and kinematic indeterminacy of structures. Determine slope and deflection in determinate beams using double integration method, area moment theorem, conjugate beam method and castigliano's theorem	4.2	1.4	2.8	2.8	4.2	3	2.8	3	0	0	0	2.8	1.4	1.4	1.4
201008.2	Analyze indeterminate beams and frames using three moment theorem and castigliano's theorem	1.7	1.8	2.8	0	1.8	1.8	0	0	0	0	0	0	0.93	0	0
201008.3	Analyze determinate and indeterminate trusses using castigliano's theorem	1.73	1.73	2	0	1.7	1.7	0	0	0	0	0	0	0	0	0
201008.4	Apply influence line diagrams for the analysis of structures under moving load.	1.73	0.9	2	0	1.8	1.8	0	0	0	0	0	0	0.93	0	0
201008.5	Analyze two and three hinged parabolic and circular arches	1.4	2.8	2.8	0	0	0	0	0	0	0	0	0	0	0	0
201008.6	Apply static and kinematic method to find collapse load in indeterminate beams and frames using plastic analysis	1.4	2.8	2.8	0	0	0	0	0	0	0	0	0	0	1.4	1.4
	Avg PO attainment.	2.03	1.91	2.53	0.47	1.58	1.38	0.47	0.5	0	0	0	0.47	0.54	0.47	0.47



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207009	Engineering Geology	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
207009.1	Explain the basic concepts of engineering geology in terms of rock types and their applications in civil engineering.	1.73	1.73	1.73	1.73	0	0.86	0	0	0	0	0	0	0.2	0	0
207009.2	Discuss physical properties and classification of minerals. Describe Structural geology, mountain building activity and plate tectonics theory.	0.86	0.86	1.73	1.73	0	1	0	0	0	0	0	0	0	0	0
207009.3	Illustrate Geomorphology and historical geology with physiographic divisions of india, principles of stratigraphy and geological time scale.	2.3	1.46	1.46	1.73	0	0.73	0	0	0	0	0	0	0	0.83	0.83
207009.4	Describe methods of preliminary geological explorations and applications of Remote sensing and GIS in civil engineering.	2.6	1.84	1.84	1.82	0	1.84	0	0	0	0	0	0	1.82	1.82	1.82
207009.5	Assess the Importance of geological nature of the site, precautions and treatments to improve the site conditions for dams, reservoirs and tunnels.	2.6	1.73	1.73	1.73	0	0.86	0	0	0	0	0	0	1.73	1.73	1.73
207009.6	Explain geological hazards and importance of ground water and uses of common building stones.	1.73	1.73	1.73	1.73	0	0.86	0	0	0	0	0	0	1.73	1.73	1.73
	Avg PO attainment.	1.97	1.87	2.56	2.62	0	1.03	0	0	0	0	0	0	0.91	0.14	0.14
201007	Concrete Technology	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
201007.1	Understand chemistry, properties, and classification of cement, fly ash, aggregates and admixtures, and hydration of cement in concrete.	1.73	4.2	4.2	0	1.1	0	0	0	0	0	0	0	0	0	0
201007.2	Prepare and test the fresh concrete	0.1	2.1	4.2	0	1.1	0.1	0	0	0	0	0	0	0	0	0
201007.3	Test hardened concrete with destructive and nondestructive testing instruments	0.7	1.4	4.2	0	2.1	0	0.1	0	0	0	0	0	0.1	0	0
201007.4	Get acquainted to concrete handling equipments and different special concrete types.	0.1	1.73	2.1	0	1.1	0	0	0	0	0	0	0	0	0	0
201007.5	Design concrete mix of desired grade	0.1	2.1	1.93	0	1.4	4.2	0	0	0	0	0	0	0	0	0
201007.6	Predict deteriorations in concrete and repair it with appropriate methods and techniques.	0	0	2.1	0	0.1	0	0	2.1	0	0	0	0	0	0	0
	Avg PO attainment.	0.46	2.31	4.68	0	1.73	0.72	0.03	0.42	0	0	0	0	0.1	0	0




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Semester - V

Course Code	Name of Course																
301001	Hydrology & Water Resource Engineering	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	
301001.1	Estimating missing rainfall data	2.6	1.73	1.73	1.73	1.73	0	0	0	0	0	0	0	1.73	1.6	1.6	
301001.2	Compute water requirement of crops	0.86	0.86	1.73	1.84	2.6	0	0	0	0	0	0	0	0	1.67	1.67	
301001.3	Recognize various ground water distribution systems	2.2	1.34	1.46	1.73	2.6	0	0	0	0	0	0	0	0	0.83	0.83	
301001.4	Identify the concepts of hydrographs	2.6	1.73	1.65	1.6	1.62	0	0	0	0	0	0	0	1.73	2.6	2.6	
301001.5	DescribeApply the flood routing techniques to find flood frequency	2.6	1.73	1.73	1.73	1.84	0	0	0	0	0	0	0	1.73	1.73	1.73	
301001.6	Discuss water management, water logging & drainage concepts.	1.63	1.73	1.73	1.73	0	0	0	0	0	0	0	0	1.73	1.73	1.73	
	Avg PO attainment.	2.08	1.82	2.51	2.59	2.6	0	0	0	0	0	0	0.1	1.73	1.73	1.73	
301002	Infrastructure Engineering and Construction Techniques	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	
301002.2	Describe the meaning and importance of Infrastructure Engineering	2.1	0.67	2.1	0	0.86	0	0	1.4	0	0	0	2.1	3.15	0.1	0.1	
301002.3	Classify railway systems and to select appropriate construction techniques	2.1	2.1	1.9	0	2.1	0	0	1.73	0.2	0	0	2.1	2.1	2.1	2.1	
301002.3	Interpret construcion techniques	1.4	0	1.4	0		0	0	1.73	0	0	0	0.7	0.7	0	0	
301002.4	Differentiate tunneling and its construction techniques	1.9	0	0	0		0	0	1.73	0	0	0	2.1	0			
301002.5	Compare docks and harbours along with their importance	0.7	0	0	0	0.7	0	0	1.73	0	0	0	0.7	0.7	0	0	
301002.6	Appraise various construction equipment's in Civil Engineering	2.1	0	0	0	0	0	0	1.73	0	0	0	0	0	0.1	0.1	
	Avg PO attainment.	1.6	1.39	2.2		1.2	0	0	1.14	1.14	0	0	1.28	6.65	2.1	2.1	




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301003	Structural Design-I	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
301003.1	Identify various limit states, load combinations, material properties, types of section, safety factors from IS:800-2007. Designing of tension member in steel structures	2.9	2	1.1	2.2	2.2	1.1	0	0	0	0	0	1.1	1.5	1.1	1.1
301003.2	Analyse and design various Compression members in steel Structure.	2.6	2.5	2.2	1.1	0	0	0	0	1.1	2.2	0	1.5	0	1.1	1.1
301003.3	Designing of various column bases in steel Structure.	2.2	1.47	2.2	0.73	1.47	0.73	0	0.73	0.73	0.73	0.73	0.73	0	0.73	0.73
301003.4	Analyse and design a flexural member and beam to column connections	2.2	2.97	0	1.1	0	1.1	1.1	2.2	1.1	1.1	0	1.1	1.1	0	0
301003.5	Designing of Welded plate girder	1.47	1.47	1.47	0.73	0.73	0.73	0.73	1.47	0.73	0.63	0	0.73	0	0.73	0.73
301003.6	Analyse and design a Steel Truss and a Gantry Girder	2.2	1.1	1.1	1.1	2.2	1.1	1.1	1.1	1.1	0	0	1.1	0	0	0
	Avg PO attainment.	2.26	2.3	2.02	2.32	1.65	0.79	0.98	1.1	0.79	0.93	0.15	1.04	2.6	1.83	1.83
301004	Structural Analysis-II	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
301004.1	Analyse the indetermiant beams and frames by Slope Deflection method	2.88	0	1.92	0	1.92	0.96	0	0.96	0	0	0.96	0	0.96	0.96	0.96
301004.2	Construct moment diagrams for indetermiant beams and frames by Moment Distribution method	1.92	0	1.92	0	0.64	0	0	0.64	0	0	0.64	0	1.28	0.64	0.64
301004.3	Determine stress resultants in the indetermiant beams and frames by Flexibility method	0	2.66	1.92	0.96	0	0.96	0	0.96	0	0	0.96	0	0	0	0
301004.4	Analyse the indetermiant beams and frames by Stiffness method	0	5.76	1.92	3.84	0	2.3	0	1.83	0	0	1.92	0	0	0	0
301004.5	Construct BMD in highly indeterminate frames using cantilever and portal frame method. Determine slope and deflection in determinate beams approximately using Finite Difference Method	3.84	1.92	0.83	0	2.98	2.3	0	0	0	0	1.83	0	1.82	0	0
301004.6	Apply basic concepts of finite element method to solve elementary problems	2.78	0	0	0	0.96	0	0	0	0	0	0.96	0	0.96	0.96	0.96
	Avg PO attainment.	1.9	2.07	2.13				0	0.88	0	0	1.45	0	5.02	1.28	1.28



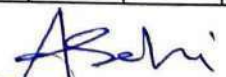
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301005	Fluid Mechanics -II	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
301005.1	Describe fluid flow around submerged objects and classify the unsteady flow	2.3	2	1.1	0	0	0	0	0	0	2.2	0	1.1	0.83	0.6	0.6
301005.2	Discuss open channel flow and derive depth energy relationship	3.3	3.3	2.2	2.2	1.1	0	0	0	0	2.2	0	2.2	0.1	0.83	0.83
301005.3	Design the most economical channel section, demonstrate hydraulic jump	2.2	2.2	2.2	0.73	0.73	0	0	0	0	1.47	0	1.47	0.73	0.73	0.73
301005.4	Understand the concept impact of jet, study of centrifugal pumps	3.3	2.2	2.2	2.2	1.1	0	0	0	0	1.83	0	1.93	0.33	0.82	0.82
301005.5	Understand, analyse and design various types of Turbines.	2.2	2.2	1.47	1.47	0.73	0	0	0	0	1.47	0	1.47	0.2	1.47	1.47
301005.6	Recognize and compute the GVF profiles by various methods	2.2	2.2	0	0	0	0	0	0	0	2.2	0	1.1	0.1	1.1	1.1
	Avg PO attainment.	2.58	2.82	2.29	2.2	0.92	0	0	0	0	2.27	0	1.54	2.29	2.78	2.78

Semester - VI

301007	Advanced Surveying	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
301007.1	Perform Geodetic Survey and understand the GNSS and triangulation survey.	2.1	0.67	2.1	1.05	0	1.05	0	0	0	3.15	2.1	2.1	3.15	0	0
301007.2	Explain the concept of hydrographic surveying	2.1	2.1	2.1	1.05	2.1	2.1	0	0	0	3.15	2.1	2.1	2.1	2.1	2.1
301007.3	Relate the concept of modern surveying techniques and their applications in various field of Civil Engineering.	1.4	1.4	1.4	0	0.7	0.7	0	0	0	1.4	0.7	0.7	0.7	0	0
301007.4	Solve to adjust geodetic traverse and understand laws of weights	2.1	1.05	2.1	2.1	1.05	0	0	0	0	2.1	1.05	2.1	0	2.1	2.1
301007.5	Interpret aerial photography data to study terrain.	0.7	0.7	1.4	1.4	0.7	0.7	0	0	0	1.4	0.7	0.7	0.7	0	0
301007.6	Calculate the relative altitudes and distances of different points on ground.	2.1	1.05	1.05	1.05	0	2.1	0	0	0	1.05	0	0	0	0	0
	Avg PO attainment.	1.75	1.39	2.54	2.22	1.14	1.11	0	0	0	2.45	1.33	1.28	6.65	2.1	2.1




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301008	Project Management Engineering Economics	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
301008.1	Understand the project planning & scheduling.	1.9	1.33	2.85	0	0	0	0	0	0	0	0	0	0.95	0.95	0.95
301008.2	Implement appropriate resources at right time in project.	1.9	0.95	2.85	0	1.9	0	0	0	0	0	0	0	0	1.9	1.9
301008.3	Examine the Team work and its impact on project progression.	0.63	0.63	1.9	0	1.27	0	0	0	0	0	0	0	0	0	0
301008.4	Judge correct alternative in sells and purchase activities by understanding basics of engineering economics	0.95	0.95	2.85	0	1.9	0	0	0	0	0	0	0	0	0	0
301008.5	Defend Investment and its stages in suggesting resource allocation	0.63	1.27	1.27	0	0	0	0	0	0	0	0	0	0	0	0
301008.6	Summarize types of project appraisal and project reports	0.95	1.9	1.9	0	0	0	0	0	0	0	0	0	0	0	0
	Avg PO attainment.	1.16	1.41	3.4	0	1.27	0	0	0	0	0	0	0	0.95	1.43	1.43
301009	Foundation Engineering	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
301009.1	Complete site investigation program, including types, number, and location of boring	2.9	0	0	0	1.93	0	0	0	0	0	0	0	0.1	0	0
301009.2	Evaluate bearing capacity and settlement for both shallow and deep foundation	2.9	0	0	0	2.9	0	0	0	0	0	0	0	0	1.93	1.93
301009.3	Relate and study drilled piers and caisson.	1	0.64	1.93	1.29	0	0	0	0	0	0	0	0	0.64	0	0
301009.4	Select appropriate design principles of foundation on black cotton soil	0	0	1.93	0	2.9	1.93	0	0	0	0	0	0	0.97	0	0
301009.5	Prioritize and suggest geosynthetic- reinforced soil structures	0	1.93	1.29	1.29	1.93	0	0	0	0	0	0	0	0.64	0	0
301009.6	Adapt effect of earthquake techniques on structures	0	0	5.79	0	0	0	0	0	0	0	0	0	0	0	0
	Avg PO attainment.	1.13	0.51	2.73	0.86	2.41	0.32	0	0	0	0	0	0	2.35	0.97	0.97




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301010	Structural Design-II	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
301010.1	Compare the design philosophies – WSM, ULM, and LSM	2.7	1.73	1	0	1	1	1	0	0	0	0	0	0.86	1	1
301010.2	Compute the moment of resistance of rectangular / flanged section by WSM and LSM	2.9	2.1	1	0	1	1	1	0	0	0	0	0	0.1	0.12	0.12
301010.3	Examine or Select the cross section for slabs, beam, column and foundation conforming to IS 456:2000	1.73	1.73	0.67	0	0.67	0.67	0.67	0	0	0	0	0	0.67	0.67	0.67
301010.4	Design the G+2 storey residential/commercial/public building conforming to IS 456:2000	3	2	1	0	1	1	1	0	0	0	0	0	0.6	1	1
	Avg PO attainment.	2.12	1.99	1.58	0	1.58	1.06	2.11	0	0	0	0	0	2.99	1.79	1.79
301011	Environmental Engineering-I	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
301011.1	To explain the source, control and effect of air and noise pollution	2.1	0	0	0	0	2.1	1.05	0	0	0	0	0	0	0	0
301011.2	To describe the fundamentals of water treatment units and parts of water supply system.	2.1	0	0	0	0	1.05	0	0	0	0	0	0	0	0	0
301011.3	To explain and design of Water treatment units	1.4	0	0	0	0	1.4	0.7	0.7	0	0	0	0	0.7	0.7	0.7
301011.4	To describe the fundamentals of coagulation, flocculation and filtration in water supply system.	0	1.05	1.05	0	0	2.1	2.1	0	1.05	0	0	0	0.73	2.1	2.1
301011.5	Describe the Miscellaneous treatment systems for drinking water	0	0.7	0	0	0.7	1.4	1.4	0	0.7	0	0	0	0.6	0.7	0.7
301011.6	Demonstrate water distribution system, rain water harvesting and PWTP	0	1.05	0	0	1.05	0	1.05	0	2.1	1.05	1.05	1.05	0.3	0	0
	Avg PO attainment.	0.93	0.56	0.26	0	0.44	1.34	2.1	0.14	0.64	0.21	0.21	0.18	2.33	1.75	1.75





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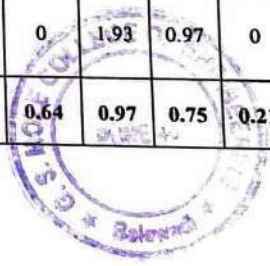
Semester - VII


401001 Environmental Engineering-II		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
401001.1	Explain the quality and characteristics of sewage and the concept of stream sanitation.	1.9	0	4.2	0	0	3	0	3	0	0	0	1.4	0	0	0
401001.2	Describe the sewage treatment processes with the design of screen chamber, grit chamber, and primary sedimentation tank.	0.9	2.8	0	1.9	0	0	0	0	2.8	1.8	0	0.9	0.9	0	0
401001.3	Describe and design the secondary treatment units with special emphasis on activated sludge process and trickling filter.	0.9	0.9	2	0	1.8	0	0	0	2.8	1.8	0.93	0.9	0	0	0
401001.4	Explain low cost treatment methods with the design of oxidation pond, aerated lagoon.	0.9	0.9	2	0	1.8	0	0	0	2.8	1.8	0	0.9	0.9	0	0
401001.5	Describe anaerobic treatment processes as anaerobic digester, up flow anaerobic sludge blanket and they also able to design septic tank.	2.8	0.93	1.9	0	1.9	1.9	0	0	0.9	1.8	0	0.9	0	0	0
401001.6	Explain the characteristics and the treatment process of industrial wastewater of sugar, dairy and distillery industry.	0	1.4	1.4	0	0	1.9	0	0	0.9		0	0.9	0.9	0	0
Avg PO attainment.		1.23	1.16	1.92	0.32	0.92	1.13	0	0.5	1.7	1.2	0.16	0.98	0.45	0	0
401002 Transportation Engineering		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
401002.1	Interpretation and study of rural road development vision and on-going road development projects.	3.18	1.06	1.06	2.12	2.12	2.12	2.12	1.06	1.06	1.06	1.06	1.06	0.63	1.06	1.06
401002.2	Evaluate Geometric design of highways.	3.18	1.96	3.12	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	0.2	1.06	1.06
401002.3	Categorizing road traffic regulation and control devices.	2.12	2.12	2.12	1.41	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71
401002.4	Experimenting and Validating Pavement materials suitability in mix-design.	1.12	2.12	1.41	0.71	0.71	0.71	1.41	0.71	0.71	0.71	0.71	0.71	0.1	0.71	0.71
401002.5	Design of pavement using IS Code and IRC guidelines.	2.12	2.12	1.41	0.71	0.71	0.71	1.41	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71
401002.6	Adapting the Modern Trends in Pavement Construction.	3.18	2.12	2.12	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	0.1	1.06	1.06
Avg PO attainment.		2.48	2.3	2.81	2.36	1.59	1.06	2.59	1.06	0.88	1.06	1.06	0.88	2.44	2.65	2.65




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401003	Structural Design-III	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
401003.1	Compute the stresses and losses in PSC Structures	2.85	1.9	2.85	1.9	1.9	0	1.9	0	1.9	1.9	1.9	0	1.9	0.95	0.95
401003.2	Designing of PSC rectangular and flanged beams with end block, one way and 2 way post tensioned slabs conforming to IS: 1343:2012	2.85	1.9	1.9	1.9	1.9	0	1.9	0	1.9	1.9	1.9	0	0	0.95	0.95
401003.3	Designing of PT flat slab conforming to IS:456-2000, IS: 1343:2012	1.9	1.9	1.9	1.27	1.27	0	1.27	0	0.63	0	0.63	0	0	0	0
401003.4	Analysis and design of RCC cantilever T and L shape retaining walls conforming to IS 456:2000	1.27	1.27	1.27	0	0	0	0	0	0.63	0	0	0	0	1.27	1.27
401003.5	Analyze and Design Liquid Retaining Structures resting on ground conforming to IS:3370-2009	1.27	1.27	0.63	0	0	0	0	0	0	0	0	0	0	0	0
401003.6	Derive the equations of motion for free, forced, un-damped and damped vibrations. Estimate the EQ forces by seismic coefficient method conforming to IS 1893:2002	1.9	1.9	2.85	0.95	1.9	0	0.95	0	1.9	0	1.9	0	0	0	0
	Avg PO attainment.	2.01	2.03	2.85	2.01	1.74	0	2.01	0	1.16	0.76	1.27	0	1.9	1.58	1.58
401005	IWRPM	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
401005.1	An ability to apply different water recourses and full fill water demand & understand the water laws.	2.9	0	2.9	0	0	0.97	0	0	0	0	0	0.97	0	0	0
401005.2	An ability to do proper financing, estimation, planning all regarding water recourses. An understand of fundamentals of blue water, green water and virtual water and their roles in water resource engineering.	0.97	2.9	0	1.93	0	0	0	0	2.9	1.93	0	0.97	0.97	0	0
401005.3	An understanding of recycling, reuse and storage of water.	1.29	1.29	0.64	0	1.29	0	0	0.64	1.29	0.64	0.64	1.29	0	0	0
401005.4	Students development regarding water demand and supply schemes.	0	0	0	0	0	1.29	0.64	1.29	0.64	0.64	0	0.64	0.64	0	0
401005.5	Development of social aspect in each and every student regarding water recourse and its development.	1.93	0.64	1.29	0	0.64	1.29	0	0	0.64	0.64	0	0.64	0	0	0
401005.6	An ability of students to choose plan and developed watershed and application of RS,GIS and other data driven techniques.	0	0.97	0.97	0	1.93	0.97	0	0	0.97	0	0	0.97	0.97	0	0
	Avg PO attainment.	1.18	1.16	1.45	0.64	0.97	0.75	0.21	0.39	1.07	0.77	0.13	0.91	2.57	0	0




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401005	Elective-II -TQM MIS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
401005.1	Recognise quality & contribution of quality gurus.	2.73	0	1.93	1.1	1.1	0	0	0	0	0	0	0	0.73	0.1	0.1
401005.2	Relate the functioning and application of TQM & Six Sigma	1.75	2	2	1.2	1.3	0	0	0	0	0	0	0	1.73	0.73	0.73
401005.3	Implement ISO 9001 principles in preparation of quality manual	1.75	0	2	1.1	1.1	0	0	0	0	0	0	2	0.33	2	2
401005.4	Construct & apply management control & certification systems.	2	1.6	1.8	1.1	1.8	0	0	0	0	2	0	0	2	0	0
401005.5	Execute TQM Implementation and various Quality Awards	2	1.73	1.93	1.93	1.93	0	0	0	0	0	0	0	0	0.7	0.7
401005.6	Justify MIS & its application in construction sector.	3	1.73	2	1.9	1.9	0	0	0	0	0	0	0	0.33	0	0
	Avg PO attainment.	2.21	1.41	2.92	2.78	2.28	0	0	0	0	0.4	0	0.33	1.22	1.77	1.77

Semester - VIII

401007	Dams & hydraulic Structures	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
401007.1	Differentiate the types of dams and explain the importance of instrumentation for safety of dams	2.1	2.4	0	2.4	0	0	0	0	0	0	0	0	1.2	0	0
401007.2	Analyze the Stability of gravity dam and describe the Concept of Arch Dam	2.4	3.6	2.4	3.6	0	0	0	0	0	0	0	0	0	0	0
401007.3	Design the spillways with appropriate given data and explain the concept of Spillway gates	2.4	1.6	2.4	2.4	0	0	0	0	0	0	0	0	0	0.8	0.8
401007.4	Explain the types Earthen dam ,failures and Diversion head works.	3.6	2.4	3.6	3.6	0	0	0	0	0	0	0	0	1.2	0	0
401007.5	Describe and use of the canal lining and canal structures.	3.6	2.63	2.1	2.1	0	0	0	0	0	0	0	0	1.2	0	0
401007.6	Explain the importance of River training works and CD works.	0.8	2.4	0	2.4	0	0	0	0	0	0	0	0	0.8	0	0
	Avg PO attainment.	2.48	2.51	1.75	2.75	0	0	0	0	0	0	0	0	0.73	0.4	0.4



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401008	Quantity Surveying contracts & Tenders	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
401008.1	Choose the appropriate principles of computations related to quantity surveying.	3.15	3.15	1.05	0	1.05	1.05	1.05	0	0	0	0	0	1.05	1.05	1.05
401008.2	Formulate the detail estimates and bill of quantities for various civil engineering projects.	3.15	3.15	1.05	0	1.05	1.05	1.05	0	0	0	0	0	1.05	1.05	1.05
401008.3	Excercise computer software for schedule of rates and specifications	2.1	2.1	0.7	0	1.4	0.7	0.7	0	0	0	0	0	1.4	0.7	0.7
401008.4	Analyses the rates and prepare valuation report.	3.15	3.15	1.05	0	1.05	1.05	1.05	0	0	0	0	0	1.05	1.05	1.05
401008.5	Draft tender and work execution processes.	3.15	3.15	1.05	0	1.05	2.1	1.05	0	0	0	0	0	1.05	1.05	1.05
401008.6	Apply the skill to defend a contract by knowing arbitration laws.	3.15	3.15	1.05	0	1.05	1.05	1.05	0	0	0	0	0	1.05	1.05	1.05
	Avg PO attainment.	2.98	2.98	0.99	0	1.66	1.17	1.98	0	0	0	0	0	1.11	2.98	2.98
401009	Air Pollution & Control	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
401009.1	Explore the meteorological aspects, Gaussian model and Emission inventory.	3.6	3.6	0	0	3.6	0	0	0	0	0	0	0	0	0	0
401009.2	Classify and analyze Air sampling methods.	3.6	3.6	3.6	0	0	0	0	0	0	0	0	0	0	0	0
401009.3	Select methods for control and prevention of air pollution.	1.6	2.4	0.8	0	0	0	0	0	0	0	0	0	0	0	0
401009.4	Design of air pollution control equipment's.	2.4	2.4	2.4	0	0	0	0	0	0	0	0	0	1.2	0	0
401009.5	Discuss Air Pollution prevention and control Act.	2.4	3.6	3.6	2.4	3.6	0	0	0	0	0	0	0	0	0	0
401009.6	Explore the Environmental impact assessment and management.	2.4	2.4	3.6	3.6	3.6	0	0	1.2	0	0	0	0	1.2	0	0
	Avg PO attainment.	2.67	3	2.33	1	2.7	0	0	0.24	0	0	0	0	0.4	0	0




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401010	Construction Management	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
401010.1	Appraise the basic concepts of construction management such as types and functions of management, project participants and reporting system	3.15	3.15	1.05	0	1.05	1.05	1.05	0	0	0	0	0	1.05	1.05	1.05
401010.2	Evaluate the progress of projects by using WBS breakdown Structure (WBS) and line of balance technique.	3.15	3.15	1.05	0	1.05	1.05	1.05	0	0	0	0	0	1.05	1.05	1.05
401010.4	Implement the labour laws and various financial aspects for smooth functioning of project	2.1	2.1	0.7	0	1.4	0.7	0.7	0	0	0	0	0	1.4	0.7	0.7
401010.4	Apply the risk management and value analysis models	3.15	3.15	1.05	0	1.05	1.05	1.05	0	0	0	0	0	1.05	1.05	1.05
401011.5	Apply material management and HR management techniques	3.15	3.15	1.05	0	1.05	2.1	1.05	0	0	0	0	0	1.05	1.05	1.05
401011.6	Recognize the importance and application of artificial intelligence technique	3.15	3.15	1.05	0	1.05	1.05	1.05	0	0	0	0	0	1.05	1.05	1.05
	Avg PO attainment.	2.98	2.98	0.99	0	1.66	1.17	1.98	0	0	0	0	0	1.11	2.98	2.98

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401010	Construction Management	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
401010.1	Appraise the basic concepts of construction management such as types and functions of management, project participants and reporting system	3.15	3.15	1.05	0	1.05	1.05	1.05	0	0	0	0	0	1.05	1.05	1.05
401010.2	Evaluate the progress of projects by using WBS breakdown Structure (WBS) and line of balance technique.	3.15	3.15	1.05	0	1.05	1.05	1.05	0	0	0	0	0	1.05	1.05	1.05
401010.4	Implement the labour laws and various financial aspects for smooth functioning of project	2.1	2.1	0.7	0	1.4	0.7	0.7	0	0	0	0	0	1.4	0.7	0.7
401010.4	Apply the risk management and value analysis models	3.15	3.15	1.05	0	1.05	1.05	1.05	0	0	0	0	0	1.05	1.05	1.05
401011.5	Apply material management and HR management techniques	3.15	3.15	1.05	0	1.05	2.1	1.05	0	0	0	0	0	1.05	1.05	1.05
401011.6	Recognize the importance and application of artificial intelligence technique	3.15	3.15	1.05	0	1.05	1.05	1.05	0	0	0	0	0	1.05	1.05	1.05
	Avg PO attainment.	2.98	2.98	0.99	0	1.66	1.17	1.98	0	0	0	0	0	1.11	2.98	2.98

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GENBA SOPANRAO MOZE COLLEGE OF ENGINEERING Balewadi, Pune - 411045.

Civil Engineering Department

Academic Year 2020-21

Semester - III

Course Code	Name of Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
201001	Building Technology and Architectural Planning															
201001.1	Identify types of building and basic requirements of building components.	3.15	2.1	3.15	2.1	2.1	0	2.1	0	2.1	2.1	2.1	0	2.1	1.05	1.05
201001.2	Make use of Architectural Principles and Building byelaws for building construction	3.15	2.1	2.1	2.1	2.1	0	2.1	0	2.1	2.1	2.1	0	0	1.05	1.05
201001.3	Plan effectively various types of Residential Building forms according to their utility, functions with reference to National Building Code.	2.1	2.1	2.1	1.4	1.4	0	1.4	0	0.7	0	0.7	0	0	0	0
201001.4	Plan effectively various types of Public Buildings according to their utility functions with reference to National Building Code	1.4	1.4	1.4	0	0	0	0	0	0.7	0	0	0	0	1.4	1.4
201001.5	Make use of Principles of Planning in Town Planning, Different Villages and Safety aspects	1.4	1.4	0.7	0	0	0	0	0	0	0	0	0	0	0	0
201001.6	Understand different services and safety aspects	2.1	2.1	3.15	1.05	2.1	0	1.05	0	2.1	0	2.1	0	0	0	0
	Avg PO attainment.	2.22	2.24	3.15	2.22	1.93	0	2.22	0	1.28	0.84	1.4	0	2.1	1.75	1.75
201002	Mechanics of structure															
201002.1	Understand concept of stress-strain and determine different types of stress, strain in determinate, indeterminate homogeneous and composite structures.	5.7	5.7	0	0	3.8	1.9	0	0	0	0	0	0	1.9	1.9	1.9
201002.2	Calculate shear force and bending moment in determinate beams for different loading conditions and illustrate shear force and bending moment diagram.	2.85	2.85	2.85	0	0.95	0.95	0	0	0	0	0	0	2.85	0.95	0.95
201002.3	Explain the concept of shear and bending stresses in beams and demonstrate shear and bending stress distribution diagram.	1.9	1.9	1.9	0	0.63	0.63	0	0	0	0	0	0	1.9	0	0
201002.4	Use theory of torsion to determine the stresses in circular shaft and understand concept of Principal stresses and strains.	1.9	1.27	0	0	1.27	1.9	0	0	0	0	0	0	0	0.63	0.63
201002.5	Analyze axially loaded and eccentrically loaded column.	1.9	1.27	0	0	1.27	1.27	0	0	0	0	0	0	0	0.63	0.63
201002.6	Determine the slopes and deflection of determinate beams and trusses.	2.85	1.9	0	0	1.9	1.9	0	0	0	0	0	0	0.95	0.95	0.95
	Avg PO attainment.	2.85	2.98	1.19	0	2.45	1.43	0	0	0	0	0	0	7.6	2.53	2.53

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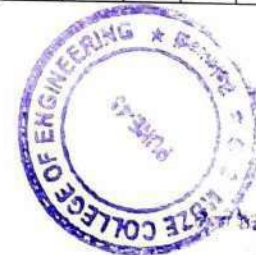
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207001	Engineering Mathematics III	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
207001.1	Solve Higher order linear differential equations and its applications to modeling and analyzing Civil engineering problems such as bending of beams, whirling of shafts and mass spring systems.	1.73	0.86	0	0.86	0	0	0	0	0	0	0	0	1	0	0
207001.2	Solve System of linear equations using direct & iterative numerical techniques and develop solutions for ordinary differential equations using single step & multistep methods applied to hydraulics, geotechnics and structural systems. (BT-3)	2	2	0	1	0	0	0	0	0	0	0	0	2	0	0
207001.3	Apply Statistical methods like correlation, regression and probability theory in data analysis and predictions in civil engineering.	2.2	1.46	1.46	0.73	0	0	0	0	0	0	0	0	2	0	0
207001.4	Perform Vector differentiation & integration, analyze the vector fields and apply to fluid flow problems.	2.6	1.73	1.73	1	0	0	0	0	0	0	0	0	2	2	2
207001.5	Solve Partial differential equations such as wave equation, one and two dimensional heat flow equations.	2.6	1.73	2	0.86	0	0	0	0	0	0	0	0	1	2	2
207003.6	Analyze conformal mappings, transformations and perform contour integration of complex functions required in Image processing, Digital filters and Computer graphics.	2	2	1.73	0.86	0	0	0	0	0	0	0	0	1	1	1
	Avg PO attainment.	2	1.96	1.73	1.33	0	0	0	0	0	0	0	0	1.5	0.83	0.83
201003	Fluid Mechanics	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
201003.1	Understand the use of Fluid Properties, concept of Fluid statics, basic equation of Hydrostatics, measurement of fluid pressure, buoyancy & floatation and its application for solving practical problems.	1.73	0.86	0	0.86	0	0.86	0	0	0	0	0	0	2	0	0
201003.2	Understand the concept of fluid kinematics with reference to Continuity equation and fluid dynamics with reference to Modified Bernoulli's equation and its application to practical problems of fluid flow	1.73	2	0	1	0	1	0	0	0	0	0	0	1	0	0
201003.3	Understand the concept of Dimensional analysis using Buckingham's π theorem, Similarity & Model Laws and boundary layer theory and apply it for solving practical problems of fluid flow.	2.2	1.46	1.46	0.73	0	0.73	0	0	0	0	0	0	1	0	0
201003.4	Understand the concept of laminar and turbulent flow and flow through pipes and its application to determine major and minor losses and analyze pipe network using Hardy Cross method.	2.6	1.84	1.73	0.86	0	2.1	0	0	0	0	0	0	0	1	1
201003.5	Understand the concept of open channel flow, uniform flow and depth-Energy relationships in open channel flow and make the use of Chezy's and Manning's formulae for uniform flow computation and design of most economical channel section.	2.6	1.84	1.46	0.9	0	0.86	0	0	0	0	0	0	0	1	1
201003.6	Understand the concept of gradually varied flow in open channel and fluid flow around submerged objects, compute GVF profile and calculate drag and lift force on fully submerged body.	1.73	1.84	1.73	0.86	0	0.86	0	0	0	0	0	0	1	0	0
	Avg PO attainment.	2.1	1.97	1.6	1.3	0	1.07	0	0	0	0	0	0	0.83	0.33	0.33



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207009	Engineering Geology	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
207009.1	Explain about the basic concepts of engineering geology, various rocks, and minerals both in lab and on the fields and their inherent characteristics and their uses in civil engineering constructions	1.73	1.73	1.73	0.86	0.86	0.86	1.73	0	0	0.86	0	0.86	0.1	0.1	0.1
207009.2	Exploring the importance of mass wasting processes and various tectonic processes that hampers the design of civil engineering projects and its implications on environment and sustainability	0.86	0.86	0.86	0.86	0.86	1	1.73	0.1	0	0.86	0	0.86	0.1	0.1	0.1
207009.3	Recognize effect of plate tectonics, structural geology and their significance and utility in civil engineering activities	2.2	1.46	1.46	0.73	0.86	0.73	1.73	0.1	0	0.86	0	0.86	0.1	0.1	0.1
207009.4	Incorporate the various methods of survey, to evaluate and interpret geological nature of the rocks present at the foundations of the dams, percolation tanks, tunnels and to infer site alignment/ level free from geological defects/	2.5	1.65	1.8	0.86	0.86	1.95	1.83	0.1	0	0.86	0	0.86	0.1	0.1	0.1
207009.5	Assess the Importance of geological nature of the site, precautions and treatments to improve the site conditions for dams, reservoirs, and tunnels	2.6	1.73	1.73	0.86	0.86	0.86	1.73	0	0	0.86	0	0	0.1	0.1	0.1
207009.6	Explain geological hazards and importance of ground water and uses of common building stones.	1.73	1.73	1.73	0.86	0.86	0.86	0.86	0	0	0.86	0	0	0.1	0.1	0.1
	Avg PO attainment.	1.94	1.83	2.33	1.26	1.29	1.04	3.2	0.06	0	0.86	0	0.57	0.1	0.1	0.1
Semester - IV																
201008	Geotechnical Engineering	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
201008.1	Identify and classify the soil based on the index properties and its formation process.	1.73	1.73	1.73	0.86	0	0	0	0	0	0	0	0	0.86	0	0
201008.2	Explain permeability and seepage analysis of soil by construction of flow net.	0.86	0.86	0.86	0.63	0	0	0	0	0.83	0	0	0	0.86	0	0
201008.3	Illustrate the effect of compaction on soil and understand the basics of stress distribution.	2.6	1.46	1.35	0.73	0	0.73	0	0	0	0	0.83	0	1.73	0	0
201008.4	Express shear strength of soil and its measurement under various drainage conditions.	2.6	1.22	1.73	0.86	0	0	0	0	0	0	0	0	0.86	0	0
201008.5	Evaluate the earth pressure due to backfill on retaining structures by using different theories.	2.6	1.73	1.73	0.86	0	0	0	0	0	0	0	0	0.86	0	0
201008.6	Analysis of stability of slopes for different types of soils.	1.73	1.4	1.85	0.99	0	0.12	0	0	0.14	0	0.14	0	0.86	0	0
	Avg PO attainment.	1.94	1.83	2.33	1.26	1.29	1.04	3.2	0.06	0	0.86	0	0.57	0.1	0	0




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201009	Survey	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
201009.1	Define and Explain basics of plane surveying and differentiate the instruments used for it.	1.73	1.73	1.73	0.86	0.86	0.86	1.73	0.86		0.86	1.73	1.73	1.73	1.73	1.73
201009.2	Express proficiency in handling surveying equipment and analyze the surveying data from this equipment.	0.86	0.86	0.86	0.86	0.86	0.9	1.73	0.1	0.92	0.92	1.73	1.73	1.73	1.73	1.73
201009.3	Describe different methods of surveying and find relative positions of points on the surface of earth	1.73	1.46	1.46	0.73	0.86	0.73	1.73	0.1	0.92	0.86	0.86	0.86	0.86	0.86	0.86
201009.4	Execute curve setting for civil engineering projects such as roads, railways etc.	2.6	1.73	1.73	0.86	0.86	1.33	1.73	0.1	0.86	0.86	0.86	1.73	1.73	1.73	1.73
201009.5	Articulate advancements in surveying such as space-based positioning systems.	2.6	1.7	1.73	0.86	0.86	0.86	0.83	0.1	0.86	0.86	0.86	1.73	1.73	1.73	1.73
201009.6	Differentiate map and aerial photographs, also interpret aerial photographs	2.6	1.7	1.73	0.86	0.86	0.86	0.83	0.1	0.86	0.86	0.86	1.73	1.73	1.73	1.73
	Avg PO attainment.	1.88	1.84	2.31	1.26	1.29	0.92	2.58	0.25	0.59	0.87	0.72	0.87	0.29	0.02	0.02
201010	Concrete Technology	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
201010.1	Understand chemistry, properties, and classification of cement, fly ash, aggregates and admixtures, and hydration of cement in concrete.	4.2	1.4	2.8	2.8	4.2	3	2.8	3	0	0	0	2.8	1.4	1.4	1.4
201010.2	Develop the skills to Prepare and test the fresh concrete	1.7	1.8	2.8	0	1.8	1.8	0	0	0	0	0	0	0.93	0	0
201010.3	Recognize hardened concrete with destructive and nondestructive testing instruments	1.73	1.73	2	0	1.7	1.7	0	0	0	0	0	0		0	0
201010.4	Design concrete mix of desired grade.	1.73	0.9	2	0	1.8	1.8	0	0	0	0	0	0	0.93	0	0
201010.5	Explain the skill of concrete handling equipment's and understand different special concrete types.	1.4	2.8	2.8	0	0	0	0	0	0	0	0	0		0	0
201010.6	Discuss deteriorations in concrete and repair it with appropriate methods and techniques.	1.4	2.8	2.8	0	0	0	0	0		0	0	0		1.4	1.4
	Avg PO attainment.	2.03	1.91	2.53	0.47	1.58	1.38	0.47	0.5	0	0	0	0.47	0.54	0.47	0.47



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201011	Structural Analysis	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
201011.1	Understand the basic concept of static and kinematic indeterminacy and analysis of Indeterminate beam	1.73	1.73	1.73	1.73	0	0.86	0	0	0	0	0	0	0.2	0	0
201011.2	Analyze redundant trusses and able to perform approximate analysis of multi-story multi-bay frames	0.86	0.86	1.73	1.73	0	1	0	0	0	0	0	0	0	0	0
201011.3	Implement application of the slope deflection method to beams and portal frames.	2.3	1.46	1.46	1.73	0	0.73	0	0	0	0	0	0	0	0.83	0.83
201011.4	Analyze beams and portal frames using moment distribution method.	2.6	1.84	1.84	1.82	0	1.84	0	0	0	0	0	0	1.82		
201011.5	Determine response of beams and portal frames using structure approach of stiffness matrix method	2.6	1.73	1.73	1.73	0	0.86	0	0		0	0	0	1.73		
201011.6	Apply the concepts of plastic analysis in the analysis of steel structures.	1.73	1.73	1.73	1.73		0.86	0	0	0	0	0	0	1.73		
	Avg PO attainment.	1.97	1.87	2.56	2.62	0	1.03	0	0	0	0	0	0	0.91	0.14	0.14
201012	Project management	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
201012.1	Describe project life cycle and the domains of Project Management Describe project life cycle and the domains of Project Management	1.73	4.2	4.2	0	1.1	0	0	0	0	0	0	0	0	0	0
201012.2	Explain networking methods and their applications in planning and management	0.1	2.1	4.2	0	1.1	0.1	0	0	0	0	0	0	0	0	0
201012.3	Categorize the materials as per their annual usage and also Calculate production rate of construction equipment	0.7	1.4	4.2	0	2.1	0	0.1	0	0	0	0	0	0.1	0	0
201012.4	Demonstrates resource allocation techniques and apply it for manpower planning.	0.1	1.73	2.1	0	1.1	0	0	0	0	0	0	0	0	0	0
201012.5	Understand economical terms and different laws associated with project management	0.1	2.1	1.93	0	1.4	4.2	0	0	0	0	0	0	0	0	0
201012.6	Apply the methods of project selection and recommend the best economical project	0	0	2.1	0	0.1	0	0	2.1	0	0	0	0	0	0	0
	Avg PO attainment.	0.46	2.31	4.68	0	1.73	0.72	0.03	0.42	0	0	0	0	0.1	0	0



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Semester - V

Course Code	Name of Course																
301001	Hydrology & Water Resource Engineering	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	
301001.1	Estimating missing rainfall data	2.6	1.73	1.73	1.73	1.73	0	0	0	0	0	0	0	1.73	1.6	1.6	
301001.2	Compute water requirement of crops	0.86	0.86	1.73	1.84	2.6	0	0	0	0	0	0	0	0	1.67	1.67	
301001.3	Recognize various ground water distribution systems	2.2	1.34	1.46	1.73	2.6	0	0	0	0	0	0	0	0	0.83	0.83	
301001.4	Identify the concepts of hydrographs	2.6	1.73	1.65	1.6	1.62	0	0	0	0	0	0	0	1.73	2.6	2.6	
301001.5	Describe/Apply the flood routing techniques to find flood frequency	2.6	1.73	1.73	1.73	1.84	0	0	0	0	0	0	0	1.73	1.73	1.73	
301001.6	Discuss water management, water logging & drainage concepts.	1.63	1.73	1.73	1.73	0	0	0	0	0	0	0	0.1	1.73	1.73	1.73	
	Avg PO attainment.	2.08	1.82	2.51	2.59	2.6	0	0	0	0	0	0	0.02	1.15	1.69	1.69	
301002	Infrastructure Engineering and Construction Techniques	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	
301002.2	Describe the meaning and importance of Infrastructure Engineering	2.1	0.67	2.1	0	0.86	0	0	1.4	0	0	0	2.1	3.15	0.1	0.1	
301002.3	Classify railway systems and to select appropriate construction techniques	2.1	2.1	1.9	0	2.1	0	0	1.73	0.2	0	0	2.1	2.1	2.1	2.1	
301002.3	Interpret construction techniques	1.4	0	1.4	0		0	0	1.73	0	0	0	0.7	0.7	0	0	
301002.4	Differentiate tunneling and its construction techniques	1.9	0	0	0		0	0	1.73	0	0	0	2.1	0			
301002.5	Compare docks and harbours along with their importance	0.7	0	0	0	0.7	0	0	1.73	0	0	0	0.7	0.7	0	0	
301002.6	Appraise various construction equipment's in Civil Engineering	2.1	0	0	0	0	0	0	1.73	0	0	0	0	0	0.1	0.1	
	Avg PO attainment.	1.6	1.39	2.2		1.2	0	0	1.14	1.14	0	0	1.28	6.65	2.1	2.1	



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301003		Structural Design-I														
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
301003.1	Identify various limit states, load combinations, material properties, types of section, safety factors from IS:800-2007. Designing of tension member in steel structures	2.9	2	1.1	2.2	2.2	1.1	0	0	0	0	0	1.1	1.5	1.1	1.1
301003.2	Analyse and design various Compression members in steel Structure.	2.6	2.5	2.2	1.1	0	0	0	0	1.1	2.2	0	1.5	0	1.1	1.1
301003.3	Designing of various column bases in steel Structure.	2.2	1.47	2.2	0.73	1.47	0.73	0	0.73	0.73	0.73	0.73	0.73	0	0.73	0.73
301003.4	Analyse and design a flexural member and beam to column connections	2.2	2.97	0	1.1	0	1.1	1.1	2.2	1.1	1.1	0	1.1	1.1	0	0
301003.5	Designing of Welded plate girder	1.47	1.47	1.47	0.73	0.73	0.73	0.73	1.47	0.73	0.63	0	0.73	0	0.73	0.73
301003.6	Analyse and design a Steel Truss and a Gantry Girder	2.2	1.1	1.1	1.1	2.2	1.1	1.1	1.1	1.1	0	0	1.1	0	0	0
	Avg PO attainment.	2.26	2.3	2.02	2.32	1.65	0.79	0.98	1.1	0.79	0.93	0.15	1.04	2.6	1.83	1.83
301004		Structural Analysis-II														
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
301004.1	Analyse the indetermiant beams and frames by Slope Deflection method	2.88	0	1.92	0	1.92	0.96	0	0.96	0	0	0.96	0	0.96	0.96	0.96
301004.2	Construct moment diagrams for indetermiant beams and frames by Moment Distribution method	1.92	0	1.92	0	0.64	0	0	0.64	0	0	0.64	0	1.28	0.64	0.64
301004.3	Determine stress resultants in the indetermiant beams and frames by Flexibility method	0	2.66	1.92	0.96	0	0.96	0	0.96	0	0	0.96	0	0	0	0
301004.4	Analyse the indetermiant beams and frames by Stiffness method	0	5.76	1.92	3.84	0	2.3	0	1.83	0	0	1.92	0	0	0	0
301004.5	Construct BMD in highly indeterminate frames using cantilever and portal frame method. Determine slope and deflection in determinate beams approximately using Finite Difference Method	3.84	1.92	0.83	0	2.98	2.3	0	0	0	0	1.83	0	1.82	0	0
301004.6	Apply basic concepts of finite element method to solve elementary problems	2.78	0	0	0	0.96	0	0	0	0	0	0.96	0	0.96	0.96	0.96
	Avg PO attainment.	1.9	2.07	2.13	1.6	1.63	1.09	0	0.88	0	0	1.45	0	5.02	1.28	1.28



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301005	Fluid Mechanics -II	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
301005.1	Describe fluid flow around submerged objects and classify the unsteady flow	2.3	2	1.1	0	0	0	0	0	0	2.2	0	1.1	0.83	0.6	0.6
301005.2	Discuss open channel flow and derive depth energy relationship	3.3	3.3	2.2	2.2	1.1	0	0	0	0	2.2	0	2.2	0.1	0.83	0.83
301005.3	Design the most economical channel section, demonstrate hydraulic jump	2.2	2.2	2.2	0.73	0.73	0	0	0	0	1.47	0	1.47	0.73	0.73	0.73
301005.4	Understand the concept impact of jet, study of centrifugal pumps	3.3	2.2	2.2	2.2	1.1	0	0	0	0	1.83	0	1.93	0.33	0.82	0.82
301005.5	Understand, analyse and design various types of Turbines.	2.2	2.2	1.47	1.47	0.73	0	0	0	0	1.47	0	1.47	0.2	1.47	1.47
301005.6	Recognize and compute the GVF profiles by various methods	2.2	2.2	0	0	0	0	0	0	0	2.2	0	1.1	0.1	1.1	1.1
	Avg PO attainment.	2.58	2.82	2.29	2.2	0.92	0	0	0	0	2.27	0	1.54	2.29	2.78	2.78

Semester - VI

301007	Advanced Surveying	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
301007.1	Perform Geodetic Survey and understand the GNSS and triangulation survey.	2.1	0.67	2.1	1.05	0	1.05	0	0	0	3.15	2.1	2.1	3.15	0	0
301007.2	Explain the concept of hydrographic surveying	2.1	2.1	2.1	1.05	2.1	2.1	0	0	0	3.15	2.1	2.1	2.1	2.1	2.1
301007.3	Relate the concept of modern surveying techniques and their applications in various field of Civil Engineering.	1.4	1.4	1.4	0	0.7	0.7	0	0	0	1.4	0.7	0.7	0.7	0	0
301007.4	Solve to adjust geodetic traverse and understand laws of weights	2.1	1.05	2.1	2.1	1.05	0	0	0	0	2.1	1.05	2.1	0	2.1	2.1
301007.5	Interpret aerial photography data to study terrain.	0.7	0.7	1.4	1.4	0.7	0.7	0	0	0	1.4	0.7	0.7	0.7	0	0
301007.6	Calculate the relative altitudes and distances of different points on ground.	2.1	1.05	1.05	1.05	0	2.1	0	0	0	1.05	0	0	0	0	0
	Avg PO attainment.	1.75	1.39	2.54	2.22	1.14	1.11	0	0	0	2.45	1.33	1.28	6.65	2.1	2.1




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301008	Project Management Engineering Economics	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
301008.1	Understand the project planning & scheduling.	1.9	1.33	2.85	0	0	0	0	0	0	0	0	0	0.95	0.95	0.95
301008.2	Implement appropriate resources at right time in project.	1.9	0.95	2.85	0	1.9	0	0	0	0	0	0	0	0	1.9	1.9
301008.3	Examine the Team work and its impact on project progression.	0.63	0.63	1.9	0	1.27	0	0	0	0	0	0	0	0	0	0
301008.4	Judge correct alternative in sells and purchase activities by understanding basics of engineering economics	0.95	0.95	2.85	0	1.9	0	0	0	0	0	0	0	0	0	0
301008.5	Defend Investment and its stages in suggesting resource allocation	0.63	1.27	1.27	0	0	0	0	0	0	0	0	0	0	0	0
301008.6	Summarize types of project appraisal and project reports	0.95	1.9	1.9	0	0	0	0	0	0	0	0	0	0	0	0
	Avg PO attainment.	1.16	1.41	3.4	0	1.27	0	0	0	0	0	0	0	0.95	1.43	1.43
301009	Foundation Engineering	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
301009.1	Complete site investigation program,including types,number,and location of boring	2.9	0	0	0	1.93	0	0	0	0	0	0	0	0.1	0	0
301009.2	Evaluate bearing capacity and settlement for both shallow and deep foundation	2.9	0	0	0	2.9	0	0	0	0	0	0	0	0	1.93	1.93
301009.3	Relate and study drilled piers and caisson.	1	0.64	1.93	1.29	0	0	0	0	0	0	0	0	0.64	0	0
301009.4	Select appropriate design principles of foundation on black cotton soil	0	0	1.93	0	2.9	1.93	0	0	0	0	0	0	0.97	0	0
301009.5	Priotize and suggest geosynthetic- reinforced soil structures	0	1.93	1.29	1.29	1.93	0	0	0	0	0	0	0	0.64	0	0
301009.6	Adapt effect of earthquake techniques on structures	0	0	5.79	0	0	0	0	0	0	0	0	0	0	0	0
	Avg PO attainment.	1.13	0.51	2.73	0.86	2.41	0.32	0	0	0	0	0	0	2.35	0.97	0.97



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301010	Structural Design-II	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
301010.1	Compare the design philosophies – WSM, ULM, and LSM	2.7	1.73	1	0	1	1	1	0	0	0	0	0	0.86	1	1
301010.2	Compute the moment of resistance of rectangular / flanged section by WSM and LSM	2.9	2.1	1	0	1	1	1	0	0	0	0	0	0.1	0.12	0.12
301010.3	Examine or Select the cross section for slabs, beam, column and foundation conforming to IS 456:2000	1.73	1.73	0.67	0	0.67	0.67	0.67	0	0	0	0	0	0.67	0.67	0.67
301010.4	Design the G+2 storey residential/commercial/public building conforming to IS 456:2000	3	2	1	0	1	1	1	0	0	0	0	0	0.6	1	1
	Avg PO attainment.	2.12	1.99	1.58	0	1.58	1.06	2.11	0	0	0	0	0	2.99	1.79	1.79
301011	Environmental Engineering-I	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
301011.1	To explain the source, control and effect of air and noise pollution	2.1	0	0	0	0	2.1	1.05	0	0	0	0	0	0	0	0
301011.2	To describe the fundamentals of water treatment units and parts of water supply system.	2.1	0	0	0	0	1.05	0	0	0	0	0	0	0	0	0
301011.3	To explain and design of Water treatment units	1.4	0	0	0	0	1.4	0.7	0.7	0	0	0	0	0.7	0.7	0.7
301011.4	To describe the fundamentals of coagulation, flocculation and filtration in water supply system.	0	1.05	1.05	0	0	2.1	2.1	0	1.05	0	0	0	0.73	2.1	2.1
301011.5	Describe the Miscellaneous treatment systems for drinking water	0	0.7	0	0	0.7	1.4	1.4	0	0.7	0	0	0	0.6	0.7	0.7
301011.6	Demonstrate water distribution system, rain water harvesting and PWTP	0	1.05	0	0	1.05	0	1.05	0	2.1	1.05	1.05	1.05	0.3	0	0
	Avg PO attainment.	0.93	0.56	0.26	0	0.44	1.34	2.1	0.14	0.64	0.21	0.21	0.18	2.33	1.75	1.75




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Semester - VII

401001	Environmental Engineering-I	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
401001.1	Explain the quality and characteristics of sewage and the concept of stream sanitation.	1.9	0	4.2	0	0	3	0	3	0	0	0	1.4	0	0	0
401001.2	Describe the sewage treatment processes with the design of screen chamber, grit chamber, and primary sedimentation tank.	0.9	2.8	0	1.9	0	0	0	0	2.8	1.8	0	0.9	0.9	0	0
401001.3	Describe and design the secondary treatment units with special emphasis on activated sludge process and trickling filter.	0.9	0.9	2	0	1.8	0	0	0	2.8	1.8	0.93	0.9	0	0	0
401001.4	Explain low cost treatment methods with the design of oxidation pond, aerated lagoon.	0.9	0.9	2	0	1.8	0	0	0	2.8	1.8	0	0.9	0.9	0	0
401001.5	Describe anaerobic treatment processes as anaerobic digester, up flow anaerobic sludge blanket and they also able to design septic tank.	2.8	0.93	1.9	0	1.9	1.9	0	0	0.9	1.8	0	0.9	0	0	0
401001.6	Explain the characteristics and the treatment process of industrial wastewater of sugar,dairy and distillery industry .	0	1.4	1.4	0	0	1.9	0	0	0.9		0	0.9	0.9	0	0
	Avg PO attainment.	1.23	1.16	1.92	0.32	0.92	1.13	0	0.5	1.7	1.2	0.16	0.98	0.45	0	0
401002	Transportation Engineering	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
401002.1	Interpretation and study of rural road development vision and on-going road development projects.	3.18	1.06	1.06	2.12	2.12	2.12	2.12	1.06	1.06	1.06	1.06	1.06	0.63	1.06	1.06
401002.2	Evaluate Geometric design of highways.	3.18	1.96	3.12	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	0.2	1.06	1.06
401002.3	Categorizing road traffic regulation and control devices.	2.12	2.12	2.12	1.41	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71
401002.4	Experimenting and Validating Pavement materials suitability in mix-design.	1.12	2.12	1.41	0.71	0.71	0.71	1.41	0.71	0.71	0.71	0.71	0.71	0.1	0.71	0.71
401002.5	Design of pavement using IS Code and IRC guidelines.	2.12	2.12	1.41	0.71	0.71	0.71	1.41	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71
401002.6	Adapting the Modern Trends in Pavement Construction.	3.18	2.12	2.12	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	0.1	1.06	1.06
	Avg PO attainment.	2.48	2.3	2.81	2.36	1.59	1.06	2.59	1.06	0.88	1.06	1.06	0.88	2.44	2.65	2.65



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401003	Structural Design-III	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
401003.1	Compute the stresses and losses in PSC Structures	2.85	1.9	2.85	1.9	1.9	0	1.9	0	1.9	1.9	1.9	0	1.9	0.95	0.95
401003.2	Designing of PSC rectangular and flanged beams with end block, one way and 2 way post tensioned slabs conforming to IS: 1343:2012	2.85	1.9	1.9	1.9	1.9	0	1.9	0	1.9	1.9	1.9	0	0	0.95	0.95
401003.3	Designing of PT flat slab conforming to IS:456-2000, IS: 1343:2012	1.9	1.9	1.9	1.27	1.27	0	1.27	0	0.63	0	0.63	0	0	0	0
401003.4	Analysis and design of RCC cantilever T and L shape retaining walls conforming to IS 456:2000	1.27	1.27	1.27	0	0	0	0	0	0.63	0	0	0	0	1.27	1.27
401003.5	Analyze and Design Liquid Retaining Structures resting on ground conforming to IS:3370-2009	1.27	1.27	0.63	0	0	0	0	0	0	0	0	0	0	0	0
401003.6	Derive the equations of motion for free, forced, un-damped and damped vibrations. Estimate the EQ forces by seismic coefficient method conforming to IS 1893:2002	1.9	1.9	2.85	0.95	1.9	0	0.95	0	1.9	0	1.9	0	0	0	0
	Avg PO attainment.	2.01	2.03	2.85	2.01	1.74	0	2.01	0	1.16	0.76	1.27	0	1.9	1.58	1.58
401005	IWRPM	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
401005.1	An ability to apply different water recourses and full fill water demand & understand the water laws.	2.9	0	2.9	0	0	0.97	0	0	0	0	0	0.97	0	0	0
401005.2	An ability to do proper financing, estimation, planning all regarding water recourses. An understand of fundamentals of blue water, green water and virtual water and their roles in water resource engineering.	0.97	2.9	0	1.93	0	0	0	0	2.9	1.93	0	0.97	0.97	0	0
401005.3	An understanding of recycling, reuse and storage of water.	1.29	1.29	0.64	0	1.29	0	0	0.64	1.29	0.64	0.64	1.29	0	0	0
401005.4	Students development regarding water demand and supply schemes.	0	0	0	0	0	1.29	0.64	1.29	0.64	0.64	0	0.64	0.64	0	0
401005.5	Development of social aspect in each and every student regarding water recourse and its development.	1.93	0.64	1.29	0	0.64	1.29	0	0	0.64	0.64	0	0.64	0	0	0
401005.6	An ability of students to choose plan and developed watershed and application of RS,GIS and other data driven techniques.	0	0.97	0.97	0	1.93	0.97	0	0	0.97	0	0	0.97	0.97	0	0
	Avg PO attainment.	1.18	1.16	1.45	0.64	0.97	0.75	0.21	0.39	1.07	0.77	0.13	0.91	2.57	0	0





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401005	Elective-II -TQM MIS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
401005.1	Recognise quality & contribution of quality gurus.	2.73	0	1.93	1.1	1.1	0	0	0	0	0	0	0	0.73	0.1	0.1
401005.2	Relate the functioning and application of TQM & Six Sigma	1.75	2	2	1.2	1.3	0	0	0	0	0	0	0	1.73	0.73	0.73
401005.3	Implement ISO 9001 principles in preparation of quality manual	1.75	0	2	1.1	1.1	0	0	0	0	0	0	2	0.33	2	2
401005.4	Construct & apply management control & certification systems.	2	1.6	1.8	1.1	1.8	0	0	0	0	2	0	0	2	0	0
401005.5	Execute TQM Implementation and various Quality Awards	2	1.73	1.93	1.93	1.93	0	0	0	0	0	0	0	0	0.7	0.7
401005.6	Justify MIS & its application in construction sector.	3	1.73	2	1.9	1.9	0	0	0	0	0	0	0	0.33	0	0
	Avg PO attainment.	2.21	1.41	2.92	2.78	2.28	0	0	0	0	0.4	0	0.33	1.22	1.77	1.77

Semester - VIII

401007	Dams & hydraulic Structures	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
401007.1	Differentiate the types of dams and explain the importance of instrumentation for safety of dams	2.1	2.4	0	2.4	0	0	0	0	0	0	0	0	1.2	0	0
401007.2	Analyze the Stability of gravity dam and describe the Concept of Arch Dam	2.4	3.6	2.4	3.6	0	0	0	0	0	0	0	0	0	0	0
401007.3	Design the spillways with appropriate given data and explain the concept of Spillway gates	2.4	1.6	2.4	2.4	0	0	0	0	0	0	0	0	0	0.8	0.8
401007.4	Explain the types Earthen dam ,failures and Diversion head works.	3.6	2.4	3.6	3.6	0	0	0	0	0	0	0	0	1.2	0	0
401007.5	Describe and use of the canal lining and canal structures.	3.6	2.63	2.1	2.1	0	0	0	0	0	0	0	0	1.2	0	0
401007.6	Explain the importance of River training works and CD works.	0.8	2.4	0	2.4	0	0	0	0	0	0	0	0	0.8	0	0
	Avg PO attainment.	2.48	2.51	1.75	2.75	0	0	0	0	0	0	0	0	0.73	0.4	0.4




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401008	Quantity Surveying contracts & Tenders	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
401008.1	Choose the appropriate principles of computations related to quantity surveying.	3.15	3.15	1.05	0	1.05	1.05	1.05	0	0	0	0	0	1.05	1.05	1.05
401008.2	Formulate the detail estimates and bill of quantities for various civil engineering projects.	3.15	3.15	1.05	0	1.05	1.05	1.05	0	0	0	0	0	1.05	1.05	1.05
401008.3	Excercise computer software for schedule of rates and specifications	2.1	2.1	0.7	0	1.4	0.7	0.7	0	0	0	0	0	1.4	0.7	0.7
401008.4	Analyses the rates and prepare valuation report.	3.15	3.15	1.05	0	1.05	1.05	1.05	0	0	0	0	0	1.05	1.05	1.05
401008.5	Draft tender and work execution processes.	3.15	3.15	1.05	0	1.05	2.1	1.05	0	0	0	0	0	1.05	1.05	1.05
401008.6	Apply the skill to defend a contract by knowing arbitration laws.	3.15	3.15	1.05	0	1.05	1.05	1.05	0	0	0	0	0	1.05	1.05	1.05
	Avg PO attainment.	2.98	2.98	0.99	0	1.66	1.17	1.98	0	0	0	0	0	1.11	2.98	2.98
401009	Air Pollution & Control	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
401009.1	Explore the meteorological aspects, Gaussian model and Emission inventory.	3.6	3.6	0	0	3.6	0	0	0	0	0	0	0	0	0	0
401009.2	Classify and analyze Air sampling methods.	3.6	3.6	3.6	0	0	0	0	0	0	0	0	0	0	0	0
401009.3	Select methods for control and prevention of air pollution.	1.6	2.4	0.8	0	0	0	0	0	0	0	0	0	0	0	0
401009.4	Design of air pollution control equipment's.	2.4	2.4	2.4	0	0	0	0	0	0	0	0	0	1.2	0	0
401009.5	Discuss Air Pollution prevention and control Act.	2.4	3.6	3.6	2.4	3.6	0	0	0	0	0	0	0	0	0	0
401009.6	Explore the Environmental impact assessment and management.	2.4	2.4	3.6	3.6	3.6	0	0	1.2	0	0	0	0	1.2	0	0
	Avg PO attainment.	2.67	3	2.33	1	2.7	0	0	0.24	0	0	0	0	0.4	0	0



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401010	Construction Management	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
401010.1	Appraise the basic concepts of construction management such as types and functions of management, project participants and reporting system	3.15	3.15	1.05	0	1.05	1.05	1.05	0	0	0	0	0	1.05	1.05	1.05
401010.2	Evaluate the progress of projects by using WBS breakdown Structure (WBS) and line of balance technique.	3.15	3.15	1.05	0	1.05	1.05	1.05	0	0	0	0	0	1.05	1.05	1.05
401010.4	Implement the labour laws and various financial aspects for smooth functioning of project	2.1	2.1	0.7	0	1.4	0.7	0.7	0	0	0	0	0	1.4	0.7	0.7
401010.4	Apply the risk management and value analysis models	3.15	3.15	1.05	0	1.05	1.05	1.05	0	0	0	0	0	1.05	1.05	1.05
401011.5	Apply material management and HR management techniques	3.15	3.15	1.05	0	1.05	2.1	1.05	0	0	0	0	0	1.05	1.05	1.05
401011.6	Recognize the importance and application of artificial intelligence technique	3.15	3.15	1.05	0	1.05	1.05	1.05	0	0	0	0	0	1.05	1.05	1.05
	Avg PO attainment.	2.98	2.98	0.99	0	1.66	1.17	1.98	0	0	0	0	0	1.11	2.98	2.98


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Civil Engineering Department

Academic Year 2021-22

Semester - III

Engineering Mathematics III

CO→	Engineering Mathematics III					
Assessment tools↓	207003.1	207003.2	207003.3	207003.4	207003.5	207003.6
Direct Assessment						
Internal Assessment						
Internal exam						
Assignment	3.00	3.00	3.00	3.00	3.00	3.00
Average direct Assessment=						
A = Internal attainment X 0.3=	3.00	3.00	3.00	3.00	3.00	3.00
University exams						
Phase Result						
End Sem Result	3	3	2	2	2	2
B = University Result X 0.7=	3	3	2	2	2	2
Total Attainment -Direct Assessment D= (A+B)*.7	2.1	2.1	1.4	1.4	1.4	1.4
Indirect Assessment						
C = Course Exit Survey Attainment						
Total Attainment -Indirect Assessment I= (C)*.3	3	3	3	3	3	3
CO Attainment = D+I	0.9	0.9	0.9	0.9	0.9	0.9
	3	3	2.51	2.51	2.51	2.51

Engineering Geology

CO→	Engineering Geology					
Assessment tools↓	407009.1	407009.2	407009.3	407009.4	407009.5	407009.6
Direct Assessment						
Internal Assessment						
Internal exam						
Assignment	1	1	2	2	2	2
Average direct Assessment=						
A = Internal attainment X 0.3=	2	2	2	2	2	2
University exams						
Phase Result						
End Sem Result	1.5	1.5	2	2	2	2
B = University Result X 0.7=	0.45	0.45	0.6	0.6	0.6	0.6
Total Attainment -Direct Assessment D= (A+B)*.7						
	0	0	0.7	0.7	0.7	0.7
	0.315	0.315	0.91	0.91	0.91	0.91
Indirect Assessment						
C = Course Exit Survey Attainment						
Total Attainment -Indirect Assessment I= (C)*.3	3	3	3	3	3	3
CO Attainment = D+I	0.9	0.9	0.9	0.9	0.9	0.9
	1.215	1.215	1.81	1.81	1.81	1.81





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Fluid Mechanics						
CO→	201002.1	201002.2	201002.3	201002.4	201002.5	201002.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	1	1	1	1	1	1
Assignment						
Average direct Assessment=	0.5	0.5	1	1	1	1
A = Internal attainment X 0.3=	0.15	0.15	0.3	0.3	0.3	0.3
University exams						
Phase Result	1.5	1.5				
End Sem Result	1.5	1.5	0.25	0.25	0.25	0.25
B = University Result X 0.7=	1.05	1.05	0.175	0.175	0.175	0.175
Total Attainment -Direct Assessment D= (A+B)*.7	0.84	0.84	0.3325	0.3325	0.3325	0.3325
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	1.74	1.74	1.2325	1.2325	1.2325	1.2325

Mechanics of Structure						
CO→	201002.1	201002.2	201002.3	201002.4	201002.5	201002.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	1	1	1	1	1	1
Assignment	2	2	2	2	2	2
Average direct Assessment=	0.5	0.5	1	1	1	1
A = Internal attainment X 0.3=	0.15	0.15	0.3	0.3	0.3	0.3
University exams						
Phase Result	1	1				
End Sem Result	1	1	0.5	0.5	0.5	0.5
B = University Result X 0.7=	0.7	0.7	0.35	0.35	0.35	0.35
Total Attainment -Direct Assessment D= (A+B)*.7	0.595	0.595	0.455	0.455	0.455	0.455
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	1.495	1.495	1.355	1.355	1.355	1.355





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Building Technology and Architectural Planning						
CO→	401008.1	401008.2	401008.3	401008.4	401008.5	401008.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	2	2	1	1	1	1
Assignment	3	3	3	3	3	3
Average direct Assessment=	2.25	2.25	2	2	2	2
A = Internal attainment X 0.3=	0.675	0.675	0.6	0.6	0.6	0.6
University exams						
Phase Result	0.5	0.5	0	0	0	0
End Sem Result	0	0	0.5	0.5	0.5	0.5
B = University Result X 0.7=	0	0	0.35	0.35	0.35	0.35
Total Attainment -Direct Assessment D= (A+B)*.7	0.4725	0.4725	0.665	0.665	0.665	0.665
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	1.3725	1.3725	1.565	1.565	1.565	1.565

Semester - IV						
Geotechnical Engineering						
CO→	401008.1	401008.2	401008.3	401008.4	401008.5	401008.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	1	1	2	2	2	2
Assignment	2	2	2	2	2	2
Average direct Assessment=	1.5	1.5	2	2	2	2
A = Internal attainment X 0.3=	0.45	0.45	0.6	0.6	0.6	0.6
University exams						
Phase Result	3	3	0	0	0	0
End Sem Result	0	0	3	3	3	3
B = University Result X 0.7=	0	0	2.1	2.1	2.1	2.1
Total Attainment -Direct Assessment D= (A+B)*.7	0.315	0.315	1.89	1.89	1.89	1.89
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	1.215	1.215	2.79	2.79	2.79	2.79




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Concrete Technology						
CO→	201010.1	201010.2	201010.3	201010.4	201010.5	201010.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	1	1	1	1	1	1
Assignment	2	2	2	2	2	2
Average direct Assessment=	0.5	0.5	1	1	1	1
A = Internal attainment X 0.3=	0.15	0.15	0.3	0.3	0.3	0.3
University exams						
Phase Result	0.5	0.5				
End Sem Result	0.5	0.5	0.25	0.25	0.25	0.25
B = University Result X 0.7=	0.35	0.35	0.175	0.175	0.175	0.175
Total Attainment -Direct Assessment D= (A+B)*.7	0.35	0.35	0.3325	0.3325	0.3325	0.3325
Indirect Assessment						
C = Course Exit Survey Attainment	1	1	1	1	1	1
Total Attainment -Indirect Assessment I= (C)*.3	0.3	0.3	0.3	0.3	0.3	0.3
CO Attainment = D+I	0.65	0.65	0.6325	0.6325	0.6325	0.6325

structural analysis						
CO→	401007.1	401007.2	401007.3	401007.4	401007.5	401007.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	1	1	3	3	2	2
Assignment	2	1	2	2	2	2
Average direct Assessment=	1.5	1	2.5	2.5	2	2
A = Internal attainment X 0.3=	0.45	0.3	0.75	0.75	0.6	0.6
University exams						
Phase Result	2	2	0	0	0	0
End Sem Result	0	0	1	1	1	1
B = University Result X 0.7=	0	0	0.7	0.7	0.7	0.7
Total Attainment -Direct Assessment D= (A+B)*.7	0.315	0.21	1.015	1.015	0.91	0.91
Indirect Assessment						
C = Course Exit Survey Attainment	1	1	1	1	1	1
Total Attainment -Indirect Assessment I= (C)*.3	0.3	0.3	0.3	0.3	0.3	0.3
CO Attainment = D+I	0.615	0.51	1.315	1.315	1.21	1.21



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SURVEYING						
CO→	201009.1	201009.2	201009.3	201009.4	201009.5	201009.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	1	1	1	1	1	1
Assignment	3	3	3	3	3	3
Average direct Assessment=	1.75	1.75	1.75	1.75	2	2
A = Internal attainment X 0.3=	0.525	0.525	0.525	0.525	0.6	0.6
University exams						
Phase Result	1.5	1.5				
End Sem Result			0.25	0.25	0.25	0.25
B = University Result X 0.7=	0	0	0.175	0.175	0.175	0.175
Total Attainment -Direct Assessment D= (A+B)*.7	0.3675	0.3675	0.49	0.49	0.5425	0.5425
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	1.2675	1.2675	1.39	1.39	1.4425	1.4425

Project management						
CO→	401008.1	401008.2	401008.3	401008.4	401008.5	401008.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	1	1	2	2	2	2
Assignment	2	2	2	2	2	2
Average direct Assessment=	1.5	1.5	2	2	2	2
A = Internal attainment X 0.3=	0.45	0.45	0.6	0.6	0.6	0.6
University exams						
Phase Result	3	3	0	0	0	0
End Sem Result	0	0	3	3	3	3
B = University Result X 0.7=	0	0	2.1	2.1	2.1	2.1
Total Attainment -Direct Assessment D= (A+B)*.7	0.315	0.315	1.89	1.89	1.89	1.89
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	1.215	1.215	2.79	2.79	2.79	2.79





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Semester - V

HYDROLOGY AND WATER RESOURCE ENGINEERING						
CO→	301002.1	301002.2	301002.3	301002.4	301002.5	301002.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	1	1	1	1	2	2
Assignment	2	2	2	2	2	2
Average direct Assessment=	1.5	1.5	1.5	1.5	1.75	1.75
A = Internal attainment X 0.3=	0.45	0.45	0.45	0.45	0.525	0.525
University exams						
Phase Result	1.5	1.5	0	0	0	0
End Sem Result	0	0	0.5	0.5	0.5	0.5
B = University Result X 0.7=	0	0	0.35	0.35	0.35	0.35
Total Attainment -Direct Assessment D= (A+B)*.7	0.315	0.315	0.56	0.56	0.6125	0.6125
Indirect Assessment						
C = Course Exit Survey Attainment	1	1	2	2	2	1
Total Attainment -Indirect Assessment I= (C)*.3	0.3	0.3	0.6	0.6	0.6	0.3
CO Attainment = D+I	0.615	0.615	1.16	1.16	1.2125	0.9125

Water Supply Engineering						
CO→	301002.1	301002.2	301002.3	301002.4	301002.5	301002.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	1	1	1	1	2	2
Assignment	2	2	2	2	2	2
Average direct Assessment=	1.5	1.5	1.5	1.5	1.75	1.75
A = Internal attainment X 0.3=	0.45	0.45	0.45	0.45	0.525	0.525
University exams						
Phase Result	1.5	1.5	0	0	0	0
End Sem Result	0	0	0.5	0.5	0.5	0.5
B = University Result X 0.7=	0	0	0.35	0.35	0.35	0.35
Total Attainment -Direct Assessment D= (A+B)*.7	0.315	0.315	0.56	0.56	0.6125	0.6125
Indirect Assessment						
C = Course Exit Survey Attainment	1	1	2	2	2	1
Total Attainment -Indirect Assessment I= (C)*.3	0.3	0.3	0.6	0.6	0.6	0.3
CO Attainment = D+I	0.615	0.615	1.16	1.16	1.2125	0.9125




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Design of Steel Structures						
CO→	301002.1	301002.2	301002.3	301002.4	301002.5	301002.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam						
Assignment	1	1	2	2	1	1
	2	2	2	2	2	2
Average direct Assessment=						
A = Internal attainment X 0.3=	1.5	1.5	1.75	1.75	1.38	1.38
University exams	0.45	0.45	0.525	0.525	0.4125	0.4125
Phase Result						
End Sem Result	1.5	1.5	0	0	0	0
B = University Result X 0.7=	0	0	0.5	0.5	0.5	0.5
	0	0	0.35	0.35	0.35	0.35
Total Attainment -Direct Assessment D= (A+B)*.7	0.315	0.315	0.6125	0.6125	0.53375	0.53375
Indirect Assessment						
C = Course Exit Survey Attainment	3	2	2	2	2	2
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.6	0.6	0.6	0.6	0.6
CO Attainment = D+I	1.215	0.915	1.2125	1.2125	1.13375	1.13375

ENGINEERING ECONOMICS AND FINANCIAL MNGAMENT						
CO→	401007.1	401007.2	401007.3	401007.4	401007.5	401007.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	3	3	3	3	3	3
Assignment	3	1.5	2	1.5	2	3
Average direct Assessment=	3	2.25	2.5	2.25	2.5	3
A = Internal attainment X 0.3=	0.9	0.675	0.75	0.675	0.75	0.9
University exams						
Phase Result	1	1	0	0	0	0
End Sem Result	0	0	0.5	0.5	0.5	0.5
B = University Result X 0.7=	0	0	0.35	0.35	0.35	0.35
	0	0	0.35	0.35	0.35	0.35
Total Attainment -Direct Assessment D= (A+B)*.7	0.63	0.4725	0.77	0.7175	0.77	0.875
Indirect Assessment						
C = Course Exit Survey Attainment	3	2	2	2	2	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.6	0.6	0.6	0.6	0.9
CO Attainment = D+I	1.53	1.0725	1.37	1.3175	1.37	1.775





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Advanced Concrete Technology						
CO→	301005 d.1	301005 d.2	301005 d.3	301005 d.4	301005 d.5	301005 d.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam						
Assignment	1	1	2	2	2	2
	2	1	2	2	1	2
Average direct Assessment=	1.5	1	1.75	1.75	1.25	1.75
A = Internal attainment X 0.3=	0.45	0.3	0.525	0.525	0.375	0.525
University exams						
Phase Result	1.5	1.5	0	0	0	0
End Sem Result	0	0	1	1	1	1
B = University Result X 0.7=	0	0	0.7	0.7	0.7	0.7
Total Attainment -Direct Assessment D= (A+B)*.7	0.315	0.21	0.8575	0.8575	0.7525	0.8575
Indirect Assessment						
C = Course Exit Survey Attainment	1	1	1	1	1	1
Total Attainment -Indirect Assessment I= (C)*.3	0.3	0.3	0.3	0.3	0.3	0.3
CO Attainment = D+I	0.615	0.51	1.1575	1.1575	1.0525	1.1575

Semester - VI						
WASTE WATER ENGINEERING						
CO→	301012.1	301012.2	301012.3	301012.4	301012.5	301012.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	1	1	1	1	2	2
Assignment	2	2	2	2	2	2
Average direct Assessment=	1.5	1.5	1.5	1.5	1.75	1.75
A = Internal attainment X 0.3=	0.45	0.45	0.45	0.45	0.525	0.525
University exams						
Phase Result	1.5	1.5	0	0	0	0
End Sem Result	0	0	0.5	0.5	0.5	0.5
B = University Result X 0.7=	0	0	0.35	0.35	0.35	0.35
Total Attainment -Direct Assessment D= (A+B)*.7	0.315	0.315	0.56	0.56	0.6125	0.6125
Indirect Assessment						
C = Course Exit Survey Attainment	1	1	2	2	2	1
Total Attainment -Indirect Assessment I= (C)*.3	0.3	0.3	0.6	0.6	0.6	0.3
CO Attainment = D+I	0.615	0.615	1.16	1.16	1.2125	0.9125




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RSGIS						
CO→						
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	2	2	3	3	3	3
Assignment	2	2	3	2	3	3
Average direct Assessment=	2	2	3	2.5	3	3
A = Internal attainment X 0.3=	0.6	0.6	0.9	0.75	0.9	0.9
University exams						
Phase Result	3	3				
End Sem Result	3	3	2	2	2	2
B = University Result X 0.7=	2.1	2.1	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.89	1.89	1.61	1.505	1.61	1.61
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.79	2.79	2.51	2.405	2.51	2.51

DRCS						
CO→	301002.1	301002.2	301002.3	301002.4	301002.5	301002.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	3	3	3	3	3	3
Assignment	3	1.5	2	1.5	2	3
Average direct Assessment=	3	2.25	2.5	2.25	2.5	3
A = Internal attainment X 0.3=	0.9	0.675	0.75	0.675	0.75	0.9
University exams						
Phase Result	3	3	3	3	3	3
End Sem Result	2	2	2	1	2	2
B = University Result X 0.7=	1.4	1.4	1.4	0.7	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.61	1.4525	1.505	0.9625	1.505	1.61
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	2	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.6	0.9	0.9
CO Attainment = D+I	2.51	2.3525	2.405	1.5625	2.405	2.51




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ATP						
CO→	401007.1	401007.2	401007.3	401007.4	401007.5	401007.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam						
Assignment	2	2	2	2	2	2
	2	1	2	2	2	2
Average direct Assessment=						
A = Internal attainment X 0.3=	2	1.5	2	2	2	2
University exams	0.6	0.45	0.6	0.6	0.6	0.6
Phase Result						
End Sem Result	1	1	0	0	0	0
B = University Result X 0.7=	0	0	0.7	0.7	0.7	0.7
Total Attainment -Direct Assessment D= (A+B)*.7	0.42	0.315	0.91	0.91	0.91	0.91
Indirect Assessment						
C = Course Exit Survey Attainment	2	2	3	3	2	2
Total Attainment -Indirect Assessment I= (C)*.3	0.6	0.6	0.9	0.9	0.6	0.6
CO Attainment = D+I	1.02	0.915	1.81	1.81	1.51	1.51

Solid Waste Management						
CO→	301015f.1	301015f.2	301015f.3	301015f.4	301015f.5	301015f.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	1	1	2	2	1	1
Assignment	2	1	3	3	2	3
Average direct Assessment=	1.5	1	2.25	2.25	1.5	2
A = Internal attainment X 0.3=	0.45	0.3	0.675	0.675	0.45	0.6
University exams						
Phase Result	1.5	1.5				
End Sem Result	1.5	1.5	0.25	0.25	0.25	0.25
B = University Result X 0.7=	1.05	1.05	0.175	0.175	0.175	0.175
Total Attainment -Direct Assessment D= (A+B)*.7	1.05	0.945	0.595	0.595	0.4375	0.5425
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	1.95	1.845	1.495	1.495	1.3375	1.4425




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Semester - VII
ENVIRONMENTAL ENGINEERING II

CO→	301002.1	301002.2	301002.3	301002.4	301002.5	301002.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	1	1	1	1	1	1
Assignment	2	2	2	2	3	2
Average direct Assessment=	1.5	1.5	1.38	1.38	1.88	1.38
A = Internal attainment X 0.3=	0.45	0.45	0.4125	0.4125	0.5625	0.4125
University exams						
Phase Result	1.5	1.5	0	0	0	0
End Sem Result	0	0	0.75	0.75	0.75	0.75
B = University Result X 0.7=	0	0	0.525	0.525	0.525	0.525
Total Attainment -Direct Assessment D= (A+B)*.7	0.315	0.315	0.65625	0.65625	0.76125	0.65625
Indirect Assessment						
C = Course Exit Survey Attainment	3	2	2	2	2	2
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.6	0.6	0.6	0.6	0.6
CO Attainment = D+I	1.215	0.915	1.25625	1.25625	1.36125	1.25625

Structural Design and Drawing-III

CO→	401 003.1	401 003.2	401 003.3	401 003.4	401 003.5	401 003.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	1	1	2	2	2	2
Assignment	2	2	2	2	3	2
Average direct Assessment=	1.5	1.5	1.75	1.75	2.25	1.75
A = Internal attainment X 0.3=	0.45	0.45	0.525	0.525	0.675	0.525
University exams						
Phase Result	1	1	1			
End Sem Result	0.5	0.5	0.5	0.5	0.5	0.5
B = University Result X 0.7=	0.35	0.35	0.35	0.35	0.35	0.35
Total Attainment -Direct Assessment D= (A+B)*.7	0.56	0.56	0.6125	0.6125	0.7175	0.6125
Indirect Assessment						
C = Course Exit Survey Attainment	3	2	2	3	2	2
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.6	0.6	0.9	0.6	0.6
CO Attainment = D+I	1.46	1.16	1.2125	1.5125	1.3175	1.2125




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TQM-MIS						
CO→	301002.1	301002.2	301002.3	301002.4	301002.5	301002.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	1	1	2	2	1	1
Assignment	2	2	2	2	2	2
Average direct Assessment=	1.5	1.5	1.75	1.75	1.38	1.38
A = Internal attainment X 0.3=	0.45	0.45	0.525	0.525	0.4125	0.4125
University exams						
Phase Result	1.5	1.5	0	0	0	0
End Sem Result	0	0	0.5	0.5	0.5	0.5
B = University Result X 0.7=	0	0	0.35	0.35	0.35	0.35
Total Attainment -Direct Assessment D= (A+B)*.7	0.315	0.315	0.6125	0.6125	0.53375	0.53375
Indirect Assessment						
C = Course Exit Survey Attainment	3	2	2	2	2	2
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.6	0.6	0.6	0.6	0.6
CO Attainment = D+I	1.215	0.915	1.2125	1.2125	1.13375	1.13375

TRE						
CO→	401007.1	401007.2	401007.3	401007.4	401007.5	401007.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	2	2	2	2	3	3
Assignment	1	1	2	2	3	2
Average direct Assessment=	1.5	1.5	2	2	3	2.5
A = Internal attainment X 0.3=	0.45	0.45	0.6	0.6	0.9	0.75
University exams						
Phase Result	3	3	0	0	0	0
End Sem Result	0	0	3	3	3	3
B = University Result X 0.7=	0	0	2.1	2.1	2.1	2.1
Total Attainment -Direct Assessment D= (A+B)*.7	0.315	0.315	1.89	1.89	2.1	1.995
Indirect Assessment						
C = Course Exit Survey Attainment	3	2	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.6	0.9	0.9	0.9	0.9
CO Attainment = D+I	1.215	0.915	2.79	2.79	3	2.895




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EL-II(IWRPM)						
CO→	401 005.1	401005.2	401005.3	401 005.4	401005.5	401005.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	3	3	2	2	2	2
Assignment	3	3	3	3	3	3
Average direct Assessment=	3	3	2.5	2.5	2.5	2.5
A = Internal attainment X 0.3=	0.9	0.9	0.75	0.75	0.75	0.75
University exams						
Phase Result	3	3				
End Sem Result	3	3	2	2	2	2
B = University Result X 0.7=	2.1	2.1	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	2.1	2.1	1.505	1.505	1.505	1.505
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	3	3	2.405	2.405	2.405	2.405

Semester - VIII						
Dams and Hydraulics Structures						
CO→	401007.1	401007.2	401007.3	401007.4	401007.5	401007.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	1	1	1	1	2	2
Assignment	3	1	3	2	3	3
Average direct Assessment=	2	1	2	1.5	2.25	2.25
A = Internal attainment X 0.3=	0.6	0.3	0.6	0.45	0.675	0.675
University exams						
Phase Result	1.5	1.5				
End Sem Result	1.5	1.5	0.5	0.5	0.5	0.5
B = University Result X 0.7=	1.05	1.05	0.35	0.35	0.35	0.35
Total Attainment -Direct Assessment D= (A+B)*.7	1.155	0.945	0.665	0.56	0.7175	0.7175
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.055	1.845	1.565	1.46	1.6175	1.6175




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Quantity Surveying, Contracts and tenders						
CO→	301002.1	301002.2	301002.3	301002.4	301002.5	301002.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam						
Assignment	1	1	2	2	1	1
	2	2	2	2	2	2
Average direct Assessment=	1.5	1.5	1.75	1.75	1.38	1.38
A = Internal attainment X 0.3=	0.45	0.45	0.525	0.525	0.4125	0.4125
University exams						
Phase Result	1.5	1.5	0	0	0	0
End Sem Result	0	0	0.5	0.5	0.5	0.5
B = University Result X 0.7=	0	0	0.35	0.35	0.35	0.35
Total Attainment -Direct Assessment D= (A+B)*.7	0.315	0.315	0.6125	0.6125	0.53375	0.53375
Indirect Assessment						
C = Course Exit Survey Attainment	3	2	2	2	2	2
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.6	0.6	0.6	0.6	0.6
CO Attainment = D+I	1.215	0.915	1.2125	1.2125	1.13375	1.13375

Construction Management						
CO→	401010.1	401011.2	401011.3	401011.4	401011.5	401011.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	1	1	1	1	2	2
Assignment	2	1	2	2	3	2
Average direct Assessment=	1.25	0.75	1.5	1.5	2.25	1.75
A = Internal attainment X 0.3=	0.375	0.225	0.45	0.45	0.675	0.525
University exams						
Phase Result	1.5	1.5				
End Sem Result	1.5	1.5	0.5	0.5	0.5	0.5
B = University Result X 0.7=	1.05	1.05	0.35	0.35	0.35	0.35
Total Attainment -Direct Assessment D= (A+B)*.7	0.9975	0.8925	0.56	0.56	0.7175	0.6125
Indirect Assessment						
C = Course Exit Survey Attainment	3	2	3	3	2	2
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.6	0.9	0.9	0.6	0.6
CO Attainment = D+I	1.8975	1.4925	1.46	1.46	1.3175	1.2125




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AIR POLLUTION & CONTROL Elective III

CO→						
Assessment tools↓	301002.1	301002.2	301002.3	301002.4	301002.5	301002.6
Direct Assessment						
Internal Assessment						
Internal exam						
Assignment	1	1	2	2	1	1
	2	2	2	2	2	2
Average direct Assessment=	1.5	1.5	1.75	1.75	1.38	1.38
A = Internal attainment X 0.3=	0.45	0.45	0.525	0.525	0.4125	0.4125
University exams						
Phase Result	1.5	1.5	0	0	0	0
End Sem Result	0	0	0.5	0.5	0.5	0.5
B = University Result X 0.7=	0	0	0.35	0.35	0.35	0.35
Total Attainment -Direct Assessment D= (A+B)*.7	0.315	0.315	0.6125	0.6125	0.53375	0.53375
Indirect Assessment						
C = Course Exit Survey Attainment	3	2	2	2	2	2
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.6	0.6	0.6	0.6	0.6
CO Attainment = D+I	1.215	0.915	1.2125	1.2125	1.13375	1.13375

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Civil Engineering Department

Academic Year 2022-23

Semester - III



Engineering Mathematics III

CO→	207003.1	207003.2	207003.3	207003.4	207003.5	207003.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	3.00	3.00	3.00	3.00	3.00	3.00
Assignment	3.00	3.00	3.00	3.00	3.00	3.00
Average direct Assessment=	3.00	3.00	3.00	3.00	3.00	3.00
A = Internal attainment X 0.3=	0.9	0.9	0.9	0.9	0.9	0.9
University exams						
Phase Result	3	3	2	2	2	2
End Sem Result	3	3	2	2	2	2
B = University Result X 0.7=	2.1	2.1	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	2.1	2.1	1.61	1.61	1.61	1.61
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	3	3	2.51	2.51	2.51	2.51

Building Technology and Architectural Planning

CO→	401008.1	401008.2	401008.3	401008.4	401008.5	401008.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	2	2	1	1	1	1
Assignment	3	3	3	3	3	3
Average direct Assessment=	2.25	2.25	2	2	2	2
A = Internal attainment X 0.3=	0.675	0.675	0.6	0.6	0.6	0.6
University exams						
Phase Result	0.5	0.5	0	0	0	0
End Sem Result	0	0	0.5	0.5	0.5	0.5
B = University Result X 0.7=	0	0	0.35	0.35	0.35	0.35
Total Attainment -Direct Assessment D= (A+B)*.7	0.4725	0.4725	0.665	0.665	0.665	0.665
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3



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Engineering Geology						
CO→	407009.1	407009.2	407009.3	407009.4	407009.5	407009.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	2	2	2	2	2	2
Assignment	2	2	2	2	2	2
Average direct Assessment=	2	2	2	2	2	2
A = Internal attainment X 0.3=	0.6	0.6	0.6	0.6	0.6	0.6
University exams						
Phase Result	1	1	0	0	0	0
End Sem Result	0	0	1	1	1	1
B = University Result X 0.7=	0	0	0.7	0.7	0.7	0.7
Total Attainment -Direct Assessment D= (A+B)*.7	0.42	0.42	0.91	0.91	0.91	0.91
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	1.32	1.32	1.81	1.81	1.81	1.81
Fluid mechanics						
CO→	201003.1	201003.2	201003.3	201003.4	201003.5	201003.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	1	1	2	2	1	1
Assignment	2	1	2	2	2	2
Average direct Assessment=	1.5	1	1.75	1.75	1.5	1.5
A = Internal attainment X 0.3=	0.45	0.3	0.525	0.525	0.45	0.45
University exams						
Phase Result	0.5	0.5				
End Sem Result	0.5	0.5	0.25	0.25	0.25	0.25
B = University Result X 0.7=	0.35	0.35	0.175	0.175	0.175	0.175
Total Attainment -Direct Assessment D= (A+B)*.7	0.56	0.455	0.49	0.49	0.4375	0.4375
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	1.46	1.355	1.39	1.39	1.3375	1.3375



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Semester - IV

Concrete Technology

CO→	201010.1	201010.2	201010.3	201010.4	201010.5	201010.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	1	1	1	1	1	1
Assignment	2	2	2	3	2	2
Average direct Assessment=	1.5	1.5	1.5	2	1.5	1.5
A = Internal attainment X 0.3=	0.45	0.45	0.45	0.6	0.45	0.45
University exams						
Phase Result	1	1				
End Sem Result	1	1	0.75	0.75	0.75	0.75
B = University Result X 0.7=	0.7	0.7	0.525	0.525	0.525	0.525
Total Attainment -Direct Assessment D= (A+B)*.7	0.805	0.805	0.6825	0.7875	0.6825	0.6825
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	1.705	1.705	1.5825	1.6875	1.5825	1.5825

SURVEYING

CO→	401008.1	401008.2	401008.3	401008.4	401008.5	401008.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	2	2	1	1	2	2
Assignment	3	3	3	3	3	3
Average direct Assessment=	2.25	2.25	2	2	2.25	2.25
A = Internal attainment X 0.3=	0.675	0.675	0.6	0.6	0.675	0.675
University exams						
Phase Result	0.5	0.5	0	0	0	0
End Sem Result	0	0	0.25	0.25	0.25	0.25
B = University Result X 0.7=	0	0	0.175	0.175	0.175	0.175
Total Attainment -Direct Assessment D= (A+B)*.7	0.4725	0.4725	0.5425	0.5425	0.595	0.595
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	1.3725	1.3725	1.4425	1.4425	1.495	1.495



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Geotechnical Engineering

CO→	401008.1	401008.2	401008.3	401008.4	401008.5	401008.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	3	3	3	3	3	3
Assignment	2	2	2	2	2	2
Average direct Assessment=	2.5	2.5	2.5	2.5	2.5	2.5
A = Internal attainment X 0.3=	0.75	0.75	0.75	0.75	0.75	0.75
University exams						
Phase Result	1	1	0	0	0	0
End Sem Result	0	0	1	1	1	1
B = University Result X 0.7=	0	0	0.7	0.7	0.7	0.7
Total Attainment -Direct Assessment D= (A+B)*.7	0.525	0.525	1.015	1.015	1.015	1.015
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	1.425	1.425	1.915	1.915	1.915	1.915

PROJECT MANAGEMENT

CO→	201012.1	201012.1	201012.1	201012.1	201012.1	201012.1
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	1	1	1	1	1	1
Assignment	2	2	2	2	2	2
Average direct Assessment=	1.5	1.5	1.5	1.5	1.5	1.5
A = Internal attainment X 0.3=	0.45	0.45	0.45	0.45	0.45	0.45
University exams						
Phase Result	0.5	0.5	0	0	0	0
End Sem Result	0	0	0.25	0.25	0.25	0.25
B = University Result X 0.7=	0	0	0.175	0.175	0.175	0.175
Total Attainment -Direct Assessment D= (A+B)*.7	0.315	0.315	0.4375	0.4375	0.4375	0.4375
Indirect Assessment						
C = Course Exit Survey Attainment	2	2	2	2	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.6	0.6	0.6	0.6	0.9	0.9
CO Attainment = D+I	0.915	0.915	1.0375	1.0375	1.3375	1.3375

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Structural Analysis						
CO→	401007.1	401007.2	401007.3	401007.4	401007.5	401007.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	3	3	3	3	2	2
Assignment	2	1	2	2	3	2
Average direct Assessment=	2.5	2	2.5	2.5	2.5	2
A = Internal attainment X 0.3=	0.75	0.6	0.75	0.75	0.75	0.6
University exams						
Phase Result	1	1	0	0	0	0
End Sem Result	0	0	1	1	1	1
B = University Result X 0.7=	0	0	0.7	0.7	0.7	0.7
Total Attainment -Direct Assessment D= (A+B)*.7	0.525	0.42	1.015	1.015	1.015	0.91
Indirect Assessment						
C = Course Exit Survey Attainment	1	1	1	1	1	1
Total Attainment -Indirect Assessment I= (C)*.3	0.3	0.3	0.3	0.3	0.3	0.3
CO Attainment = D+I	0.825	0.72	1.315	1.315	1.315	1.21

Semester - V

ENGINEERING ECONOMICS AND FINANCIAL MANGMENT						
CO→	401007.1	401007.2	401007.3	401007.4	401007.5	401007.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	3	3	3	3	3	3
Assignment	3	1.5	2	1.5	2	3
Average direct Assessment=	3	2.25	2.5	2.25	2.5	3
A = Internal attainment X 0.3=	0.9	0.675	0.75	0.675	0.75	0.9
University exams						
Phase Result	1	1	0	0	0	0
End Sem Result	0	0	0.5	0.5	0.5	0.5
B = University Result X 0.7=	0	0	0.35	0.35	0.35	0.35
Total Attainment -Direct Assessment D= (A+B)*.7	0.63	0.4725	0.77	0.7175	0.77	0.875
Indirect Assessment						
C = Course Exit Survey Attainment	3	2	2	2	2	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.6	0.6	0.6	0.6	0.9
CO Attainment = D+I	1.53	1.0725	1.37	1.3175	1.37	1.775




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HYDROLOGY AND WATER RESOURCE ENGINEERING

CO→	301002.1	301002.2	301002.3	301002.4	301002.5	301002.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	1	1	1	1	1	1
Assignment	2	1	2	2	1	2
Average direct Assessment=	1.5	1	1.5	1.5	1	1.5
A = Internal attainment X 0.3=	0.45	0.3	0.45	0.45	0.3	0.45
University exams						
Phase Result	0.5	0.5	0	0	0	0
End Sem Result	0	0	0.5	0.5	0.5	0.5
B = University Result X 0.7=	0	0	0.35	0.35	0.35	0.35
Total Attainment -Direct Assessment D= (A+B)*.7	0.315	0.21	0.56	0.56	0.455	0.56
Indirect Assessment						
C = Course Exit Survey Attainment	1	1	1	1	1	1
Total Attainment -Indirect Assessment I= (C)*.3	0.3	0.3	0.3	0.3	0.3	0.3
CO Attainment = D+I	0.615	0.51	0.86	0.86	0.755	0.86

Water Supply Engineering

CO→	301002.1	301002.2	301002.3	301002.4	301002.5	301002.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	1	1	1	1	1	1
Assignment	2	1	2	2	1	2
Average direct Assessment=	1.3	1	1.5	1.5	1	1.5
A = Internal attainment X 0.3=	0.39	0.3	0.45	0.45	0.3	0.45
University exams						
Phase Result	1	1	0	0	0	0
End Sem Result	0	0	0.5	0.5	0.5	0.5
B = University Result X 0.7=	0	0	0.35	0.35	0.35	0.35
Total Attainment -Direct Assessment D= (A+B)*.7	0.273	0.21	0.56	0.56	0.455	0.56
Indirect Assessment						
C = Course Exit Survey Attainment	1	1	1	1	1	1
Total Attainment -Indirect Assessment I= (C)*.3	0.3	0.3	0.3	0.3	0.3	0.3
CO Attainment = D+I	0.573	0.51	0.86	0.86	0.755	0.86



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DSS						
CO→	301002.1	301002.2	301002.3	301002.4	301002.5	301002.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	1	1	2	2	1	1
Assignment	2	2	2	2	2	2
Average direct Assessment=	1.5	1.5	1.75	1.75	1.38	1.38
A = Internal attainment X 0.3=	0.45	0.45	0.525	0.525	0.4125	0.4125
University exams						
Phase Result	1.5	1.5	0	0	0	0
End Sem Result	0	0	0.5	0.5	0.5	0.5
B = University Result X 0.7=	0	0	0.35	0.35	0.35	0.35
Total Attainment -Direct Assessment D= (A+B)*.7	0.315	0.315	0.6125	0.6125	0.53375	0.53375
Indirect Assessment						
C = Course Exit Survey Attainment	3	2	2	2	2	2
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.6	0.6	0.6	0.6	0.6
CO Attainment = D+I	1.215	0.915	1.2125	1.2125	1.13375	1.13375

Advanced Concrete Technology						
CO→	301005 d.1	301005 d.2	301005 d.3	301005 d.4	301005 d.5	301005 d.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	1	1	2	2	2	2
Assignment	2	1	2	2	1	2
Average direct Assessment=	1.5	1	1.75	1.75	1.25	1.75
A = Internal attainment X 0.3=	0.45	0.3	0.525	0.525	0.375	0.525
University exams						
Phase Result	1.5	1.5	0	0	0	0
End Sem Result	0	0	1	1	1	1
B = University Result X 0.7=	0	0	0.7	0.7	0.7	0.7
Total Attainment -Direct Assessment D= (A+B)*.7	0.315	0.21	0.8575	0.8575	0.7525	0.8575
Indirect Assessment						
C = Course Exit Survey Attainment	1	1	1	1	1	1
Total Attainment -Indirect Assessment I= (C)*.3	0.3	0.3	0.3	0.3	0.3	0.3
CO Attainment = D+I	0.615	0.51	1.1575	1.1575	1.0525	1.1575



TKUJ

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J. S. MOLE, PUNE - 411 045

Semester - VI

WASTE WATER ENGINEERING

CO→	301002.1	301002.2	301002.3	301002.4	301002.5	301002.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam						
Assignment	1	1	1	1	2	2
	1	1	2	2	1	2
Average direct Assessment=						
A = Internal attainment X 0.3=	1	1	1.5	1.5	1.25	1.75
	0.3	0.3	0.45	0.45	0.375	0.525
University exams						
Phase Result						
End Sem Result	0.5	0.5	0	0	0	0
B = University Result X 0.7=			0.25	0.25	0.25	0.25
	0	0	0.175	0.175	0.175	0.175
Total Attainment -Direct Assessment D= (A+B)*.7	0.21	0.21	0.4375	0.4375	0.385	0.49
Indirect Assessment						
C = Course Exit Survey Attainment	1	1	1	1	1	1
Total Attainment -Indirect Assessment I= (C)*.3	0.3	0.3	0.3	0.3	0.3	0.3
CO Attainment = D+I	0.51	0.51	0.7375	0.7375	0.685	0.79

RSGIS

CO→	401007.1	401007.2	401007.3	401007.4	401007.5	401007.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	1	1	1	1	1	1
Assignment	2	1	2	2	1	2
Average direct Assessment=						
A = Internal attainment X 0.3=	1.5	1	1.5	1.5	1	1.5
	0.45	0.3	0.45	0.45	0.3	0.45
University exams						
Phase Result	1	1	0	0	0	0
End Sem Result	0	0	1	1	1	1
B = University Result X 0.7=			0.7	0.7	0.7	0.7
	0	0	0.7	0.7	0.7	0.7
Total Attainment -Direct Assessment D= (A+B)*.7	0.315	0.21	0.805	0.805	0.7	0.805
Indirect Assessment						
C = Course Exit Survey Attainment	1	1	1	1	1	1
Total Attainment -Indirect Assessment I= (C)*.3	0.3	0.3	0.3	0.3	0.3	0.3
CO Attainment = D+I	0.615	0.51	1.105	1.105	1	1.105



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Design of RC Structures

CO→	Design of RC Structures					
Assessment tools ↓	301013.1	301013.2	301013.3	301013.4	301013.5	301013.6
Direct Assessment						
Internal Assessment						
Internal exam						
Assignment	1	1	1	1	2	2
	3	3	2	3	2	3
Average direct Assessment=						
A = Internal attainment X 0.3=	2	2	1.5	2	1.75	2.25
	0.6	0.6	0.45	0.6	0.525	0.675
University exams						
Phase Result						
End Sem Result	0.5	0.5				
B = University Result X 0.7=			0.25	0.25	0.25	0.25
	0	0	0.175	0.175	0.175	0.175
Total Attainment -Direct Assessment D= (A+B)*.7	0.42	0.42	0.4375	0.5425	0.49	0.595
Indirect Assessment						
C = Course Exit Survey Attainment	1	1	1	1	1	1
Total Attainment -Indirect Assessment I= (C)*.3	0.3	0.3	0.3	0.3	0.3	0.3
CO Attainment = D+I	0.72	0.72	0.7375	0.8425	0.79	0.895

ATP

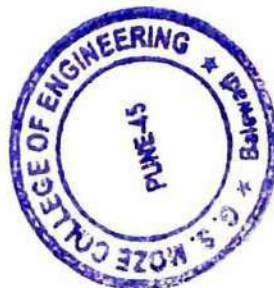
CO→	ATP					
Assessment tools ↓	401007.1	401007.2	401007.3	401007.4	401007.5	401007.6
Direct Assessment						
Internal Assessment						
Internal exam	1	1	1	1	1	1
Assignment	2	1	2	2	1	2
Average direct Assessment=	1.5	1	1.5	1.5	1	1.5
A = Internal attainment X 0.3=	0.45	0.3	0.45	0.45	0.3	0.45
University exams						
Phase Result	1	1	0	0	0	0
End Sem Result	0	0	1	1	1	1
B = University Result X 0.7=			0.7	0.7	0.7	0.7
	0	0	0.7	0.7	0.7	0.7
Total Attainment -Direct Assessment D= (A+B)*.7	0.315	0.21	0.805	0.805	0.7	0.805
Indirect Assessment						
C = Course Exit Survey Attainment	1	1	1	1	1	1
Total Attainment -Indirect Assessment I= (C)*.3	0.3	0.3	0.3	0.3	0.3	0.3
CO Attainment = D+I	0.615	0.51	1.105	1.105	1	1.105




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Semester - VII						
Foundation engineering						
CO→	401011.1	401011.2	401011.3	401011.4	401011.5	401011.6
Assessment tools ↓						
Direct Assessment						
Internal Assessment						
Internal exam						
Assignment	1	1	1	1	1	1
Average direct Assessment=						
A = Internal attainment X 0.3=	0.3	0.3	0.3	0.3	0.3	0.3
University exams						
Phase Result	0.5	0.5				
End Sem Result	0.5	0.5	0.5	0.5	0.5	0.5
B = University Result X 0.7=	0.35	0.35	0.35	0.35	0.35	0.35
Total Attainment -Direct Assessment D= (A+B)*.7	0.455	0.455	0.455	0.455	0.455	0.455
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	2	2	2
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.6	0.6	0.6
CO Attainment = D+I	1.355	1.355	1.355	1.055	1.055	1.055

TRE						
CO→	401007.1	401007.2	401007.3	401007.4	401007.5	401007.6
Assessment tools ↓						
Direct Assessment						
Internal Assessment						
Internal exam	1	1	2	2	1	1
Assignment	2	2	2	2	2	2
Average direct Assessment=	1.5	1.5	2	2	1.5	1.5
A = Internal attainment X 0.3=	0.45	0.45	0.6	0.6	0.45	0.45
University exams						
Phase Result	1	1	0	0	0	0
End Sem Result	0	0	1	1	1	1
B = University Result X 0.7=	0	0	0.7	0.7	0.7	0.7
Total Attainment -Direct Assessment D= (A+B)*.7	0.315	0.315	0.91	0.91	0.805	0.805
Indirect Assessment						
C = Course Exit Survey Attainment	2	1	3	2	2	2
Total Attainment -Indirect Assessment I= (C)*.3	0.6	0.3	0.9	0.6	0.6	0.6
CO Attainment = D+I	0.915	0.615	1.81	1.51	1.405	1.405




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AIR POLLUTION AND CONTROL						
CO→	401004n.1	401004n.2	401004n.3	401004n.4	401004n.5	401004n.6
Assessment tools	Direct Assessment					
Internal Assessment						
Internal exam						
Assignment	1	1	1	1	2	2
	2	1	2	2	3	2
Average direct Assessment=						
A = Internal attainment X 0.3=	1.5	1	1.5	1.5	2.25	1.75
University exams	0.45	0.3	0.45	0.45	0.675	0.525
Phase Result						
End Sem Result	1	1	0	0	0	0
B = University Result X 0.7=	0	1	0.75	0.75	0.75	0.765
Total Attainment -Direct Assessment D= (A+B)*.7	0	0.7	0.525	0.525	0.525	0.5355
Indirect Assessment	0.315	0.7	0.6825	0.6825	0.84	0.74235
C = Course Exit Survey Attainment						
	1	1	1	1	1	1
Total Attainment -Indirect Assessment I= (C)*.3	0.3	0.3	0.3	0.3	0.3	0.3
CO Attainment = D+I	0.615	1	0.9825	0.9825	1.14	1.04235

STRUCTURAL AUDIT AND RETRO FITTING OF STRUCTURES						
CO→	401007.1	401007.2	401007.3	401007.4	401007.5	401007.6
Assessment tools	Direct Assessment					
Internal Assessment						
Internal exam						
Assignment	0.5	0.5	1.5	1.5	1	1
	2	1	2	2	3	2
Average direct Assessment=						
A = Internal attainment X 0.3=	1.25	0.75	1.75	1.75	2	1.5
University exams	0.375	0.225	0.525	0.525	0.6	0.45
Phase Result						
End Sem Result	1.5	1.5	0	0	0	0
B = University Result X 0.7=	0	0	0.5	0.5	0.5	0.5
Total Attainment -Direct Assessment D= (A+B)*.7	0	0	0.35	0.35	0.35	0.35
Indirect Assessment	0.2625	0.1575	0.6125	0.6125	0.665	0.56
C = Course Exit Survey Attainment						
	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	1.1625	1.0575	1.5125	1.5125	1.565	1.46




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Semester - VIII

Dams and Hydraulics Structures

CO→	401007.1	401007.2	401007.3	401007.4	401007.5	401007.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	1	1	1	1	2	2
Assignment	3	1	3	2	3	3
Average direct Assessment=	2	1	2	1.5	2.25	2.25
A = Internal attainment X 0.3=	0.6	0.3	0.6	0.45	0.675	0.675
University exams						
Phase Result	1.5	1.5				
End Sem Result	1.5	1.5	0.5	0.5	0.5	0.5
B = University Result X 0.7=	1.05	1.05	0.35	0.35	0.35	0.35
Total Attainment -Direct Assessment D= (A+B)*.7	1.155	0.945	0.665	0.56	0.7175	0.7175
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.055	1.845	1.565	1.46	1.6175	1.6175

Quantity Surveying, Contracts and Tenders

CO→	401012.1	401012.2	401012.3	401012.4	401012.5	401012.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	0.5	0.5	1	1	1.5	1.5
Assignment	2	3	2	1	2	2
Average direct Assessment=	1.25	1.75	1.5	1	1.75	1.75
A = Internal attainment X 0.3=	0.375	0.525	0.45	0.3	0.525	0.525
University exams						
Phase Result	1	1				
End Sem Result	1	1	0.75	0.75	0.75	0.75
B = University Result X 0.7=	0.7	0.7	0.525	0.525	0.525	0.525
Total Attainment -Direct Assessment D= (A+B)*.7	0.7525	0.8575	0.6825	0.5775	0.735	0.735
Indirect Assessment						
C = Course Exit Survey Attainment	3	1	3	2	2	2
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.3	0.9	0.6	0.6	0.6
CO Attainment = D+I	1.6525	1.1575	1.5825	1.1775	1.335	1.335



Tracy

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Hydropower Engineering						
CO→	401013 e.1	401013 e.2	401013 e.3	401013 e.4	401013 e.5	401013 e.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam						
Assignment	2	2	2	2	2	2
Average direct Assessment=						
A = Internal attainment X 0.3=	1.5	1.5	1.5	1.5	1.5	1.5
University exams	0.45	0.45	0.45	0.45	0.45	0.45
Phase Result						
End Sem Result	0.5	0.5				
B = University Result X 0.7=	0.5	0.5	0.25	0.25	0.25	0.25
Total Attainment -Direct Assessment D= (A+B)*.7	0.35	0.35	0.175	0.175	0.175	0.175
Indirect Assessment	0.56	0.56	0.4375	0.4375	0.4375	0.4375
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	1.46	1.46	1.3375	1.3375	1.3375	1.3375

AIRPORT AND BRIDGE ENGINEERING						
CO→	401007.1	401007.2	401007.3	401007.4	401007.5	401007.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	0.5	0.5	1.5	1.5	1.5	1.5
Assignment	2	1	2	1	3	2
Average direct Assessment=	1.25	0.75	1.75	1.25	2.25	1.75
A = Internal attainment X 0.3=	0.375	0.225	0.525	0.375	0.675	0.525
University exams						
Phase Result	1.5	1.5	0	0	0	0
End Sem Result	0	0	0.5	0.5	0.5	0.5
B = University Result X 0.7=	0	0	0.35	0.35	0.35	0.35
Total Attainment -Direct Assessment D= (A+B)*.7	0.2625	0.1575	0.6125	0.5075	0.7175	0.6125
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	1.1625	1.0575	1.5125	1.4075	1.6175	1.5125

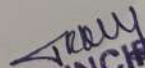


Principal

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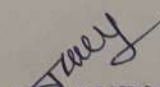
Sr. No.	Course Code	Course Name
Semester - I		
1	310901	Discrete Mathematics and Statistics
2	310902	Data Structures and Algorithms
3	310903	Object Oriented Programming
4	310904	Software Engineering & Project Management
5	310905	Information Systems and Engineering Economics
Semester - II		
1	310912	Database Management System
2	310913	Computer Network
3	310914	Java Programming
4	310915	Operating Systems
5	310916	Elective-I



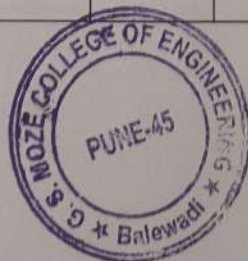

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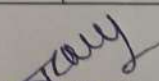
	DEPARTMENT: MCA					
	CO Attainment					
Academic Year and Semester :-2022-23 SEM I						
Course Name						
Discrete Mathematics and Statistics: 310901						
CO→	310901.1	310901.2	310901.3	310901.4	310901.5	310901.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Unit Test	3	3	3	3	3	3
Assignment	2.5	2	2	2	2	2
Average direct Assessment=	2.75	2.5	2.5	2.5	2.5	2.5
A = Internal attainment X 0.3=	0.825	0.75	0.75	0.75	0.75	0.75
University exams						
Phase Result	3	3	3	3	3	3
End Sem Result	2	2	2	2	2	2
B = University Result X 0.7=	1.4	1.4	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.5575	1.505	1.505	1.505	1.505	1.505
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	2	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.6	0.9	0.9
CO Attainment = D+I	2.4575	2.405	2.405	2.105	2.405	2.405
Data Structures and Algorithms : 310902						
CO→	310902.1	310902.2	310902.3	310902.4	310902.5	310902.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Unit Test	3	3	3	3	3	3
Assignment	3	2	2	2	2	2
Average direct Assessment=	3	2.5	2.5	2.5	2.5	2.5




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A = Internal attainment X 0.3=	0.9	0.75	0.75	0.75	0.75	0.75
University exams						
Phase Result	3	3	3	3	3	3
End Sem Result	2	2	2	2	2	2
B = University Result X 0.7=	1.4	1.4	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.61	1.505	1.505	1.505	1.505	1.505
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	2	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.6	0.9	0.9
CO Attainment = D+I	2.51	2.405	2.405	2.105	2.405	2.405
Object Oriented Programming : 310903						
CO→	310903.1	310903.2	310903.3	310903.4	310903.5	310903.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Unit Test	3	3	3	3	3	3
Assignment	3	2	2	2	2	2
Average direct Assessment=	3	2.5	2.5	2.5	2.5	2.5
A = Internal attainment X 0.3=	0.9	0.75	0.75	0.75	0.75	0.75
University exams						
Phase Result	2	2	3	2	3	3
End Sem Result	3	3	2	3	2	2
B = University Result X 0.7=	2.1	2.1	1.4	2.1	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	2.1	1.995	1.505	1.995	1.505	1.505
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	2	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.6	0.9	0.9
CO Attainment = D+I	3	2.895	2.405	2.595	2.405	2.405
Software Engineering & Project Management :310904						




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CO→	310904.1	310904.2	310904.3	310904.4	310904.5	310904.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Unit Test	3	3	3	3	3	3
Assignment	3	2	2	2	2	2
Average direct Assessment=	3	2.5	2.5	2.5	2.5	2.5
A = Internal attainment X 0.3=	0.9	0.75	0.75	0.75	0.75	0.75
University exams						
Phase Result	3	3	3	3	3	3
End Sem Result	2	2	2	2	2	2
B = University Result X 0.7=	1.4	1.4	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.61	1.505	1.505	1.505	1.505	1.505
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	2	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.6	0.9	0.9
CO Attainment = D+I	2.51	2.405	2.405	2.105	2.405	2.405
Information System and Engineering Economics: 310905						
CO→	310905.1	310905.2	310905.3	310905.4	310905.5	310906
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Unit Test	2	3	2	2	3	2
Assignment	3	2	2	3	3	2
Average direct Assessment=	2.5	2.5	2	2.5	3	2
A = Internal attainment X 0.3=	0.75	0.75	0.6	0.75	0.9	0.6
University exams						
Phase Result	3	2	3	2	3	3
End Sem Result	3	2	2	2	2	2
B = University Result X 0.7=	2.1	1.4	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.995	1.505	1.4	1.505	1.61	1.4
Indirect Assessment						




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C = Course Exit Survey Attainment	3	3	2	2	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.6	0.6	0.9	0.9
CO Attainment = D+I	2.895	2.405	2	2.105	2.51	2.3
Academic Year and Semester :-2022-23 SEM II						
DATABASE MANAGMENT SYSTEM :310912						
CO→	310912.1	310912.2	310912.3	310912.4	310912.5	310912.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Unit Test	3	3	3	3	3	3
Assignment	3	2	2	2	2	2
Average direct Assessment=	3	2.5	2.5	2.5	2.5	2.5
A = Internal attainment X 0.3=	0.9	0.75	0.75	0.75	0.75	0.75
University exams						
Phase Result	3	3	3	3	3	3
End Sem Result	2	2	2	2	2	2
B = University Result X 0.7=	1.4	1.4	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.61	1.505	1.505	1.505	1.505	1.505
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	2	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.6	0.9	0.9
CO Attainment = D+I	2.51	2.405	2.405	2.105	2.405	2.405
Computer Network: 310913						
CO→	310913.1	310913.2	310913.3	310913.4	310913.5	310913.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Unit Test	3	3	3	2	3	2
Assignment	2	2	3	3	3	2
Average direct Assessment=	2.5	2.5	3	2.5	3	2




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A = Internal attainment X 0.3=	0.75	0.75	0.9	0.75	0.9	0.6
University exams						
Phase Result	3	2	3	2	3	2
End Sem Result	3	2	2	2	2	2
B = University Result X 0.7=	2.1	1.4	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.995	1.505	1.61	1.505	1.61	1.4
Indirect Assessment						
C = Course Exit Survey Attainment	3	2	2	2	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.6	0.6	0.6	0.9	0.9
CO Attainment = D+I	2.895	2.105	2.21	2.105	2.51	2.3
Java Programming:310914						
CO→	310914.1	310914.2	310914.3	310914.4	310914.5	310914.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Unit Test	3	3	3	3	3	3
Assignment	2	3	2	2	3	2
Average direct Assessment=	2.5	3	2.5	2.5	3	2.5
A = Internal attainment X 0.3=	0.75	0.9	0.75	0.75	0.9	0.75
University exams						
Phase Result	3	3	3	3	3	3
End Sem Result	2	2	2	2	2	2
B = University Result X 0.7=	1.4	1.4	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.505	1.61	1.505	1.505	1.61	1.505
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	2	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.6	0.9	0.9
CO Attainment = D+I	2.405	2.51	2.405	2.105	2.51	2.405
Operating System : 310915						
CO→	310915.1	310915.2	310915.3	310915.4	310915.5	310915.6
Assessment tools↓						
Direct Assessment						

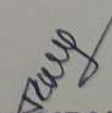


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Internal Assessment						
Unit Test	3	3	3	2	2	3
Assignment	2	3	2	2	3	2
Average direct Assessment=	2.5	3	2.5	2	2.5	2.5
A = Internal attainment X 0.3=	0.75	0.9	0.75	0.6	0.75	0.75
University exams						
Phase Result	3	3	3	3	3	3
End Sem Result	2	2	2	2	2	2
B = University Result X 0.7=	1.4	1.4	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.505	1.61	1.505	1.4	1.505	1.505
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	2	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.6	0.9	0.9
CO Attainment = D+I	2.405	2.51	2.405	2	2.405	2.405
Artificial Intelligence: 310916B						
CO→	310916.1	310916.2	310916.3	310916.4	310916.5	310916.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Unit Test	3	3	3	3	3	3
Assignment	3	2	2	2	2	2
Average direct Assessment=	3	2.5	2.5	2.5	2.5	2.5
A = Internal attainment X 0.3=	0.9	0.75	0.75	0.75	0.75	0.75
University exams						
Phase Result	3	3	3	3	3	3
End Sem Result	2	2	2	2	2	2
B = University Result X 0.7=	1.4	1.4	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.61	1.505	1.505	1.505	1.505	1.505
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	2	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.6	0.9	0.9




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CO Attainment = D+I	2.51	2.405	2.405	2.105	2.405	2.405
Elective-I Block Chain: 310916D						
CO→	30916.1	310916.2	310916.3	310916.4	310916.5	310916.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Unit Test	3	3	3	3	3	3
Assignment	3	3	2	2	2	2
Average direct Assessment=	3	3	2.5	2.5	2.5	2.5
A = Internal attainment X 0.3=	0.9	0.9	0.75	0.75	0.75	0.75
University exams						
Phase Result	3	3	3	3	3	3
End Sem Result	2	2	2	2	2	2
B = University Result X 0.7=	1.4	1.4	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.61	1.61	1.505	1.505	1.505	1.505
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	2	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.6	0.9	0.9
CO Attainment = D+I	2.51	2.51	2.405	2.105	2.405	2.405




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“EMPOWERMENT THROUGH TECHNOLOGICAL EXCELLENCE”
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S. No. 25/1/3, Balewadi, Pune – 411 045

(Approved by AICTE and Govt. of Maharashtra, Affiliated to Savitribai Phule Pune University)

DTE Code - EN6144 University Affiliation ID - PU/PN/ENGG/138/1999

Ph: 020-27390500 Website: www.gsmozecoe.org Email: gsmoze@yahoo.co.in

Founder President: Shri Rambhau Moze

**Criteria 2.6.2 CO PO Attainment
 Information Technology 2015 pattern**

Sr. No.	Course Code	Course Name
Semester - III		
1	214441	Discrete Structures
2	214442	Computer Organization & Architecture
3	214443	Digital Electronics and Logic Design
4	214444	Fundamentals of Data Structures
5	214445	Problem Solving and Object Oriented programming
Semester - IV		
6	207003	Engineering Mathematics III
7	214450	Computer Graphics
8	214451	Processor Architecture
9	214452	Data Structures & Files
10	214453	Foundations of Communication and Computer Network
Semester - V		
11	314441	Theory of Computation
12	314442	Database Management Systems
13	314443	Software Engineering & Project Management
14	314444	Operating System
15	314445	Human-Computer Interaction
Semester - VI		
16	314450	Computer Network Technology
17	314451	Systems Programming
18	314452	Design and Analysis of Algorithms
19	314453	Cloud Computing
20	314454	Data Science & Big Data Analytics
Semester - VII		
21	414453	Information and Cyber Security
22	414454	Machine Learning and Applications
23	414455	Software Design and Modeling
24	414456E	Elective-I Business Analytics and Intelligence
	414457C	Elective-II Software Testing and Quality Assurance
Semester - VIII		
25	414462	Distributed Computing System
26	414463	Ubiquitous Computing
27	414464C	Elective III Multimedia Techniques
28	414465D	Elective IV Social Media Analytics



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Ph: 020-27390500 Website: www.gsmozece.org Email: gsmoze@yahoo.co.in

Founder President: Shri Rambhau Moze

Criteria 2.6.2 CO PO Attainment
Information Technology 2019 pattern

Sr. No.	Course Code	Course Name
Semester - III		
1	214441	Discrete Mathematics
2	214442	Computer Organization and Logic Design
3	214443	Data Structures and Algorithms
4	214444	Object Oriented Programming
5	214445	Basics of Computer Network
Semester - IV		
6	207003	Engineering Mathematics III
7	214451	Processor Architecture
8	214452	Database Management System
9	214453	Computer Graphics
10	214454	Software Engineering
Semester - V		
11	314441	Theory of Computation
12	314442	Operating Systems
13	314443	Machine Learning
14	314444	Human Computer Interaction
15	314445	Elective-I Internet of Things
Semester - VI		
16	314451	Computer Networks & Security
17	314452	Data Science and Big Data Analytics
18	314453	Web Application Development
19	314454	Elective-II Cloud Computing
Semester - VII		
20	414441	Information and Storage Retrieval
21	414442	Software Project Management
22	414443	Deep Learning
23	414444	Elective III Mobile Computing
24	414445	Elective IV Wireless Communications
Semester - VIII		
25	414450	Distributed Systems
26	414451	Social Computing
27	414452	Elective V Blockchain Technology



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2.6.2 CO PO Attainment Matrix

Academic Year 2018-19

Semester - III

Course Code	Name of Course														
214441	Discrete Structures	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
214441.1	Formulate, apply formal proof techniques and solve the problems with logical reasoning.	6.3	4.2	6.3	4.2	4.2	0	4.2	0	4.2	2.1	0	2.1	0	4.2
214441.2	Analyze and evaluate the combinatorial problems by using probability theory.	3.15	2.1	2.1	2.1	2.1	0	2.1	0	4.2	2.1	0	2.1	0	4.2
214441.3	Apply the concepts of graph theory to devise mathematical models.	2.1	2.1	2.1	1.4	1.4	0	1.4	0	2.1	1.05	0	1.05	0	2.1
214441.4	Analyze types of relations and functions to provide solution to computational problems.	1.4	1.4	1.4	0	0	0	0	0	0.7	0.7	0	0.7	0	1.4
214441.5	Identify techniques of number theory and its application.	1.4	1.4	0.7	0	0	0	0	0	0.7	0.7	0	0.7	0	1.4
214441.6	Identify fundamental algebraic structures.	2.1	2.1	3.15	1.05	2.1	0	1.05	0	2.1	1.05	0	1.05	0	1.05
Avg PO attainment.		2.74	2.66	3.94	2.92	2.45	0	2.92	0	1.63	1.26	0	1.05	0	5.43
214442	Computer Organization & Architecture	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
214442.1	Solve problems based on computer arithmetic.	6.3	6.3	0	0	4.2	2.1	0	0	0	0	0	0	2.1	2.1
214442.2	Explain processor structure & its functions.	3.15	3.15	3.15	0	1.05	1.05	0	0	0	0	0	0	3.15	1.05
214442.3	Obtain knowledge about micro-programming of a processor.	2.1	2.1	2.1	0	0.7	0.7	0	0	0	0	0	0	2.1	0
214442.4	Understand concepts related to memory & IO organization.	2.1	1.4	0	0	1.4	2.1	0	0	0	0	0	0	0	0.7
214442.5	Understand CPU instruction characteristics	2.1	1.4	0	0	1.4	1.4	0	0	0	0	0	0	0	0.7
214442.6	Understand enhancement features of CPU	3.15	2.1	0	0	2.1	2.1	0	0	0	0	0	0	1.05	1.05
Avg PO attainment.		3.15	3.29	1.31	0	2.71	1.58	0	0	0	0	0	0	8.4	2.8
214443	Digital Electronics and Logic Design	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
214443.1	Spectacle an awareness and apply knowledge of number systems, codes, Boolean algebra and use necessary A.C, D.C Loading characteristics as well as functioning while designing with logic gates.	1.73	0.86		0.86	0	0	0	0	0	0	0	0	1	0
214443.2	Use logic function representation for simplification with K-Maps and analyze as well as design Combinational logic circuits using SSI & MSI chips.	2	2		1	0	0	0	0	0	0	0	0	2	0
214443.3	Analyze Sequential circuits like Flip-Flops (Truth Table, Excitation table), their conversion & design the applications.	2.2	1.46	1.46	0.73	0	0	0	0	0	0	0	0	2	0
214443.4	Design algorithms based on techniques like brute -force, divide and conquer, greedy, etc.	2.6	1.73	1.73	0.86	0	0	0	0	0	0	0	0	1	2
214443.5	Use VHDL programming technique	2.6	1.73	1.73	0.86	0	0	0	0	0	0	0	0	1	1
214443.6	different modeling styles for any digital circuits.	1.73	1.73	1.73	0.86	0	0	0	0	0	0	0	0	1	1
Avg PO attainment.		2.14	1.9	1.66	1.29	0	0	0	0	0	0	0	0	1.33	0.67
214444	Fundamentals of Data Structures	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
214444.1	Apply appropriate constructs of C language, coding standards for application development.	1.73	0.86		0.86	0	0.86	0	0	0	0	0	0	2	0
214444.2	Use dynamic memory allocation concepts and file handling in various application developments.	2	2		1	0	1	0	0	0	0	0	0	1	0
214444.3	Perform basic analysis of algorithms with respect to time and space complexity	2.2	1.46	1.46	0.73	0	0.73	0	0	0	0	0	0	1	0
214444.4	Select appropriate searching and/or sorting techniques in the application development	2.6	1.73	1.73	0.86	0	3	0	0	0	0	0	0	0	1
214444.5	Select and use appropriate data structures for problem solving and programming	2.6	1.73	1.73	0.86	0	0.86	0	0	0	0	0	0	0	1
214444.6	Use algorithmic foundations for solving problems and programming	1.73	1.73	1.73	0.86	0	0.86	0	0	0	0	0	0	1	0
Avg PO attainment.		2.14	1.9	1.66	1.29	0	1.22	0	0	0	0	0	0	0.83	0.33
214445	Problem Solving and Object Oriented programming	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
214445.1	Develop algorithms for solving problems by using modular programming concepts	1.73	1.73	1.73	0.86	0.86	0.86	1.73	0	0	0.86	0	0.86	0.1	0.1
214445.2	Abstract data and entities from the problem domain, build object models and design software solutions using object-oriented principles and strategies	0.86	0.86	0.86	1	0.86	1	1.73	0.1	0	0.86	0	0.86	0.1	0.1
214445.3	Discover, explore and apply tools and best practices in object-oriented programming.	2.2	1.46	1.46	0.73	0.86	0.73	1.73	0.1	0	0.86	0	0.86	0.1	0.1
214445.4	Develop programs that appropriately utilize key object-oriented concepts	2.6	1.73	1.73	0.86	0.86	3	1.73	0.1	0	0.86	0	0.86	0.1	0.1
214445.5	Develop programs that utilize Virtual Functions and Templates to provide object-oriented solutions	2.6	1.73	1.73	0.86	0.86	0.86	1.73	0	0	0.86	0	0.86	0.1	0.1

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21445.6	Use of files for persistent data storage for real world application.	1.73	1.73	1.73	36	0.86	0.86	0.86	0	0	0.86	0	0	0.1	0.1	
Avg PO attainment.		1.95	1.85	2.31	1.29	1.29	1.22	3.17	0.06	0	0.86	0	0.57	0.1	0.1	
Semester - IV																
207003	Engineering Mathematics III	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
207003 .1	Solve higher order linear differential equation using appropriate techniques for modeling and analyzing electrical circuits.	1.73	1.73	1.73	0.86	0	0	0	0	0	0	0	0	0.1	0	
207003 .2	Solve problems related to Fourier transform, Z-Transform and applications to Signal and Image processing.	0.86	0.86	0.86	1	0	0	0	0	1	0	0	0	0.1	0	
207003 .3	Apply statistical methods like correlation, regression analysis and probability theory for analysis and prediction of a given data as applied to machine intelligence.	2.2	1.46	1.46	0.73	0	0.73	0	0	0	0	1		0.2	0	
207003 .4	Perform vector differentiation and integration to analyze the vector fields and apply to compute line, surface and volume integrals.	2.6	1.73	1.73	0.86	0	0	0	0	0	0	0	0	0.1	0	
207003 .5	Analyze conformal mappings, transformations and perform contour integration of complex functions required in Image processing, Digital filters and Computer graphics.	2.6	1.73	1.73	0.86	0	0	0	0	0	0	0	0	0.1	0	
Avg PO attainment.		1.67	1.5	1.88	1.08	0	0.12	0	0	0.17	0	0.17	0	0.1	0	
214450	Computer Graphics	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
214450 .1	Apply mathematics and logic to develop Computer programs for elementary graphic operations	1.73	1.73	1.73	0.86	0.86	0.86	1.73	0.86	0	0.86					
214450 .2	Explain and employ techniques of geometrical transforms to produce, position and manipulate objects in 2 dimensional and 3-dimensional space respectively.	0.86	0.86	0.86	1	0.86	1	1.73	0.1	0.1	0.86	0.1	0	0.1	0	
214450 .3	Describe mapping from a world coordinates to device coordinates, clipping, and projections in order to produce 3D images on 2D output device.	2.2	1.46	1.46	0.73	0.86	0.73	1.73	0.1	0.1	0.86	0.86	0	0	0	
214450 .4	design, development and testing of 2D, 3D modeling applications.	2.6	1.73	1.73	0.86	0.86	3	1.73	0.1	0.86	0.86	0	1.73	0	0.1	
214450 .5	Apply the concepts of rendering, shading, animation	2.6	1.73	1.73	0.86	0.86	0.86	1.73	0.1	0.86	0.86	0	1.73	0	0	
214450 .6	Apply the concepts of CURVES AND FRACTALS	1.73	1.73	1.73	0.86	0.86	0.86	2.1	1.8	1.1	0.86	0	1.73	0	0	
Avg PO attainment.		1.95	1.85	2.31	1.29	1.29	1.22	2.88	0.25	0.32	0.86	0.18	0.87	0.02	0.02	
214451	Processor Architecture	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
214451 .1	Learn architectural details of 80386 microprocessor	4.2	1.4	2.8	2.8	4.2	3	2.8	3	0	0	0	2.8	0	0	
214451 .2	Understand memory management and multitasking of 80386 microprocessor	1.87	1.87	2.8	0	1.87	0	0	0	0	0	0	0	0	0	
214451 .3	Understand Privilege protection, interrupts and exceptions.	0.9	0.9	2	0	1.8	0	0	0	0	0	0	0	0	0	
214451 .4	Understand architecture and memory organization of 8051 microcontroller	0.9	0.9	2	0	1.8	0	0	0	0	0	0	0	0	0	
214451 .5	Explain timers and interrupts of 8051 microcontroller and its interfacing with I/O devices	1.4	2.8	2.8	0	0	0	0	0	0	0	0	0	0	0	
214451 .6	Understand minimum system using 8051 microcontroller.	1.4	2.8	2.8	0	0	0	0	0	0	0	0	0	0	0	
Avg PO attainment.		1.78	1.78	2.53	0.47	1.61	0.5	0.47	0.5	0	0	0	0.47	0	0	
214452	Data Structures & Files	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
214452 .1	Analyze algorithms and to determine algorithm correctness and time efficiency class.	1.73	1.73	1.73	1.73	0	0.86	0	0	0	0	0	0	0	0	
214452 .2	Understand different advanced abstract data type (ADT) and data structures and their implementations.	0.86	0.86	1.73	1.73	0	1	0	0	0	0	0	0	0	0	

214452 .3	Understand different algorithm design techniques (bruce force, divide and conquer, greedy, etc.) and their implementation	2.2	1.46	1.46	1.73	0	0.73	0	0	0	0	0	0	0	0	0
214452 .4	Apply and implement learned algorithm design techniques and data structures to solve problems.	2.6	1.73	1.73	1.73	0	3	0	0	0	0	0	0	0	0	0.2
214452 .5	Apply and implement concept of trees.	2.6	1.73	1.73	1.73	0	0.86	0	0	0	0	0	0	0	0	1.73
214452 .6	Apply and implement file organization	2.6	1.73	1.73	1.73	0	0.86	0	0	0	0	0	0	0	0	1.73
Avg PO attainment.		1.73	1.73	1.73	1.73	0	0.86	0	0	0	0	0	0	0	0	1.73
214453	Foundations of Communication and Computer Network	1.95	1.85	2.53	2.6	0	1.22	0	0	0	0	0	0	0	0.9	0.03
214452 .1	Understand data/signal transmission over communication media	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
214452 .2	Recognize usage of various modulation techniques in communication	1.73	4.2	4.2	0	1.1	0	0	0	0	0	0	0	0	0	
214452 .3	Analyze various spread spectrum and multiplexing techniques	0.1	2.1	4.2	0	1.1	0.1	0	0	0	0	0	0	0	0	
214452 .4	Use concepts of data communication to solve various related problems	0.1	1.4	4.2	0	2.1	0	0.1	0	0	0	0	0	0.1	0	
214452 .5	Understand error correction and detection techniques.	0.1	1.4	2.1	0	1.1	0	0	0	0	0	0	0	0	0	
214452 .6	Acquaint with transmission media and their standards	0.1	2.1	2.1	0	1.4	4.2	0	0	0	0	0	0	0	0	
Avg PO attainment.		0	0	2.1	0	0.1	0	0	2.1	0	0	0	0	0	0	
		0.36	2.24	4.73	0	1.73	0.72	0.03	0.42	0	0	0	0	0	0.1	

Semester - V

Course Code	Name of Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
314441	Theory of Computation														
314441.1	To construct finite state machines to solve problems in computing	2.6	1.73	1.73	1.73	1.73	0	0	0	0	0	0	0	0.2	2.6
314441.2	To write mathematical expressions for the formal languages	0.86	0.86	1.73	1.84	2.6	0	0	0	0	0	0	0	0	2.6
314441.3	To apply well defined rules for syntax verification.	2.2	1.46	1.46	1.73	2.6	0	0	0	0	0	0	0	0	2.6
314441.4	To construct and analyze Push Down, Post and Turing Machine for formal languages.	2.6	1.73	1.73	1.73	1.73	0	0	0	0	0	0	0	1.73	2.6
314441.5	To express the understanding of the decidability and decidability problems.	2.6	1.73	1.73	1.73	1.84	0	0	0	0	0	0	0	1.73	1.73
314441.6	To express the understanding of computational complexity.	1.73	1.73	1.73	1.73	0	0	0	0	0	0	0	0.1	1.73	1.73
Avg PO attainment.		2.1	1.85	2.53	2.62	2.63	0	0	0	0	0	0	0.02	0.9	2.12
314442	Database Management Systems														
314442.1	To define basic functions of DBMS & RDBMS	2.1	0.67	2.1	0	0	0	0	1.4	0	0	0	2.1	3.15	0.1
314442.2	To analyze database models & entity relationship models.	2.1	2.1	2.1	0	2.1	0	0	1.73	0.2	0	0	2.1	2.1	2.1
314442.3	To design and implement a database schema for a given problem-domain	1.4	0	1.4	0	0	0	0	1.73	0	0	0	0.7	0.7	0
314442.4	To populate and query a database using SQL DML/DDI commands.	2.1	0	0	0	0	0	0	1.73	0	0	0	2.1	0	0
314442.5	Do Programming in PL/SQL including stored procedures, stored functions, cursors and packages.	0.7	0	0	0	0.7	0	0	1.73	0	0	0	0.7	0.7	0
314442.6	To appreciate the impact of analytics and big data on the information industry and the external ecosystem for analytical and data services.	2.1	0	0	0	0	0	0	1.73	0	0	0	0	0	0.1
Avg PO attainment.		1.75	1.39	2.54		1.14	0	0	1.14	1.14	2.45	1.33	1.28	6.65	2.1
314443	Software Engineering & Project Management														
314443.1	To identify unique features of various software application domains and classify software applications.	3.3	3	0.73	1.47	1.47	0.73	0	0	0	0	0	0.73	0.73	0.73
314443.2	To choose and apply appropriate lifecycle model of software development	3.3	3.3	2.2	1.1	0	0	0	0	1.1	2.2	0	1.1	0	1.1
314443.3	To describe principles of agile development, discuss the SCRUM process and distinguish agile process model from other process models.	2.2	1.47	2.2	0.73	1.47	0.73	0	0.73	0.73	0.73	0.73	0.73	0	0.73
314443.4	To analyze software requirements by applying various modeling techniques.	2.2	3.3	0	1.1	0	1.1	1.1	2.2	1.1	1.1	0	1.1	1.1	0
314443.5	To list and classify CASE tools and discuss recent trends and research in software engineering	1.47	1.47	1.47	0.73	0.73	0.73	0.73	1.47	0.73	0.73	0	0.73	0	0.73
314443.6	To understand IT project management through life cycle of the project and future trends in IT Project Management.	2.2	1.1	1.1	1.1	2.2	1.1	1.1	1.1	1.1	0	0	1.1	0	0
Avg PO attainment.		2.44	2.73	1.93	2.08	1.47	0.73	0.98	1.1	0.79	0.95	0.15	0.92	1.83	1.65

PRINCIPAL

314444 Operating Systems		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
314444.1	Fundamental understanding of the role of Operating Systems.	2.88	0	1.92	0	1.92	0.96	0	0.96	0	0	0.96	0	0.96	0.96
314444.2	To understand the concept of a process and thread.	1.92	0	1.92	0	0.64	0	0	0.64	0	0	0.64	0	1.28	0.64
314444.3	To apply the cons of process/thread scheduling.	0	2.88	1.92	0.96	0	0.96	0	0.96	0	0	0.96	0	0	0
314444.4	To apply the concept of process synchronization, mutual exclusion and the deadlock	0	5.76	1.92	3.84	0	3.84	0	3.84	0	0	1.92	0	0	0
314444.5	To realize the concept of I/O management and File system.	3.84	1.92	3.84	0	3.84	3.84	0	0	0	0	1.92	0	0	0
314444.6	To understand the various memory management techniques.	2.88	0	0	0	0.96	0	0	0	0	0	0.96	0	1.92	0
Avg PO attainment.		1.92	2.11	2.88	1.6	1.84	1.6	0	1.28	0	0	1.47	0	5.12	1.28
314445 Human Computer Interaction		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
314445.1	To explain importance of HCI study and principles of user-centred design (UCD) approach.	3.3	2	1.1	0	0	0	0	0	0	2.2	0	1.1	0.1	0.1
314445.2	Develop understanding of human factors in HCI design.	3.3	3.3	2.2	2.2	1.1	0	0	0	0	2.2	0	2.2	0.1	0.83
314445.3	Develop understanding of models, paradigms, and context of interactions.	2.2	2.2	2.2	0.73	0.73	0	0	0	0	1.47	0	1.47	0.73	0.73
314445.4	Design effective user-interfaces following a structured and organized UCD process.	3.3	3.3	2.2	2.2	1.1	0	0	0	0	2.2	0	2.2	0.33	0.82
314445.5	Evaluate usability of a user-interface design.	2.2	2.2	1.47	1.47	0.73	0	0	0	0	1.47	0	1.47	0.2	1.47
314445.6	Apply cognitive models for predicting human-computer-interactions.	2.2	2.2	0	0	0	0	0	0	0	2.2	0	1.1	0.1	1.1
Avg PO attainment.		2.75	3.04	2.29	2.2	0.92	0	0	0	0	2.35	0	1.59	1.56	2.53
Semester - VI															
314450 Computer Networks & Security		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
314450.1	To know Responsibilities, services offered and protocol used at each layer of network.	3	1	2	1	0	1	0	0	0	3	2	2	3	0
314450.2	To understand different addressing techniques used in network.	2	2	2	1	2	2	0	0	0	3	2	2	2	2
314450.3	To know the difference between different types of network.	2	2	2		1	1	0	0	0	2	1	1	1	0
314450.4	To know the different wireless technologies and IEEE standards.	2	1	2	2	1	0	0	0	0	2	1	2	0	2
314450.5	To use and apply the standards and protocols learned, for application development.	1	1	2	2	1	1	0	0	0	2	1	1	1	0
314450.6	To understand and explore recent trends in network domain.	2	1	1	1	0	2	0	0	0	1	0	0	0	0
Avg PO attainment.		2	1.33	1.83	1.4	1.25	1.4	0	0	0	2.17	1.4	1.6	1.75	2
314451 Systems Programming		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
314451.1	To learn independently modern software development tools and creates novel solutions for language processing applications.	3	2	3	0	0	0	0	0	0	0	0	0	1	1
314451.2	To design and implement assemblers and macro processors.	2	1	3	0	2	0	0	0	0	0	0	0	0	2
314451.3	To use tool LEX for generation of Lexical Analyzer.	1	1	3	0	2	0	0	0	0	0	0	0	0	0
314451.4	To use YACC tool for generation of syntax analyzer.	1	1	3	0	2	0	0	0	0	0	0	0	0	0
314451.5	To generate output for all the phases of compiler.	1	2	2	0	0	0	0	0	0	0	0	0	0	0
314451.6	To apply code optimization in the compilation process.	1	2	2	0	0	0	0	0	0	0	0	0	0	0
Avg PO attainment.		1.5	1.5	2.67	0	2	0	0	0	0	0	0	0	1	1.5
314452 Design and Analysis of Algorithms		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
314452.1	To calculate computational complexity using asymptotic notations for various algorithms.	2.9	0	0	0	1.29	0	0	0	0	0	0	0	0.64	0
314452.2	To apply Divide & Conquer as well as Greedy approach to design algorithms.	2.9	0	0	0	2.9	0	0	0	0	0	0	0	0	1.93
314452.3	To practice principle of optimality.	1.93	0.64	1.93	1.29	0	0	0	0	0	0	0	0	0.64	0
314452.4	To illustrate different problems using Backtracking.	0	0	1.93	0	2.9	1.93	0	0	0	0	0	0	0.97	0
314452.5	To compare different methods of Branch and Bound strategy.	0	1.93	1.29	1.29	1.93	0	0	0	0	0	0	0	0.64	0
314452.6	To explore the concept of P, NP, NP-complete, NP-Hard and parallel algorithms.	0	0	2.9	0	0	0	0	0	0	0	0	0	0	0
Avg PO attainment.		1.29	0.51	2.01	0.86	2.25	0.32	0	0	0	0	0	0	2.9	0.97
314453 Cloud Computing		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
314453.1	To understand the need of Cloud based solutions.	2.9	3	0.64	0	0.64	0.64	0.64	0	0	0	0	0	0.64	0.64
314453.2	To understand Security Mechanisms and issues in various Cloud Applications	2.9	2.9	0.97	0	0.97	0.97	0.97	0	0	0	0	0	0.64	0.64
314453.3	To explore effective techniques to program Cloud Systems.	1.93	1.93	0.64	0	0.64	0.64	0.64	0	0	0	0	0	0.64	0.64
314453.4	To understand current challenges and trade-offs in Cloud Computing.	2.9	2.9	0.97	0	0.97	0.97	0.97	0	0	0	0	0	0.97	0.97
314453.5	To find challenges in cloud computing and delve into it to effective solutions.	1.93	1.93	0.64	0	0.64	0.64	0.64	0	0	0	0	0	0.64	0.64

314453.6	To understand emerging trends in cloud computing.	5.79	5.79	1.93		1.93	1.93	1.93	0	0	0	0	0	1.93	1.93	
	Avg PO attainment.	2.06	2.69	1.45	0	1.45	0.97	1.93	0	0	0	0	0	2.79	2.9	
314454	Data Science and Big Data Analytics	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
314454.1	Understand Big Data primitives.	2.1	0	0	0	0	2.1	1.05	0	0	0	0	0	0	0	
314454.2	Learn and apply different mathematical models for Big Data.	2.1	0	0	0	0	1.05	0	0	0	0	0	0	0	0	
314454.3	Demonstrate Big Data learning skills by developing industry or research applications.	1.4	0	0	0	0	1.4	0.7	0.7	0	0	0	0	0.7	0.7	
314454.4	Analyze and apply each learning model comes from a different algorithmic approach and it will	0	1.05	1.05	0	0	2.1	2.1	0	1.05	0	0	0	2.1	2.1	
314454.5	Understand, apply and analyze needs, challenges and techniques for big data visualization.	0	0.7	0	0	0.7	1.4	1.4	0	0.7	0	0	0	1.4	0.7	
314454.6	Learn different programming platforms for big data analytics.	0	1.05	0	0	1.05	0	1.05	0	2.1	1.05	1.05	1.05	2.1	0	
	Avg PO attainment.	0.93	0.56	0.26	0	0.44	1.34	2.1	0.14	0.64	0.21	0.21	0.18	6.3	1.75	
	Semester - VII															
414453	Information and Cyber Security	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
414453.1	Students shall be able to understand what are the common threats faced today	3	0	4.2	0	0	3	0	3	0	0	0	1.4	0	0	
414453.2	What is the foundational theory behind information security	0.93	2.8	0	1.87	0	0	0	0	2.8	1.8667	0	0.9333	0.9333	0	
414453.3	What are the basic principles and techniques when designing a secure system	0.9	0.9	2	0	1.8	0	0	0	2.8	1.8667	0.93	0.9333	0	0	
414453.4	How today's attacks and defenses work in practice	0.9	0.9	2	0	1.8	0	0	0	2.8	1.8667	0	0.9333	0.9333	0	
414453.5	How to assess threats for their significance	2.8	0.93	1.87	0	0.93	1.87	0	0	0.93	1.8667	0	0.9333	0.9333	0	
414453.6	How to gauge the protections and limitations provided by today's technology	0	1.4	1.4	0	0	1.87	0	0	0.93	0	0	0.9333	0.9333	0	
	Avg PO attainment.	1.42	1.16	1.91	0.31	0.76	1.12	0	0.5	1.71	1.24	0.16	1.01	0.47	0	
414454	Machine Learning and Applications	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
414454.1	model the learning primitives	2.12	0.71	0.71	1.41	1.41	1.41	1.41	0.71	0.71	0.71	0.71	0.71	0.71	0.71	
414454.2	build the learning model.	3.18	3.18	3.18	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	
414454.3	tackle real world problems in the domain of Data Mining and Big Data Analytics, Information Retrieval, Computer vision, Linguistics and Bioinformatics.	2.12	2.12	2.12	1.41	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	
414454.4	Illustrate the reparation and generalization machine learning algorithms.	2.12	2.12	1.41	0.71	0.71	0.71	1.41	0.71	0.71	0.71	0.71	0.71	0.71	0.71	
414454.5	Apply fundamental concepts of ANN.	2.12	2.12	1.41	0.71	0.71	0.71	1.41	0.71	0.71	0.71	0.71	0.71	0.71	0.71	
414454.6	Identify different unsupervised learning algorithms for the related real-world problems.	3.18	2.12	2.12	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	
	Avg PO attainment.	2.47	2.47	2.74	2.12	1.41	0.94	2.36	0.99	0.82	0.99	0.99	0.82	4.95	2.47	
414455	Software Design and Modeling	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
414455.1	Understand object oriented methodologies, basics of Unified Modeling Language (UML)	2.12	1.41	2.12	1.41	1.41	0	1.41	0	1.41	1.41	1.41	0	1.41	0.71	
414455.2	Understand analysis process, use case modeling, domain/class modeling	3.18	2.12	2.12	2.12	2.12	0	2.12	0	2.12	2.12	2.12	0	0	1.06	
414455.3	Understand interaction and behavior modeling.	2.12	2.12	2.12	1.41	1.41	0	1.41	0	0.71	0	0.71	0	0	0	
414455.4	Understand design process and business, access and view layer class design	1.41	1.41	1.41	0	0	0	0	0	0.71	0	0	0	0	1.41	
414455.5	Get started on study of GRASP principles and GoF design patterns.	1.41	1.41	0.71	0	0	0	0	0	0	0	0	0	0	0	
414455.6	Get started on study of architectural design principles and guidelines in the various type of	2.12	2.12	3.18	1.06	2.12	0	1.06	0	2.12	0	2.12	0	0	0	
	Avg PO attainment.	2.06	2.12	2.92	2	1.77	0	2	0	1.18	0.71	1.27	0	1.41	1.59	
414456E	Elective-I Business Analytics and Intelligence	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
414456E.1	Comprehend the Information Systems and development approaches of Intelligent	2.12	0	2.12	0	0	0.71	0	0	0	0	0	0.71	0	0	
414456E.2	Evaluate and rethink business processes using information systems	1.06	3.18	0	2.12	0	0	0	0	3.18	2.12	0	1.06	1.06	0	
414456E.3	Propose the Framework for business intelligence	1.41	1.41	0.71	0	1.41	0	0	0.71	1.41	0.71	0.71	1.41	0	0	
414456E.4	Get acquainted with the Theories, techniques, and considerations for capturing	0	0	0	0	0	1.41	0.71	1.41	0.71	0.71	0	0.71	0.71	0	
414456E.5	Align business intelligence with business strategy.	2.12	0.71	1.41	0	0.71	1.41	0	0	0.71	0.71	0	0.71	0	0	
414456E.6	Apply the techniques for implementing business intelligence systems.	0	1.06	1.06	0	2.12	1.06	0	0	1.06	0	0	1.06	1.06	0	
	Avg PO attainment.	1.12	1.27	1.33	0.71	1.06	0.77	0.24	0.42	1.18	0.85	0.14	0.94	2.83	0	
414457C	Elective-II Software Testing and Quality Assurance	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
414457.1	Test the software by applying testing techniques to deliver a product free from bugs.	3	0	3	3	3	0	0	0	0	0	0	0	0	2	
414457.2	Investigate the scenario and to select the proper testing technique.	2	3	2	2	3	0	0	0	0	0	0	0	0	2	
414457.3	Explore the test automation concepts and tools and estimation of cost, schedule based on	2	0	2	2	2	0	0	0	0	0	0	0	0	2	

414457.4	Understand how to detect, classify, prevent and remove defects.	2	3	3		2	0	0	0	0	2	0	0	2	0
414457.5	Choose appropriate quality assurance models and develop quality.	2	2	3	3	3	0	0	0	0	0	0	0	0	2
414457.6	Ability to conduct formal inspections, record and evaluate results of inspections.	3	2	2	2	2	0	0	0	0	0	0	0	0	2
	Avg PO attainment.	2.33	2	3.75	5	3.75	0	0	0	0	0.4	0	0.33	12.33	4
Semester - VIII															
414462	Distributed Computing System	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
414462.1	To learn the principles, architectures and programming models used in distributed systems.	3	3	1	0	1	1	1	0	0	0	0	0	1	1
414462.2	To understand the fundamentals and knowledge of the Middleware of distributed systems	3	3	1	0	1	1	1	0	0	0	0	0	1	1
414462.3	To gain knowledge of working components and fault tolerance of distributed systems.	2	2	0.67	0	0.67	0.67	0.67	0	0	0	0	0	1	1
414462.4	To understand the significance of agreement, fault tolerance and recovery protocols in Distributed	3	3	1	0	1	1	1	0	0	0	0	0	0.67	0.67
414462.5	To make students aware about distributed and multimedia file systems and web systems.	3	3	1	0	1	1	1	0	0	0	0	0	1	1
414462.6	Create an awareness of Emerging trends in distributed computing.	3	3	1	0	1	1	1	0	0	0	0	0	1	1
	Avg PO attainment.	2.83	3.4	1.42	0	1.42	0.94	1.89	0	0	0	0	0	5.67	2.83
414463	Ubiquitous Computing	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
414463.1	Demonstrate the knowledge of design of Ubicomp and its applications.	1.27	1.27	0	1.27	0	0	0	0	0	0	0	0	0.63	0
414463.2	Explain smart devices and services used Ubicomp.	1.9	2.85	1.9	2.85	0	0	0	0	0	0	0	0	0	0
414463.3	Describe the significance of actuators and controllers in real time application design.	1.9	1.27	1.9	1.9	0	0	0	0	0	0	0	0	0	0.63
414463.4	Use the concept of HCI to understand the design of automation applications. 5	2.85	1.9	2.85	2.85	0	0	0	0	0	0	0	0	0.95	0
414463.5	Classify Ubicomp privacy and explain the challenges associated with Ubicomp privacy.	1.9	1.9	1.9	1.9	0	0	0	0	0	0	0	0	0.63	0
414463.6	Get the knowledge of ubiquitous and service oriented networks along with Ubicomp management.	0.95	2.85	0	2.85	0	0	0	0	0	0	0	0	0.95	0
	Avg PO attainment.	1.79	2.01	1.43	2.27	0	0	0	0	0	0	0	0	0.53	0.32
414464A	Elective III Multimedia Techniques	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
414464A .1	To create own file formats for specific application.	2.1	2.1	0.7	0	0.7	0.7	0.7	0	0	0	0	0	0.7	0.7
414464A .2	To do some projects based on current trends in multimedia.	3.15	3.15	1.05	0	1.05	1.05	1.05	0	0	0	0	0	1.05	1.05
414464A .3	To use open sources for authoring tool for animation.	2.1	2.1	0.7	0	0.7	0.7	0.7	0	0	0	0	0	0.7	0.7
414464A .4	Understand some research areas of current multimedia techniques.	3.15	3.15	1.05	0	1.05	1.05	1.05	0	0	0	0	0	1.05	1.05
414464A .5	To use open sources for authoring tool for presentations	3.15	3.15	1.05	0	1.05	1.05	1.05	0	0	0	0	0	1.05	1.05
414464A .6	Become acquainted with some advanced topics in multimedia.	3.15	3.15	1.05	0	1.05	1.05	1.05	0	0	0	0	0	1.05	1.05
	Avg PO attainment.	2.8	2.8	0.93	0	1.4	0.93	1.87	0	0	0	0	0	0.93	2.8
414464D	Elective IV Social Media Analytics	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
414464D.1	Understand the basics of Social Media Analytics	2.3	2.3	0	0	2.3	0	0	0	0	0	0	0	0	0
414464D.2	Explain the significance of Data mining in Social media.	3.45	3.45	3.45	0	0	0	0	0	0	0	0	0	0	0
414464D.3	Demonstrate the algorithms used for text mining.	1.53	2.3	0.77	0	0	0	0	0	0	0	0	0	0	0
414464D.4	Apply network measures for social media data.	2.3	2.3	2.3	0	0	0	0	0	0	0	0	0	1.15	0
414464D.5	Explain Behavior Analytics techniques used for social media data	2.3	3.45	3.45	2.3	3.45	0	0	0	0	0	0	0	0	0
414464D.6	Apply social media analytics for Face book and Twitter kind of applications.	2.3	2.3	3.45	3.45	3.45	0	0	1.15	0	0	0	0	1.15	0
	Avg PO attainment.	2.36	2.68	2.24	0.96	2.3	0	0	0.23	0	0	0	0	0.38	0

PRINCIPAL

2.6.2 CO PO Attainment Matrix
Academic Year 2019-20
Semester - III

Course Cod	Name of Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
214441	Discrete Structures														
214441.1	Formulate, apply formal proof techniques and solve the	3.15	2.1	3.15	2.1	2.1	0	2.1	0	2.1	2.1	2.1	0	2.1	1.05
214441.2	Analyze and evaluate the combinatorial problems by using	3.15	2.1	2.1	2.1	2.1	0	2.1	0	2.1	2.1	2.1	0	2.1	1.05
214441.3	Apply the concepts of graph theory to devise mathematical	2.1	2.1	2.1	1.4	1.4	0	1.4	0	0.7	0	0.7	0	0	0
214441.4	Analyze types of relations and functions to provide solution to	1.4	1.4	1.4	0	0	0	0	0	0.7	0	0	0	0	1.4
214441.5	Identify techniques of number theory and its application.	1.4	1.4	0.7	0	0	0	0	0	0	0	0	0	0	0
214441.6	Identify fundamental algebraic structures.	2.1	2.1	3.15	1.05	2.1	0	1.05	0	2.1	0	2.1	0	0	0
	Avg PO attainment.	2.22	2.24	3.15	2.22	1.93	0	2.22	0	1.28	0.84	1.4	0	2.1	1.75
214442	Computer Organization & Architecture	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
214442.1	Solve problems based on computer arithmetic.	5.7	5.7	0	0	3.8	1.9	0	0	0	0	0	0	1.9	1.9
214442.2	Explain processor structure & its functions.	2.85	2.85	2.85	0	0.95	0.95	0	0	0	0	0	0	2.85	0.95
214442.3	Obtain knowledge about micro-programming of a processor.	1.9	1.9	1.9	0	0.63	0.63	0	0	0	0	0	0	1.9	0
214442.4	Understand concepts related to memory & IO organization.	1.9	1.27	0	0	1.27	1.9	0	0	0	0	0	0	0	0.63
214442.5	Understand CPU instruction characteristics	1.9	1.27	0	0	1.27	1.27	0	0	0	0	0	0	0	0.63
214442.6	Understand enhancement features of CPU	2.85	1.9	0	0	1.9	1.9	0	0	0	0	0	0	0	0.63
	Avg PO attainment.	2.85	2.98	1.19	0	2.45	1.43	0	0	0	0	0	0	0.95	0.95
214443	Digital Electronics and Logic Design	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
214443.1	Spectacle an awareness and apply knowledge of number systems, codes, Boolean algebra and use necessary A.C, D.C Loading characteristics as well as functioning	1.73	0.86	0	0.86	0	0	0	0	0	0	0	0	1	0
214443.2	Use logic function representation for simplification with K-Maps and analyze as well as design Combinational logic circuits using SSI & MSI	2	2	0	1	0	0	0	0	0	0	0	0	2	0
214443.3	Analyze Sequential circuits like Flip-Flops (Truth Table, Excitation table), their conversion & design the applications.	2.2	1.46	1.46	0.73	0	0	0	0	0	0	0	0	2	0
214443.4	Design algorithms based on techniques like brute -force, divide	2.6	1.73	1.73	1	0	0	0	0	0	0	0	0	2	0
214443.5	Use VHDL programming technique	2.6	1.73	2	0.86	0	0	0	0	0	0	0	0	2	2
214443.6	different modeling styles for any digital circuits.	2	2	1.73	0.86	0	0	0	0	0	0	0	0	1	2
	Avg PO attainment.	2	1.96	1.73	1.33	0	0	0	0	0	0	0	0	1.5	0.83
214444	Fundamentals of Data Structures	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
214444.1	Apply appropriate constructs of C language, coding standards for application development.	1.73	0.86	0	0.86	0	0.86	0	0	0	0	0	0	2	0
214444.2	Use dynamic memory allocation concepts and file handling in various application developments.	1.73	2	0	1	0	1	0	0	0	0	0	0	1	0
214444.3	complexity	2.2	1.46	1.46	0.73	0	0.73	0	0	0	0	0	0	1	0
214444.4	application development	2.6	1.84	1.73	0.86	0	2.1	0	0	0	0	0	0	0	1
214444.5	programming	2.6	1.84	1.46	0.9	0	0.86	0	0	0	0	0	0	0	1
214444.6	Use algorithmic foundations for solving problems and programming	1.73	1.84	1.73	0.86	0	0.86	0	0	0	0	0	0	0	1
	Avg PO attainment.	2.1	1.97	1.6	1.3	0	1.07	0	0	0	0	0	0	0.33	0.33
214445	Problem Solving and Object Oriented programming	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2

214445.1	Develop algorithms for solving problems by using modular programming concepts	1.73	1.73	1.73	0.86	0.86	0.86	1.73	0	0	0.86	0	0.86	0.1	0.1
214445.2	models and design software solutions using object-oriented principles and strategies	0.86	0.86	0.86	0.86	0.86	1	1.73	0.1	0	0.86	0	0.86	0.1	0.1
214445.3	Discover, explore and apply tools and best practices in object-oriented programming.	2.2	1.46	1.46	0.73	0.86	0.73	1.73	0.1	0	0.86	0	0.86	0.1	0.1
214445.4	Develop programs that appropriately utilize key object-oriented concepts	2.5	1.65	1.8	0.86	0.86	1.95	1.83	0.1	0	0.86	0	0.86	0.1	0.1
214445.5	Apply appropriate Virtual Functions and Templates to provide object-oriented solutions	2.6	1.73	1.73	0.86	0.86	0.86	1.73	0	0	0.86	0	0	0.1	0.1
214445.6	Use of files for persistent data storage for real world application.	1.73	1.73	1.73	0.86	0.86	0.86	0.86	0	0	0.86	0	0	0.1	0.1
Avg PO attainment.		1.94	1.83	2.33	1.26	1.29	1.04	3.2	0.06	0	0.86	0	0.57	0.1	0.1

Semester - IV

207003	Engineering Mathematics III	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
207003 .1	Solve higher order linear differential equation using appropriate techniques for modeling and analyzing electrical circuits.	1.73	1.73	1.73	0.86	0	0	0	0	0	0	0	0	0.86	0
207003 .2	Solve problems related to Fourier transform, Z-Transform and applications to Signal and Image processing.	0.86	0.86	0.86	0.63	0	0	0	0	0.83	0	0	0	0.86	0
207003 .3	Apply statistical methods like correlation, regression analysis and probability theory for analysis and prediction of a given data as	2.6	1.46	1.35	0.73	0	0.73	0	0	0	0	0.83	0	1.73	0
207003 .4	Perform vector differentiation and integration to analyze the vector fields and apply to compute line, surface and volume integrals.	2.6	1.22	1.73	0.86	0	0	0	0	0	0	0	0	0.86	0
207003 .5	Integration of complex functions required in Image processing, Digital filters and Computer graphics.	2.6	1.73	1.73	0.86	0	0	0	0	0	0	0	0	0.86	0
Avg PO attainment.		1.73	1.4	1.85	0.99	0	0.12	0	0	0.14	0	0.14	0	0.86	0
214450	Computer Graphics	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
214450 .1	Apply mathematics and logic to develop Computer programs for elementary graphic operations	1.73	1.73	1.73	0.86	0.86	0.86	1.73	0.86	0	0.86	1.73	0	1.73	0
214450 .2	Explain and employ techniques of geometrical transforms to produce, position and	0.86	0.86	0.86	0.86	0.86	0.9	1.73	0.1	0.92	0.92	1.73	0	0	0
214450 .3	Describe mapping from a world coordinates to device coordinates, clipping, and projections in order to produce 3D	1.73	1.46	1.46	0.73	0.86	0.73	1.73	0.1	0.92	0.86	0.86	0	0	0
214450 .4	design, development and testing of 2D, 3D modeling applications	2.6	1.73	1.73	0.86	0.86	1.33	1.73	0.1	0.86	0.86	0	1.73	0	0.1
214450 .5	Apply the concepts of rendering, shading, animation	2.6	1.7	1.73	0.86	0.86	0.86	0.83	0.1	0.86	0.86	0	1.73	0	0
214450 .6	Apply the concepts of CURVES AND FRACTALS	1.73	1.73	1.73	0.86	0.86	0.86	1.22	1.1		0.86	0	1.73	0	0
Avg PO attainment.		1.88	1.84	2.31	1.26	1.29	0.92	2.58	0.25	0.59	0.87	0.72	0.87	0.29	0.82
214451	Processor Architecture	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2

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214451 .1	Learn architectural details of 80386 microprocessor	4.2	1.4	2.8	2.8	4.2	3	2.8	3	0	0	0	2.8	1.4	1.4
214451 .2	Understand memory management and multitasking of 80386 microprocessor	1.7	1.8	2.8	0	1.8	1.8	0	0	0	0	0	0	0.93	0
214451 .3	Understand Privilege protection, interrupts and exceptions.	1.73	1.73	2	0	1.7	1.7	0	0	0	0	0	0	0	0
214451 .4	Understand architecture and memory organization of 8051 microcontroller	1.73	0.9	2	0	1.8	1.8	0	0	0	0	0	0	0.93	0
214451 .5	Explain timers and interrupts of 8051 microcontroller and its interfacing with I/O devices	1.4	2.8	2.8	0	0	0	0	0	0	0	0	0	0	0
214451 .6	Understand minimum system using 8051 microcontroller.	1.4	2.8	2.8	0	0	0	0	0	0	0	0	0	0	0
	Avg PO attainment.	2.03	1.91	2.53	0.47	1.58	1.38	0.47	0.5	0	0	0	0.47	0.54	0.47
214452	Data Structures & Files	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
214452 .1	Analyze algorithms and to determine algorithm correctness and time e	1.73	1.73	1.73	1.73	0	0.86	0	0	0	0	0	0	0.2	0
214452 .2	Understand different advanced abstract data type (ADT) and data structures and their implementations.	0.86	0.86	1.73	1.73	0	1	0	0	0	0	0	0	0	0
214452 .3	Understand different algorithm design techniques (brute -force, divide and conquer, greedy,	2.3	1.46	1.46	1.73	0	0.73	0	0	0	0	0	0	0	0.83
214452 .4	Apply and implement learned algorithm design techniques and data structures to solve	2.6	1.84	1.84	1.82	0	1.84	0	0	0	0	0	0	1.82	0
214452 .5	Apply and implement concept of trees.	2.6	1.73	1.73	1.73	0	0.86	0	0	0	0	0	0	1.73	0
214452 .6	Apply and implement file organization	1.73	1.73	1.73	1.73	0	0.86	0	0	0	0	0	0	1.73	0
	Avg PO attainment.	1.97	1.87	2.56	2.62	0	1.03	0	0	0	0	0	0	0.91	0.14
214453	Foundations of Communication and Computer Network	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
214452 .1	Understand data/signal transmission over communication media	1.73	4.2	4.2	0	1.1	0	0	0	0	0	0	0	0	0
214452 .2	Recognize usage of various modulation techniques in communication	0.1	2.1	4.2	0	1.1	0.1	0	0	0	0	0	0	0	0
214452 .3	Analyze various spread spectrum and multiplexing techniques	0.7	1.4	4.2	0	2.1	0	0.1	0	0	0	0	0	0.1	0
214452 .4	Use concepts of data communication to solve various related problems	0.1	1.73	2.1	0	1.1	0	0	0	0	0	0	0	0	0
214452 .5	Understand error correction and detection techniques.	0.1	2.1	1.93	0	1.4	4.2	0	0	0	0	0	0	0	0
214452 .6	Acquaint with transmission media and their standards	0	0	2.1	0	0.1	0	0	2.1	0	0	0	0	0	0
	Avg PO attainment.	0.46	2.31	4.68	0	1.73	0.72	0.03	0.42	0	0	0	0	0.1	0
Semester - V															
Course Cod	Name of Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
314441	Theory of Computation														
314441.1	To construct finite state machines to solve problems in computing	2.6	1.73	1.73	1.73	1.73	0	0	0	0	0	0	0	1.73	1.6
314441.2	To write mathematical expressions for the formal languages	0.86	0.86	1.73	1.84	2.6	0	0	0	0	0	0	0	0	1.67
314441.3	To apply well defined rules for syntax verification.	2.2	1.34	1.46	1.73	2.6	0	0	0	0	0	0	0	0	0.83

314441.4	To construct and analyze Push Down, Post and Turing Machine for formal languages.	2.6	1.73	1.65	1.6	1.62	0	0	0	0	0	0	0	1.73	2.6
314441.5	To express the understanding of the decidability and decidability problems.	2.6	1.73	1.73	1.73	1.84	0	0	0	0	0	0	0	1.73	1.73
314441.6	To express the understanding of computational complexity.	1.63	1.73	1.73	1.73	0	0	0	0	0	0	0	0	1.73	1.73
	Avg PO attainment.	2.08	1.82	2.51	2.59	2.6	0	0	0	0	0	0	0.1	1.73	1.73
314442	Database Management Systems	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
314442.1	To define basic functions of DBMS & RDBMS	2.1	0.67	2.1	0	0.86	0	0	1.4	0	0	0	2.1	3.15	0.1
314442.2	To analyze database models & entity relationship models.	2.1	2.1	1.9	0	2.1	0	0	1.73	0.2	0	0	2.1	2.1	2.1
314442.3	To design and implement a database schema for a given problem-domain	1.4	0	1.4	0	0	0	0	1.73	0	0	0	0.7	0.7	0
314442.4	To populate and query a database using SQL DML/DDDL commands.	1.9	0	0	0	0	0	0	1.73	0	0	0	2.1	0	0
314442.5	Do Programming in PL/SQL including stored procedures, stored functions, cursors and packages.	0.7	0	0	0	0.7	0	0	1.73	0	0	0	0.7	0.7	0
314442.6	industry and the external ecosystem for analytical and data services.	2.1	0	0	0	0	0	0	1.73	0	0	0	0	0	0.1
	Avg PO attainment.	1.6	1.39	2.2	0	1.2	0	0	1.14	1.14	2.45	1.33	1.28	6.65	2.1
314443	Software Engineering & Project Management	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
314443.1	and classify software applications.	2.9	2	1.1	2.2	2.2	1.1	0	0	0	0	0	1.1	1.5	1.1
314443.2	To choose and apply appropriate lifecycle model of software development	2.6	2.5	2.2	1.1	0	0	0	0	1.1	2.2	0	1.5	0	1.1
314443.3	To describe principles of agile development, discuss the SCRUM process and distinguish agile process model from other process models.	2.2	1.47	2.2	0.73	1.47	0.73	0	0.73	0.73	0.73	0.73	0.73	0	0.73
314443.4	To analyze software requirements by applying various modeling techniques.	2.2	2.97	0	1.1	0	1.1	1.1	2.2	1.1	1.1	0	1.1	1.1	0
314443.5	To list and classify CASE tools and discuss recent trends and research in software engineering	1.47	1.47	1.47	0.73	0.73	0.73	0.73	1.47	0.73	0.63	0	0.73	0	0.73
314443.6	To understand IT project management through life cycle of the project and future trends in IT Project Management.	2.2	1.1	1.1	1.1	2.2	1.1	1.1	1.1	1.1	0	0	1.1	0	0
	Avg PO attainment.	2.26	2.3	2.02	2.32	1.65	0.79	0.98	1.1	0.79	0.93	0.15	1.04	2.6	1.83
314444	Operating Systems	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
314444.1	Fundamental understanding of the role of Operating Systems.	2.88	0	1.92	0	1.92	0.96	0	0.96	0	0	0.96	0	0.96	0.96
314444.2	To understand the concept of a process and thread.	1.92	0	1.92	0	0.64	0	0	0.64	0	0	0.64	0	1.28	0.64
314444.3	To apply the concepts of process/thread scheduling.	0	2.66	1.92	0.96	0	0.96	0	0.96	0	0	0.96	0	0	0
314444.4	To apply the concept of process synchronization, mutual exclusion and	0	5.76	1.92	3.84	0	2.3	0	1.83	0	0	1.92	0	0	0
314444.5	To realize the concept of I/O management and File system.	3.84	1.92	0.83	0	2.98	2.3	0	0	0	0	1.83	0	0	0
314444.6	To understand the various memory management techniques.	2.78	0	0	0	0.96	0	0	0	0	0	0	0	0.96	0.96
	Avg PO attainment.	1.9	2.07	2.13	1.6	1.63	1.09	0	0.88	0	0	1.45/1/3	0	5.02	1.28
314445	Human Computer Interaction	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2

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314445.1	To explain importance of HCI study and principles of user-centred design.	2.3	2	1.1	0	0	0	0	0	0	2.2	0	1.1	0.83	0.6
314445.2	Develop understanding of human factors in HCI design.	3.3	3.3	2.2	2.2	1.1	0	0	0	0	2.2	0	2.2	0.1	0.83
314445.3	Develop understanding of models, paradigms, and context of	2.2	2.2	2.2	0.73	0.73	0	0	0	0	1.47	0	1.47	0.73	0.73
314445.4	Design effective user-interfaces following a structured and	3.3	2.2	2.2	2.2	1.1	0	0	0	0	1.83	0	1.93	0.33	0.82
314445.5	Evaluate usability of a user-interface design.	2.2	2.2	1.47	1.47	0.73	0	0	0	0	1.47	0	1.47	0.2	1.47
314445.6	Apply cognitive models for predicting human-computer-	2.2	2.2	0	0	0	0	0	0	0	2.2	0	1.1	0.1	1.1
Avg PO attainment.		2.58	2.82	2.29	2.2	0.92	0	0	0	0	2.27	0	1.54	2.29	2.78

Semester - VI

314450 Computer Networks & Security		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
314450.1	To know Responsibilities, services offered and protocol used at each layer of network.	2.1	0.67	2.1	1.05	0	1.05	0	0	0	3.15	2.1	2.1	3.15	0
314450.2	To understand different addressing techniques used in network.	2.1	2.1	2.1	1.05	2.1	2.1	0	0	0	3.15	2.1	2.1	2.1	2.1
314450.3	To know the difference between different types of network.	1.4	1.4	1.4	0	0.7	0.7	0	0	0	1.4	0.7	0.7	0.7	0
314450.4	To know the different wireless technologies and IEEE standards.	2.1	1.05	2.1	2.1	1.05	0	0	0	0	2.1	1.05	2.1	0	2.1
314450.5	To use and apply the standards and protocols learned, for application development.	0.7	0.7	1.4	1.4	0.7	0.7	0	0	0	1.4	0.7	0.7	0.7	0
314450.6	To understand and explore recent trends in network domain.	2.1	1.05	1.05	1.05	0	2.1	0	0	0	1.05	0	0	0	0
Avg PO attainment.		1.75	1.39	2.54	2.22	1.14	1.11	0	0	0	2.45	1.33	1.28	6.65	2.1
314451 Systems Programming		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
314451.1	To learn independently modern software development tools and creates novel solutions for language processing applications.	1.9	1.33	2.85	0	0	0	0	0	0	0	0	0	0.95	0.95
314451.2	To design and implement assemblers and macro processors.	1.9	0.95	2.85	0	1.9	0	0	0	0	0	0	0	0	1.9
314451.3	To use tool LEX for generation of Lexical Analyzer.	0.63	0.63	1.9	0	1.27	0	0	0	0	0	0	0	0	0
314451.4	To use YACC tool for generation of syntax analyzer.	0.95	0.95	2.85	0	1.9	0	0	0	0	0	0	0	0	0
314451.5	To generate output for all the phases of compiler.	0.63	1.27	1.27	0	0	0	0	0	0	0	0	0	0	0
314451.6	To apply code optimization in the compilation process.	0.95	1.9	1.9	0	0	0	0	0	0	0	0	0	0	0
Avg PO attainment.		1.16	1.41	3.4	0	1.27	0	0	0	0	0	0	0	0.95	1.43
314452 Design and Analysis of Algorithms		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
314452.1	To calculate computational complexity using asymptotic notations for various algorithms.	2.9	0	0	0	1.93	0	0	0	0	0	0	0	0.1	0
314452.2	To apply Divide & Conquer as well as Greedy approach to design algorithms.	2.9	0	0	0	2.9	0	0	0	0	0	0	0	0	1.93
314452.3	To practice principle of optimality.	1	0.64	1.93	1.29	0	0	0	0	0	0	0	0	0.64	0
314452.4	To illustrate different problems using Backtracking.	0	0	1.93	0	2.9	1.93	0	0	0	0	0	0	0.97	0
314452.5	To compare different methods of Branch and Bound strategy.	0	1.93	1.29	1.29	1.93	0	0	0	0	0	0	0	0.64	0
314452.6	To explore the concept of P, NP, NP-complete, NP-Hard and parallel algorithms.	0	0	5.79	0	0	0	0	0	0	0	0	0	0	0
Avg PO attainment.		1.13	0.51	2.73	0.86	2.41	0.32	0	0	0	0	0	0	2.35	0.97
314453 Cloud Computing		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
314453.1	To understand the need of Cloud based solutions.	2.7	1.73	1	0	1	1	1	0	0	0	0	0	0.86	1
314453.2	To understand Security Mechanisms and issues in various Cloud Applications.	2.9	2.1	1	0	1	1	1	0	0	0	0	0	0.1	0.12



314453.3	To explore effective techniques to program Cloud Systems.	1.73	1.73	0.67	0	0.67	0.67	0.67	0	0	0	0	0	0.67	0.67
314453.4	To understand current challenges and trade-offs in Cloud Computing.	3	2	1	0	1	1	1	0	0	0	0	0	0.6	1
314453.5	To find challenges in cloud computing and delve into it to effective solu	1.2	1.2	0.67	0	0.67	0.67	0.67	0	0	0	0	0	0.67	0.67
314453.6	To understand emerging trends in cloud computing.	1.2	1.2	2	0	2	2	2	0	0	0	0	0	0.1	0.13
	Avg PO attainment.	2.12	1.99	1.58	0	1.58	1.06	2.11	0	0	0	0	0	2.99	1.79
314454	Data Science and Big Data Analytics	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
314454.1	Understand Big Data primitives.	2.1	0	0	0	0	2.1	1.05	0	0	0	0	0	0	0
314454.2	Learn and apply different mathematical models for Big Data.	2.1	0	0	0	0	1.05	0	0	0	0	0	0	0	0
314454.3	Demonstrate Big Data learning skills by developing industry or research applications.	1.4	0	0	0	0	1.4	0.7	0.7	0	0	0	0	0.7	0.7
314454.4	Analyze and apply each learning model comes from a different algorithmic approach and it will perform differently under different datasets.	0	1.05	1.05	0	0	2.1	2.1	0	1.05	0	0	0	0.73	2.1
314454.5	Understand, apply and analyze needs, challenges and techniques for big data visualization.	0	0.7	0	0	0.7	1.4	1.4	0	0.7	0	0	0	0.6	0.7
314454.6	Learn different programming platforms for big data analytics.	0	1.05	0	0	1.05	0	1.05	0	2.1	1.05	1.05	1.05	0.3	0
	Avg PO attainment.	0.93	0.56	0.26	0	0.44	1.34	2.1	0.14	0.64	0.21	0.21	0.18	2.33	1.75

Semester - VII

414453	Information and Cyber Security	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
414453.1	Students shall be able to understand what are the common threats faced today	1.9	0	4.2	0	0	3	0	3	0	0	0	1.4	0	0
414453.2	What is the foundational theory behind information security	0.9	2.8	0	1.9	0	0	0	0	2.8	1.8	0	0.9	0.9	0
414453.3	What are the basic principles and techniques when designing a secure system	0.9	0.9	2	0	1.8	0	0	0	2.8	1.8	0.93	0.9	0	0
414453.4	How today's attacks and defenses work in practice	0.9	0.9	2	0	1.8	0	0	0	2.8	1.8	0	0.9	0.9	0
414453.5	How to assess threats for their significance	2.8	0.93	1.9	0	1.9	1.9	0	0	0.9	1.8	0	0.9	0	0
414453.6	How to gauge the protections and limitations provided by today's technology	0	1.4	1.4	0	0	1.9	0	0	0.9	0	0	0.9	0.9	0
	Avg PO attainment.	1.23	1.16	1.92	0.32	0.92	1.13	0	0.5	1.7	1.2	0.16	0.98	0.45	0
414454	Machine Learning and Applications	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
414454.1	model the learning primitives	3.18	1.06	1.06	2.12	2.12	2.12	2.12	1.06	1.06	1.06	1.06	1.06	0.63	1.06
414454.2	build the learning model	3.18	1.96	3.12	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	0.2	1.06
414454.3	tackle real world problems in the domain of Data Mining and Big Data Analytics, Information Retrieval, Computer Vision, Linguistics and	2.12	2.12	2.12	1.41	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71
414454.4	Illustrate the regularization and generalization machine learning algorithms.	1.12	2.12	1.41	0.71	0.71	0.71	1.41	0.71	0.71	0.71	0.71	0.71	0.71	0.71
414454.5	Apply fundamental concepts of ANN.	2.12	2.12	1.41	0.71	0.71	0.71	1.41	0.71	0.71	0.71	0.71	0.71	0.71	0.71
414454.6	Identify different unsupervised learning algorithms for the related real-world problems.	3.18	2.12	2.12	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	0.71	0.71



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		Avg PO attainment.													
		2.48	2.3	2.81	2.36	1.59	1.06	2.59	1.06	0.88	1.06	1.06	0.88	2.44	2.65
414455	Software Design and Modeling	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
414455.1	Understand object oriented methodologies, basics of Unified	2.85	1.9	2.85	1.9	1.9	0	1.9	0	1.9	1.9	1.9	0	1.9	0.95
414455.2	Understand analysis process, use case modeling, domain/class	2.85	1.9	1.9	1.9	1.9	0	1.9	0	1.9	1.9	1.9	0	0	0.95
414455.3	Understand interaction and behavior modeling.	1.9	1.9	1.9	1.27	1.27	0	1.27	0	0.63	0	0.63	0	0	0
414455.4	Understand design process and business, access and view layer	1.27	1.27	1.27	0	0	0	0	0	0.63	0	0	0	0	1.27
414455.5	Get started on study of GRASP principles and GoF design	1.27	1.27	0.63	0	0	0	0	0	0	0	0	0	0	0
414455.6	Get started on study of architectural design principles and	1.9	1.9	2.85	0.95	1.9	0	0.95	0	1.9	0	1.9	0	0	0
		Avg PO attainment.													
		2.01	2.03	2.85	2.01	1.74	0	2.01	0	1.16	0.76	1.27	0	1.9	1.58
414456E	Elective-I Business Analytics and Intelligence	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
414456E.1	Comprehend the Information Systems and development approaches of Intelligent	2.9	0	2.9	0	0	0.97	0	0	0	0	0	0.97	0	0
414456E.2	Evaluate and rethink business processes using information systems	0.97	2.9	0	1.93	0	0	0	0	2.9	1.93	0	0.97	0.97	0
414456E.3	Propose the Framework for business intelligence	1.29	1.29	0.64	0	1.29	0	0	0.64	1.29	0.64	0.64	1.29	0	0
414456E.4	Get acquainted with the Theories, techniques, and considerations for capturing	0	0	0	0	0	1.29	0.64	1.29	0.64	0.64	0	0.64	0.64	0
414456E.5	Align business intelligence with business strategy.	1.93	0.64	1.29	0	0.64	1.29	0	0	0.64	0.64	0	0.64	0	0
414456E.6	Apply the techniques for implementing business intelligence	0	0.97	0.97	0	1.93	0.97	0	0	0.97	0	0	0.97	0.97	0
		Avg PO attainment.													
		1.18	1.16	1.45	0.64	0.97	0.75	0.21	0.39	1.07	0.77	0.13	0.91	2.57	0
414457C	Elective-II Software Testing and Quality Assurance	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
414457.1	Test the software by applying testing techniques to deliver a product free from bugs.	2.73	0	1.93	1.1	1.1	0	0	0	0	0	0	0	0.73	0.1
414457.2	Investigate the scenario and to select the proper testing technique.	1.75	2	2	1.2	1.3	0	0	0	0	0	0	0	1.73	0.73
414457.3	Explore the test automation concepts and tools and estimation of cost, schedule based on standard metrics.	1.75	0	2	1.1	1.1	0	0	0	0	0	0	2	0.33	2
414457.4	Understand how to detect, classify, prevent and remove	2	1.6	1.8	1.1	1.8	0	0	0	0	2	0	0	2	0
414457.5	Choose appropriate quality assurance models and develop quality.	2	1.73	1.93	1.93	1.93	0	0	0	0	0	0	0	0	0.7
414457.6	Ability to conduct formal inspections, record and evaluate	3	1.73	2	1.9	1.9	0	0	0	0	0	0	0	0.33	0
		Avg PO attainment.													
		2.21	1.41	2.92	2.78	2.28	0	0	0	0	0.4	0	0.33	1.22	1.77
Semester - VIII															
414462	Distributed Computing System	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
414462.1	To learn the principles, architectures and programming models used in distributed systems	2.1	2.8	1	0	1	1	1	0	0	0	0	0	0.83	0.93
414462.2	To understand the fundamentals and knowledge of the Middleware of Distributed systems	2.1	2	1	0	1	1	1	0	0	0	0	0		
414462.3	To gain knowledge of working components and fault tolerance of distributed systems.	2	2	0.67	0	0.67	0.67	0.67	0	0	0	0	0		
414462.4	To understand the significance of agreement, fault tolerance	3	2.11	1	0	1	1	1	0	0	0	0	0		

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414462.5	To make students aware about distributed and multimedia file systems and web systems.	3	3	1	0	1	1	1	0	0	0	0	0	0.1	1
414462.6	Create an awareness of Emerging trends in distributed computing.	3	3	1	0	1	1	1	0	0	0	0	0	1	1
	Avg PO attainment.	2.53	2.98	1.42	0	1.42	0.94	1.89	0	0	0	0	0	1	1
414463	Ubiquitous Computing	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
414463.1	Demonstrate the knowledge of design of Ubicomp and its applications.	2.1	2.4	0	2.4	0	0	0	0	0	0	0	0	1.2	0
414463.2	Explain smart devices and services used Ubicomp.	2.4	3.6	2.4	3.6	0	0	0	0	0	0	0	0	0	0
414463.3	Describe the significance of actuators and controllers in real time application design.	2.4	1.6	2.4	2.4	0	0	0	0	0	0	0	0	0	0.8
414463.4	Use the concept of HCI to understand the design of automation applications.	3.6	2.4	3.6	3.6	0	0	0	0	0	0	0	0	1.2	0
414463.5	Classify Ubicomp privacy and explain the challenges associated	3.6	2.63	2.1	2.1	0	0	0	0	0	0	0	0	1.2	0
414463.6	Get the knowledge of ubiquitous and service oriented networks along with Ubicomp management.	0.8	2.4	0	2.4	0	0	0	0	0	0	0	0	0.8	0
	Avg PO attainment.	2.48	2.51	1.75	2.75	0	0	0	0	0	0	0	0	0.73	0.4
414464A	Elective III Multimedia Techniques	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
414464A.1	To create own file formats for specific application.	3.15	3.15	1.05	0	1.05	1.05	1.05	0	0	0	0	0	1.05	1.05
414464A.2	To do some projects based on current trends in multimedia.	3.15	3.15	1.05	0	1.05	1.05	1.05	0	0	0	0	0	1.05	1.05
414464A.3	To use open sources for authoring tool for animation.	2.1	2.1	0.7	0	1.4	0.7	0.7	0	0	0	0	0	1.4	0.7
414464A.4	Understand some research areas of current multimedia	3.15	3.15	1.05	0	1.05	1.05	1.05	0	0	0	0	0	1.05	1.05
414464A.5	To use open sources for authoring tool for presentations	3.15	3.15	1.05	0	1.05	2.1	1.05	0	0	0	0	0	1.05	1.05
414464A.6	Become acquainted with some advanced topics in multimedia.	3.15	3.15	1.05	0	1.05	1.05	1.05	0	0	0	0	0	1.05	1.05
	Avg PO attainment.	2.98	2.98	0.99	0	1.66	1.17	1.98	0	0	0	0	0	1.11	2.98
414464D	Elective IV Social Media Analytics	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
414464D.1	Understand the basics of Social Media Analytics	3.6	3.6	0	0	3.6	0	0	0	0	0	0	0	0	0
414464D.2	Explain the significance of Data mining in Social media.	3.6	3.6	3.6	0	0	0	0	0	0	0	0	0	0	0
414464D.3	Demonstrate the algorithms used for text mining.	1.6	2.4	0.8	0	0	0	0	0	0	0	0	0	0	0
414464D.4	Apply network measures for social media data.	2.4	2.4	2.4	0	0	0	0	0	0	0	0	0	1.2	0
414464D.5	Explain Behavior Analytics techniques used for social media data	2.4	3.6	3.6	2.4	3.6	0	0	0	0	0	0	0	0	0
414464D.6	Apply social media analytics for Face book and Twitter kind of applications	2.4	2.4	3.6	3.6	3.6	0	0	1.2	0	0	0	0	1.2	0
	Avg PO attainment.	2.67	3	2.33	1	2.7	0	0	0.24	0	0	0	0	0.4	0



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2.6.2 CO PO Attainment Matrix
Academic Year 2020-21
Semester - III

Course Cod	Name of Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4
214441	Discrete Mathematics																
214441.1	Formulate, apply formal proof techniques and solve the problems with logical reasoning.	5.7	3.8	1.9	1.9	1.9	1.9	0	0	0	1.9	0	3.8	1.9	0	0	0
214441.2	Analyze and evaluate the combinatorial problems by using probability theory.	1.9	2.85	0.95	0.95	0.95	0.95	0	0	0	0.95	0	1.9	0.95	0	0	0
214441.3	Apply the concepts of graph theory to devise mathematical models.	1.9	1.9	1.27	1.27	0.63	0.63	0	0	0	1.27	0	1.27	0.63	0	0	0
214441.4	Analyze types of relations and functions to provide solution to computational problems.	1.9	1.27	0.63	1.27	0.63	0.63	0	0	0	1.27	0	1.27	0.63	0	0	0
214441.5	Identify techniques of number theory and its application.	1.27	1.27	1.27	1.27	0.63	1.27	0	0	0	0.63	0	1.27	0.63	0	0	0
214441.6	Identify fundamental algebraic structures.	3.8	5.7	3.8	1.9	1.9	1.9	0	0	0	1.9	0	3.8	1.9	0	0	0
	Avg PO attainment.	2.74	3.36	2.45	2.85	1.66	1.21	0	0	0	1.58	0	2.22	6.65	0	0	0
214442	Computer Organization and Logic Design	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4
214442.1	Perform basic binary arithmetic & simplify logic expressions.	1.73	0.86	0	0	0	0	0	0	0	0	0	0	0	0	0	0
214442.2	Grasp the operations of logic ICs and Implement combinational logic functions using ICs.	2	2	1.73	0	0	0	0	0	0	0	0	0	0	0	0	0
214442.3	Comprehend the operations of basic memory cell types and Implement sequential logic functions using ICs.	2.2	1.46	1.46	0	0	0	0	0	0	0	0	0	2	0	0	0
214442.4	Elucidate the functions & organization of various blocks of CPU.	2.6	1.73	0	0	1.2	1.73	0	0	0	0	0	0	2	0	0	0
214442.5	Understand CPU instruction characteristics, enhancement features of CPU	2.6	1.73	0	0	1.2	1.1	0	0	0	0	0	0	0	0	0	0
214442.6	Describe an assortment of memory types (with their characteristics) used in computer	1.73	1.73	0	0	1.2	1.1	0	0	0	0	0	0	0	0	0	0
	Avg PO attainment.	2.14	1.9	0.8	0	0.9	0.66	0	0	0	0	0	0	0.67	0	0	0
214443	Data Structures and Algorithms	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4
214443.1	Perform basic analysis of algorithms with respect to time and space	1.73	1.73	1.73	1.73	0	0.86	0	0	0	0	0	0	0	0	0	0
214443.2	Select appropriate searching and/or sorting techniques in the	0.86	0.86	1.73	1.73	0	1	0	0	0	0	0	0	0	0	0	0
214443.3	Implement abstract data type (ADT) and data structures for given	2.2	1.46	1.46	1.73	0	0.73	0	0	0	0	0	0	0	0	0	0
214443.4	Design algorithms based on techniques like brute force, divide and	2.6	1.73	1.73	1.73	0	3	0	0	0	0	0	0	0	0	0	0
214443.5	Apply implement learned algorithm design techniques and data	2.6	1.73	1.73	1.73	0	0.86	0	0	0	0	0	0	0	0	0	0
214443.6	Design different hashing functions and use files organizations.	1.73	1.73	1.73	1.73	0	0.86	0	0	0	0	0	0	0	0	0	0
	Avg PO attainment.	1.95	1.85	2.53	2.6	0	1.22	0	0	0	0	0	0	0	0	0	0
214444	Object Oriented Programming	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4
214444.1	Differentiate various programming paradigms.	1.73	1.73	1.73	0.86	0.86	0.86	1.73	0	0	0.86	0	0.86	0.1	0.1	0.1	0.1

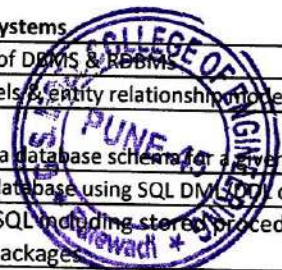


214444.2	Identify classes, objects, methods, and handle object creation, initialization, and Destruction to model real-world problems.	0.86	0.86	0.86	1	0.86	1	3	0.1	0	0.86	0	0.86	0.1	0.1	0.1	0
214444.3	Identify relationship among objects using inheritance and polymorphism	2.2	1.46	1.46	0.73	0.86	0.73	1.73	0.1	0	0.86	0	0.86	0.1	0.1	0.1	0
214444.4	Handle different types of exceptions and perform generic programming.	2.6	1.73	1.73	0.86	0.86	3	1.73	0.1	0	0.86	0	0.86	0.1	0.1	0.1	0
214444.5	Use of files for persistent data storage for real world application.	2.6	1.73	1.73	0.86	0.86	0.86	1.73	0	0	0.86	0	0	0.1	0.1	0.1	0
214444.6	Apply appropriate design patterns to provide object-oriented solutions.	1.73	1.73	1.73	0.86	0.86	0.86	0.86	0	0	0.86	0	0	0.1	0.1	0.1	0
	Avg PO attainment.	1.95	1.85	2.31	1.29	1.29	1.22	3.17	0.06	0	0.86	0	0.57	0.1	0.1	0.1	0.02
214445	Basics of Computer Network	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4
214445.1	Understand and explain the concepts of communication theory and	1.73	4.2	4.2	0	0	0	0	0	0	0	0	1.1	0	0	0	0
214445.2	Analyze data link layer services, error detection and correction, linear block codes, cyclic codes, framing and flow control protocols.	0	2.1	4.2	0	0	0	0	0	0	0	0	1.1	0	0	0	0
214445.3	Compare different access techniques, channelization and Ethernet	0	0	4.2	0	2.1	0	0.1	0	0	0	0	2.1	0	0	0	0
214445.4	Apply the skills of subnetting, supernetting and routing mechanisms.	0	1.4	0	0	0	0	0	0	0	0	0	1.1	0	0	0	0
214445.5	: Compare IPv4 and IPv6	0	0	2.1	0	1.4	4.2	0	0	0	0	0	1.4	0	0	0	0
214445.6	Understand services and protocols used at transport layer.	0	0	0	0	0	0	0	1.4	0	0	0	0.1	0	0	0	0
	Avg PO attainment.	0.29	1.54	3.68	0	0.88	0.7	0.03	0.44	0	0	0	1.15	0	0	0	0
207003	Engineering Mathematics III	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4
207003.1	Solve Linear differential equations, essential in modelling and design of computer-based	1.73	1.73	1.73	0.86	0	0	0	0	0	0	0	0	0.1	0.1	0.1	0.1
207003.2	Apply concept of Fourier transform and Z-transform and its applications to continuous and	0.86	0.86	0.86	1	0	0.73	0	0	0	0	0	0	0.1	0.1	0.1	0
207003.3	Apply Statistical methods like correlation & regression analysis and probability theory for	2.2	1.46	1.46	0.73	0	1	0	0	0	0	0	0	0.1	0.1	0.1	0
207003.4	Solve Algebraic & Transcendental equations and System of linear equations using numerical	2.6	1.73	1.73	0.86	0	0.73	0	0	0	0	0	0	0.1	0.1	0.1	0
207003.5	Obtain Interpolating polynomials, numerical differentiation and	2.6	1.73	1.73	0.86	0	0.73	0	0	0	0	0	0	0.1	0.1	0.1	0
	Avg PO attainment.	1.67	1.5	1.88	1.08	0	0.8	0	0	0	0	0	0	0.08	0.08	0.08	0.017
214451	Processor Architecture	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4
214451.1	Apprehend architecture and memory organization of PIC 18	2.8	2.8	2.8	2.8	0	3	0	3	0	0	0	2.8	0	0	0	0
214451.2	Implement embedded C programming for PIC 18.	1.87	1.867	1.867	1.86667	2.8	0	0	0	0	0	0	1.86667	0	0	0	0
214451.3	Use concepts of timers and interrupts of PIC 18	0.9	0.9	2	0	1.8	0	0	0	0	0	0	0	0	0	0	0
214451.4	Demonstrate real life applications using PIC 18	0.9	0.9	2	0	1.8	0	0	0	0	0	0	0	0	0	0	0
214451.5	Analyze architectural details of ARM processor	1.4	1.4	1.4	1.4	0	0	0	0	0	0	0	1.86667	0	0	0	0
	Avg PO attainment.	1.31	1.31	1.68	1.01	1.07	0.5	0	0.5	0	0	0	1.09	0	0	0	0
214452	Database Management System	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4
214452.1	Define fundamental elements of database management systems	1.73	0.86	0.86	0	0.86	0	0	0.1	0	0	0	1.73	0.86	1	0	0
214452.2	Describe the fundamental elements of relational database management	2	2	1	0	1	0	0	0.1	1.73	0	0	1.73	1	0.73	0.73	0
214452.3	Populate relational database and formulate SQL queries on data.	2.2	0	0.73	0	0	0	0	0.1	0	0	0	1.73	0.73	0	0	0
214452.4	Improve the database design by normalization & to incorporate query	2.6	0	0	0	0	0	0	0.1	0	0	0	1.73	0.86	0	0	0
214452.5	Illustrate ACID properties for transaction management & to describe	2.6	0	0	0	0.86	0	0	0.1	0	0	0	1.73	1	0	0	0
214452.6	Understand recent trends in database technology.	1.73	0	0	0	0.86	0	0	0.1	0	0	0	1.73	0.73	0	0	0
	Avg PO attainment.	2.14	0.57	0.52	0.47	0.43	0	0	0.12	0.29	0	0	1.73	0.73	0	0	0
214453	Computer Graphics	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4

214453 .1	Specify mathematical and logical aspects for developing elementary graphics operations like scan conversion of points, lines and circle and apply it for problem solving.	1.73	1.73	1.73	0.86	0.86	0.86	1.73	0.86	0	0.86	0.1	0	0	0	0	0
214453 .2	Explain and employ techniques of geometrical transforms to produce, position and	0.86	0.86	0.86	1	0.86	1	0	0	0.1	0.86	0.1	0	0	0	0	0
214453 .3	Describe mapping from a world coordinates to device coordinates, clipping, and projections in order to produce 3D images on 2D output	2.2	1.46	1.46	0.73	0.86	0.73	0	0	0	0	0.86	0	0	0	0	0
214453 .4	Apply the concepts of rendering, shading, animation, curves and fractals using computer	2.6	1.73	1.73	0.86	0.86	3	1.73	0.1	0.86	0.86	0	1.73	0	0	0	0
214453 .5	Develop the competency to understand the concepts related to Virtual reality	2.6	1.73	1.73	0.86	0.86	0.86	1.73	0.1	0.86	0.86	0	1.73	0	0	0	0
Avg PO attainment.		1.67	1.5	1.88	1.08	1.08	1.08	1.73	0.21	0.3	0.57	0.18	0.58	0	0	0	0
214454	Software Engineering	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4
214454 .1	Identify various software application domains and classify software	2	2	1	0	0	1	0	0	0	0	0	1	0	0	0	0
214454 .2	Analyze software requirements by applying various modeling	2	2	0	1	0	0	0	0	1	2	0	1	0	0	0	0
214454 .3	Translate the requirement models into design models.	2	2	2	1	2	0	0	1	1	1	1	1	0	0	0	0
214454 .4	Apply planning and estimation to any project.	2	2	0	1	0	1	1	2	1	1	0	1	0	0	0	0
214454 .5	Apply quality attributes and testing principles in software development	1	1	2	1	1	1	1	2	1	1	0	1	0	0	0	0
214454 .6	Discuss recent trends in Software engineering by using CASE and agile	1	1	1	0	2	1	1	1	1	0	0	1	0	0	0	0
Avg PO attainment.		1.67	1.67	1.5	0	1.67	1	1	1.5	1	1.25	1	1	0	0	0	0

Semester - V

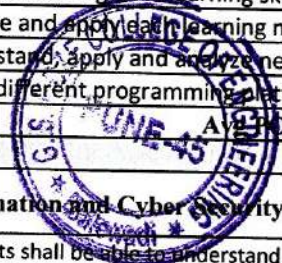
Course Code	Name of Course																
314441	Theory of Computation	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2		
314441.1	To construct finite state machines to solve problems in computing	2.6	1.73	1.73	1.73	1.73	0	0	0	0	0	0	0	1.73	1.6		
314441.2	To write mathematical expressions for the formal languages	0.86	0.86	1.73	1.84	2.6	0	0	0	0	0	0	0		1.67		
314441.3	To apply well defined rules for syntax verification.	2.2	1.34	1.46	1.73	2.6	0	0	0	0	0	0	0		0.83		
314441.4	To construct and analyze Push Down, Post and Turing Machine for formal languages.	2.6	1.73	1.65	1.6	1.62	0	0	0	0	0	0	0	1.73	2.6		
314441.5	To express the understanding of the decidability and decidability problems.	2.6	1.73	1.73	1.73	1.84	0	0	0	0	0	0	0	1.73	1.73		
314441.6	To express the understanding of computational complexity.	1.63	1.73	1.73	1.73	0	0	0	0	0	0	0	0.1	1.73	1.73		
Avg PO attainment.		2.08	1.82	2.51	2.59	2.6	0	0	0	0	0	0	0.02	1.15	1.69		
314442	Database Management Systems	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2		
314442.1	To define basic functions of DMS & DBMS	2.1	0.67	2.1	0	0.86	0	0	1.4	0	0	0	2.1	3.15	0.1		
314442.2	To analyze database models & entity relationship models.	2.1	2.1	1.9	0	2.1	0	0	1.73	0.2	0	0	2.1	2.1	2.1		
314442.3	To design and implement a database schema for a given problem-domain	1.4	0	1.4	0		0	0	1.73	0	0	0	0.7	0.7	0		
314442.4	To populate and query a database using SQL DML/DDL commands.	1.9	0	0	0		0	0	1.73	0	0	0	2.1	0			
314442.5	Do Programming in PL/SQL including stored procedures, stored functions, cursors and packages	0.7	0	0	0	0.7	0	0	1.73	0	0	0	0.7	0.7	0		
314442.6	ecosystem for analytical and data services.	2.1	0	0	0	0	0	0	1.73	0	0	0	0	0	0.1		



PRINCIPAL

		Avg PO attainment.														
		1.6	1.39	2.2	0	1.2	0		1.14	1.14	2.45	1.33	1.28	6.65	2.1	
314443	Software Engineering & Project Management	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
314443.1	software applications.															
		2.9	2	1.1	2.2	2.2	1.1	0	0	0	0	0	1.1	1.5	1.1	
314443.2	To choose and apply appropriate lifecycle model of software development	2.6	2.5	2.2	1.1	0	0	0	0	1.1	2.2	0	1.5	0	1.1	
314443.3	To describe principles of agile development, discuss the SCRUM process and distinguish agile process model from other process models.	2.2	1.47	2.2	0.73	1.47	0.73	0	0.73	0.73	0.73	0.73	0.73	0	0.73	
314443.4	To analyze software requirements by applying various modeling techniques.	2.2	2.97	0	1.1	0	1.1	1.1	2.2	1.1	1.1	0	1.1	1.1	0	
314443.5	To list and classify CASE tools and discuss recent trends and research in software engineering	1.47	1.47	1.47	0.73	0.73	0.73	0.73	1.47	0.73	0.63	0	0.73	0	0.73	
314443.6	To understand IT project management through life cycle of the project and future trends in IT Project Management.	2.2	1.1	1.1	1.1	2.2	1.1	1.1	1.1	1.1	0	0	1.1	0	0	
		Avg PO attainment.														
		2.26	2.3	2.02	2.32	1.65	0.79	0.98	1.1	0.79	0.93	0.15	1.04	2.6	1.83	
314444	Operating Systems	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
314444.1	Fundamental understanding of the role of Operating Systems.	2.88	0	1.92	0	1.92	0.96	0	0.96	0	0	0.96	0	0.96	0.96	
314444.2	To understand the concept of a process and thread.	1.92	0	1.92	0	0.64	0	0	0.64	0	0	0.64	0	1.28	0.64	
314444.3	To apply the cons of process/thread scheduling.	0	2.66	1.92	0.96	0	0.96	0	0.96	0	0	0.96	0	0	0	
314444.4	To apply the concept of process synchronization, mutual exclusion and the deadlock	0	5.76	1.92	3.84	0	2.3	0	1.83	0	0	1.92	0	0	0	
314444.5	To realize the concept of I/O management and File system.	3.84	1.92	0.83	0	2.98	2.3	0	0	0	0	1.83	0	1.82	0	
314444.6	To understand the various memory management techniques.	2.78	0	0	0	0.96	0	0	0	0	0	0.96	0	0.96	0.96	
		Avg PO attainment.														
		1.9	2.07	2.13	1.6	1.63	1.09	0	0.88	0	0	1.45	0	5.02	1.28	
314445	Human Computer Interaction	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
314445.1	approach.	2.3	2	1.1	0	0	0	0	0	0	2.2	0	1.1	0.83	0.6	
314445.2	Develop understanding of human factors in HCI design.	3.3	3.3	2.2	2.2	1.1	0	0	0	0	2.2	0	2.2	0.1	0.83	
314445.3	Develop understanding of models, paradigms, and context of	2.2	2.2	2.2	0.73	0.73	0	0	0	0	1.47	0	1.47	0.73	0.73	
314445.4	Design effective user-interfaces following a structured and organized	3.3	2.2	2.2	2.2	1.1	0	0	0	0	1.83	0	1.93	0.33	0.82	
314445.5	Evaluate usability of a user interface design.	2.2	2.2	1.47	1.47	0.73	0	0	0	0	1.47	0	1.47	0.2	1.47	
314445.6	Apply cognitive models for predicting human-computer-interactions.	2.2	2.2	0	0	0	0	0	0	0	2.2	0	1.1	0.1	1.1	
		Avg PO attainment.														
		2.58	2.82	2.29	2.2	0.92	0	0	0	0	2.27	0	1.54	2.29	2.78	
Semester - VI																
314450	Computer Networks & Security	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
314450.1	To know responsibilities, services and protocols used at each layer of network.	2.1	0.67	2.1	1.05	0	1.05	0	0	0	3.15	2.1	2.1	3.15	2.1	
314450.2	To understand different addressing techniques used in network.	2.1	2.1	2.1	1.05	2.1	2.1	0	0	0	3.15	2.1	2.1	3.15	2.1	
314450.3	To know the difference between different types of network.	1.4	1.4	1.4	0	0.7	0.7	0	0	0	1.4	0.7	0.7	1.4	0.7	

314450.4	To know the different wireless technologies and IEEE standards.	2.1	1.05	2.1	2.1	1.05	0	0	0	0	2.1	1.05	2.1	0	2.1
314450.5	development.	0.7	0.7	1.4	1.4	0.7	0.7	0	0	0	1.4	0.7	0.7	0.7	0
314450.6	To understand and explore recent trends in network domain.	2.1	1.05	1.05	1.05	0	2.1	0	0	0	1.05	0	0	0	0
Avg PO attainment.		1.75	1.39	2.54	2.22	1.14	1.11	0	0	0	2.45	1.33	1.28	6.65	2.1
314451	Systems Programming	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
314451.1	To learn independently modern software development tools and creates novel solutions for language processing applications.	1.9	1.33	2.85	0	0	0	0	0	0	0	0	0	0.95	0.95
314451.2	To design and implement assemblers and macro processors.	1.9	0.95	2.85	0	1.9	0	0	0	0	0	0	0	0	1.9
314451.3	To use tool LEX for generation of Lexical Analyzer.	0.63	0.63	1.9	0	1.27	0	0	0	0	0	0	0	0	0
314451.4	To use YACC tool for generation of syntax analyzer.	0.95	0.95	2.85	0	1.9	0	0	0	0	0	0	0	0	0
314451.5	To generate output for all the phases of compiler.	0.63	1.27	1.27	0	0	0	0	0	0	0	0	0	0	0
314451.6	To apply code optimization in the compilation process.	0.95	1.9	1.9	0	0	0	0	0	0	0	0	0	0	0
Avg PO attainment.		1.16	1.41	3.4	0	1.27	0	0	0	0	0	0	0	0.95	1.43
314452	Design and Analysis of Algorithms	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
314452.1	algorithms.	2.9	0	0	0	1.93	0	0	0	0	0	0	0	0.1	0
314452.2	To apply Divide & Conquer as well as Greedy approach to design algorithms.	2.9	0	0	0	2.9	0	0	0	0	0	0	0	0	1.93
314452.3	To practice principle of optimality.	1	0.64	1.93	1.29	0	0	0	0	0	0	0	0	0.64	0
314452.4	To illustrate different problems using Backtracking.	0	0	1.93	0	2.9	1.93	0	0	0	0	0	0	0.97	0
314452.5	To compare different methods of Branch and Bound strategy.	0	1.93	1.29	1.29	1.93	0	0	0	0	0	0	0	0.64	0
314452.6	To explore the concept of P, NP, NP-complete, NP-Hard and parallel algorithms.	0	0	5.79	0	0	0	0	0	0	0	0	0	0	0
Avg PO attainment.		1.13	0.51	2.73	0.86	2.41	0.32	0	0	0	0	0	0	2.35	0.97
314453	Cloud Computing	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
314453.1	To understand the need of Cloud based solutions.	2.7	1.73	1	0	1	1	1	0	0	0	0	0	0.86	1
314453.2	To understand Security Mechanisms and issues in various Cloud Applications	2.9	2.1	1	0	1	1	1	0	0	0	0	0	0.1	0.12
314453.3	To explore effective techniques to program Cloud Systems.	1.73	1.73	0.67	0	0.67	0.67	0.67	0	0	0	0	0	0.67	0.67
314453.4	To understand current challenges and trade-offs in Cloud Computing.	3	2	1	0	1	1	1	0	0	0	0	0	0.6	1
314453.5	To find challenges in cloud computing and delve into it to effective solutions.	1.2	1.2	0.67	0	0.67	0.67	0.67	0	0	0	0	0	0.67	0.67
314453.6	To understand emerging trends in cloud computing.	1.2	1.2	2	0	2	2	2	0	0	0	0	0	0.1	0.13
Avg PO attainment.		2.12	1.99	1.58	0	1.58	1.06	2.11	0	0	0	0	0	2.99	1.79
314454	Data Science and Big Data Analytics	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
314454.1	Understand Big Data primitives.	2.1	0	0	0	0	2.1	1.05	0	0	0	0	0	0	0
314454.2	Learn and apply different mathematical models for Big Data.	2.1	0	0	0	0	1.05	0	0	0	0	0	0	0	0
314454.3	Demonstrate Big Data learning skills by developing industry or research	1.4	0	0	0	0	1.4	0.7	0.7	0	0	0	0	0.7	0.7
314454.4	Analyze and apply different learning model comes from a different	0	1.05	1.05	0	0	2.1	2.1	0	1.05	0	0	0	0.73	2.1
314454.5	Understand, apply and analyze needs, challenges and techniques for big	0	0.7	0	0	0.7	1.4	1.4	0	0.7	0	0	0	0.6	0.7
314454.6	Learn different programming platforms for big data analytics.	0	1.05	0	0	1.05	0	1.05	0	2.1	1.05	1.05	1.05	0.3	0
Avg PO attainment.		0.93	0.56	0.26	0	0.44	1.34	2.1	0.14	0.64	0.21	0.21	0.18	2.33	1.75
Semester - VII															
414453	Information and Cyber Security	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
414453.1	Students shall be able to understand what are the common threats faced today	1.9	0	4.2	0	0	3	0	3	0	0	0	1.4	0	0
414453.2	What is the foundational theory behind information security	0.9	2.8	0	1.9	0	0	0	0	2.8	1.8	0	0.9	0.9	0



414453.3	What are the basic principles and techniques when designing a secure system	0.9	0.9	2	0	1.8	0	0	0	2.8	1.8	0.93	0.9	0	0
414453.4	How today's attacks and defenses work in practice	0.9	0.9	2	0	1.8	0	0	0	2.8	1.8	0	0.9	0.9	0
414453.5	How to assess threats for their significance	2.8	0.93	1.9	0	1.9	1.9	0	0	0.9	1.8	0	0.9		0
414453.6	How to gauge the protections and limitations provided by today's technology	0	1.4	1.4	0	0	1.9	0	0	0.9	0	0	0.9	0.9	0
Avg PO attainment.		1.23	1.16	1.92	0.32	0.92	1.13	0	0.5	1.7	1.2	0.16	0.98	0.45	0
414454	Machine Learning and Applications	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
414454.1	model the learning primitives	3.18	1.06	1.06	2.12	2.12	2.12	2.12	1.06	1.06	1.06	1.06	1.06	0.63	1.06
414454.2	build the learning model.	3.18	1.96	3.12	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	0.2	1.06
414454.3	tackle real world problems in the domain of Data Mining and Big Data Analytics, Information Retrieval, Computer vision, Linguistics and Bioinformatics.	2.12	2.12	2.12	1.41	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71
414454.4	Illustrate the regression and generalization machine learning algorithms.	1.12	2.12	1.41	0.71	0.71	0.71	1.41	0.71	0.71	0.71	0.71	0.71	0.1	0.71
414454.5	Apply fundamental concepts of ANN.	2.12	2.12	1.41	0.71	0.71	0.71	1.41	0.71	0.71	0.71	0.71	0.71	0.71	0.71
414454.6	Identify different unsupervised learning algorithms for the related real-	3.18	2.12	2.12	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	0.1	1.06
Avg PO attainment.		2.48	2.3	2.81	2.36	1.59	1.06	2.59	1.06	0.88	1.06	1.06	0.88	2.44	2.65
414455	Software Design and Modeling	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
414455.1	Understand object oriented methodologies, basics of Unified Modeling	2.85	1.9	2.85	1.9	1.9	0	1.9	0	1.9	1.9	1.9	0	1.9	0.95
414455.2	Understand analysis process, use case modeling, domain/class modeling	2.85	1.9	1.9	1.9	1.9	0	1.9	0	1.9	1.9	1.9	0	0	0.95
414455.3	Understand interaction and behavior modeling.	1.9	1.9	1.9	1.27	1.27	0	1.27	0	0.63	0	0.63	0	0	0
414455.4	Understand design process and business, access and view layer class	1.27	1.27	1.27	0	0	0	0	0	0.63	0	0	0	0	1.27
414455.5	Get started on study of GRASP principles and GoF design patterns.	1.27	1.27	0.63	0	0	0	0	0	0	0	0	0	0	0
414455.6	Get started on study of architectural design principles and guidelines in	1.9	1.9	2.85	0.95	1.9	0	0.95	0	1.9	0	1.9	0	0	0
Avg PO attainment.		2.01	2.03	2.85	2.01	1.74	0	2.01	0	1.16	0.76	1.27	0	1.9	1.58
414456E	Elective-I Business Analytics and Intelligence	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
414456E.1	Comprehend the Information Systems and development approaches of	2.9	0	2.9	0	0	0.97	0	0	0	0	0	0.97	0	0
414456E.2	Evaluate and rethink business processes using information systems	0.97	2.9	0	1.93	0	0	0	0	2.9	1.93	0	0.97	0.97	0
414456E.3	Propose the Framework for business intelligence	1.29	1.29	0.64	0	1.29	0	0	0.64	1.29	0.64	0.64	1.29	0	0
414456E.4	Get acquainted with the Theories, techniques, and considerations for	0	0	0	0	0	1.29	0.64	1.29	0.64	0.64	0	0.64	0.64	0
414456E.5	Align business intelligence with business strategy.	1.93	0.64	1.29	0	0.64	1.29	0	0	0.64	0.64	0	0.64	0	0
414456E.6	Apply the techniques for implementing business intelligence systems.	0	0.97	0.97	0	1.93	0.97	0	0	0.97	0	0	0.97	0.97	0
Avg PO attainment.		1.18	1.16	1.45	0.64	0.97	0.75	0.21	0.39	1.07	0.77	0.13	0.91	2.57	0
414457C	Elective-II Software Testing and Quality Assurance	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
414457.1	Test the software by applying testing techniques to deliver a product	2.73	0	1.93	1.1	1.1	0	0	0	0	0	0	0	0.73	0.1
414457.2	Investigate the scenarios and to select the proper testing technique.	1.75	2	2	1.2	1.3	0	0	0	0	0	0	0	1.73	0.73
414457.3	Explore the test automation concepts and tools and estimation of cost,	1.75	0	2	1.1	1.1	0	0	0	0	0	0	2	0.33	2
414457.4	Understand how to detect, classify, prevent and remove defects.	2	1.6	1.8	1.1	1.8	0	0	0	0	2	0	0	2	0
414457.5	Choose appropriate quality assurance models and develop quality.	2	1.73	1.93	1.93	1.93	0	0	0	0	0	0	0	0	0.7
414457.6	Ability to conduct formal inspections, record and evaluate results of	3	1.73	2	1.9	1.9	0	0	0	0	0	0	0	0.33	0
Avg PO attainment.		2.21	1.41	2.92	2.78	2.28	0	0	0	0	0.4	0	0.33	1.22	1.77
Semester - VIII															
414462	Distributed Computing System	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2

414462.1	To learn the principles, architectures and programming mo used in	2.1	2.8	1	0	1	1		0	0	0	0	0	0.83	0.93
414462.2	To understand the fundamentals and knowledge of the Middleware of	2.1	2	1	0	1	1	1	0	0	0	0	0	0.1	1
414462.3	To gain knowledge of working components and fault tolerance of	2	2	0.67	0	0.67	0.67	0.67	0	0	0	0	0	0.67	0.67
414462.4	To understand the significance of agreement, fault tolerance and	3	2.11	1	0	1	1	1	0	0	0	0	0	0.2	1
414462.5	To make students aware about distributed and multimedia file systems	3	3	1	0	1	1	1	0	0	0	0	0	0.1	1
414462.6	Create an awareness of Emerging trends in distributed computing.	3	3	1	0	1	1	1	0	0	0	0	0	1	1
	Avg PO attainment.	2.53	2.98	1.42	0	1.42	0.94	1.89	0	0	0	0	0	2.9	2.8
414463	Ubiquitous Computing	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
414463.1	Demonstrate the knowledge of design of UbiComp and its applications.	2.1	2.4	0	2.4	0	0	0	0	0	0	0	0	1.2	0
414463.2	Explain smart devices and services used UbiComp.	2.4	3.6	2.4	3.6	0	0	0	0	0	0	0	0	0	0
414463.3	Describe the significance of actuators and controllers in real time	2.4	1.6	2.4	2.4	0	0	0	0	0	0	0	0	0	0.8
414463.4	Use the concept of HCI to understand the design of automation	3.6	2.4	3.6	3.6	0	0	0	0	0	0	0	0	1.2	0
414463.5	Classify UbiComp privacy and explain the challenges associated with	3.6	2.63	2.1	2.1	0	0	0	0	0	0	0	0	1.2	0
414463.6	Get the knowledge of ubiquitous and service oriented networks along with UbiComp management.	0.8	2.4	0	2.4	0	0	0	0	0	0	0	0	0.8	0
	Avg PO attainment.	2.48	2.51	1.75	2.75	0	0	0	0	0	0	0	0	0.73	0.4
414464A	Elective III Multimedia Techniques	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
414464A.1	To create own file formats for specific application.	3.15	3.15	1.05	0	1.05	1.05	1.05	0	0	0	0	0	1.05	1.05
414464A.2	To do some projects based on current trends in multimedia.	3.15	3.15	1.05	0	1.05	1.05	1.05	0	0	0	0	0	1.05	1.05
414464A.3	To use open sources for authoring tool for animation.	2.1	2.1	0.7	0	1.4	0.7	0.7	0	0	0	0	0	1.05	1.05
414464A.4	TUnderstand some research areas of current multimedia techniques.	3.15	3.15	1.05	0	1.05	1.05	1.05	0	0	0	0	0	1.4	0.7
414464A.5	To use open sources for authoring tool for presentations	3.15	3.15	1.05	0	1.05	2.1	1.05	0	0	0	0	0	1.05	1.05
414464A.6	Become acquainted with some advanced topics in multimedia.	3.15	3.15	1.05	0	1.05	1.05	1.05	0	0	0	0	0	1.05	1.05
	Avg PO attainment.	2.98	2.98	0.99	0	1.66	1.17	1.98	0	0	0	0	0	1.05	1.05
414464D	Elective IV	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
414464D.1	Understand the basics of Social Media Analytics	3.6	3.6	0	0	3.6	0	0	0	0	0	0	0	0	0
414464D.2	Explain the significance of Data mining in Social media.	3.6	3.6	3.6	0	0	0	0	0	0	0	0	0	0	0
414464D.3	Demonstrate the algorithms used for text mining.	1.6	2.4	0.8	0	0	0	0	0	0	0	0	0	0	0
414464D.4	Apply network measures for social media data.	2.4	2.4	2.4	0	0	0	0	0	0	0	0	0	0	0
414464D.5	Explain Behavior Analytics techniques used for social media data	2.4	3.6	3.6	2.4	3.6	0	0	0	0	0	0	0	1.2	0
414464D.6	Apply social media analytics for Face book and Twitter kind of	2.4	2.4	3.6	3.6	3.6	0	0	1.2	0	0	0	0	1.2	0
	Avg PO attainment.	2.67	3	2.33	1	2.7	0	0	0.24	0	0	0	0	0.4	0



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3.2 CO PO Attainment Matrix

Academic Year 2021-22

Semester - III

Discrete Mathematics

CO→	Discrete Mathematics					
Assessment tools↓	214441.1	214441.2	214441.3	214441.4	214441.5	214441.6
Direct Assessment						
Internal Assessment						
Internal exam	2	2	2	2	2	2
Assignment	3	3	3	3	3	3
Average direct Assessment= A = Internal attainment X 0.3=	2.5	2.5	2.5	2.5	2.5	2.5
University exams						
Phase Result	3	3	2	2	2	2
End Sem Result	3	3	2	2	2	2
B = University Result X 0.7=	2.1	2.1	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.995	1.995	1.505	1.505	1.505	1.505
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.895	2.895	2.405	2.405	2.405	2.405

Logic Design & Computer Organization

CO→	Logic Design & Computer Organization					
Assessment tools↓	214442.1	214442.2	214442.3	214442.4	214442.5	214442.6
Direct Assessment						
Internal Assessment						
Internal exam	3	3	3	3	3	3
Assignment	2	2	2	2	2	2
Average direct Assessment= A = Internal attainment X 0.3=	2.5	2.5	2.5	2.5	2.5	2.5
University exams						
Phase Result	3	3	3	3	3	3

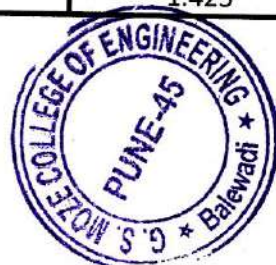


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End Sem Result		3	3	3	3	3
B = University Result X 0.7=	2.1	2.1	2.1	2.1	2.1	2.1
Total Attainment -Direct Assessment D= (A+B)*.7	1.995	1.995	1.995	1.995	1.995	1.995
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.895	2.895	2.895	2.895	2.895	2.895

Data Structure & Algorithms

CO→	214443.1	214443.2	214443.3	214443.4	214443.5	214443.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	3	3	3	3	3	3
Assignment	2	3	2	2	3	3
Average direct Assessment=	2.5	3	2.5	2.5	3	3
A = Internal attainment X 0.3=	0.75	0.9	0.75	0.75	0.9	0.9
University exams						
Phase Result	3	3				
End Sem Result			2	2	2	2
B = University Result X 0.7=	0	0	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	0.525	0.63	1.505	1.505	1.61	1.61
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	1.425	1.53	2.405	2.405	2.51	2.51



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Object Oriented Programming

CO→	214444.1	214444.2	214444.3	214444.4	214444.5	214444.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	3	3	3	3	3	3
Assignment	3	3	3	3	3	3
Average direct Assessment= A = Internal attainment X 0.3=	3 0.9	3 0.9	3 0.9	3 0.9	3 0.9	3 0.9
University exams						
Phase Result	3	3				
End Sem Result	3	3	2	2	2	2
B = University Result X 0.7=	2.1	2.1	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	2.1	2.1	1.61	1.61	1.61	1.61
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	3	3	2.51	2.51	2.51	2.51

Basics of Computer Network

CO→	214445.1	214445.2	214445.3	214445.4	214445.5	214445.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	2	2	3	3	3	3
Assignment	2	3	2	3	2	2
Average direct Assessment= A = Internal attainment X 0.3=	2 0.6	2.5 0.75	2.5 0.75	3 0.9	2.5 0.75	2.5 0.75
University exams						
Phase Result	3	3	3	3	3	3
End Sem Result	3	3	2	2	2	2



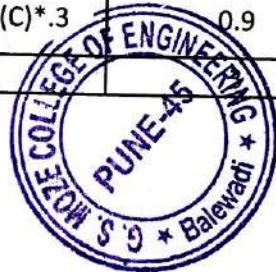
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B = University Result X 0.7=	1	2.1	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.89	1.995	1.505	1.61	1.505	1.505
Indirect Assessment						
C = Course Exit Survey Attainment	3	2	3	2	2	2
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.6	0.9	0.6	0.6	0.6
CO Attainment = D+I	2.79	2.595	2.405	2.21	2.105	2.105

Semester - IV

Engineering Mathematics III

CO→	207003.1	207003.2	207003.3	207003.4	207003.5	207003.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	3.00	3.00	3.00	3.00	3.00	3.00
Assignment	3.00	3.00	3.00	3.00	3.00	3.00
Average direct Assessment=	3.00	3.00	3.00	3.00	3.00	3.00
A = Internal attainment X 0.3=	0.9	0.9	0.9	0.9	0.9	0.9
University exams						
Phase Result	3	3	2	2	2	2
End Sem Result	3	3	2	2	2	2
B = University Result X 0.7=	2.1	2.1	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	2.1	2.1	1.61	1.61	1.61	1.61
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I		3	2.51	2.51	2.51	2.51



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Processor Architecture

CO→	214451.1	214451.2	214451.3	214451.4	214451.5
Assessment tools↓					
Direct Assessment					
Internal Assessment					
Internal exam	2	2	2	2	2
Assignment	2	2	2	2	2
Average direct Assessment=	2	2	2	2	2
A = Internal attainment X 0.3=	0.6	0.6	0.6	0.6	0.6
University exams					
Phase Result	3	3	3	3	3
End Sem Result	2	2	2	2	2
B = University Result X 0.7=	1.4	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.4	1.4	1.4	1.4	1.4
Indirect Assessment					
C = Course Exit Survey Attainment	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.3	2.3	2.3	2.3	2.3

Database Management System

CO→	214452.1	214453.2	214454.3	214455.4	214456.5	214457.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	3	3	3	3	3	3
Assignment	3	3	3	3	3	3
Average direct Assessment=	3	3	3	3	3	3
A = Internal attainment X 0.3=	0.9	0.9	0.9	0.9	0.9	0.9
University exams						



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Phase Result	3	3				
End Sem Result	3	3	1	1	1	1
B = University Result X 0.7=	2.1	2.1	0.7	0.7	0.7	0.7
Total Attainment -Direct Assessment D= (A+B)*.7	2.1	2.1	1.12	1.12	1.12	1.12
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	2
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.6
CO Attainment = D+I	3	3	2.02	2.02	2.02	1.72

Computer Graphics

CO→	214453.1	214453.2	214453.3	214453.4	214453.5
Assessment tools↓					
Direct Assessment					
Internal Assessment					
Internal exam	2	2	2	2	2
Assignment	2	2	2	2	2
Average direct Assessment=	2	2	2	2	2
A = Internal attainment X 0.3=	0.6	0.6	0.6	0.6	0.6
University exams					
Phase Result	3	3	3	3	3
End Sem Result	3	2	2	2	2
B = University Result X 0.7=	2.1	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.89	1.4	1.4	1.4	1.4
Indirect Assessment					
C = Course Exit Survey Attainment	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.79	2.3	2.3	2.3	2.3



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Software Engineering

CO→						
Assessment tools↓	214454.1	214454.2	214454.3	214454.4	214454.5	214454.6
Direct Assessment						
Internal Assessment						
Internal exam	3	3	2	2	3	3
Assignment	3	3	3	3	3	3
Average direct Assessment=	3	3	2.5	2.5	3	3
A = Internal attainment X 0.3=	0.9	0.9	0.75	0.75	0.9	0.9
University exams						
Phase Result	3	3	3	3	3	3
End Sem Result	3	3	2	2	2	2
B = University Result X 0.7=	2.1	2.1	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	2.1	2.1	1.505	1.505	1.61	1.61
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	3	3	2.405	2.405	2.51	2.51

Semester - V

Theory of Computation

CO→						
Assessment tools↓	314441.1	314441.2	314441.3	314441.4	314441.5	314441.6
Direct Assessment						
Internal Assessment						
Internal exam	3	3	3	3	3	3
Assignment	3	2	3	2	3	3
Average direct Assessment=	3	2.5	3	2.5	3	3
A = Internal attainment X 0.3=	0.9	0.75	0.9	0.75	0.9	0.9
University exams						



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Phase Result	3	3				
End Sem Result	3	3	2	2	2	2
B = University Result X 0.7=	2.1	2.1	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	2.1	1.995	1.61	1.505	1.61	1.61
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	3	2.895	2.51	2.405	2.51	2.51

Operating Systems

CO→	314442.1	314442.2	314442.3	314442.4	314442.5	314442.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	3	3	2	2	2	2
Assignment	2	2	2	2	2	2
Average direct Assessment=	2.5	2.5	2	2	2	2
A = Internal attainment X 0.3=	0.75	0.75	0.6	0.6	0.6	0.6
University exams						
Phase Result	3	3				
End Sem Result	3	3	3	3	3	3
B = University Result X 0.7=	2.1	2.1	2.1	2.1	2.1	2.1
Total Attainment -Direct Assessment D= (A+B)*.7	1.995	1.995	1.89	1.89	1.89	1.89
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.895	2.895	2.79	2.79	2.79	2.79



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Machine Learning

CO→	314443.1	314443.2	314443.3	314443.4	314443.5	314443.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	3	3	3	3	3	3
Assignment	3	1.5	2	1.5	2	3
Average direct Assessment=	3	2.25	2.5	2.25	2.5	3
A = Internal attainment X 0.3=	0.9	0.675	0.75	0.675	0.75	0.9
University exams						
Phase Result	3	3	3	3	3	3
End Sem Result	2	2	2	1	2	2
B = University Result X 0.7=	1.4	1.4	1.4	0.7	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.61	1.4525	1.505	0.9625	1.505	1.61
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	2	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.6	0.9	0.9
CO Attainment = D+I	2.51	2.3525	2.405	1.5625	2.405	2.51

Human Computer Interaction

CO→	314444.1	314444.2	314444.3	314444.4	314444.5	314444.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	2	2	2	2	2	2
Assignment	3	3	3	3	3	3
Average direct Assessment=	2.5	2.5	2.5	2.5	2.5	2.5
A = Internal attainment X 0.3=	0.75	0.75	0.75	0.75	0.75	0.75
University exams						



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Phase Result	3	3	1	1	1	1
End Sem Result	3	3	1	1	1	1
B = University Result X 0.7=	2.1	2.1	0.7	0.7	0.7	0.7
Total Attainment -Direct Assessment D= (A+B)*.7	1.995	1.995	1.015	1.015	1.015	1.015
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.895	2.895	1.915	1.915	1.915	1.915

Elective -I : Internet of Things

CO→	314445(D).1	314445(D).2	314445(D).3	314445(D).4	314445(D).5	314445(D).6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	3	3	3	3	3	3
Assignment	3	3	3	3	3	3
Average direct Assessment=	3	3	3	3	3	3
A = Internal attainment X 0.3=	0.9	0.9	0.9	0.9	0.9	0.9
University exams						
Phase Result	3	3	3	3	3	3
End Sem Result	1	1	1	1	1	1
B = University Result X 0.7=	0.7	0.7	0.7	0.7	0.7	0.7
Total Attainment -Direct Assessment D= (A+B)*.7	1.12	1.12	1.12	1.12	1.12	1.12
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.02	2.02	2.02	2.02	2.02	2.02



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Semester - VI

Computer Network and Security

CO→	314451.1	314451.2	314451.3	314451.4	314451.5	314451.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	2	2	2	2	2	2
Assignment	2	2	2	2	2	2
Average direct Assessment= A = Internal attainment X 0.3=	2 0.6	2 0.6	2 0.6	2 0.6	2 0.6	2 0.6
University exams						
Phase Result	3	3				
End Sem Result	3	3	2	2	2	2
B = University Result X 0.7=	2.1	2.1	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.89	1.89	1.4	1.4	1.4	1.4
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.79	2.79	2.3	2.3	2.3	2.3

Data Science & Big Data Analytics

CO→	314452.1	314452.2	314452.3	314452.4	314452.5	314452.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	2	2	3	3	3	3
Assignment	2	2	3	2	3	3
Average direct Assessment= A = Internal attainment X 0.3=	2 0.6	2 0.6	3 0.9	2.5 0.75	3 0.9	3 0.9
University exams						
Phase Result	3	3				

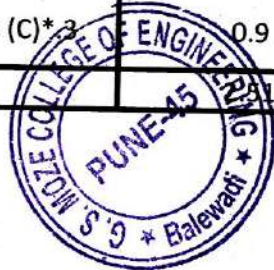


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End Sem Result	3	3	2	2	2	2
B = University Result X 0.7=	2.1	2.1	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.89	1.89	1.61	1.505	1.61	1.61
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.79	2.79	2.51	2.405	2.51	2.51

Web Application Development

CO→	314453.1	314453.2	314453.3	314453.4	314453.5	314453.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	3	3	3	3	3	3
Assignment	3	1.5	2	1.5	2	3
Average direct Assessment=	3	2.25	2.5	2.25	2.5	3
A = Internal attainment X 0.3=	0.9	0.675	0.75	0.675	0.75	0.9
University exams						
Phase Result	3	3	3	3	3	3
End Sem Result	2	2	2	1	2	2
B = University Result X 0.7=	1.4	1.4	1.4	0.7	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.61	1.4525	1.505	0.9625	1.505	1.61
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	2	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.6	0.9	0.9
CO Attainment = D+I		2.3525	2.405	1.5625	2.405	2.51



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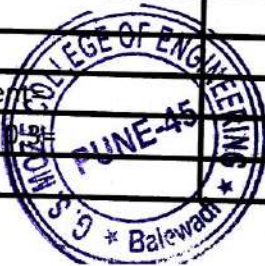
Cloud Computing

CO→	314454C.1	314454C.2	314454C.3	314454C.4	314454C.5	314454C.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	3	3	3	3	3	3
Assignment	3	3	3	3	3	3
Average direct Assessment= A = Internal attainment X 0.3=	3 0.9	3 0.9	3 0.9	3 0.9	3 0.9	3 0.9
University exams						
Phase Result	3	3	3	3	3	3
End Sem Result	1	1	1	1	1	1
B = University Result X 0.7=	0.7	0.7	0.7	0.7	0.7	0.7
Total Attainment -Direct Assessment D= (A+B)*.7	1.12	1.12	1.12	1.12	1.12	1.12
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.02	2.02	2.02	2.02	2.02	2.02

Semester - VII

Information and Cyber Security

CO→	414453.1	414453.2	414453.3	414453.4	414453.5
Assessment tools↓					
Direct Assessment					
Internal Assessment					
Internal exam	1	1	2	2	2
Assignment	1	2	1	2	1
Average direct Assessment= A = Internal attainment X 0.3=	1 0.3	1.5 0.45	1.5 0.45	2 0.6	1.5 0.45
University exams					



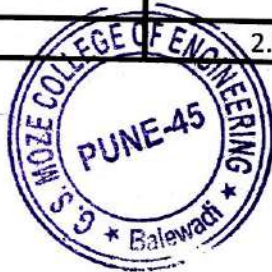
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Phase Result	3	3	3	3	3
End Sem Result	2	2	2	2	2
B = University Result X 0.7=	1.4	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.19	1.295	1.295	1.4	1.295
Indirect Assessment					
C = Course Exit Survey Attainment	3	3	3	2	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.6	0.9
CO Attainment = D+I	2.09	2.195	2.195	2	2.195

Machine Learning and Applications

CO→	414454.1	414454.2	414454.3	414454.4	414454.5	414454.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	3	3	3	3	3	3
Assignment	3	1.5	2	1.5	2	3
Average direct Assessment=	3	2.25	2.5	2.25	2.5	3
A = Internal attainment X 0.3=	0.9	0.675	0.75	0.675	0.75	0.9
University exams						
Phase Result	3	3	3	3	3	3
End Sem Result	2	2	2	1	2	2
B = University Result X 0.7=	1.4	1.4	1.4	0.7	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.61	1.4525	1.505	0.9625	1.505	1.61
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	2	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.6	0.9	0.9
CO Attainment = D+I	2.51	2.3525	2.405	1.5625	2.405	2.51



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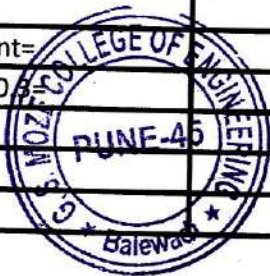
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Software Design and Modeling

CO→	414455.1	414455.2	414455.3	414455.4	414455.5	414455.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	3	3	3	3	3	3
Assignment	3	3	3	3	3	3
Average direct Assessment=	3	3	3	3	3	3
A = Internal attainment X 0.3=	0.9	0.9	0.9	0.9	0.9	0.9
University exams						
Phase Result	3	3	1	1	1	1
End Sem Result	3	3	1	1	1	1
B = University Result X 0.7=	2.1	2.1	0.7	0.7	0.7	0.7
Total Attainment -Direct Assessment D= (A+B)*.7	2.1	2.1	1.12	1.12	1.12	1.12
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	3	3	2.02	2.02	2.02	2.02

Business Analytics and Intelligence

CO→	414456E.1	414456E.2	414456E.3	414456E.4	414456E.5	414456E.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	1	1	2	2	2	2
Assignment	3	2	1	2	1	2
Average direct Assessment=	2	1.5	1.5	2	1.5	2
A = Internal attainment X 0.3=	0.6	0.45	0.45	0.6	0.45	0.6
University exams						
Phase Result	2	2	2	2	2	2
End Sem Result	2	2	2	2	2	2



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B = University Result X 0.7=	1.4	1.4	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.4	1.295	1.295	1.4	1.295	1.4
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	2	2
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.6	0.6
CO Attainment = D+I	2.3	2.195	2.195	2.3	1.895	2

EL-II(Software Testing & Quality Assurance)

CO→	414457C.1	414457C.2	414457C.3	414457C.4	414457C.5	414457C.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	3	3	2	2	2	2
Assignment	3	3	3	3	3	3
Average direct Assessment=	3	3	2.5	2.5	2.5	2.5
A = Internal attainment X 0.3=	0.9	0.9	0.75	0.75	0.75	0.75
University exams						
Phase Result	3	3				
End Sem Result	3	3	2	2	2	2
B = University Result X 0.7=	2.1	2.1	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	2.1	2.1	1.505	1.505	1.505	1.505
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	3	3	2.405	2.405	2.405	2.405




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Semester - VIII

Distributed Computing System

CO→	414462.1	414462.2	414462.3	414462.4	414462.5	414462.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	3	3	3	3	3	3
Assignment	3	3	3	3	3	3
Average direct Assessment=	3	3	3	3	3	3
A = Internal attainment X 0.3=	0.9	0.9	0.9	0.9	0.9	0.9
University exams						
Phase Result	1	1	1	1	1	1
End Sem Result	2	2	2	2	2	2
B = University Result X 0.7=	1.4	1.4	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.61	1.61	1.61	1.61	1.61	1.61
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.51	2.51	2.51	2.51	2.51	2.51

Ubiquitous Computing

CO→	414463.1	414463.2	414463.3	414463.4	414463.5	414463.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	3.00	3.00	3.00	3.00	3.00	3.00
Assignment	3.00	3.00	3.00	3.00	3.00	3.00
Average direct Assessment=	3.00	3.00	3.00	3.00	3.00	3.00
A = Internal attainment X 0.3=	0.9	0.9	0.9	0.9	0.9	0.9
University exams						
Phase Result	3	3	2	2	2	

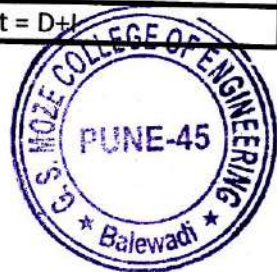


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End Sem Result	3	3	2	2	2	2
B = University Result X 0.7=	2.1	2.1	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	2.3	2.2	2	1.7	1.8	1.7
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	3.2	3.1	2.9	2.6	2.7	2.6

Internet of Things (IoT)

CO→	414464A .1	414464A .2	414464A .3	414464A .4	414464A .5	414464A .6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	3	3	3	3	3	3
Assignment	3	3	3	3	3	3
Average direct Assessment=	3	3	3	3	3	3
A = Internal attainment X 0.3=	0.9	0.9	0.9	0.9	0.9	0.9
University exams						
Phase Result	1	1	1	1	1	1
End Sem Result	2	2	2	2	2	2
B = University Result X 0.7=	1.4	1.4	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.61	1.61	1.61	1.61	1.61	1.61
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.51	2.51	2.51	2.51	2.51	2.51



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Social Media Analytics

CO→	414464D.1	414464D.2	414464D.3	414464D.4	414464D.5	414464D.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	3	3	3	3	3	3
Assignment	3	3	3	3	3	3
Average direct Assessment= A = Internal attainment X 0.3=	3	3	3	3	3	3
University exams	0.9	0.9	0.9	0.9	0.9	0.9
Phase Result	3	3	2	2	2	2
End Sem Result	3	3	2	2	2	2
B = University Result X 0.7=	2.1	2.1	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	2.1	2.1	1.61	1.61	1.61	1.61
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	3	3	2.51	2.51	2.51	2.51



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2.6.2 CO PO Attainment Matrix

Academic Year 2022-23

Semester - III

Discrete Mathematics

CO→						
Assessment tools↓	214441.1	214441.2	214441.3	214441.4	214441.5	214441.6
Direct Assessment						
Internal Assessment						
Internal exam	2	2	2	2	2	2
Assignment	3	3	3	3	3	3
Average direct Assessment=	2.5	2.5	2.5	2.5	2.5	2.5
A = Internal attainment X 0.3=	0.75	0.75	0.75	0.75	0.75	0.75
University exams						
Phase Result	2	2	2	2	2	2
End Sem Result	2	2	2	2	2	2
B = University Result X 0.7=	1.4	1.4	1.4	1.4	1.4	1.4
(A+B)*.7	1.505	1.505	1.505	1.505	1.505	1.505
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
(C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.405	2.405	2.405	2.405	2.405	2.405

Logic Design & Computer Organization

CO→						
Assessment tools↓	214442.1	214442.2	214442.3	214442.4	214442.5	214442.6
Direct Assessment						
Internal Assessment						
Internal exam	3	3	3	3	3	3
Assignment	2	2	2	2	2	2
Average direct Assessment=	2.5	2.5	2.5	2.5	2.5	2.5
A = Internal attainment X 0.3=	0.75	0.75	0.75	0.75	0.75	0.75
University exams						
Phase Result	3	3	3	3	3	3
End Sem Result	3	3	3	3	3	3
B = University Result X 0.7=	2.2	2.1	2.1	2.1	2.1	2.1
Total Attainment -Direct Assessment D= (A+B)*.7	2.1	1.995	1.995	1.995	1.995	1.995
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.895	2.895	2.895	2.895	2.895	2.895



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Data Structure & Algorithms

CO→						
Assessment tools↓	214443.1	214443.2	214443.3	214443.4	214443.5	214443.6
Direct Assessment						
Internal Assessment						
Internal exam	2	2	2	2	2	2
Assignment	2	3	2	3	3	3
Average direct Assessment=	2	2.5	2	2.5	2.5	2.5
A = Internal attainment X 0.3=	0.6	0.75	0.6	0.75	0.75	0.75
University exams						
Phase Result	3	3				
End Sem Result	3	3	1	1	1	1
B = University Result X 0.7=	2.1	2.1	0.7	0.7	0.7	0.7
Total Attainment -Direct Assessment D= (A+B)*.7	1.89	1.995	0.91	1.015	1.015	1.015
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.79	2.895	1.81	1.915	1.915	1.915

Object Oriented Programming

CO→						
Assessment tools↓	401007.1	401007.2	401007.3	401007.4	401007.5	401007.6
Direct Assessment						
Internal Assessment						
Internal exam	3	3	3	3	3	3
Assignment	3	3	3	3	3	3
Average direct Assessment=	3	3	3	3	3	3
A = Internal attainment X 0.3=	0.9	0.9	0.9	0.9	0.9	0.9
University exams						
Phase Result	3	3				
End Sem Result	3	3	2	2	2	2
B = University Result X 0.7=	2.1	2.1	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	2.1	2.1	1.61	1.61	1.61	1.61
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	3	3	2.51	2.51	2.51	2.51

Basics of Computer Network

CO→						
Assessment tools↓	214445.1	214445.2	214445.3	214445.4	214445.5	214445.6
Direct Assessment						
Internal Assessment						
Internal exam	2	2	2	2	2	2
Assignment	2	3	2	3	2	2
Average direct Assessment=	2	2.5	2	2.5	2	2



A = Internal attainment X 0.3=	0.6	0.75	0.6	0.75	0.6	0.6
University exams						
Phase Result	1	1	1	1	1	1
End Sem Result	1	1	2	2	2	2
B = University Result X 0.7=	0.7	0.7	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	0.91	1.015	1.4	1.505	1.4	1.4
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	2	2
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.6	0.6
CO Attainment = D+I	1.81	1.915	2.3	2.405	2	2

Semester - IV

Engineering Mathematics III

CO→						
Assessment tools↓	207003.1	207003.2	207003.3	207003.4	207003.5	207003.6
Direct Assessment						
Internal Assessment						
Internal exam	3.00	3.00	3.00	3.00	3.00	3.00
Assignment	3.00	3.00	3.00	3.00	3.00	3.00
Average direct Assessment=	3.00	3.00	3.00	3.00	3.00	3.00
A = Internal attainment X 0.3=	0.9	0.9	0.9	0.9	0.9	0.9
University exams						
Phase Result	3	3	2	2	2	2
End Sem Result	3	3	2	2	2	2
B = University Result X 0.7=	2.1	2.1	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	2.1	2.1	1.61	1.61	1.61	1.61
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	3	3	2.51	2.51	2.51	2.51

Processor Architecture

CO→						
Assessment tools↓	214451.1	214451.2	214451.3	214451.4	214451.5	
Direct Assessment						
Internal Assessment						
Internal exam	2	2	2	2	2	2
Assignment	2	2	2	2	2	2
Average direct Assessment=	2	2	2	2	2	2
A = Internal attainment X 0.3=	0.6	0.6	0.6	0.6	0.6	0.6
University exams						
Phase Result	3	3	3	3	3	3
End Sem Result	2	2	2	2	2	2
B = University Result X 0.7=	1.4	1.4	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.4	1.4	1.4	1.4	1.4	1.4



Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.3	2.3	2.3	2.3	2.3	2.3

Database Management System

CO→	401007.1	401007.2	401007.3	401007.4	401007.5	401007.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	2	2	3	3	3	3
Assignment	2	3	2	3	2	2
Average direct Assessment= A = Internal attainment X 0.3=	2	2.5	2.5	3	2.5	2.5
University exams						
Phase Result	2	2				
End Sem Result	2	2	3	3	3	3
B = University Result X 0.7=	1.4	1.4	2.1	2.1	2.1	2.1
Total Attainment -Direct Assessment D= (A+B)*.7	1.4	1.505	1.995	2.1	1.995	1.995
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.3	2.405	2.895	3	2.895	2.895

Computer Graphics

CO→	214453.1	214453.2	214453.3	214453.4	214453.5
Assessment tools↓					
Direct Assessment					
Internal Assessment					
Internal exam	2	2	2	2	2
Assignment	3	3	3	3	3
Average direct Assessment= A = Internal attainment X 0.3=	2.5	2.5	2.5	2.5	2.5
University exams					
Phase Result	2	2	2	2	2
End Sem Result	2	2	2	2	2
B = University Result X 0.7=	1.4	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.505	1.505	1.505	1.505	1.505
Indirect Assessment					
C = Course Exit Survey Attainment	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.405	2.405	2.405	2.405	2.405



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Software Engineering

CO→						
Assessment tools↓	214455.1	214455.2	214455.3	214455.4	214455.5	214455.6
Direct Assessment						
Internal Assessment						
Internal exam	2	2	3	3	2	2
Assignment	2	2	2	2	2	2
Average direct Assessment=	2	2	2.5	2.5	2	2
A = Internal attainment X 0.3=	0.6	0.6	0.75	0.75	0.6	0.6
University exams						
Phase Result	1	1	1	1	1	1
End Sem Result	1	1	1	1	1	1
B = University Result X 0.7=	0.7	0.7	0.7	0.7	0.7	0.7
Total Attainment -Direct Assessment D= (A+B)*.7	0.91	0.91	1.015	1.015	0.91	0.91
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	2	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.6	0.9	0.9
CO Attainment = D+I	1.81	1.81	1.915	1.615	1.81	1.81

Semester - V

Theory of Computation

CO→						
Assessment tools↓	314441.1	314441.2	314441.3	314441.4	314441.5	314441.6
Direct Assessment						
Internal Assessment						
Internal exam	3	3	2	2	3	3
Assignment	3	3	3	3	3	3
Average direct Assessment=	3	3	2.5	2.5	3	3
A = Internal attainment X 0.3=	0.9	0.9	0.75	0.75	0.9	0.9
University exams						
Phase Result	2	2				
End Sem Result	2	2	1	1	1	1
B = University Result X 0.7=	1.4	1.4	0.7	0.7	0.7	0.7
Total Attainment -Direct Assessment D= (A+B)*.7	1.61	1.61	1.015	1.015	1.12	1.12
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.51	2.51	1.915	1.915	2.02	2.02

Operating Systems

CO→						
Assessment tools↓	314451.1	314451.2	314451.3	314451.4	314451.5	314451.6
Direct Assessment						
Internal Assessment						
Internal exam	3	3	3	3	3	3
Assignment	3	2	2	2	2	2



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Average direct Assessment=	3	2.5	2.5	2.5	2.5	3
A = Internal attainment X 0.3=	0.9	0.75	0.75	0.75	0.75	0.9
University exams						
Phase Result	2	2				
End Sem Result	2	2	2	2	2	2
B = University Result X 0.7=	1.4	1.4	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.61	1.505	1.505	1.505	1.505	1.61
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.51	2.405	2.405	2.405	2.405	2.51

Machine Learning

CO→						
Assessment tools↓	314443.1	314443.2	314443.3	314443.4	314443.5	314443.6
Direct Assessment						
Internal Assessment						
Internal exam	3	3	3	3	3	3
Assignment	3	1.5	2	1.5	2	3
Average direct Assessment=	3	2.25	2.5	2.25	2.5	3
A = Internal attainment X 0.3=	0.9	0.675	0.75	0.675	0.75	0.9
University exams						
Phase Result	3	3	3	3	3	3
End Sem Result	2	2	2	1	2	2
B = University Result X 0.7=	1.4	1.4	1.4	0.7	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.61	1.4525	1.505	0.9625	1.505	1.61
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	2	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.6	0.9	0.9
CO Attainment = D+I	2.51	2.3525	2.405	1.5625	2.405	2.51

Human Computer Interaction

CO→						
Assessment tools↓	314444.1	314444.2	314444.3	314444.4	314444.5	314444.6
Direct Assessment						
Internal Assessment						
Internal exam	2	2	2	2	2	2
Assignment	3	3	3	3	3	3
Average direct Assessment=	2.5	2.5	2.5	2.5	2.5	2.5
A = Internal attainment X 0.3=	0.75	0.75	0.75	0.75	0.75	0.75
University exams						
Phase Result		1	2	2	2	
End Sem Result			2	2	2	
B = University Result X 0.7=			1.4	1.4	1.4	



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Total Attainment -Direct Assessment D= (A+B)*.7	1.015	1.015	1.505	1.505	1.505	1.505
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	1.915	1.915	2.405	2.405	2.405	2.405

Elective -I : Internet of Things

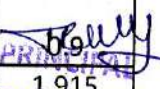
CO→						
Assessment tools↓	414443.1	414443.2	414443.3	414443.4	414443.5	414443.6
Direct Assessment						
Internal Assessment						
Internal exam	3	3	3	3	3	3
Assignment	3	3	3	3	3	3
Average direct Assessment= A = Internal attainment X 0.3=	3	3	3	3	3	3
	0.9	0.9	0.9	0.9	0.9	0.9
University exams						
Phase Result	1	1	1	1	1	1
End Sem Result	1	1	1	1	1	1
B = University Result X 0.7=	0.7	0.7	0.7	0.7	0.7	0.7
Total Attainment -Direct Assessment D= (A+B)*.7	1.12	1.12	1.12	1.12	1.12	1.12
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.02	2.02	2.02	2.02	2.02	2.02

Semester - VI

Computer Network and Security

CO→						
Assessment tools↓	314451.1	314451.2	314451.3	314451.4	314451.5	314451.6
Direct Assessment						
Internal Assessment						
Internal exam	2	2	3	3	3	3
Assignment	3	2	2	2	2	2
Average direct Assessment= A = Internal attainment X 0.3=	2.5	2	2.5	2.5	2.5	2.5
	0.75	0.6	0.75	0.75	0.75	0.75
University exams						
Phase Result	2	2	2	2	2	2
End Sem Result	1	1	1	1	1	1
B = University Result X 0.7=	0.7	0.7	0.7	0.7	0.7	0.7
Total Attainment -Direct Assessment D= (A+B)*.7	1.015	0.91	1.015	1.015	1.015	1.015
Indirect Assessment						
C = Course Exit Survey Attainment		3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	1.915	1.81	1.915	1.915	1.915	1.915




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Data Science & Big Data Analytics

CO→						
Assessment tools↓	314441.1	314441.2	314441.3	314441.4	314441.5	314441.6
Direct Assessment						
Internal Assessment						
Internal exam	2	2	3	3	2	2
Assignment	2	3	3	3	3	3
Average direct Assessment=	2	2.5	3	3	2.5	2.5
A = Internal attainment X 0.3=	0.6	0.75	0.9	0.9	0.75	0.75
University exams						
Phase Result	3	3				
End Sem Result	3	3	2	2	2	2
B = University Result X 0.7=	2.1	2.1	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.89	1.995	1.61	1.61	1.505	1.505
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.79	2.895	2.51	2.51	2.405	2.405

Web Application Development

CO→						
Assessment tools↓	401007.1	401007.2	401007.3	401007.4	401007.5	401007.6
Direct Assessment						
Internal Assessment						
Internal exam	3	3	3	3	3	3
Assignment	3	1.5	2	1.5	2	3
Average direct Assessment=	3	2.25	2.5	2.25	2.5	3
A = Internal attainment X 0.3=	0.9	0.675	0.75	0.675	0.75	0.9
University exams						
Phase Result	3	3	3	3	3	3
End Sem Result	2	2	2	1	2	2
B = University Result X 0.7=	1.4	1.4	1.4	0.7	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.61	1.4525	1.505	0.9625	1.505	1.61
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	2	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.6	0.9	0.9
CO Attainment = D+I	2.51	2.3525	2.405	1.5625	2.405	2.51

Cloud Computing

CO→						
Assessment tools↓	414443.1	414443.2	414443.3	414443.4	414443.5	414443.6
Direct Assessment						
Internal Assessment						
Internal exam			3	3	3	3
Assignment		3	3	3	3	3
Average direct Assessment=			3	3	3	3



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A = Internal attainment X 0.3=	0.9	0.9	0.9	0.9	0.9	0.9
University exams						
Phase Result	3	3	3	3	3	3
End Sem Result	1	1	1	1	1	1
B = University Result X 0.7=	0.7	0.7	0.7	0.7	0.7	0.7
Total Attainment -Direct Assessment D= (A+B)*.7	1.12	1.12	1.12	1.12	1.12	1.12
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.02	2.02	2.02	2.02	2.02	2.02

Semester - VII

Information & Storage Retrieval

CO→						
Assessment tools↓	314441.1	314441.2	314441.3	314441.4	314441.5	314441.6
Direct Assessment						
Internal Assessment						
Internal exam	3	3	3	3	3	3
Assignment	3	3	3	3	3	3
Average direct Assessment=	3	3	3	3	3	3
A = Internal attainment X 0.3=	0.9	0.9	0.9	0.9	0.9	0.9
University exams						
Phase Result	2	2				
End Sem Result	2	2	2	2	2	2
B = University Result X 0.7=	1.4	1.4	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.61	1.61	1.61	1.61	1.61	1.61
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.51	2.51	2.51	2.51	2.51	2.51

Software Project Management

CO→						
Assessment tools↓	401007.1	401007.2	401007.3	401007.4	401007.5	401007.6
Direct Assessment						
Internal Assessment						
Internal exam	3	3	3	3	3	3
Assignment	3	3	3	3	3	3
Average direct Assessment=	3	3	3	3	3	3
A = Internal attainment X 0.3=	0.9	0.9	0.9	0.9	0.9	0.9
University exams						
Phase Result	2	2				
End Sem Result	2		2	2	2	2
B = University Result X 0.7=	1.4		1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.61		1.61	1.61	1.61	1.61
Indirect Assessment						



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C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.51	2.51	2.51	2.51	2.51	2.51

Deep Learning

CO→						
Assessment tools↓	414443.1	414443.2	414443.3	414443.4	414443.5	414443.6
Direct Assessment						
Internal Assessment						
Internal exam	3	3	3	3	3	3
Assignment	3	3	3	3	3	3
Average direct Assessment=	3	3	3	3	3	3
A = Internal attainment X 0.3=	0.9	0.9	0.9	0.9	0.9	0.9
University exams						
Phase Result	1	1	1	1	1	1
End Sem Result	2	2	2	2	2	2
B = University Result X 0.7=	1.4	1.4	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.61	1.61	1.61	1.61	1.61	1.61
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.51	2.51	2.51	2.51	2.51	2.51

Mobile Computing

CO→						
Assessment tools↓	401007.1	401007.2	401007.3	401007.4	401007.5	401007.6
Direct Assessment						
Internal Assessment						
Internal exam	3	3	3	3	3	3
Assignment	3	1.5	2	1.5	2	3
Average direct Assessment=	3	2.25	2.5	2.25	2.5	3
A = Internal attainment X 0.3=	0.9	0.675	0.75	0.675	0.75	0.9
University exams						
Phase Result	3	3	3	3	3	3
End Sem Result	2	2	2	1	2	2
B = University Result X 0.7=	1.4	1.4	1.4	0.7	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.61	1.4525	1.505	0.9625	1.505	1.61
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	2	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.6	0.9	0.9
CO Attainment = D+I	2.51	2.3525	2.405	1.5625	2.405	2.51



Principals
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Elective – IV (Wireless Communication)

CO→						
Assessment tools↓	414445.1	414445.2	414445.3	414445.4	414445.5	414445.6
Direct Assessment						
Internal Assessment						
Internal exam	3	3	3	3	3	3
Assignment	3	3	3	3	3	3
Average direct Assessment=	3	3	3	3	3	3
A = Internal attainment X 0.3=	0.9	0.9	0.9	0.9	0.9	0.9
University exams						
Phase Result	2	2	2	2	2	2
End Sem Result	2	2	2	2	2	2
B = University Result X 0.7=	1.4	1.4	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.61	1.61	1.61	1.61	1.61	1.61
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.51	2.51	2.51	2.51	2.51	2.51

Semester - VIII

Distributed Systems

CO→						
Assessment tools↓	414443.1	414443.2	414443.3	414443.4	414443.5	414443.6
Direct Assessment						
Internal Assessment						
Internal exam	3	3	3	3	3	3
Assignment	3	3	3	3	3	3
Average direct Assessment=	3	3	3	3	3	3
A = Internal attainment X 0.3=	0.9	0.9	0.9	0.9	0.9	0.9
University exams						
Phase Result	1	1	1	1	1	1
End Sem Result	2	2	2	2	2	2
B = University Result X 0.7=	1.4	1.4	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.61	1.61	1.61	1.61	1.61	1.61
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.51	2.51	2.51	2.51	2.51	2.51

Elective- V (Social Computing)

CO→						
Assessment tools↓	401007.1	401007.2	401007.3	401007.4	401007.5	401007.6
Direct Assessment						
Internal Assessment						
Internal exam	3		3	3		



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Assignment	3	3	3	3	3	3
Average direct Assessment=	3	3	3	3	3	3
A = Internal attainment X 0.3=	0.9	0.9	0.9	0.9	0.9	0.9
University exams						
Phase Result	2	2				
End Sem Result	2	2	3	3	3	3
B = University Result X 0.7=	1.4	1.4	2.1	2.1	2.1	2.1
Total Attainment -Direct Assessment D= (A+B)*.7	1.61	1.61	2.1	2.1	2.1	2.1
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.51	2.51	3	3	3	3

Blockchain Technology

CO→	414452.1	414452.2	414452.3	414452.4	414452.5	414452.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	1	1	2	2	1	1
Assignment	2	2	2	2	2	2
Average direct Assessment=	1.5	1.5	2	2	1.5	1.5
A = Internal attainment X 0.3=	0.45	0.45	0.6	0.6	0.45	0.45
University exams						
Phase Result	2	2	2	2	2	2
End Sem Result	2	2	2	2	2	2
B = University Result X 0.7=	1.4	1.4	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.295	1.295	1.4	1.4	1.295	1.295
Indirect Assessment						
C = Course Exit Survey Attainment	3	2	3	3	3	2
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.6	0.9	0.9	0.9	0.6
CO Attainment = D+I	2.195	1.895	2.3	2.3	2.195	1.895



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“ EMPOWERMENT THROUGH TECHNOLOGICAL EXCELLENCE ”

GENBA SOPANRAO MOZE COLLEGE OF ENGINEERING

S. No. 25/1/3, Balewadi, Pune – 411 045

(Approved by AICTE and Govt. of Maharashtra, Affiliated to Savitribai Phule Pune University)

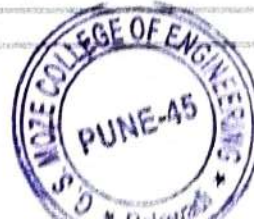
DTE Code - EN6144 University Affiliation ID - PU/PN/ENGG/138/1999

Ph: 020-27390500 Website: www.gsmozecoe.org Email: gsmoze@yahoo.co.in

Founder President: Shri Rambhau Moze

Criteria 2.6.2. CO PO Attainment Matrix FE 2015 Pattern

Sr. No.	Course Code	Course Name
Semester - I		
1	107009	Eng. Chemistry
2	107002	Eng. Physics
3	110003	FPL-I
4	102006	EG-I
5	104012	BXE
6	107001	EM-I
7	103004	BEE
8	101005	Basic Civil & Environmental Engineering
9	111007	Workshop
Semester - II		
1	107009	Eng. Chemistry
2	107002	Eng. Physics
3	110010	FPL-II
4	102013	BME
5	104012	BXE
6	107008	EM-II
7	103004	BEE
8	101011	Eng. Mechanics
9	102014	EG-II



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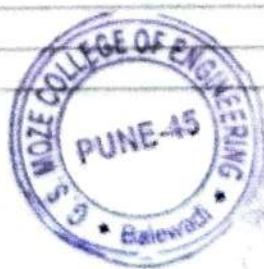
DTE Code - EN6144 University Affiliation ID - PU/PN/ENGG/138/1999

Ph: 020-27390500 Website: www.gsmozecoe.org Email: gsmoze@yahoo.co.in

Founder President: Shri Rambhau Moze

Criteria 2.6.2. CO PO Mapping FE 2019 Pattern

Sr. No.	Course Code	Course Name
Semester - I		
1	107009	Eng. Chemistry
2	107002	Eng. Physics
3	110005	PPS
4	102003	SME
5	104010	BXE
6	107001	EM-I
7	103004	BEE
8	101011	Eng. Mechanics
Semester - II		
1	107009	Eng. Chemistry
2	107002	Eng. Physics
3	110005	PPS
4	102012	EG
5	104010	BXE
6	107008	EM-II
7	103004	BEE
8	101011	Eng. Mechanics



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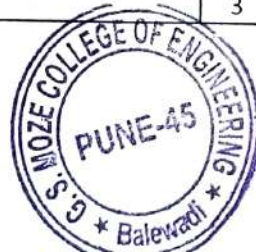
GENBA SOPANRAO MOZE COLLEGE OF ENGINEERING

Department of First Year Engineering

Academic Year:2018-2019

Semester - I

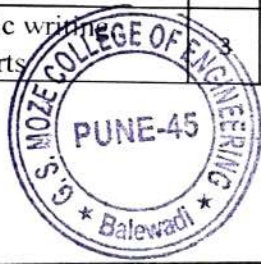
Course Code	Name of Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
107009	Eng. Chemistry												
107009.1	Understand water quality parameters and advanced water purification techniques	3	3	1	0	1	2	1	0	0	0	0	1
107009.2	Understand basics of instrumental methods of chemical analysis and their applications	2	3	0	0	1	1	2	0	0	0	0	0
107009.3	Understand the synthesis and applications of advanced materials	2	2	1	0	1	2	2	0	0	0	0	1
107009.4	Understand qualities of good fuel such as calorific value and its determination	2	2	0	1	2	2	2	0	0	0	0	1
107009.5	Understand the concept of nano structure of carbon and complexity of hydrogen as future fuel	3	2	1	0	2	1	1	0	0	0	0	1
107009.6	Understand basic chemistry behind corrosion of metals and various corrosion prevention methods	3	2	0	1	2	1	2	0	0	0	0	1
	Avg PO attainment.	3	2.5	2	1	1.5	1.5	2	0	0	0	0	1
107002	Eng. Physics												
107002.1	To Provide the basic concepts to resolve many engineering and technological problems.	3	2	2	0	2	3	1	0	0	0	0	3
107002.2	Students will be able to appreciate and use the methodologies to analyze and design a wide range of engineering systems.	3	1	3	0	3	3	2	0	0	0	0	3
107002.3	To use various techniques for measurement, calculation, control and analysis of engineering problems based on the principles of optics, Ultrasonic acoustics, Quantum Physics, Superconductivity, laser, Physics of nanoparticles and Semiconductor Physics.	3	3	2	0	1	1	2	0	0	0	0	3



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107002.4	To understand the recent trends and advances in technology, this requires precise control over dynamics of macroscopic engineering systems.	3	3	3	0	2	1	2	0	0	0	0	3
107002.5	Basic sciences like Physics also invoke manipulation of processes over micro and even nano-scale level as there is a growing demand of solid understanding of principles of basic sciences.	3	2	2	0	2	2	2	0	0	0	0	3
107002.6	Physics provides the basic ideas and give the solutions for developing mathematical and analytical abilities with higher precision.	3	2	3	0	2	1	3	0	0	0	0	3
	Avg PO attainment.	3	2.18	2.6	0	2	1.83	2.18	0	0	0	0	3
103004	Basic Electrical Engineering	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
103004.1	Understand and solve problems on basic terminologies of electrical engineering.	3	0	0	3	0	0	0	0	0	0	0	3
103004.2	Understand and solve the problems on basic concepts of electromagnetism	3	2	3	3	0	2	0	1	0	0	0	3
103004.3	Understand the fundamentals of electrostatics and Single Phase transformer.	2	0	3	0	0	0	0	0	0	0	0	2
103004.4	Understand and solve the problems on AC fundamentals.	2	0	0	0	0	1	0	1	0	0	0	2
103004.5	Understand the fundamentals of AC single phase circuits and polyphase circuits.	3	2	1	0	0	0	0	0	0	0	0	2
103004.6	Define various DC circuits laws, theorems and apply them to obtain solutions.	3	2	0	0	0	1	0	0	0	0	0	2
	Avg PO attainment.	2.67	1	1.16	1	0	0.66	0	0.33	0	0	0	2.33
110003	Fundamentals of Programming Language - I	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
110003.1	Open source and C++ programming, BOSS GNU Linux programming, Machine learning, Assembly level, Scripting, LISP and Simulation	3	3	2	1	1	2	2	0	0	0	0	1
110003.2	Algorithm, Loops, Pseudocode, Logic with indentation, flowcharts, structure charts	3	3	2	1	1	1	2	0	0	0	0	1



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110003.3	C Programing. constants, variablesm pointers, strings, arrays, strings, structure, and Union	3	2	2	1	1	2	2	0	0	0	0	1
110003.4	C Programming, Conditional and unconditional statements, Loops-For and while, do. ... While, creating subprograms, functions	3	2	2	1	2	2	2	0	0	0	0	1
	Avg PO attainment.	3	2.5	2	1	1.5	1.5	2	0	0	0	0	1
104010	Basic Electronics Engg.	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
104010.1	components and circuits.	3	3	2	2	2	2	2	1	1	1	1	2
104010.2	To introduce basics of diode and transistor circuits.	3	1	2	2	1	1	1	1	1	1	1	2
104010.3	To understand working of some IC based circuits.	3	1	2	2	1	2	2	2	2	2	1	2
104010.4	To study logic gates and their usage in digital circuits.	3	2	2	3	2	3	2	2	2	2	1	2
104010.5	electronics devices, transducers and application of	3	2	1	2	2	1	1	1	1	2	1	2
104010.6	systems.	3	2	2	3	2	2	2	2	2	2	1	2
104010.7	to understand working of various Electronic sirsuits.	3	2	2	2	2	2	2	2	2	3	3	3
	Avg PO attainment.	3	2	1	2	2	2	1	1	1	2	1	1

107001	Engineering Mathematics-I	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
107001.1	using matrix methods, stability of engineering sysytems where	3	2	-	-	-	-	-	-	-	-	-	1
107001.2	Algebraic and Transcendental equations	3	2	-	-	-	-	-	-	-	-	-	1
107001.3	Error analysis and approximations	3	2	-	-	-	-	-	-	-	-	-	1
107001.4	Ordinary & Partial Differential Equations	3	2	-	-	-	-	-	-	-	-	-	1
107001.5	transfer, electrical circuits etc	3	2	-	-	-	-	-	-	-	-	-	1
107001.6	optimizatopn problems	3	2	-	-	-	-	-	-	-	-	-	1
	Avg PO attainment.	3	2	0	0	0	0	0	0	0	0	0	1

102012	Engineering Graphics-I	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
102012.1	To identify reference, principal, auxiliary planes and utilize fundamentals of engineering Drawing to draw and interpret projection of lines.	3	2	-	-	-	-	-	-	-	-	-	1



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102012.2	To apply concept of reference and auxiliary plane method for projection of different Shapes of planes	3	2	-	-	-	-	-	-	-	-	-	-	1
102012.3	To draw and explain projection of solids resting on HP	3	2	-	-	-	-	-	-	-	-	-	-	1
102012.4	To draw various types of engineering curves and development of lateral surfaces of Solids	3	2	-	-	-	-	-	-	-	-	-	-	1
102012.5	To draw orthographic views of given pictorial view	3	2	-	-	-	-	-	-	-	-	-	-	1
102012.6	To perceive two dimensional engineering drawings for imagining and constructing three Dimensional engineering drawing	3	2	-	-	-	-	-	-	-	-	-	-	1
	Avg PO attainment.	3	2	0	0	0	0	0	0	0	0	0	0	1

Sem-II

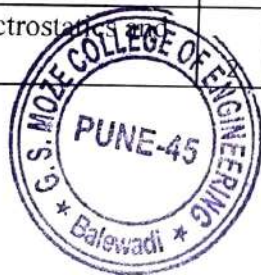
107009	Eng. Chemistry	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
107009.1	Understand water quality parameters and advanced water purification techniques	3	3	2	1	1	2	2	0	0	0	0	1
107009.2	Understand basics of instrumental methods of chemical analysis and their applications	3	3	2	1	1	1	2	0	0	0	0	1
107009.3	Understand the synthesis and applications of advanced materials	3	2	2	1	1	2	2	0	0	0	0	1
107009.4	Understand qualities of good fuel such as calorific value and its determination	3	2	2	1	2	2	2	0	0	0	0	1
107009.5	Understand the concept of nano structure of carbon and	3	2	2	1	2	1	2	0	0	0	0	1
107009.6	Understand basic chemistry behind corrosion of metals and various corrosion prevention methods	3	2	2	1	2	1	2	0	0	0	0	1
	Avg PO attainment	3	2.5	2	1	1.5	1.5	2	0	0	0	0	1



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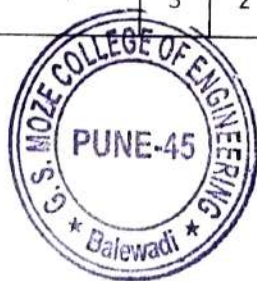
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
107002	Eng. Physics												
107002.1	To Provide the basic concepts to resolve many engineering and technological problems.	3	2	2	0	2	3	1	0	0	0	0	3
107002.2	Students will be able to appreciate and use the methodologies to analyze and design a wide range of engineering systems.	3	1	3	0	3	3	2	0	0	0	0	3
107002.3	To use various techniques for measurement, calculation, control and analysis of engineering problems based on the principles of optics, Ultrasonic acoustics, Quantum Physics, Superconductivity, laser, Physics of nanoparticles and Semiconductor Physics.	3	3	2	0	1	1	2	0	0	0	0	3
107002.4	To understand the recent trends and advances in technology, this requires precise control over dynamics of macroscopic engineering systems.	3	3	3	0	2	1	2	0	0	0	0	3
107002.5	Basic sciences like Physics also invoke manipulation of processes over micro and even nano-scale level as there is a growing demand of solid understanding of principles of basic sciences.	3	2	2	0	2	2	2	0	0	0	0	3
107002.6	Physics provides the basic ideas and give the solutions for developing mathematical and analytical abilities with higher precision.	3	2	3	0	2	1	3	0	0	0	0	3
	Avg PO attainment.	3	2.18	2.6	0	2	1.83	2.18	0	0	0	0	3
103004	Basic Electrical Engineering	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
103004.1	Understand and solve problems on basic terminologies of electrical engineering.	3	0	0	3	0	0	0	0	0	0	0	3
103004.2	Understand and solve the problems on basic concepts of electromagnetism	3	2	3	3	0	2	0	1	0	0	0	3
103004.3	Understand the fundamentals of electrostatic Single Phase transformer.	0	3	0	0	0	0	0	0	0	0	0	2



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103004.4	Understand and solve the problems on AC fundamentals.	2	0	0	0	0	1	0	1	0	0	0	2
103004.5	Understand the fundamentals of AC single phase circuits and polyphase circuits.	3	2	1	0	0	0	0	0	0	0	0	2
103004.6	Define various DC circuits laws, theorems and apply them to obtain solutions.	3	2	0	0	0	1	0	0	0	0	0	2
	Avg PO attainment.	2.67	1	1.16	1	0	0.66	0	0.33	0	0	0	2.33
110010	Fundamentals of Programming Language - II	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
110010.1	Open source and C++ programing. BOSS GNU	3	3	2	1	1	2	2	0	0	0	0	1
110010.2	Algorithm, Loops, Pseudocdoe, Logic writing,	3	3	2	1	1	1	2	0	0	0	0	1
110010.3	C Programing, constants, variablesm pointers,	3	2	2	1	1	2	2	0	0	0	0	1
110010.4	C Programming, Conditional and unconditional	3	2	2	1	2	2	2	0	0	0	0	1
	Avg PO attainment.	3	2.5	2	1	1.5	1.5	2	0	0	0	0	1
104010	Basic Electronics Engg.	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
104010.1	To give knowledge of some basic electronic components and circuits.	3	3	1	2	2	2	2	1	1	1	1	2
104010.2	To introduce basics of diode and transistor circuits.	3	1	2	2	1	1	2	2	1	1	1	2
104010.3	To understand working of some IC based circuits.	3	1	1	2	1	2	1	1	1	2	1	2
104010.4	To study logic gates and their usage in digital circuits.	3	2	2	2	2	2	2	1	2	2	1	2
104010.5	To expose the students to working of some power electronics devices, transducers and application of transducers.	3	2	1	2	2	1	2	1	1	2	2	2
104010.6	To introduce basic aspect of electronic communication systems.	3	2	2	2	2	2	2	2	2	2	2	2



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104010.7	The associated Laboratory Practical course is designed to understand working of various Electronic circuits. The student will understand how to use the basic test and measuring instruments to test the circuits.													
	Avg PO attainment.	3	3	3	2	2	2	2	1	1	2	2	3	
		3	2	2	2	2	2	2	2	1	2	1	2	

107008	Engineering Mathematics-II	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
107008.1	Modelling Of various Physical Systems such as Newton's Law of Cooling, LCR Circuits, Rectilinear Motion, mass Spring Systems heat Transfer	3	2	-	-	-	-	-	-	-	-	-	1
107008.2	Design and analysis of continuous and discrete system, where knowledge of Fourier series and harmonic analysis is required	3	2	-	-	-	-	-	-	-	-	-	1
107008.3	Advanced Techniques to evaluate integrals.	3	2	-	-	-	-	-	-	-	-	-	1
107008.4	Measurements of arc lengths of various integrals	3	2	-	-	-	-	-	-	-	-	-	1
107008.5	Sphere , cone and cylinder that arise in vector calculus, electro magnetic field theory, cad-cam, computer graphics etc.	3	2	-	-	-	-	-	-	-	-	-	1
107008.6	Multiple integrals which are used in calculating areas, volume, mean and RMS values , mass, moment of inertia and centre of gravity.	3	2	-	-	-	-	-	-	-	-	-	1
	Avg PO attainment.	3	2	0	0	0	0	0	0	0	0	0	1

102014	Engineering Graphics-II	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
102014.1	To identify reference, principal, auxiliary planes and utilize fundamentals of engineering Drawing to draw and interpret projection of lines.	3	2	-	-	-	-	-	-	-	-	-	1
102014.2	To apply concept of reference and auxiliary plane method for projection of different Shapes of planes	3	2	-	-	-	-	-	-	-	-	-	1
102014.3	To draw and explain projection of solids resting on HP	3	2	-	-	-	-	-	-	-	-	-	1



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102014.4	To draw various types of engineering curves and development of lateral surfaces of Solids	3	2																
102014.5	To draw orthographic views of given pictorial view	3	2																
102014.6	To perceive two dimensional engineering drawings for imagining and constructing three Dimensional engineering drawing	3	2																
Avg PO attainment		3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



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GENBA SOPANRAO MOZE COLLEGE OF ENGINEERING

Department of First Year Engineering
Academic Year:2019-2020

Semester - I

Course Code	Name of Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
107009	Eng. Chemistry												
107009.1	Illustrate the technology involved in analysis and quality of water as comidity and its implimentation.	3	3	1	2	2	2	1	0	0	0	0	1
107009.2	Demonstrate electro analytical techniques that facilitate the rapid and precise description of material.	3	1	0	2	1	1	1	1	0	0	0	0
107009.3	Describe the structures properties and applications of speciality polymers and nanomaterials.	3	1	1	2	1	2	1	2	1	0	0	1
107009.4	Illustrate conventional and alternative fuel with respect to their properties and applications.	3	2	0	2	2	2	1	1	0	0	0	1
107009.5	Describe spectroscopic techniques for chemical analysis.	3	2	0	2	2	1	1	1	1	0	0	1
107009.6	Explain corrosion mechanism and methods preventative methods for corrosion control.	3	2	0	2	2	1	1	1	0	0	0	1
	Avg PO attainment.	3	1.7	1	2	1.5	1.5	1	1.2	1	0	0	1
107002	Eng. Physics												
107002.1	Develop understanding of interference, diffraction and polarization; connect it to few engineering applications.	3	3	3	0	3	3	1	0	0	0	0	3
107002.2	Learn basics of lasers and optical fibers and their use in some applications.	3	1	3	0	3	3	2	0	0	0	0	3
107002.3	understand principle and concept in quantum mechanics. Relate them to some applications	3	1	3	0	3	3	2	0	0	0	0	3



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107002.4	Understand theory of semiconductors and their applications in some semiconductor devices.	3	3	3	0	2	1	2	0	0	0	0	3
107002.5	Summarize basics of magnetism and superconductivity. Explore few of their technological applications	3	2	2	0	2	2	2	0	0	0	0	3
107002.6	Comprehend use of concepts of physics for Non Destructive Testing. Learn some properties of nanomaterials and their application.	3	2	3	0	2	1	3	0	0	0	0	
	Avg PO attainment.	3	1.9	2	0	2	1.5	2.5	0	0	0	0	3



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103004	Basic Electrical Engineering	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
103004.1	Differentiate between electrical and magnetic circuits and derive mathematical relation for self and mutual inductance along with coupling effect.	2	0	0	3	0	0	0	0	0	0	0	3
103004.2	Calculate series, parallel and composite capacitor as well as characteristics parameters of alternating quantity and phasor arithmetic.	2	1	3	3	0	2	0	1	0	0	0	3
103004.3	Derive expression for impedance, current, power in series and parallel RLC circuit with AC supply along with phasor diagram.	2	0	3	0	0	0	0	0	0	0	0	2
103004.4	Relate phase and line electrical quantities in polyphase networks, demonstrate the operation of single phase transformer and calculate efficiency and regulation at different loading conditions.	2	0	0	0	0	1	0	1	0	0	0	2
103004.5	Apply and analyze the resistive circuits using star-delta conversion KVL, KCL and different Network theorems under DC supply.	3	2	1	0	0	0	0	0	0	0	0	2
103004.6	Evaluate work, power and energy relations and suggest various batteries for different applications, concept of charging and discharging and depth of charge.	3	2	0	0	0	1	0	0	0	0	0	2
	Avg PO attainment.	2.33	0.83	1.16	1	0	0.66	0	0.33	0	0	0	2.33
110005	Programming and Problem Solving	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
110005.1	Inculcate and apply various skills in problem solving.	3	3	1	2	2	2	1	0	0	0	0	1
110005.2	Choose most appropriate programming constructs and features to solve the problems in diversified domains.	3	1	0	2	1	1	1	1	0	0	0	0
110005.3	Exhibit the programming skills for the problems those require the writing of well-documented programs including use of the logical constructs of language, Python.	3	1	1	2	1	2	1	2	1	0	0	1
110005.4	Demonstrate significant experience with the Python program development environment.	3	2	0	2	2	2	1	1	0	0	0	1



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	Avg PO attainment.	3	1.7	1	2	1.5	1.5	1	1.2	1	0	0	1
104010	Basic Electronics Engg.	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
104010.1	Explain the working of P-N junction diode and its circuit.	3	2	2	2	1	2	2	2	2	2	1	2
104010.2	Identify types of Diodes and plot their characteristics and also can compare BJT with MOSFET.	3	2	2	2	2	1	1	1	2	1	1	2
104010.3	Build and test analog circuit using OPAMP and digital circuits using basic/universal gates and Flip-flops.	3	2	2	2	2	2	1	2		1	1	2
104010.4	Use different electronics measuring instruments to measure various electrical parameters.	3	1	1	1	2	1	1	2		1	1	1
104010.5	Select sensors for specific applications	2	2	3	2	2	2	2	1	2	1	1	2
104010.6	Describe basic principles of communication systems.	2	1	2	2	2	2	1	2		3	1	1
	Avg PO attainment.	2.667	1.667	2	1.833	1.833	1.667	1.333	1.667	1.667	1.5	1	1.667

107001	Engineering Mathematics-I	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
107001.1	Mean Value theorems and its generalizations leading to Taylor's and Maclaurin's series useful in the analysis of engineering problems.	3	2	0	0	0	0	0	0	0	0	0	1
107001.2	The Fourier series representation and harmonic analysis for design and analysis of periodic continuous and discrete systems.	3	2	0	0	0	0	0	0	0	0	0	1
107001.3	To deal with derivative of functions of several variables that are essential in various branches of engineering.	3	2	0	0	0	0	0	0	0	0	0	
107001.4	To apply the concept of Jacobian to find partial derivative of implicit function and functional dependence. Use of partial derivatives in estimating error and approximation and finding extreme values of the function.	3	2	0	0	0	0	0	0	0	0	0	1



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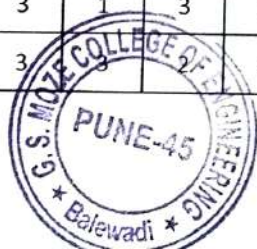
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107001.5	The essential four of matrices and linear algebra in a comprehensive manner for analysis of system of linear equations, finding linear and orthogonal transformations, eigen values and eigen vectors applicable to engineering problems.												
107001.6	Stationary Values of functions (Maxima & Minima) arising in optimization problems	3	2	0	0	0	0	0	0	0	0	0	1
	Avg PO attainment.	3	2	0	0	0	0	0	0	0	0	0	1

Sem-II

107009	Eng. Chemistry	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
107009.1	Illustrate the technology involved in analysis and quality of water as commodity and its implementation.	3	3	1	2	2	2	1	0	0	0	0	1
107009.2	Demonstrate electro analytical techniques that facilitate the rapid and precise description of material.	3	1	0	2	1	1	1	1	0	0	0	0
107009.3	Describe the structures properties and applications of speciality polymers and nanomaterials.	3	1	1	2	1	2	1	2	1	0	0	1
107009.4	Illustrate conventional and alternative fuel with respect to their properties and applications.	3	2	0	2	2	2	1	1	0	0	0	1
107009.5	Describe spectroscopic techniques for chemical analysis.	3	2	0	2	2	1	1	1	1	0	0	1
107009.6	Explain corrosion mechanism and methods preventative methods for corrosion control.	3	2	0	2	2	1	1	1	0	0	0	1
	Avg PO attainment.	3	1.7	1	2	1.5	1.5	1	1.2	1	0	0	1

107002	Eng. Physics	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
107002.1	Develop understanding of interference, diffraction and polarization; connect it to few engineering applications.	3	3	3	0	3	3	1	0	0	0	0	3
107002.2	Learn basics of lasers and optical fibers and their use in some applications.	3	1	3	0	3	3	2	0	0	0	0	3
107002.3	understand principle and concept in quantum mechanics. Relate them to some applications	3			0	1	1	2	0	0	0	0	3



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107002.4	Understand theory of semiconductors and their applications in some semiconductor devices.	3	3	3	0	2	1	2	0	0	0	0	3
107002.5	Summarize basics of magnetism and superconductivity. Explore few of their technological applications	3	2	2	0	2	2	2	0	0	0	0	3
107002.6	Comprehend use of concepts of physics for Non Destructive Testing. Learn some properties of nanomaterials and their application.	3	2	3	0	2	1	3	0	0	0	0	3
	Avg PO attainment.	3	1.9	2	0	2	1.5	2.5	0	0	0	0	3
103004	Basic Electrical Engineering	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
103004.1	Differentiate between electrical and magnetic circuits and derive mathematical relation for self and mutual inductance along with coupling effect.	2	0	0	3	0	0	0	0	0	0	0	3
103004.2	Calculate series, parallel and composite capacitor as well as characteristics parameters of alternating quantity and phasor arithmetic.	2	1	3	3	0	2	0	1	0	0	0	3
103004.3	Derive expression for impedance, current, power in series and parallel RLC circuit with AC supply along with phasor diagram.	2	0	3	0	0	0	0	0	0	0	0	2
103004.4	Relate phase and line electrical quantities in polyphase networks, demonstrate the operation of single phase transformer and calculate efficiency and regulation at different loading conditions.	2	0	0	0	0	1	0	1	0	0	0	2
103004.5	Apply and analyze the resistive circuits using star-delta conversion KVL, KCL and different Network theorems under DC supply.	3	2	1	0	0	0	0	0	0	0	0	2
103004.6	Evaluate work, power and energy relations and suggest various batteries for different applications, concept of charging and discharging and depth of charge.	3	2	0	0	0	1	0	0	0	0	0	2
	Avg PO attainment.	2.33	0.83	1.16	1	0	0.66	0	0.33	0	0	0	2.33



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110005	Programming and Problem Solving	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
110010.1	Inculcate and apply various skills in problem solving.	3	3	1	2	2	2	1	0	0	0	0	1
110010.2	Choose most appropriate programming constructs and features to solve the problems in diversified domains.	3	1	0	2	1	1	1	1	0	0	0	0
110010.3	Exhibit the programming skills for the problems those require the writing of well-documented programs including use of the logical constructs of language, Python.	3	1	1	2	1	2	1	2	1	0	0	1
110010.4	Demonstrate significant experience with the Python program development environment.	3	2	0	2	2	2	1	1	0	0	0	1
	Avg PO attainment.	3	1.7	1	2	1.5	1.5	1	1.2	1	0	0	1
104010	Basic Electronics Engg.	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
104010.1	Explain the working of P-N junction diode and its circuit.	3	3	1	2	2	2	1	1	1	1	1	1
104010.2	Identify types of Diodes and plot their characteristics and also can compare BJT with MOSFET.	3	1	2	2	1	1	1	1	1	1	1	0
104010.3	Build and test analog circuit using OPAMP and digital circuits using basic/universal gates and Flip-flops.	3	1	1	2	1	2	1	1	1	2	1	1
104010.4	Use different electronics measuring instruments to measure various electrical parameters.	3	2	2	2	2	2	1	1	1	2	1	1
104010.5	Select sensors for specific applications	3	2	1	2	2	1	1	1	1	2	1	1
104010.6	Describe basic principles of communication systems.	3	2	1	2	2	1	1	1	1	2	1	1
	Avg PO attainment.	3	1.7	1	2	1.5	1.5	1	1.2	1	1.6	1	1
107008	Engineering Mathematics-II	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
107008.1	The effective mathematical tools for solutions of	3	2	0	0	0	0	0	0	0	0	0	1
107008.2	Advanced integration techniques such as Reduction formulae, Beta functions, Gamma functions, Differentiation under integral sign and Error functions needed in evaluating multiple integrals and their applications.	3	2	0	0	0	0	0	0	0	0	0	1

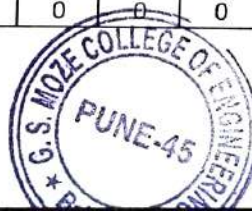


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107008.3	To trace the curve for a given equation and measure are length of various curves.	3	2	0	0	0	0	0	0	0	0	0	0	1
107008.4	The concepts of solid geometry using equations of sphere, cone and cylinder in a comprehensive manner.	3	2	0	0	0	0	0	0	0	0	0	0	1
107008.5	Evaluation of multiple integrals and its application to find area bounded by curves, volume bounded by surfaces, Centre of gravity and Moment of inertia.	3	2	0	0	0	0	0	0	0	0	0	0	1
107008.6	Multiple integrals which are used in calculating areas, volume, mean and RMS values , mass,moment of inertia and centre of gravity.	3	2	0	0	0	0	0	0	0	0	0	0	1
Avg PO attainment.		3	2	0	0	0	0	0	0	0	0	0	0	1

102014	Engineering Graphis	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
102014.1	To identify reference, principal, auxiliary planes and utilize fundamentals of engineering Drawing to draw and interpret projection of lines.	3	2	0	0	0	0	0	0	0	0	0	1
102014.2	To apply concept of reference and auxiliary plane method for projection of different Shapes of planes	3	2	0	0	0	0	0	0	0	0	0	1
102014.3	To draw and explain projection of solids resting on HP	3	2	0	0	0	0	0	0	0	0	0	1
102014.4	To draw various types of engineering curves and development of lateral surfaces of Solids	3	2	0	0	0	0	0	0	0	0	0	1
102014.5	To draw orthographic views of given pictorial view	3	2	0	0	0	0	0	0	0	0	0	1
102014.6	To perceive two dimensional engineering drawings for imagining and constructing three Dimensional engineering drawing	3	2	0	0	0	0	0	0	0	0	0	1
Avg PO attainment.		3	2	0	0	0	0	0	0	0	0	0	1



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GENBA SOPANRAO MOZE COLLEGE OF ENGINEERING

Department of First Year Engineering

Academic Year: 2020-2021

Semester - I

Course Code	Name of Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
107001	Engineering Mathematics-I												
107001.1	Mean Value theorems and its generalizations leading to Taylor's and Maclaurin's series useful in the analysis of engineering problems.	3	2	0	0	0	0	0	0	0	0	0	1
107001.2	The Fourier series representation and harmonic analysis for design and analysis of periodic continuous and discrete systems.	3	2	0	0	0	0	0	0	0	0	0	1
107001.3	To deal with derivative of functions of several variables that are essential in various branches of engineering.	3	2	0	0	0	0	0	0	0	0	0	1
107001.4	To apply the concept of Jacobian to find partial derivative of implicit function and functional dependence. Use of partial derivatives in estimating error and approximation and finding extreme values of the function.	3	2	0	0	0	0	0	0	0	0	0	1
107001.5	The essential tour of matrices and linear algebra in a comprehensive manner for analysis of system of linear equations, finding linear and orthogonal transformations, eigen values and eigen vectors applicable to engineering problems.	3	2	0	0	0	0	0	0	0	0	0	1
	Avg PO attainment.	3	2	0	0	0	0	0	0	0	0	0	1
107002	Engineering Physics												
107002.1	Develop understanding of interference, diffraction and polarization; connect it to few engineering applications.	3	3	3	0	3	3	1	0	0	0	0	3
107002.2	Learn basics of lasers and optical fibers and their use in some applications.	3	1	3	0	3	3	2	0	0	0	0	3
107002.3	Understand principle and concept in quantum mechanics. Relate them to some applications	3	3	2	0	1	1	2	0	0	0	0	3
107002.4	Understand theory of semiconductors and their applications in some semiconductor devices.	3	3	3	0	2	1	2	0	0	0	0	3
107002.5	Summarize basics of magnetism and superconductivity. Explore few of their technological applications	3	2	2	0	2	2	2	0	0	0	0	3
107002.6	Comprehend use of concepts of physics for Non Destructive Testing. Learn some properties of nanomaterials and their application	3	2	3	0	2	1	3	0	0	0	0	3



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Avg PO attainment.		3	1.9	2	0	2	1.5	2.5	0	0	0	0	3
107009	Engineering Chemistry	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
107009.1	Illustrate the technology involved in analysis and quality of water as commodity and its implementation.	3	3	1	2	2	2	1	0	0	0	0	1
107009.2	Demonstrate electro analytical techniques that facilitate the rapid and precise description of material.	3	1	0	2	1	1	1	1	0	0	0	0
107009.3	Describe the structures, properties and applications of speciality polymers and nanomaterials.	3	1	1	2	1	2	1	2	1	0	0	0
107009.4	Illustrate conventional and alternative fuel with respect to their properties and applications.	3	2	0	2	2	2	1	1	0	0	1	1
107009.5	Describe spectroscopic techniques for chemical analysis.	3	2	0	2	2	1	1	1	1	0	1	0
107009.6	Explain corrosion mechanism and methods preventative methods for corrosion control.	3	2	0	2	2	1	1	1	0	0	0	1
Avg PO attainment.		3	1.7	1	2	1.5	1.5	1	1.2	1	0	0	1
103004	Basic Electrical Engineering	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
103004.1	Differentiate between electrical and magnetic circuits and derive mathematical relation for self and mutual inductance along with coupling effect.	2	0	0	3	0	0	0	0	0	0	0	3
103004.2	Calculate series, parallel and composite capacitor as well as characteristics parameters of alternating quantity and phasor arithmetic.	2	1	3	3	0	2	0	1	0	0	0	3
103004.3	Derive expression for impedance, current, power in series and parallel RLC circuit with AC supply along with phasor diagram.	2	0	3	0	0	0	0	0	0	0	0	2
103004.4	Relate phase and line electrical quantities in polyphase networks, demonstrate the operation of single phase transformer and calculate efficiency and regulation at different loading conditions.	2	0	0	0	0	1	0	1	0	0	0	2
103004.5	Apply and analyze the resistive circuits using star-delta conversion KVL, KCL and different	3	2	1	0	0	0	0	0	0	0	0	2
103004.6	Evaluate work, power and energy relations and suggest various batteries for different applications, concept of charging and discharging and depth of charge.	3	2	0	0	0	1	0	0	0	0	0	2
Avg PO attainment.		2.33	0.83	1.16	1	0	0.66	0	0.33	0	0	0	2.33
102003	Systems In Mechanical Engineering	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
102003.1	Describe and compare the conversion of energy from renewable and non-renewable energy sources	3	3	0	0	0	0	0	0	0	0	0	1
102003.2	Explain basic laws of thermodynamics, heat transfer and their applications	3	3	0	0	0	0	0	0	0	0	0	1
102003.3	List down the types of road vehicles and their specifications	1	0	0	0	0	0	0	0	3	3	0	1



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102003.4	Illustrate various basic parts and transmission system of a road vehicle	1	1	0	0	0	0	0	0	0	3	3	1
102003.5	Discuss several manufacturing processes and identify the suitable process	3	3	0	0	0	0	0	0	0	0	0	1
102003.6	Explain various types of mechanism and its application	3	3	0	0	0	0	0	0	0	0	0	1
Avg PO attainment.		3	2	0	0	0	0	0	0	0	0	0	1
104010	Basic Electronics Engineering	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
104010.1	Explain the working of P-N junction diode and its circuit	3	2	2	1	1	2	2	1	1	2	2	1
104010.2	Identify types of Diodes and plot their characteristics and also can compare BJT with MOSFET	3	2	2	1	2	1	1	2	1	1	1	1
104010.3	Build and test analog circuit using OPAMP and digital circuits using basic/universal gates and Flip-flops	2	2	2	1	2	1	1	1	2	1	3	1
104010.4	Use different electronics measuring instruments to measure various electrical parameters	3	1	1	1	2	1	2	1	2	1	1	1
104010.5	Select sensors for specific applications	2	1	3	2	2	2	2	1	2	1	2	2
104010.6	Describe basic principles of communication systems	2	1	2	2	2	2	1	2	1	3	1	1
Avg PO attainment.		3	2	2	1	2	2	2	2	2	2	3	1
110005	Programming and Problem Solving	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
110005.1	Inculcate and apply various skills in problem solving.	3	3	1	2	2	2	1	0	0	0	0	1
110005.2	Choose most appropriate programming constructs and features to solve the problems in diversified domains.	3	1	0	2	1	1	1	1	0	0	0	0
110005.3	Exhibit the programming skills for the problems those require the writing of well-documented programs including use of the logical constructs of language. Python	3	1	1	2	1	2	1	2	1	0	0	1
110005.4	Demonstrate significant experience with the Python program development environment	3	2	0	2	2	2	1	1	0	0	0	1
Avg PO attainment.		3	1.7	1	2	1.5	1.5	1	1.2	1	0	0	1

Semester - II

Course Code	Name of Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
107008	Engineering Mathematics-II												
107008.1	The effective mathematical tools for solutions of first order differential equations that model physical processes such as Newton's law of cooling, electrical circuit, rectilinear motion, mass spring systems, heat transfer etc.	3	2	0	0	0	0	0	0	0	0	0	1
107008.2	Advanced integration techniques such as Reduction formulae, Beta functions, Gamma functions, differentiation under integral sign and Error functions, etc. for evaluating multiple integrals and their applications.	3	1	0	0	0	0	0	0	0	0	0	1



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107008.3	To trace the curve for a given equation and measure are length of various curves.	3	2	0	1	0	0	0	0	0	0	0	1
107008.4	The concepts of solid geometry using equations of sphere, cone and cylinder in a comprehensive manner.	3	2	0	0	0	0	0	0	0	0	0	1
107008.5	Evaluation of multiple integrals and its application to find area bounded by curves, volume bounded by surfaces, Centre of gravity and Moment of inertia.	3	2	0	0	0	0	0	0	0	0	0	1
	Avg PO attainment.	3	2		1								1
107002	Engineering Physics	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
107002.1	Develop understanding of interference, diffraction and polarization; connect it to few engineering applications.	3	3	3	0	3	3	1	0	0	0	0	3
107002.2	Learn basics of lasers and optical fibers and their use in some applications.	3	1	3	0	3	3	2	0	0	0	0	3
107002.3	Understand principle and concept in quantum mechanics. Relate them to some applications	3	3	2	0	1	1	2	0	0	0	0	3
107002.4	Understand theory of semiconductors and their applications in some semiconductor devices.	3	3	3	0	2	1	2	0	0	0	0	3
107002.5	Summarize basics of magnetism and superconductivity. Explore few of their technological applications	3	2	2	0	2	2	2	0	0	0	0	3
107002.6	Comprehend use of concepts of physics for Non Destructive Testing. Learn some properties of nanomaterials and their application.	3	2	3	0	2	1	3	0	0	0	0	3
	Avg PO attainment.	3	2.3	2.7	0.0	2.2	1.8	2.0	0.0	0.0	0.0	0.0	3.0
107009	Engineering Chemistry	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
107009.1	Illustrate the technology involved in analysis and quality of water as commodity and its implementation.	3	3	1	2	2	2	1	0	0	0	0	1
107009.2	Demonstrate electro analytical techniques that facilitate the rapid and precise description of material.	3	1	0	2	1	1	1	1	0	0	0	0
107009.3	Describe the structures, properties and applications of speciality polymers and nanomaterials.	3	1	1	2	1	2	1	2	1	0	0	0
107009.4	Illustrate conventional and alternative fuel with respect to their properties and applications.	3	2	0	2	2	2	1	1	0	0	0	1
107009.5	Describe spectroscopic techniques for chemical analysis.	3	2	0	2	2	1	1	1	1	0	0	0
107009.6	Explain corrosion mechanism and methods preventative methods for corrosion control.	3	2	0	2	2	1	1	1	0	0	0	1
	Avg PO attainment.	3	2	1	2	2	2	1	1	0	0	0	1
103004	Basic Electrical Engineering	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
103004.1	Differentiate between electrical and magnetic circuits and derive mathematical relation for self and mutual inductance along with coupling effect.		0	0	3	0	0	0	0	0	0	0	3



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103004.2	Calculate series, parallel and composite capacitor as well as characteristics parameters of alternating quantity and phasor arithmetic.	2	1	3	3	0	2	0	1	0	0	0	3
103004.3	Derive expression for impedance, current, power in series and parallel RLC circuit with AC supply along with phasor diagram.	2	0	3	0	0	0	0	0	0	0	0	2
103004.4	Relate phase and line electrical quantities in polyphase networks, demonstrate the operation of single phase transformer and calculate efficiency and regulation at different loading conditions.	2	0	0	0	0	1	0	1	0	0	0	2
103004.5	Apply and analyze the resistive circuits using star-delta conversion KVL, KCL and different	3	2	1	0	0	0	0	0	0	0	0	2
103004.6	Evaluate work, power and energy relations and suggest various batteries for different applications, concept of charging and discharging and depth of charge.	3	2	0	0	0	1	0	0	0	0	0	2
	Avg PO attainment.	2.33	0.83	1.16	1	0	0.66	0	0.33	0	0	0	2.33
102003	Systems In Mechanical Engineering	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
102003.1	Describe and compare the conversion of energy from renewable and non-renewable energy sources	3	3	0	0	0	0	0	0	0	0	0	1
102003.2	Explain basic laws of thermodynamics, heat transfer and their applications	3	3	0	0	0	0	0	0	0	0	0	1
102003.3	List down the types of road vehicles and their specifications	1	1	0	0	0	0	0	0	3	3	0	1
102003.4	Illustrate various basic parts and transmission system of a road vehicle	1	1	0	0	0	0	0	0	0	3	3	1
102003.5	Discuss several manufacturing processes and identify the suitable process	3	3	0	0	0	0	0	0	0	0	0	1
102003.6	Explain various types of mechanism and its application	3	3	0	0	0	0	0	0	0	0	0	1
	Avg PO attainment.	3	2	0	0	0	0	0	0	0	0	0	1
104010	Basic Electronics Engineering	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
104010.1	Explain the working of P-N junction diode and its circuit	3	2	2	1	1	2	2	1	1	2	2	1
104010.2	Identify types of Diodes and plot their characteristics and also can compare BJT with MOSFET	3	2	2	1	2	1	1	2	1	1	1	1
104010.3	Build and test analog circuit using OPAMP and digital circuits using basic/universal gates and Flip-flops.	2	2	2	1	2	1	1	1	2	1	3	1
104010.4	Use different electronics measuring instruments to measure various electrical parameters.	3	1	1	1	2	1	2	1	2	1	1	1
104010.5	Select sensors for specific applications	2	1	3	2	2	2	2	1	2	1	2	2
104010.6	Describe basic principles of communication systems	2	1	2	2	2	2	1	2	1	3	1	1
	Avg PO attainment.	3	2	2	1	2	2	2	2	2	2	3	1
110005	Programming and Problem Solving	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
110005.1	Inculcate and apply various skills in problem solving	3	3	1	0	2	2	1	0	0	0	0	1



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110005.2	Choose most appropriate programming constructs and features to solve the problems in diversified domains.	3	1	0	0	1	1	1	0	0	0	0	0
110005.3	Exhibit the programming skills for the problems those require the writing of well-documented programs including use of the logical constructs of language, Python.	3	1	1	0	1	2	1	0	0	0	0	0
110005.4	Demonstrate significant experience with the Python program development environment.	3	2	0	0	2	2	1	0	0	0	0	1
	Avg PO attainment.	3	1.75	0.5	0	1.5	1.75	1	0	0	0	0	0.5

102014	Engineering Graphis	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
102014.1	To identify reference, principal, auxiliary planes and utilize fundamentals of engineering Drawing to draw and interpret projection of lines.	3	2	0	0	0	0	0	0	0	0	0	1
102014.2	To apply concept of reference and auxiliary plane method for projection of different Shapes of planes	3	2	0	0	0	0	0	0	0	0	0	1
102014.3	To draw and explain projection of solids resting on HP	3	2	0	0	0	0	0	0	0	0	0	1
102014.4	To draw various types of engineering curves and development of lateral surfaces of Solids	3	2	0	0	0	0	0	0	0	0	0	1
102014.5	To draw orthographic views of given pictorial view	3	2	0	0	0	0	0	0	0	0	0	1
102014.6	To perceive two dimensional engineering drawings for imagining and constructing three Dimensional engineering drawing	3	2	0	0	0	0	0	0	0	0	0	1
	Avg PO attainment.	3	2	0	0	0	0	0	0	0	0	0	1



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Department of First Year Engineering
Academic Year 2021-22

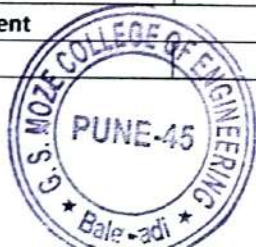
Semester - I

Engineering Mathematics-I

CO→	107001.1	107001.2	107001.3	107001.4	107001.5	107001.5
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	1.00	1.00	1.00	1.00	1.00	1.00
Assignment	2.00	2.00	2.00	2.00	2.00	2.00
Average direct	1.50	1.50	1.50	1.50	1.50	1.50
A = Internal attainment	0.45	0.45	0.45	0.45	0.45	0.45
University exams						
Phase Result	2	2	0	0	0	0
End Sem Result	0	0	3	3	3	3
B = University Result X	1.4	1.4	2.1	2.1	2.1	2.1
Total Attainment -Direct	1.295	1.295	1.785	1.785	1.785	1.785
Indirect Assessment						
C = Course Exit Survey	3	3	3	3	3	3
Total Attainment -	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.195	2.195	2.685	2.685	2.685	2.685

Engineering Physics

CO→	107009.1	107009.2	107009.3	107009.4	107009.5	107009.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						



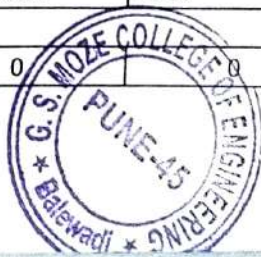
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Internal exam	2	2	3	3	3	3
Assignment	2	3		2	2	3
Average direct	2.00	2.50	2.50	2.50	3.00	2.50
A = Internal attainment	0.6	0.75	0.75	0.75	0.9	0.75
University exams						
Insem Result	1	1	0	0	0	0
End Sem Result	0	0	2	2	2	2
B = University Result X	1.4	1.4	1.4	1.4	1.4	1.4
Total Attainment -Direct	1.4	1.505	1.505	1.505	1.61	1.505
Indirect Assessment						
C = Course Exit Survey	2	1	2	2	2	2
Total Attainment -	0.6	0.3	0.6	0.6	0.6	0.6
CO Attainment = D+I	2	1.805	2.105	2.105	2.21	2.105

Engineering Chemistry

CO→	107009.1	107009.2	107009.3	107009.4	107009.5	107009.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	1	1	1	1	1	1
Assignment	2	2	2	2	3	2
Average direct	1.50	1.50	1.50	1.50	2.00	1.50
A = Internal attainment	0.45	0.45	0.45	0.45	0.6	0.45
University exams						
Insem Result	3	3	0	0	0	0
End Sem Result	0	0	2	2	2	2
B = University Result X	2.1	2.1	1.4	1.4	1.4	1.4
Total Attainment -Direct	1.785	1.785	1.295	1.295	1.4	1.295
Indirect Assessment						
C = Course Exit Survey	0	0		0	0	0



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Internal exam	2	2	3	3	3	3
Assignment	2	3		2	2	3
Average direct	2.00	2.50	2.50	2.50	3.00	2.50
A = Internal attainment	0.6	0.75	0.75	0.75	0.9	0.75
University exams						
Insem Result	1	1	0	0	0	0
End Sem Result	0	0	2	2	2	2
B = University Result X	1.4	1.4	1.4	1.4	1.4	1.4
Total Attainment -Direct	1.4	1.505	1.505	1.505	1.61	1.505
Indirect Assessment						
C = Course Exit Survey	2	1	2	2	2	2
Total Attainment -	0.6	0.3	0.6	0.6	0.6	0.6
CO Attainment = D+I	2	1.805	2.105	2.105	2.21	2.105

Engineering Chemistry

CO→	107009.1	107009.2	107009.3	107009.4	107009.5	107009.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	1	1	1	1	1	1
Assignment	2	2	2	2	3	2
Average direct	1.50	1.50	1.50	1.50	2.00	1.50
A = Internal attainment	0.45	0.45	0.45	0.45	0.6	0.45
University exams						
Insem Result	3	3	0	0	0	0
End Sem Result	0	0	2	2	2	2
B = University Result X	2.1	2.1	1.4	1.4	1.4	1.4
Total Attainment -Direct	1.785	1.785	1.295	1.295	1.4	1.295
Indirect Assessment						
C = Course Exit Survey	0	0		0	0	0



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Total Attainment -	0	0	0	0	0	0
CO Attainment = D+I	1.785	1.785	1.295	1.295	1.4	1.295

Systems In Mechanical Engineering

CO→	102003.1	102003.2	102003.3	102003.4	102003.5	102003.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	1	1	1	1	1	1
Assignment	3	2	2	3	2	3
Average direct	2.00	1.50	1.50	2.00	1.50	2.00
A = Internal attainment	0.6	0.45	0.45	0.6	0.45	0.6
University exams						
Insem Result	2	2	0	0	0	0
End Sem Result	0	0	2	2	2	2
B = University Result X	1.4	1.4	1.4	1.4	1.4	1.4
Total Attainment -Direct	1.4	1.295	1.295	1.4	1.295	1.4
Indirect Assessment						
C = Course Exit Survey	0	0	0	0	0	0
Total Attainment -	0	0	0	0	0	0
CO Attainment = D+I	1.4	1.295	1.295	1.4	1.295	1.4

Basic Electrical Engineering

CO→	103004.1	103004.2	103004.3	103004.4	103004.5	103004.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	1	1	1	1	1	1
Assignment	2	1	2	2	3	2



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Total Attainment -	0	0	0	0	0	0
CO Attainment = D+I	1.785	1.785	1.295	1.295	1.4	1.295


Systems In Mechanical Engineering

CO→	102003.1	102003.2	102003.3	102003.4	102003.5	102003.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	1	1	1	1	1	1
Assignment	3	2	2	3	2	3
Average direct	2.00	1.50	1.50	2.00	1.50	2.00
A = Internal attainment	0.6	0.45	0.45	0.6	0.45	0.6
University exams						
Insem Result	2	2	0	0	0	0
End Sem Result	0	0	2	2	2	2
B = University Result X	1.4	1.4	1.4	1.4	1.4	1.4
Total Attainment -Direct	1.4	1.295	1.295	1.4	1.295	1.4
Indirect Assessment						
C = Course Exit Survey	0	0	0	0	0	0
Total Attainment -	0	0	0	0	0	0
CO Attainment = D+I	1.4	1.295	1.295	1.4	1.295	1.4

Basic Electrical Engineering

CO→	103004.1	103004.2	103004.3	103004.4	103004.5	103004.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	1	1	1	1	1	1
Assignment	2	1	2	2	3	2




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Total Attainment -	0	0	0	0	0	0
CO Attainment = D+I	1.785	1.785	1.295	1.295	1.4	1.295

Systems In Mechanical Engineering

CO→	102003.1	102003.2	102003.3	102003.4	102003.5	102003.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	1	1	1	1	1	1
Assignment	3	2	2	3	2	3
Average direct	2.00	1.50	1.50	2.00	1.50	2.00
A = Internal attainment	0.6	0.45	0.45	0.6	0.45	0.6
University exams						
Insem Result	2	2	0	0	0	0
End Sem Result	0	0	2	2	2	2
B = University Result X	1.4	1.4	1.4	1.4	1.4	1.4
Total Attainment -Direct	1.4	1.295	1.295	1.4	1.295	1.4
Indirect Assessment						
C = Course Exit Survey	0	0	0	0	0	0
Total Attainment -	0	0	0	0	0	0
CO Attainment = D+I	1.4	1.295	1.295	1.4	1.295	1.4

Basic Electrical Engineering

CO→	103004.1	103004.2	103004.3	103004.4	103004.5	103004.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	1	1	1	1	1	1
Assignment	2	1	2	2	3	2



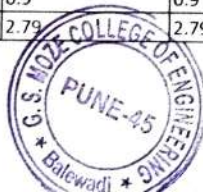
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Average direct	1.50	1.00	1.50	1.50	2.00	1.50
A = Internal attainment	0.45	0.3	0.45	0.45	0.6	0.45
University exams						
Insem Result	2	2	0	0	0	0
End Sem Result	0	0	2	2	2	2
B = University Result X	1.4	1.4	1.4	1.4	1.4	1.4
Total Attainment -Direct	1.295	1.19	1.295	1.295	1.4	1.295
Indirect Assessment						
C = Course Exit Survey	0	0	0	0	0	0
Total Attainment -	0	0	0	0	0	0
CO Attainment = D+I	1.295	1.19	1.295	1.295	1.4	1.295

Basic Electronics Engineering

CO→	104010.1	104010.2	104010.3	104010.4	104010.5	104010.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	2.00	2.00	1.00	1.00	2.00	2.00
Assignment	1.00	1.00	3.00	3.00	3.00	3.00
Average direct	1.50	1.50	2.00	2.00	2.50	2.50
A = Internal attainment	0.45	0.45	0.6	0.6	0.75	0.75
University exams						
Phase Result	2	2				
End Sem Result			3	3	3	3
B = University Result X	1.4	1.4	2.1	2.1	2.1	2.1
Total Attainment -Direct	1.295	1.295	1.89	1.89	1.995	1.995
Indirect Assessment						
C = Course Exit Survey	3	3	3	3	3	3
Total Attainment -	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.195	2.195	2.79	2.79	2.895	2.895



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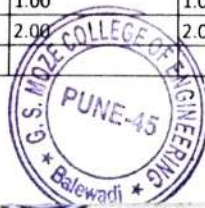
Programming and Problem Solving

CO→	110005.1	110005.2	110005.3	110005.4
Assessment tools↓				
Direct Assessment				
Internal Assessment				
Internal exam	1	1	1	1
Assignment	2	1	2	2
Average direct	1.50	1.00	1.50	1.50
A = Internal attainment	0.45	0.3	0.45	0.45
University exams				
Insem Result	2	2	0	0
End Sem Result	0	0	2	2
B = University Result X	1.4	1.4	1.4	1.4
Total Attainment -Direct	1.295	1.19	1.295	1.295
Indirect Assessment				
C = Course Exit Survey	0	0	0	0
Total Attainment -	0	0	0	0
CO Attainment = D+I	1.295	1.19	1.295	1.295

Semester - II

Engineering Mathematics-II

CO→	107008.1	107008.2	107008.3	107008.4	107008.5	107001.5
Assessment tools↓					Exam/Tutorial/Assignment	
Direct Assessment						
Internal Assessment						
Internal exam	1.00	1.00	1.00	1.00	1.00	1.00
Assignment	2.00	2.00	2.00	2.00	2.00	2.00

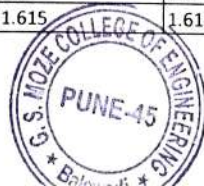


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Average direct	1.50	1.50	1.50	1.50	1.50	1.50
A = Internal attainment	0.45	0.45	0.45	0.45	0.45	0.45
University exams						
Phase Result	2	2	0	0	0	0
End Sem Result	0	0	3	3	3	3
B = University Result X	1.4	1.4	2.1	2.1	2.1	2.1
Total Attainment -Direct	1.295	1.295	1.785	1.785	1.785	1.785
Indirect Assessment						
C = Course Exit Survey	3	3	3	3	3	3
Total Attainment -	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+i	2.195	2.195	2.685	2.685	2.685	2.685

Engineering Physics

CO→	107009.1	107009.2	107009.3	107009.4	107009.5	107009.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	2	2	3	3	3	3
Assignment	2	3	2	2	3	2
Average direct	2.00	2.50	2.50	2.50	3.00	2.50
A = Internal attainment	0.6	0.75	0.75	0.75	0.9	0.75
University exams						
Insem Result	1	1	0	0	0	0
End Sem Result	0	0	1	1	1	1
B = University Result X	0.7	0.7	0.7	0.7	0.7	0.7
Total Attainment -Direct	0.91	1.015	1.015	1.015	1.12	1.015
Indirect Assessment						
C = Course Exit Survey	2	1	2	2	2	2
Total Attainment -	0.6	0.3	0.6	0.6	0.6	0.6
CO Attainment = D+i	1.51	1.315	1.615	1.615	1.72	1.615



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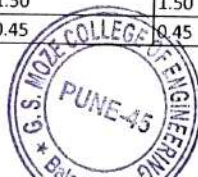
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Engineering Chemistry

CO→	107009.1	107009.2	107009.3	107009.4	107009.5	107009.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	1	1	1	1	1	1
Assignment	2	2	2	2	3	2
Average direct	1.50	1.50	1.50	1.50	2.00	1.50
A = Internal attainment	0.45	0.45	0.45	0.45	0.6	0.45
University exams						
Insem Result	1	1	0	0	0	0
End Sem Result	0	0	1	1	1	1
B = University Result X	0.7	0.7	0.7	0.7	0.7	0.7
Total Attainment -Direct	0.805	0.805	0.805	0.805	0.91	0.805
Indirect Assessment						
C = Course Exit Survey	0	0	0	0	0	0
Total Attainment -	0	0	0	0	0	0
CO Attainment = D+I	0.805	0.805	0.805	0.805	0.91	0.805

Basic Electrical Engineering

CO→	103004.1	103004.2	103004.3	103004.4	103004.5	103004.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	1	1	1	1	1	1
Assignment	2	1	2	2	3	2
Average direct	1.50	1.00	1.50	1.50	2.00	1.50
A = Internal attainment	0.45	0.3	0.45	0.45	0.6	0.45



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University exams						
Insem Result	2	2	0	0	0	0
End Sem Result	0	0	2	2	2	2
B = University Result X	1.4	1.4	1.4	1.4	1.4	1.4
Total Attainment -Direct	1.295	1.19	1.295	1.295	1.4	1.295
Indirect Assessment						
C = Course Exit Survey	0	0	0	0	0	0
Total Attainment -	0	0	0	0	0	0
CO Attainment = D+I	1.295	1.19	1.295	1.295	1.4	1.295

Basic Electronics Engineering

CO→	104010.1	104010.2	104010.3	104010.4	104010.5	104010.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	2.00	2.00	1.00	1.00	2.00	2.00
Assignment	1.00	1.00	3.00	3.00	3.00	3.00
Average direct	1.50	1.50	2.00	2.00	2.50	2.50
A = Internal attainment	0.45	0.45	0.6	0.6	0.75	0.75
University exams						
Phase Result	2	2				
End Sem Result			3	3	3	3
B = University Result X	1.4	1.4	2.1	2.1	2.1	2.1
Total Attainment -Direct	1.295	1.295	1.89	1.89	1.995	1.995
Indirect Assessment						
C = Course Exit Survey	0	0	0	0	0	0
Total Attainment -	0	0	0	0	0	0
CO Attainment = D+I	1.295	1.295	1.89	1.89	1.995	1.995

Programming and Problem Solving




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CO→	110005.1	110005.2	110005.3	110005.4
Assessment tools↓				
Direct Assessment				
Internal Assessment				
Internal exam	1	1	1	1
Assignment	2	1	2	2
Average direct	1.50	1.00	1.50	1.50
A = Internal attainment	0.45	0.3	0.45	0.45
University exams				
Insem Result	2	2	0	0
End Sem Result	0	0	2	2
B = University Result X	1.4	1.4	1.4	1.4
Total Attainment -Direct	1.295	1.19	1.295	1.295
Indirect Assessment				
C = Course Exit Survey	0	0	0	0
Total Attainment -	0	0	0	0
CO Attainment = D+I	1.295	1.19	1.295	1.295

Eng. Graphics

CO→	102003.1	102003.2	102003.3	102003.4	102003.5	102003.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	1	1	1	1	1	1
Assignment	3	2	2	3	2	3
Assessment=	2.00	1.50	1.50	2.00	1.50	2.00
X 0.3=	0.6	0.45	0.45	0.6	0.45	0.6
University exams						



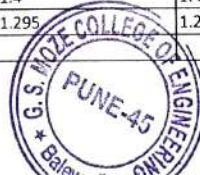
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Engineering Physics

CO→	107002.1	107002.2	107002.3	107002.4	107002.5	107002.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	2	2	3	3	2	2
Assignment	2	3	2	2	3	2
Average direct	2.00	2.50	2.50	2.50	2.50	2.00
A = Internal attainment	0.6	0.75	0.75	0.75	0.75	0.6
University exams						
Insem Result	2	2	0	0	0	0
End Sem Result	0	0	2	2	2	2
B = University Result X	1.4	1.4	1.4	1.4	1.4	1.4
Total Attainment -	1.4	1.505	1.505	1.505	1.505	1.4
Indirect Assessment						
C = Course Exit Survey	2	1	2	2	2	2
Total Attainment -	0.6	0.3	0.6	0.6	0.6	0.6
CO Attainment = D+I	2	1.805	2.105	2.105	2.105	2

Engineering Chemistry

CO→	107009.1	107009.2	107009.3	107009.4	107009.5	107009.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	1	1	1	1	1	1
Assignment	2	1	2	2	3	2
Average direct	1.50	1.00	1.50	1.50	2.00	1.50
A = Internal attainment	0.45	0.3	0.45	0.45	0.6	0.45
University exams						
Insem Result	2	2	0	0	0	0
End Sem Result	0	0	2	2	2	2
B = University Result X	0	0	1.4	1.4	1.4	1.4
Total Attainment -	0.315	0.21	1.295	1.295	1.4	1.295
Indirect Assessment						



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C = Course Exit Survey	2	1	2	2	2	2
Total Attainment -	0.6	0.3	0.6	0.6	0.6	0.6
CO Attainment = D+I	0.915	0.51	1.895	1.895	2	1.895

Systems In Mechanical Engineering

CO→	102003.1	102003.2	102003.3	102003.4	102003.5	102003.6
Assessment tools↓	Direct Assessment					
Internal Assessment						
Internal exam	1	1	1	1	1	1
Assignment	3	2	2	3	2	3
Average direct	2.00	1.50	1.50	2.00	1.50	2.00
A = Internal attainment	0.6	0.45	0.45	0.6	0.45	0.6
University exams						
Insem Result	2	2	0	0	0	0
End Sem Result	0	0	2	2	2	2
B = University Result X	1.4	1.4	1.4	1.4	1.4	1.4
Total Attainment -	1.4	1.295	1.295	1.4	1.295	1.4
Indirect Assessment						
C = Course Exit Survey	0	0	0	0	0	0
Total Attainment -	0	0	0	0	0	0
CO Attainment = D+I	1.4	1.295	1.295	1.4	1.295	1.4

Basic Electrical Engineering

CO→	103004.1	103004.2	103004.3	103004.4	103004.5	103004.6
Assessment tools↓	Direct Assessment					
Internal Assessment						
Internal exam	1	1	1	1	1	1
Assignment	2	1	2	2	3	2
Average direct	1.50	1.00	1.50	1.50	2.00	1.50
A = Internal attainment	0.45	0.3	0.45	0.45	0.6	0.45
University exams						
Insem Result	2	2	0	0	0	0



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End Sem Result	0	0	2	2	2	2
B = University Result X	1.4	1.4	1.4	1.4	1.4	1.4
Total Attainment -	1.295	1.19	1.295	1.295	1.4	1.295
Indirect Assessment						
C = Course Exit Survey	0	0	0	0	0	0
Total Attainment -	0	0	0	0	0	0
CO Attainment = D+I	1.295	1.19	1.295	1.295	1.4	1.295

Basic Electronics Engineering

CO→	104010.1	104010.2	104010.3	104010.4	104010.5	104010.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	1.00	1.00	1.00	1.00	1.00	1.00
Assignment	2.00	2.00	2.00	2.00	2.00	2.00
Average direct	1.50	1.50	1.50	1.50	1.50	1.50
A = Internal attainment	0.45	0.45	0.45	0.45	0.45	0.45
University exams						
Phase Result	2	2	0	0	0	0
End Sem Result	0	0	3	3	3	3
B = University Result X	1.4	1.4	2.1	2.1	2.1	2.1
Total Attainment -	1.295	1.295	1.785	1.785	1.785	1.785
Indirect Assessment						
C = Course Exit Survey	3	3	3	3	3	3
Total Attainment -	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.195	2.195	2.685	2.685	2.685	2.685

Programming and Problem Solving

CO→	110005.1	110005.2	110005.3	110005.4
Assessment tools↓				
Direct Assessment				
Internal Assessment				



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Internal exam	1	1	1	1
Assignment	2	1	2	2
Average direct	1.50	1.00	1.50	1.50
A = Internal attainment	0.45	0.3	0.45	0.45
University exams				
Insem Result	2	2	0	0
End Sem Result	0	0	2	2
B = University Result X	1.4	1.4	1.4	1.4
Total Attainment -	1.295	1.19	1.295	1.295
Indirect Assessment				
C = Course Exit Survey	0	0	0	0
Total Attainment -	0	0	0	0
CO Attainment = D+I	1.295	1.19	1.295	1.295

Semester - II
Engineering Mathematics-II

CO→	107001.1	107001.2	107001.3	107001.4	107001.5	107001.5
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	1.00	1.00	1.00	1.00	1.00	1.00
Assignment	2.00	2.00	2.00	2.00	2.00	2.00
Average direct	1.50	1.50	1.50	1.50	1.50	1.50
A = Internal attainment	0.45	0.45	0.45	0.45	0.45	0.45
University exams						
Phase Result	2	2	0	0	0	0
End Sem Result	0	0	3	3	3	3
B = University Result X	1.4	1.4	2.1	2.1	2.1	2.1
Total Attainment -	1.295	1.295	1.785	1.785	1.785	1.785
Indirect Assessment						
C = Course Exit Survey	3	3	3	3	3	3
Total Attainment -	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.195	2.195	2.685	2.685	2.685	2.685




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Engineering Physics

CO→	107002.1	107002.2	107002.3	107002.4	107002.5	107002.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	2	2	3	3	3	3
Assignment	2	3	2	2	3	2
Average direct	2.00	2.50	2.50	2.50	3.00	2.50
A = Internal attainment	0.6	0.75	0.75	0.75	0.9	0.75
University exams						
Insem Result	1	1	0	0	0	0
End Sem Result	0	0	1	1	1	1
B = University Result X	0.7	0.7	0.7	0.7	0.7	0.7
Total Attainment -	0.91	1.015	1.015	1.015	1.12	1.015
Indirect Assessment						
C = Course Exit Survey	2	1	2	2	2	2
Total Attainment -	0.6	0.3	0.6	0.6	0.6	0.6
CO Attainment = D+I	1.51	1.315	1.615	1.615	1.72	1.615

Engineering Chemistry

CO→	107009.1	107009.2	107009.3	107009.4	107009.5	107009.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	1	1	1	1	1	1
Assignment	2	1	2	2	3	2
Average direct	1.50	1.00	1.50	1.50	2.00	1.50
A = Internal attainment	0.45	0.3	0.45	0.45	0.6	0.45
University exams						
Insem Result	2	2	0	0	0	0
End Sem Result	0	0	2	2	2	2
B = University Result X	0	0	1.4	1.4	1.4	1.4
Total Attainment -	0.315	0.21	1.295	1.295	1.4	1.295



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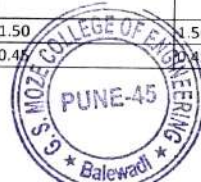
Indirect Assessment						
C = Course Exit Survey	2	1	2	2	2	2
Total Attainment -	0.6	0.3	0.6	0.6	0.6	0.6
CO Attainment = D+I	0.915	0.51	1.895	1.895	2	1.895

Basic Electrical Engineering

CO→	103004.1	103004.2	103004.3	103004.4	103004.5	103004.6
Assessment tools↓	Direct Assessment					
Internal Assessment						
Internal exam	1	1	1	1	1	1
Assignment	2	1	2	2	3	2
Average direct	1.50	1.00	1.50	1.50	2.00	1.50
A = Internal attainment	0.45	0.3	0.45	0.45	0.6	0.45
University exams						
Insem Result	2	2	0	0	0	0
End Sem Result	0	0	2	2	2	2
B = University Result X	1.4	1.4	1.4	1.4	1.4	1.4
Total Attainment -	1.295	1.19	1.295	1.295	1.4	1.295
Indirect Assessment						
C = Course Exit Survey	0	0	0	0	0	0
Total Attainment -	0	0	0	0	0	0
CO Attainment = D+I	1.295	1.19	1.295	1.295	1.4	1.295

Basic Electronics Engineering

CO→	104010.1	104010.2	104010.3	104010.4	104010.5	104010.6
Assessment tools↓	Direct Assessment					
Internal Assessment						
Internal exam	1.00	1.00	1.00	1.00	1.00	1.00
Assignment	2.00	2.00	2.00	2.00	2.00	2.00
Average direct	1.50	1.50	1.50	1.50	1.50	1.50
A = Internal attainment	0.45	0.45	0.45	0.45	0.45	0.45



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University exams						
Phase Result	2	2	0	0	0	0
End Sem Result	0	0	3	3	3	3
B = University Result X	1.4	1.4	2.1	2.1	2.1	2.1
Total Attainment -	1.295	1.295	1.785	1.785	1.785	1.785
Indirect Assessment						
C = Course Exit Survey	3	3	3	3	3	3
Total Attainment -	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.195	2.195	2.685	2.685	2.685	2.685

Programming and Problem Solving

CO→				
Assessment tools↓	110005.1	110005.2	110005.3	110005.4
	Direct Assessment			
Internal Assessment				
Internal exam	1	1	1	1
Assignment	2	1	2	2
Average direct	1.50	1.00	1.50	1.50
A = Internal attainment	0.45	0.3	0.45	0.45
University exams				
Insem Result	2	2	0	0
End Sem Result	0	0	2	2
B = University Result X	1.4	1.4	1.4	1.4
Total Attainment -	1.295	1.19	1.295	1.295
Indirect Assessment				
C = Course Exit Survey	0	0	0	0
Total Attainment -	0	0	0	0
CO Attainment = D+I	1.295	1.19	1.295	1.295

Eng. Graphics

CO→						
Assessment tools↓	102003.1	102003.2	102003.3	102003.4	102003.5	102003.6
	Direct Assessment					



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Internal Assessment						
Internal exam	1	1	1	1	1	1
Assignment	3	2	2	3	2	3
Assessment =	2.00	1.50	1.50	2.00	1.50	2.00
X 0.3 =	0.6	0.45	0.45	0.6	0.45	0.6
University exams						
Insem Result	2	2	0	0	0	0
End Sem Result	0	0	2	2	2	2
0.7 =	1.4	1.4	1.4	1.4	1.4	1.4
Direct Assessment D =	1.4	1.295	1.295	1.4	1.295	1.4
Indirect Assessment						
Attainment	0	0	0	0	0	0
Indirect Assessment I =	0	0	0	0	0	0
CO Attainment = D+I	1.4	1.295	1.295	1.4	1.295	1.4



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Internal Assessment						
Internal exam	1	1	1	1	1	1
Assignment	3	2	2	3	2	3
Assessment =	2.00	1.50	1.50	2.00	1.50	2.00
X 0.3 =	0.6	0.45	0.45	0.6	0.45	0.6
University exams						
Insem Result	2	2	0	0	0	0
End Sem Result	0	0	2	2	2	2
0.7 =	1.4	1.4	1.4	1.4	1.4	1.4
Direct Assessment D =	1.4	1.295	1.295	1.4	1.295	1.4
Indirect Assessment						
Attainment	0	0	0	0	0	0
Indirect Assessment I =	0	0	0	0	0	0
CO Attainment = D+I	1.4	1.295	1.295	1.4	1.295	1.4



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Internal Assessment						
Internal exam	1	1	1	1	1	1
Assignment	3	2	2	3	2	3
Assessment=	2.00	1.50	1.50	2.00	1.50	2.00
X 0.3=	0.6	0.45	0.45	0.6	0.45	0.6
University exams						
Insem Result	2	2	0	0	0	0
End Sem Result	0	0	2	2	2	2
0.7=	1.4	1.4	1.4	1.4	1.4	1.4
Direct Assessment D=	1.4	1.295	1.295	1.4	1.295	1.4
Indirect Assessment						
Attainment	0	0	0	0	0	0
Indirect Assessment I=	0	0	0	0	0	0
CO Attainment = D+I	1.4	1.295	1.295	1.4	1.295	1.4



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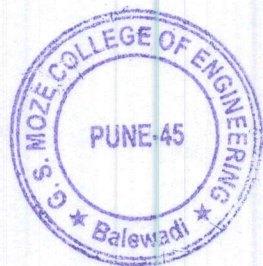
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Balewadi, Pune - 411045.
Mechanical Engineering Department

Criteria 2.6.2 CO PO Attainment
2019 Pattern

Sr. No.	Course Code	Course Name
Semester - III		
1	202041	Solid Mechanics
2	202042	Solid Modeling and Drafting
3	202043	Engineering Thermodynamics
4	202044	Engineering Materials and Metallurgy
5	203156	Electrical and Electronics Engineering
Semester - IV		
6	207002	Engineering Mathematics - III
7	202047	Kinematics of Machinery
8	202048	Applied Thermodynamics
9	202049	Fluid Mechanics
10	202050	Manufacturing Processes
Semester - V		
11	302041	Numerical & Statistical Methods
12	302042	Heat & Mass Transfer
13	302043	Design of Machine Elements
14	302044	Mechatronics
15	302045	Elective I
Semester - VI		
17	302049	Artificial Intelligence & Machine Learning
18	302050	Computer Aided Engineering
19	302051	Design of Transmission Systems
20	302052	Elective II
Semester - VII		
21	402041	Heating Ventilation Air-Conditioning and Refrigeration
22	402042	Dynamics of Machinery
23	402043	Turbomachinery
24	402044	Elective - III
25	402045	Elective - IV - Product Design and Development
Semester - VIII		
25	402048	Computer Integrated Manufacturing
26	402049	Energy Engineering
27	402050	Elective - V
28	402051	Elective - VI - Industrial Psychology and Organizational Behavior




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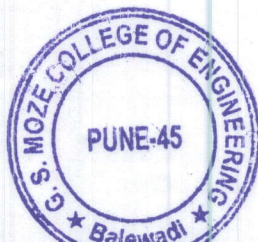
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**Criteria 2.6.2 CO PO Attainment
2015 Pattern**

Sr. No.	Course Code	Course Name
Semester - III (2015)		
1	207002	Engineering Mathematics – III
2	202041	Manufacturing Process-I
3	202042	Computer Aided Machine Drawing
4	202043	Thermodynamics
	202044	Material Science
5	203156	Strength of Materials
Semester - IV (2015)		
6	202045	Fluid Mechanics
7	202048	Theory of Machines – I
8	202049	Engineering Metallurgy
9	202050	Applied Thermodynamics
10	203152	Electrical and Electronics Engineering
Semester - V (2015)		
11	302041	Design of Machine Elements-I
12	302042	Heat Transfer
13	302043	Theory of Machines-IIS
14	302044	Turbo Machines
15	302045	Metrology and Quality Control
Semester - VI (2015)		
17	302047	Numerical Methods and Optimization*
18	302048	Design of Machine Elements-II
19	302049	Refrigeration and Air Conditioning
20	302050	Mechatronics
	302051	Manufacturing -Process-IIS
Semester - VII (2015)		
21	402041	Hydraulics and Pneumatics
22	402042	CAD CAM Automation
23	402043	Dynamics of Machinery
24	402044	Elective – I
25	402045	Elective – II
Semester - VIII (2015)		
25	402047	Energy Engineering
26	402048	Mechanical System Design
27	402049	Elective - III
28	402050	Elective - IV - Product Design and Development



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Mechanical Engineering Department

AY 2022-23
Semester - III

Solid Mechanics

CO→	202041.1	202041.2	202041.3	202041.4	202041.5	202041.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam						
Assignment	2	2	2	2	2	2
	3	3	3	3	3	3
Average direct Assessment=						
A = Internal attainment X 0.3=	2.5	2.5	2.5	2.5	2.5	2.5
University exams						
Phase Result	0.75	0.75	0.75	0.75	0.75	0.75
End Sem Result	2	2	2	2	2	2
B = University Result X 0.7=	2	2	2	2	2	2
Total Attainment -Direct Assessment D= (A+B)*.7	1.4	1.4	1.4	1.4	1.4	1.4
	1.505	1.505	1.505	1.505	1.505	1.505
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.405	2.405	2.405	2.405	2.405	2.405

Solid Modeling and Drafting

CO→	202042.1	202042.2	202042.3	202042.4	202042.5	202042.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam						
Assignment	3	3	3	3	3	3
	2	2	2	2	2	2
Average direct Assessment=						
A = Internal attainment X 0.3=	2.5	2.5	2.5	2.5	2.5	2.5
University exams						
Phase Result	0.75	0.75	0.75	0.75	0.75	0.75
End Sem Result	3	3	3	3	3	3
B = University Result X 0.7=	3	3	3	3	3	3
Total Attainment -Direct Assessment D= (A+B)*.7	2.2	2.1	2.1	2.1	2.1	2.1
	2.1	1.995	1.995	1.995	1.995	1.995
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.895	2.895	2.895	2.895	2.895	2.895

Engineering Thermodynamics

CO→	202043.1	202043.2	202043.3	202043.4	202043.5	202043.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam						
Assignment	2	2	2	2	2	2
	2	3	2	3	3	3
Average direct Assessment=						
A = Internal attainment X 0.3=	2	2.5	2	2.5	2.5	2.5
University exams						
Phase Result	0.6	0.75	0.6	0.75	0.75	0.75
End Sem Result	3	3				
B = University Result X 0.7=	3	3	1	1	1	1
Total Attainment -Direct Assessment D= (A+B)*.7	2.1	2.1	0.7	0.7	0.7	0.7
	1.89	1.995	0.91	1.015	1.015	1.015
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.79	2.895	1.81	1.915	1.915	1.915



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Engineering Materials and Metallurgy

CO→	202044.1	202044.2	202044.3	202044.4	202044.5	202044.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	3	3	3	3	3	3
Assignment	3	3	3	3	3	3
Average direct Assessment=						
A = Internal attainment X 0.3=	0.9	0.9	0.9	0.9	0.9	0.9
University exams						
Phase Result	3	3	3	3	3	3
End Sem Result	3	3	2	2	2	2
B = University Result X 0.7=	2.1	2.1	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	2.1	2.1	1.61	1.61	1.61	1.61
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	3	3	2.51	2.51	2.51	2.51

Electrical and Electronics Engineering

CO→	203156.1	203156.2	203156.3	203156.4	203156.5	203156.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	2	2	2	2	2	2
Assignment	2	3	2	3	2	2
Average direct Assessment=						
A = Internal attainment X 0.3=	0.6	0.75	0.6	0.75	0.6	0.6
University exams						
Phase Result	1	1	1	1	1	1
End Sem Result	1	1	2	2	2	2
B = University Result X 0.7=	0.7	0.7	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	0.91	1.015	1.4	1.505	1.4	1.4
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	2	2
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.6	0.6
CO Attainment = D+I	1.81	1.915	2.3	2.405	2	2

Semester - IV

Engineering Mathematics - III

CO→	207001.1	207001.2	207001.3	207001.4	207001.5	207001.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	3	3	3	3	3	3
Assignment	3	3	3	3	3	3
Average direct Assessment=						
A = Internal attainment X 0.3=	0.9	0.9	0.9	0.9	0.9	0.9
University exams						
Phase Result	3	3	2	2	2	2
End Sem Result	3	3	2	2	2	2
B = University Result X 0.7=	2.1	2.1	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	2.1	2.1	1.61	1.61	1.61	1.61
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	3	3	2.51	2.51	2.51	2.51

Kinematics of Machinery

CO→	202047.1	202047.2	202047.3	202047.4	202047.5	202047.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	2	2	2	2	2	2
Assignment	2	2	2	2	2	2
Average direct Assessment=						
A = Internal attainment X 0.3=	0.6	0.6	0.6	0.6	0.6	0.6
University exams						
Phase Result	3	3	3	3	3	3
End Sem Result	2	2	2	2	2	2
B = University Result X 0.7=	1.4	1.4	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.4	1.4	1.4	1.4	1.4	1.4
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.3	2.3	2.3	2.3	2.3	2.3



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Applied Thermodynamics						
CO→	202048.1	202048.2	202048.3	202048.4	202048.5	202048.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	2	2	3			
Assignment	2	3	2	3	3	3
Average direct Assessment=						
A = Internal attainment X 0.3=	0.6	0.75	0.75	0.9	0.75	0.75
University exams						
Phase Result	2	2				
End Sem Result	2	2	3	3		
B = University Result X 0.7=	1.4	1.4	2.1	2.1	2.1	2.1
Total Attainment -Direct Assessment D= (A+B)*.7	1.4	1.505	1.995	2.1	1.995	1.995
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.3	2.405	2.895	3	2.895	2.895

Fluid Mechanics						
CO→	202049.1	202049.2	202049.3	202049.4	202049.5	202049.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	2	2	2	2	2	2
Assignment	3	3	3	3	3	3
Average direct Assessment=						
A = Internal attainment X 0.3=	0.75	0.75	0.75	0.75	0.75	0.75
University exams						
Phase Result	2	2	2	2	2	2
End Sem Result	2	2	2	2	2	2
B = University Result X 0.7=	1.4	1.4	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.505	1.505	1.505	1.505	1.505	1.505
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.405	2.405	2.405	2.405	2.405	2.405

Manufacturing Processes						
CO→	202050.1	202050.2	202050.3	202050.4	202050.5	202050.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	2	2	3	3	2	2
Assignment	2	2	2	2	2	2
Average direct Assessment=						
A = Internal attainment X 0.3=	0.6	0.6	0.75	0.75	0.6	0.6
University exams						
Phase Result	1	1	1	1	1	1
End Sem Result	1	1	1	1	1	1
B = University Result X 0.7=	0.7	0.7	0.7	0.7	0.7	0.7
Total Attainment -Direct Assessment D= (A+B)*.7	0.91	0.91	1.015	1.015	0.91	0.91
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	2	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.6	0.9	0.9
CO Attainment = D+I	1.81	1.81	1.915	1.615	1.81	1.81

Semester - V

Numerical & Statistical Methods						
CO→	302041.1	302041.2	302041.3	302041.4	302041.5	302041.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	3	3	2	2	3	3
Assignment	3	3	3	3	3	3
Average direct Assessment=						
A = Internal attainment X 0.3=	0.9	0.9	0.75	0.75	0.9	0.9
University exams						
Phase Result	2	2				
End Sem Result	2	2	1	1	1	1
B = University Result X 0.7=	1.4	1.4	0.7	0.7	0.7	0.7
Total Attainment -Direct Assessment D= (A+B)*.7	1.61	1.61	1.015	1.015	1.12	1.12
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.51	2.51	1.915	1.915	2.02	2.02



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Heat & Mass Transfer						
CO→	202042.1	202042.2	202042.3	202042.4	202042.5	202042.6
Assessment tools↓	Direct Assessment					
Internal Assessment						
Internal exam	3	3				
Assignment	3	2	3	3	3	3
Average direct Assessment=			2	2	2	3
A = Internal attainment X 0.3=	3	2.5	2.5	2.5	2.5	3
University exams	0.9	0.75	0.75	0.75	0.75	0.9
Phase Result						
End Sem Result	2	2				
B = University Result X 0.7=	2	2	2	2	2	2
Total Attainment -Direct Assessment D= (A+B)*.7	1.4	1.4	1.4	1.4	1.4	1.4
Indirect Assessment	1.61	1.505	1.505	1.505	1.505	1.61
C = Course Exit Survey Attainment						
Total Attainment -Indirect Assessment I= (C)*.3	3	3	3	3	3	3
CO Attainment = D+I	0.9	0.9	0.9	0.9	0.9	0.9
	2.51	2.405	2.405	2.405	2.405	2.51

Design of Machine Elements						
CO→	302043.1	302043.2	302043.3	302043.4	302043.5	302043.6
Assessment tools↓	Direct Assessment					
Internal Assessment						
Internal exam	3	3				
Assignment	3	1.5	3	3	3	3
Average direct Assessment=			2	1.5	2	3
A = Internal attainment X 0.3=	3	2.25	2.5	2.25	2.5	3
University exams	0.9	0.675	0.75	0.675	0.75	0.9
Phase Result						
End Sem Result	3	3	3	3	3	3
B = University Result X 0.7=	2	2	2	1	2	2
Total Attainment -Direct Assessment D= (A+B)*.7	1.4	1.4	1.4	0.7	1.4	1.4
Indirect Assessment	1.61	1.4525	1.505	0.9625	1.505	1.61
C = Course Exit Survey Attainment						
Total Attainment -Indirect Assessment I= (C)*.3	3	3	3	2	3	3
CO Attainment = D+I	0.9	0.9	0.9	0.6	0.9	0.9
	2.51	2.3525	2.405	1.5625	2.405	2.51

Mechatronics						
CO→	302044.1	302044.2	302044.3	302044.4	302044.5	302044.6
Assessment tools↓	Direct Assessment					
Internal Assessment						
Internal exam	2	2				
Assignment	3	3	2	2	2	2
Average direct Assessment=			3	3	3	3
A = Internal attainment X 0.3=	2.5	2.5	2.5	2.5	2.5	2.5
University exams	0.75	0.75	0.75	0.75	0.75	0.75
Phase Result						
End Sem Result	1	1	2	2	2	2
B = University Result X 0.7=	1	1	2	2	2	2
Total Attainment -Direct Assessment D= (A+B)*.7	0.7	0.7	1.4	1.4	1.4	1.4
Indirect Assessment	1.015	1.015	1.505	1.505	1.505	1.505
C = Course Exit Survey Attainment						
Total Attainment -Indirect Assessment I= (C)*.3	3	3	3	3	3	3
CO Attainment = D+I	0.9	0.9	0.9	0.9	0.9	0.9
	1.915	1.915	2.405	2.405	2.405	2.405

Elective I						
CO→	302045.1	302045.2	302045.3	302045.4	302045.5	302045.6
Assessment tools↓	Direct Assessment					
Internal Assessment						
Internal exam	3	3	3	3	3	3
Assignment						
Average direct Assessment=	3	3	3	3	3	3
A = Internal attainment X 0.3=	0.9	0.9	0.9	0.9	0.9	0.9
University exams						
Phase Result	1	1				
End Sem Result						
B = University Result X 0.7	0.7	0.7	1	1	1	1
Total Attainment -Direct Assessment D= (A+B)*.7	0.7	0.7	0.7	0.7	0.7	0.7
Indirect Assessment	1.12	1.12	1.12	1.12	1.12	1.12
C = Course Exit Survey Attainment						
Total Attainment -Indirect Assessment I= (C)*.3	2	2	3	3	2	2
CO Attainment = D+I	0.6	0.6	0.9	0.9	0.6	0.6
	1.72	1.72	2.02	2.02	1.72	1.72



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Semester - VI

Artificial Intelligence & Machine Learning

CO→	302049.1	302049.2	302049.3	302049.4	302049.5	302049.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam						
Assignment	2	2	3	3	3	3
Average direct Assessment=	3	2	2	2	2	2
A = Internal attainment X 0.3=	2.5	2	2.5	2.5	2.5	2.5
University exams	0.75	0.6	0.75	0.75	0.75	0.75
Phase Result						
End Sem Result	2	2	2	2	2	2
B = University Result X 0.7=	1	1	1	1	1	1
Total Attainment -Direct Assessment D= (A+B)*.7	0.7	0.7	0.7	0.7	0.7	0.7
Indirect Assessment	1.015	0.91	1.015	1.015	1.015	1.015
C = Course Exit Survey Attainment						
Total Attainment -Indirect Assessment I= (C)*.3	3	3	3	3	3	3
CO Attainment = D+I	0.9	0.9	0.9	0.9	0.9	0.9
	1.915	1.81	1.915	1.915	1.915	1.915

Computer Aided Engineering

CO→	302050.1	302050.2	302050.3	302050.4	302050.5	302050.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam						
Assignment	2	2	3	3	2	2
Average direct Assessment=	2	3	3	3	3	3
A = Internal attainment X 0.3=	0.6	2.5	3	3	2.5	2.5
University exams	0.6	0.75	0.9	0.9	0.75	0.75
Phase Result						
End Sem Result	3	3				
B = University Result X 0.7=	3	3	2	2	2	2
Total Attainment -Direct Assessment D= (A+B)*.7	2.1	2.1	1.4	1.4	1.4	1.4
Indirect Assessment	1.89	1.995	1.61	1.61	1.505	1.505
C = Course Exit Survey Attainment						
Total Attainment -Indirect Assessment I= (C)*.3	3	3	3	3	3	3
CO Attainment = D+I	0.9	0.9	0.9	0.9	0.9	0.9
	2.79	2.895	2.51	2.51	2.405	2.405

Design of Transmission Systems

CO→	302051.1	302051.2	302051.3	302051.4	302051.5	302051.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam						
Assignment	3	3	3	3	3	3
Average direct Assessment=	3	1.5	2	1.5	2	3
A = Internal attainment X 0.3=	0.9	2.25	2.5	2.25	2.5	3
University exams	0.9	0.675	0.75	0.675	0.75	0.9
Phase Result						
End Sem Result	3	3	3	3	3	3
B = University Result X 0.7=	2	2	2	1	2	2
Total Attainment -Direct Assessment D= (A+B)*.7	1.4	1.4	1.4	0.7	1.4	1.4
Indirect Assessment	1.61	1.4525	1.505	0.9625	1.505	1.61
C = Course Exit Survey Attainment						
Total Attainment -Indirect Assessment I= (C)*.3	3	3	3	2	3	3
CO Attainment = D+I	0.9	0.9	0.9	0.6	0.9	0.9
	2.51	2.3525	2.405	1.5625	2.405	2.51

Elective II

CO→	302052.1	302052.2	302052.3	302052.4	302052.5	302052.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam						
Assignment	3	3	3	3	3	3
Average direct Assessment=	3	3	3	3	3	3
A = Internal attainment X 0.3=	0.9	0.9	0.9	0.9	0.9	0.9
University exams	0.9	0.9	0.9	0.9	0.9	0.9
Phase Result						
End Sem Result	3	3	3	3	3	3
B = University Result X 0.7=	1	1	1	1	1	1
Total Attainment -Direct Assessment D= (A+B)*.7	0.7	0.7	0.7	0.7	0.7	0.7
Indirect Assessment	1.12	1.12	1.12	1.12	1.12	1.12
C = Course Exit Survey Attainment						
Total Attainment -Indirect Assessment I= (C)*.3	3	3	3	3	3	3
CO Attainment = D+I	0.9	0.9	0.9	0.9	0.9	0.9
	2.02	2.02	2.02	2.02	2.02	2.02



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Semester - VII

Heating Ventilation Air-Conditioning and Refrigeration

CO→	402041.1	402041.2	402041.3	402041.4	402041.5	402041.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam						
Assignment	3	3	3	3	3	3
Average direct Assessment=	3	3	3	3	3	3
A = Internal attainment X 0.3=	0.9	0.9	0.9	0.9	0.9	0.9
University exams						
Phase Result	2	2				
End Sem Result	2	2				
B = University Result X 0.7=	1.4	1.4	2	2	2	2
Total Attainment -Direct Assessment D= (A+B) *.7	1.61	1.61	1.61	1.61	1.61	1.61
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.51	2.51	2.51	2.51	2.51	2.51

Dynamics of Machinery

CO→	402042.1	402042.2	402042.3	402042.4	402042.5	402042.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam						
Assignment	3	3	3	3	3	3
Average direct Assessment=	3	3	3	3	3	3
A = Internal attainment X 0.3=	0.9	0.9	0.9	0.9	0.9	0.9
University exams						
Phase Result	2	2				
End Sem Result	2	2				
B = University Result X 0.7=	1.4	1.4	2	2	2	2
Total Attainment -Direct Assessment D= (A+B) *.7	1.61	1.61	1.61	1.61	1.61	1.61
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.51	2.51	2.51	2.51	2.51	2.51

Turbomachinery

CO→	402043.1	402043.2	402043.3	402043.4
Assessment tools↓				
Direct Assessment				
Internal Assessment				
Internal exam	3	3	3	3
Assignment	2	1	2	2
Average direct Assessment=	2.5	2	2.5	2.5
A = Internal attainment X 0.3=	0.75	0.6	0.75	0.75
University exams				
Phase Result				
End Sem Result	2	2	2	2
B = University Result X 0.7=	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B) *.7	1.505	1.4	1.505	1.505
Indirect Assessment				
C = Course Exit Survey Attainment	2	2	2	2
Total Attainment -Indirect Assessment I= (C)*.3	0.6	0.6	0.6	0.6
CO Attainment = D+I	2.105	2	2.105	2.105

Elective - III

CO→	402044D.1	402044D.2	402044D.3	402044D.4	402044D.5	402044D.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	3	3	3	3	3	3
Assignment	3	1.5	2	1.5	2	3
Average direct Assessment=	3	2.25	2.5	2.25	2.5	3
A = Internal attainment X 0.3=	0.9	0.675	0.75	0.675	0.75	0.9
University exams						
Phase Result	3	3	3	3	3	3
End Sem Result	2	2	2	2	2	2
B = University Result X 0.7=	1.4	1.4	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B) *.7	1.61	1.4525	1.505	1.4525	1.505	1.61
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.51	2.3525	2.405	2.3525	2.405	2.51



Modern Machining Processes

CO→	402044C.1	402044C.2	402044C.3	402044C.4	402044C.5	402044C.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	3	3	3	3	3	3
Assignment	3	3	3	3	3	3
Average direct Assessment=						
A = Internal attainment X 0.3=	0.9	0.9	0.9	0.9	0.9	0.9
University exams						
Phase Result	2	2	2	2	2	2
End Sem Result	2	2	2	2	2	2
B = University Result X 0.7=	1.4	1.4	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.61	1.61	1.61	1.61	1.61	1.61
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.51	2.51	2.51	2.51	2.51	2.51

Product Design and Development

CO→	402044C.1	402044C.2	402044C.3	402044C.4	402044C.5	402044C.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	3	3	3	3	3	3
Assignment	3	3	3	3	3	3
Average direct Assessment=						
A = Internal attainment X 0.3=	0.9	0.9	0.9	0.9	0.9	0.9
University exams						
Phase Result	2	2	2	2	2	2
End Sem Result	2	2	2	2	2	2
B = University Result X 0.7=	1.4	1.4	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.61	1.61	1.61	1.61	1.61	1.61
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.51	2.51	2.51	2.51	2.51	2.51

Semester - VIII

Computer Integrated Manufacturing

CO→	402048.1	402048.2	402048.3	402048.4	402048.5	402048.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	3	3	3	3	3	3
Assignment	3	3	3	3	3	3
Average direct Assessment=						
A = Internal attainment X 0.3=	0.9	0.9	0.9	0.9	0.9	0.9
University exams						
Phase Result	1	1	1	1	1	1
End Sem Result	2	2	2	2	2	2
B = University Result X 0.7=	1.4	1.4	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.61	1.61	1.61	1.61	1.61	1.61
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.51	2.51	2.51	2.51	2.51	2.51

Energy Engineering

CO→	402049.1	402049.2	402049.3	402049.4	402049.5	402049.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	3	3	3	3	3	3
Assignment	2	2	2	2	2	2
Average direct Assessment=						
A = Internal attainment X 0.3=	0.75	0.75	0.75	0.75	0.75	0.75
University exams						
Phase Result	3	3	3	3	3	3
End Sem Result	2	2	2	2	2	2
B = University Result X 0.7	2.1	2.1	2.1	2.1	2.1	2.1
Total Attainment -Direct Assessment D= (A+B)*.7	1.995	1.995	1.995	1.995	1.995	1.995
Indirect Assessment						
C = Course Exit Survey Attainment	2	2	2	2	2	2
Total Attainment -Indirect Assessment I= (C)*.3	0.6	0.6	0.6	0.6	0.6	0.6
CO Attainment = D+I	2.595	2.595	2.595	2.595	2.595	2.595



402050C Manufacturing System and Simulation

CO→	402050C.1	402050C.2	402050C.3	402050C.4	402050C.5	402050C.6
Direct Assessment						
Internal Assessment						
Internal exam	1	1	2	2	1	1
Assignment	2	2	2	2	2	2
Average direct Assessment=	1.5	1.5	2	2	1.5	1.5
A = Internal attainment X 0.3=	0.45	0.45	0.6	0.6	0.45	0.45
University exams						
Phase Result	2	2	2	2	2	2
End Sem Result	2	2	2	2	2	2
B = University Result X 0.7=	1.4	1.4	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.295	1.295	1.4	1.4	1.295	1.295
Indirect Assessment						
C = Course Exit Survey Attainment	3	2	3	3	3	2
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.6	0.9	0.9	0.9	0.6
CO Attainment = D+I	2.195	1.895	2.3	2.3	2.195	1.895

Industrial Psychology and Organizational Behavior

CO→	402051D.1	402051D.2	402051D.3	402051D.4	402051D.5	402051D.6
Direct Assessment						
Internal Assessment						
Internal exam	1	1	2	2	1	1
Assignment	2	2	2	2	2	2
Average direct Assessment=	1.5	1.5	2	2	1.5	1.5
A = Internal attainment X 0.3=	0.45	0.45	0.6	0.6	0.45	0.45
University exams						
Phase Result	2	2	2	2	2	2
End Sem Result	2	2	2	2	2	2
B = University Result X 0.7=	1.4	1.4	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.295	1.295	1.4	1.4	1.295	1.295
Indirect Assessment						
C = Course Exit Survey Attainment	3	2	3	3	3	2
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.6	0.9	0.9	0.9	0.6
CO Attainment = D+I	2.195	1.895	2.3	2.3	2.195	1.895

Principal



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Enhance : Design, Development and Implementation
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Balewadi, Pune - 411045.

Mechanical Engineering Department

Academic Year 2021-22
Semester - III

Solid Mechanics

CO→	202041.1	202041.2	202041.3	202041.4	202041.5	202041.6
Assessment tools↓						
	Direct Assessment					
Internal Assessment						
Internal exam	2	2	2	2	2	2
Assignment	3	3	3	3	3	3
Average direct Assessment=	2.5	2.5	2.5	2.5	2.5	2.5
A = Internal attainment X 0.3=	0.75	0.75	0.75	0.75	0.75	0.75
University exams						
Phase Result	2	2	2	2	2	2
End Sem Result	2	2	2	2	2	2
B = University Result X 0.7=	1.4	1.4	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.505	1.505	1.505	1.505	1.505	1.505
	Indirect Assessment					
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.405	2.405	2.405	2.405	2.405	2.405

Solid Modeling and Drafting

CO→	202042.1	202042.2	202042.3	202042.4	202042.5	202042.6
Assessment tools↓						
	Direct Assessment					
Internal Assessment						
Internal exam	3	3	3	3	3	3
Assignment	2	2	2	2	3	3
Average direct Assessment=	2.5	2.5	2.5	2.5	2.5	2.5
A = Internal attainment X 0.3=	0.75	0.75	0.75	0.75	0.75	0.75
University exams						
Phase Result	3	3	3	3	3	3
End Sem Result	3	3	3	3	3	3
B = University Result X 0.7=	2.2	2.1	2.1	2.1	2.1	2.1
Total Attainment -Direct Assessment D= (A+B)*.7	2.1	1.995	1.995	1.995	1.995	1.995
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.895	2.895	2.895	2.895	2.895	2.895

Engineering Thermodynamics

CO→	202043.1	202043.2	202043.3	202043.4	202043.5	202043.6
Assessment tools↓						
	Direct Assessment					
Internal Assessment						
Internal exam	2	2	2	2	2	2
Assignment	2	3	2	3	3	3
Average direct Assessment=	2	2.5	2	2.5	2.5	2.5
A = Internal attainment X 0.3=	0.6	0.75	0.6	0.75	0.75	0.75
University exams						
Phase Result	3	3	3	3	3	3
End Sem Result	3	3	3	3	3	3
B = University Result X 0.7=	2.1	2.1	1	1	1	1
Total Attainment -Direct Assessment D= (A+B)*.7	1.89	1.995	0.91	1.015	1.015	1.015
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.79	2.895	1.81	1.915	1.915	1.915



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Engineering Materials and Metallurgy

CO →	202044.1	202044.2	202044.3	202044.4	202044.5	202044.6
Assessment tools ↓						
Direct Assessment						
Internal Assessment						
Internal exam						
Assignment	3	3	3	3	3	3
Average direct Assessment =	3	3	3	3	3	3
A = Internal attainment X 0.3 =	0.9	0.9	0.9	0.9	0.9	0.9
University exams						
Phase Result	3	3				
End Sem Result	3	3				
B = University Result X 0.7 =	2.1	2.1	2	2	2	2
Total Attainment -Direct Assessment D= (A+B)*.7	2.1	2.1	1.4	1.4	1.4	1.4
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	3	3	2.51	2.51	2.51	2.51

Electrical and Electronics Engineering

CO →	203156.1	203156.2	203156.3	203156.4	203156.5	203156.6
Assessment tools ↓						
Direct Assessment						
Internal Assessment						
Internal exam						
Assignment	2	2	2	2	2	2
Average direct Assessment =	2	3	2	3	2	2
A = Internal attainment X 0.3 =	0.6	0.75	0.6	0.75	0.6	0.6
University exams						
Phase Result	1	1	1	1	1	1
End Sem Result	1	1	2	2	2	2
B = University Result X 0.7 =	0.7	0.7	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	0.91	1.015	1.4	1.505	1.4	1.4
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	2	2
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.6	0.6
CO Attainment = D+I	1.81	1.915	2.3	2.405	2	2

Semester - IV

Engineering Mathematics - III

CO →	207001.1	207001.2	207001.3	207001.4	207001.5	207001.6
Assessment tools ↓						
Direct Assessment						
Internal Assessment						
Internal exam						
Assignment	3	3	3	3	3	3
Average direct Assessment =	3	3	3	3	3	3
A = Internal attainment X 0.3 =	0.9	0.9	0.9	0.9	0.9	0.9
University exams						
Phase Result	3	3	2	2	2	2
End Sem Result	3	3	2	2	2	2
B = University Result X 0.7 =	2.1	2.1	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	2.1	2.1	1.61	1.61	1.61	1.61
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	3	3	2.51	2.51	2.51	2.51

Kinematics of Machinery

CO →	202047.1	202047.2	202047.3	202047.4	202047.5	202047.6
Assessment tools ↓						
Direct Assessment						
Internal Assessment						
Internal exam						
Assignment	2	2	2	2	2	2
Average direct Assessment =	2	2	2	2	2	2
A = Internal attainment X 0.3 =	0.6	0.6	0.6	0.6	0.6	0.6
University exams						
Phase Result	3	3	3	3	3	3
End Sem Result	2	2	2	2	2	2
B = University Result X 0.7 =	1.4	1.4	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.4	1.4	1.4	1.4	1.4	1.4
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.3	2.3	2.3	2.3	2.3	2.3



Ray

Applied Thermodynamics						
CO→	202048.1	202048.2	202048.3	202048.4	202048.5	202048.6
Assessment tools↓	Direct Assessment					
Internal Assessment						
Internal exam						
Assignment	2	2	3	3	3	3
Average direct Assessment=	2	3	2	3	2	2
A = Internal attainment X 0.3=	0.6	0.75	0.75	0.9	0.75	0.75
University exams	2	2				
Phase Result	2	2				
End Sem Result	2	2				
B = University Result X 0.7=	1.4	1.4	3	3	3	3
Total Attainment -Direct Assessment D= (A+B)*.7	1.4	1.505	2.1	2.1	2.1	2.1
Indirect Assessment						
C = Course Exit Survey Attainment						
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.3	2.405	2.895	3	2.895	2.895

Fluid Mechanics						
CO→	202049.1	202049.2	202049.3	202049.4	202049.5	202049.6
Assessment tools↓	Direct Assessment					
Internal Assessment						
Internal exam						
Assignment	2	2	2	2	2	2
Average direct Assessment=	3	3	3	3	3	3
A = Internal attainment X 0.3=	2.5	2.5	2.5	2.5	2.5	2.5
University exams	0.75	0.75	0.75	0.75	0.75	0.75
Phase Result	2	2				
End Sem Result	2	2	2	2	2	2
B = University Result X 0.7=	1.4	1.4	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.505	1.505	1.505	1.505	1.505	1.505
Indirect Assessment						
C = Course Exit Survey Attainment						
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.405	2.405	2.405	2.405	2.405	2.405

Manufacturing Processes						
CO→	202050.1	202050.2	202050.3	202050.4	202050.5	202050.6
Assessment tools↓	Direct Assessment					
Internal Assessment						
Internal exam						
Assignment	2	2	3	3	2	2
Average direct Assessment=	2	2	2	2	2	2
A = Internal attainment X 0.3=	0.6	0.6	0.75	0.75	0.6	0.6
University exams	1	1	1	1	1	1
Phase Result	1	1				
End Sem Result	1	1	1	1	1	1
B = University Result X 0.7=	0.7	0.7	0.7	0.7	0.7	0.7
Total Attainment -Direct Assessment D= (A+B)*.7	0.91	0.91	1.015	1.015	0.91	0.91
Indirect Assessment						
C = Course Exit Survey Attainment						
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.6	0.9	0.9
CO Attainment = D+I	1.81	1.81	1.915	1.615	1.81	1.81

Semester - V

Numerical & Statistical Methods						
CO→	302041.1	302041.2	302041.3	302041.4	302041.5	302041.6
Assessment tools↓	Direct Assessment					
Internal Assessment						
Internal exam						
Assignment	3	3	2	2	3	3
Average direct Assessment=	3	3	3	3	3	3
A = Internal attainment X 0.3=	0.9	0.9	0.75	0.75	0.9	0.9
University exams	2	2				
Phase Result	2	2				
End Sem Result	2	2	1	1	1	1
B = University Result X 0.7=	1.4	1.4	0.7	0.7	0.7	0.7
Total Attainment -Direct Assessment D= (A+B)*.7	1.61	1.61	1.015	1.015	1.12	1.12
Indirect Assessment						
C = Course Exit Survey Attainment						
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.51	2.51	1.915	1.915	2.02	2.02

Heat & Mass Transfer

CO →	Heat & Mass Transfer					
Assessment tools ↓	202042.1	202042.2	202042.3	202042.4	202042.5	202042.6
Direct Assessment						
Internal Assessment						
Internal exam						
Assignment	3	3	3	3	3	3
Average direct Assessment=	3	2	2	2	2	3
A = Internal attainment X 0.3=	3	2.5	2.5	2.5	2.5	3
University exams	0.9	0.75	0.75	0.75	0.75	0.9
Phase Result						
End Sem Result	2	2				
B = University Result X 0.7=	2	2	2	2	2	2
Total Attainment -Direct Assessment D= (A+B)*.7	1.4	1.4	1.4	1.4	1.4	1.4
Indirect Assessment	1.61	1.505	1.505	1.505	1.505	1.61
C = Course Exit Survey Attainment						
Total Attainment -Indirect Assessment I= (C)*.3	3	3	3	3	3	3
CO Attainment = D+I	0.9	0.9	0.9	0.9	0.9	0.9
	2.51	2.405	2.405	2.405	2.405	2.51

Design of Machine Elements

CO →	Design of Machine Elements					
Assessment tools ↓	302043.1	302043.2	302043.3	302043.4	302043.5	302043.6
Direct Assessment						
Internal Assessment						
Internal exam						
Assignment	3	3	3	3	3	3
Average direct Assessment=	3	1.5	2	1.5	2	3
A = Internal attainment X 0.3=	3	2.25	2.5	2.25	2.5	3
University exams	0.9	0.675	0.75	0.675	0.75	0.9
Phase Result						
End Sem Result	3	3	3	3	3	3
B = University Result X 0.7=	2	2	2	1	3	3
Total Attainment -Direct Assessment D= (A+B)*.7	1.4	1.4	1.4	0.7	2	2
Indirect Assessment	1.61	1.4525	1.505	0.9625	1.505	1.61
C = Course Exit Survey Attainment						
Total Attainment -Indirect Assessment I= (C)*.3	3	3	3	2	3	3
CO Attainment = D+I	0.9	0.9	0.9	0.6	0.9	0.9
	2.51	2.3525	2.405	1.5625	2.405	2.51

Mechatronics

CO →	Mechatronics					
Assessment tools ↓	302044.1	302044.2	302044.3	302044.4	302044.5	302044.6
Direct Assessment						
Internal Assessment						
Internal exam						
Assignment	2	2	2	2	2	2
Average direct Assessment=	3	3	3	3	3	3
A = Internal attainment X 0.3=	2.5	2.5	2.5	2.5	2.5	2.5
University exams	0.75	0.75	0.75	0.75	0.75	0.75
Phase Result						
End Sem Result	1	1	2	2	2	2
B = University Result X 0.7=	1	1	2	2	2	2
Total Attainment -Direct Assessment D= (A+B)*.7	0.7	0.7	1.4	1.4	1.4	1.4
Indirect Assessment	1.015	1.015	1.505	1.505	1.505	1.505
C = Course Exit Survey Attainment						
Total Attainment -Indirect Assessment I= (C)*.3	3	3	3	3	3	3
CO Attainment = D+I	0.9	0.9	0.9	0.9	0.9	0.9
	1.915	1.915	2.405	2.405	2.405	2.405

Elective I

CO →	Elective I					
Assessment tools ↓	302045.1	302045.2	302045.3	302045.4	302045.5	302045.6
Direct Assessment						
Internal Assessment						
Internal exam						
Assignment	3	3	3	3	3	3
Average direct Assessment=	3	3	3	3	3	3
A = Internal attainment X 0.3=	0.9	0.9	0.9	0.9	0.9	0.9
University exams						
Phase Result						
End Sem Result	3	3				
B = University Result X 0.7			2	2	2	2
Total Attainment -Direct Assessment D= (A+B)*.7	2.1	2.1	1.4	1.4	1.4	1.4
Indirect Assessment	2.1	2.1	1.61	1.61	1.61	1.61
C = Course Exit Survey Attainment						
Total Attainment -Indirect Assessment I= (C)*.3	2	2	3	3	2	2
CO Attainment = D+I	0.6	0.6	0.9	0.9	0.6	0.6
	2.7	2.7	2.51	2.51	2.21	2.21



Kalyan
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**Semester - VII
Hydraulics and Pneumatics**

CO→	402041.1	402041.2	402041.3	402041.4	402041.5	402041.6
Assessment tools↓	Direct Assessment					
Internal Assessment						
Internal exam						
Assignment	3	3	3	3	3	3
Average direct Assessment=	3	3	3	3	3	3
A = Internal attainment X 0.3=	0.9	0.9	0.9	0.9	0.9	0.9
University exams						
Phase Result	2	2	2	2	2	2
End Sem Result	2	2	2	2	2	2
B = University Result X 0.7=	1.4	1.4	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.61	1.61	1.61	1.61	1.61	1.61
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.51	2.51	2.51	2.51	2.51	2.51

CAD CAM Automation

CO→	402042.1	402042.2	402042.3	402042.4	402042.5	402042.6
Assessment tools↓	Direct Assessment					
Internal Assessment						
Internal exam						
Assignment	3	3	3	3	3	3
Average direct Assessment=	3	3	3	3	3	3
A = Internal attainment X 0.3=	0.9	0.9	0.9	0.9	0.9	0.9
University exams						
Phase Result	2	2	2	2	2	2
End Sem Result	2	2	2	2	2	2
B = University Result X 0.7=	1.4	1.4	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.61	1.61	1.61	1.61	1.61	1.61
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.51	2.51	2.51	2.51	2.51	2.51

Dynamics of Machinery

CO→	402043.1	402043.2	402043.3	402043.4	402043.5	402043.6
Assessment tools↓	Direct Assessment					
Internal Assessment						
Internal exam						
Assignment	3	3	3	3	3	3
Average direct Assessment=	2.5	2	2.5	2.5	2.5	2.5
A = Internal attainment X 0.3=	0.75	0.6	0.75	0.75	0.75	0.75
University exams						
Phase Result	2	2	2	2	2	2
End Sem Result	2	2	2	2	2	2
B = University Result X 0.7=	1.4	1.4	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.505	1.4	1.505	1.505	1.505	1.505
Indirect Assessment						
C = Course Exit Survey Attainment	2	2	2	2	2	2
Total Attainment -Indirect Assessment I= (C)*.3	0.6	0.6	0.6	0.6	0.6	0.6
CO Attainment = D+I	2.105	2	2.105	2.105	2.105	2.105

Elective – I

CO→	402044.1	402044.2	402044.3	402044.4	402044.5	402044.6
Assessment tools↓	Direct Assessment					
Internal Assessment						
Internal exam						
Assignment	3	3	3	3	3	3
Average direct Assessment=	3	1.5	2	1.5	2	3
A = Internal attainment X 0.3=	0.9	0.45	0.6	0.45	0.6	0.9
University exams						
Phase Result	3	3	3	3	3	3
End Sem Result	2	2	2	2	2	2
B = University Result X 0.7=	1.4	1.4	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.61	1.4525	1.505	1.4525	1.505	1.61
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.51	2.3525	2.405	2.3525	2.405	2.51

Elective – II						
CO→	402044.1	402044.2	402044.3	402044.4	402044.5	402044.6
Assessment tools↓	Direct Assessment					
Internal Assessment						
Internal exam						
Assignment	3	3	3	3	3	3
Average direct Assessment=	3	3	3	3	3	3
A = Internal attainment X 0.3=	0.9	0.9	0.9	0.9	0.9	0.9
University exams						
Phase Result	2	2	2	2	2	2
End Sem Result	2	2	2	2	2	2
B = University Result X 0.7=	1.4	1.4	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.61	1.61	1.61	1.61	1.61	1.61
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.51	2.51	2.51	2.51	2.51	2.51

Semester - VIII Energy Engineering						
CO→	402047.1	402047.2	402047.3	402047.4	402047.5	402047.6
Assessment tools↓	Direct Assessment					
Internal Assessment						
Internal exam						
Assignment	1	1	1	1	1	1
Average direct Assessment=	2	1	2	2	3	2
A = Internal attainment X 0.3=	1.5	1	1.5	1.5	2	1.5
University exams	0.45	0.3	0.45	0.45	0.6	0.45
Phase Result						
End Sem Result	1	1	1			
B = University Result X 0.7	2	2	2	1	2	2
Total Attainment -Direct Assessment D= (A+B)*.7	1.4	1.4	1.4	0.7	1.4	1.4
Indirect Assessment	1.295	1.19	1.295	0.805	1.4	1.295
C = Course Exit Survey Attainment	2	1	2	2	2	2
Total Attainment -Indirect Assessment I= (C)*.3	0.6	0.3	0.6	0.6	0.6	0.6
CO Attainment = D+I	1.895	1.49	1.895	1.405	2	1.895

Mechanical System Design						
CO→	402048.1	402048.2	402048.3	402048.4	402048.5	402048.6
Assessment tools↓	Direct Assessment					
Internal Assessment						
Internal exam						
Assignment	3	3	3	3	3	3
Average direct Assessment=	2	2	2	2	2	2
A = Internal attainment X 0.3=	2.5	2.5	2.5	2.5	2.5	2.5
University exams	0.75	0.75	0.75	0.75	0.75	0.75
Phase Result						
End Sem Result	3	3				
B = University Result X 0.7	2.1	2.1	2	2	2	2
Total Attainment -Direct Assessment D= (A+B)*.7	1.995	1.995	1.4	1.4	1.4	1.4
Indirect Assessment	1.505	1.505	1.505	1.505	1.505	1.505
C = Course Exit Survey Attainment	2	2	3	2	2	2
Total Attainment -Indirect Assessment I= (C)*.3	0.6	0.6	0.9	0.6	0.6	0.6
CO Attainment = D+I	2.595	2.595	2.405	2.105	2.105	2.105

Elective - III						
CO→	402049.1	402049.2	402049.3	402049.4	402049.5	402049.6
Assessment tools↓	Direct Assessment					
Internal Assessment						
Internal exam						
Assignment	1	1	2	2	1	1
Average direct Assessment=	2	2	2	2	2	2
A = Internal attainment X 0.3=	1.5	1.5	2	2	1.5	1.5
University exams	0.45	0.45	0.6	0.6	0.45	0.45
Phase Result						
End Sem Result	2	2	2	2	2	2
B = University Result X 0.7=	1.4	1.4	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.295	1.295	1.4	1.4	1.295	1.295
Indirect Assessment						
C = Course Exit Survey Attainment	3	2	3	3	3	2
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.6	0.9	0.9	0.9	0.6
CO Attainment = D+I	2.195	1.895	2.3	2.3	2.195	1.895

Product Design and Development

CO→	402050C.1	402050C.2	402050C.3	402050C.4	402050C.5	402050C.6
Assessment tools↓						
	Direct Assessment					
Internal Assessment						
Internal exam	1	1	2	2	1	1
Assignment	2	2	2	2	2	2
Average direct Assessment=	1.5	1.5	2	2	1.5	1.5
A = Internal attainment X 0.3=	0.45	0.45	0.6	0.6	0.45	0.45
University exams	2	2	2	2	2	2
Phase Result	2	2	2	2	2	2
End Sem Result	2	2	2	2	2	2
B = University Result X 0.7=	1.4	1.4	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.295	1.295	1.4	1.4	1.295	1.295
Indirect Assessment						
C = Course Exit Survey Attainment	3	2	3	3	3	2
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.6	0.9	0.9	0.9	0.6
CO Attainment = D+I	2.195	1.895	2.3	2.3	2.195	1.895



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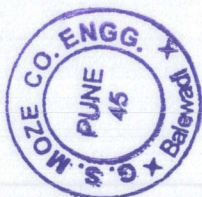
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Mechanical Engineering Department

AY 2020-21

Semester - III

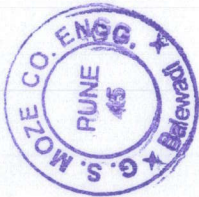
Course Code	Name of Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
202041	Solid Mechanics															
202041.1	CO1. DEFINE various types of stresses and strain developed on determinate and indeterminate members.	6.3	4.2	6.3	4.2	4.2	0	4.2	0	4.2	2.1	0	2.1	0	4.2	2.1
202041.2	CO2. DRAW Shear force and bending moment diagram for various types of transverse loading and support.	3.15	2.1	2.1	2.1	2.1	0	2.1	0	2.1	1.05	0	1.05	0	2.1	1.05
202041.3	CO3. COMPUTE the slope & deflection, bending stresses and shear stresses on a beam.	2.1	2.1	2.1	1.4	1.4	0	1.4	0	0.7	0.7	0	0.7	0	1.4	0.7
202041.4	CO4. CALCULATE torsional shear stress in shaft and buckling on the column.	1.4	1.4	1.4	0	0	0	0	0	0.7	0.7	0	0.7	0	1.4	0.7
202041.5	CO5. APPLY the concept of principal stresses and theories of failure to determine stresses on a 2-D element.	1.4	1.4	0.7	0	0	0	0	0	0	0.7	0	0.7	0	0.7	0.7
202041.6	CO6. UTILIZE the concepts of SFD & BMD, torsion and principal stresses to solve combined loading application based problems.	2.1	2.1	3.15	1.05	2.1	0	1.05	0	2.1	1.05	0	1.05	0	1.05	1.05
	Avg PO attainment.	2.74	2.66	3.94	2.92	2.45	0	2.92	0	1.63	1.26	0	1.05	0	1.05	1.05
202042	Solid Modeling and Drafting															
202042.1	CO1. UNDERSTAND basic concepts of CAD system, need and scope in Product Lifecycle Management	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
202042.2	CO2. UTILIZE knowledge of curves and surfacing features and methods to create complex solid geometry	6.3	6.3	0	0	4.2	2.1	0	0	0	0	0	0	2.1	2.1	2.1
202042.3	CO3. CONSTRUCT solid models, assemblies using various modeling techniques & PERFORM mass property analysis, including creating and using a c	3.15	3.15	3.15	0	1.05	1.05	0	0	0	0	0	0	3.15	1.05	3.15
202042.4	CO4. APPLY geometric transformations to simple 2D geometries	2.1	2.1	2.1	0	0.7	0.7	0	0	0	0	0	0	2.1	0	2.1
202042.5	CO5. USE CAD model data for various CAD based engineering applications viz. production drawings, 3D printing, FEA, CFD, MBD, CAE, CAM, etc.	2.1	1.4	0	0	1.4	2.1	0	0	0	0	0	0	0	0.7	0
202042.6	CO6. USE PMI & MBD approach for communication	2.1	1.4	0	0	1.4	1.4	0	0	0	0	0	0	0	0.7	0
	Avg PO attainment.	3.15	2.1	0	0	2.1	2.1	0	0	0	0	0	0	1.05	1.05	1.05
202043	Engineering Thermodynamics															
202043.1	CO1. DESCRIBE the basics of thermodynamics with heat and work interactions.	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
202043.2	CO2. APPLY laws of thermodynamics to steady flow and non-flow processes. CO3. APPLY entropy, available and non available energy for an Open	1.73	0.86		0.86	0	0	0	0	0	0	0	0	1	0	1
202043.3	CO3. APPLY entropy, available and non available energy for an Open and Closed System	2	2		1	0	0	0	0	0	0	0	0	2	0	2
202043.4	CO4. DETERMINE the properties of steam and their effect on performance of vapour power cycle.	2.2	1.46	1.46	0.73	0	0	0	0	0	0	0	0	2	0	2
202043.5	CO5. ANALYSE the fuel combustion process and products of combustion.	2.6	1.73	1.73	0.86	0	0	0	0	0	0	0	0	1	2	1
202043.6	CO6. SELECT various instrumentations required for safe and efficient operation of steam generator.	2.6	1.73	1.73	0.86	0	0	0	0	0	0	0	0	1	1	1
	Avg PO attainment.	1.73	1.73	1.73	0.86	0	0	0	0	0	0	0	0	1	1	1
202044	Engineering Materials and Metallurgy															
202044.1	CO1. COMPARE crystal structures and ASSESS different lattice parameters.	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
202044.2	CO2. CORRELATE crystal structures and imperfections in crystals with mechanical behaviour of materials.	1.73	0.86		0.86	0	0.86	0	0	0	0	0	0	2	0	2
202044.3	CO3. DIFFERENTIATE and DETERMINE mechanical properties using destructive and non-destructive testing of materials.	2	2		1	0	1	0	0	0	0	0	0	1	0	1
202044.4	CO4. IDENTIFY & ESTIMATE different parameters of the system viz., phases, variables, component, grains, grain boundary, and degree of freedom. et	2.2	1.46	1.46	0.73	0	0.73	0	0	0	0	0	0	1	0	1
202044.5	CO5. ANALYSE effect of alloying element & heat treatment on properties of ferrous & nonferrous alloy.	2.6	1.73	1.73	0.86	0	3	0	0	0	0	0	0	0	1	0
202044.6	CO6. SELECT appropriate materials for various applications.	2.6	1.73	1.73	0.86	0	0.86	0	0	0	0	0	0	0	1	0
	Avg PO attainment.	1.73	1.73	1.73	0.86	0	0.86	0	0	0	0	0	0	1	0	1
203156	Electrical and Electronics Engineering															
203156.1	CO1. APPLY programming concepts to UNDERSTAND role of Microprocessor and Microcontroller in embedded systems	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
203156.2	CO2. DEVELOP interfacing of different types of sensors and other hardware devices with Atmega328 based Arduino Board	1.73	1.73	1.73	0.86	0.86	0.86	1.73	0	0	0.86	0	0.86	0.1	0.1	0.1
203156.3	CO3. UNDERSTAND the operation of DC motor, its speed control methods and braking	0.86	0.86	0.86	1	0.86	1	1.73	0.1	0	0.86	0	0.86	0.1	0.1	0.1
203156.4	CO4. DISTINGUISH between types of three phase induction motor and its characteristic features	2.2	1.46	1.46	0.73	0.86	0.73	1.73	0.1	0	0.86	0	0.86	0.1	0.1	0.1
203156.5	CO5. EXPLAIN about emerging technology of Electric Vehicle (EV) and its modular subsystems	2.6	1.73	1.73	0.86	0.86	3	1.73	0.1	0	0.86	0	0.86	0.1	0.1	0.1
203156.6	CO6. CHOOSE energy storage devices and electrical drives for EVs	2.6	1.73	1.73	0.86	0.86	0.86	1.73	0	0	0.86	0	0	0.1	0.1	0.1
	Avg PO attainment.	1.73	1.73	1.73	0.86	0.86	0.86	0.86	0	0	0.86	0	0	0.1	0.1	0.1
		1.95	1.85	2.31	1.29	1.29	1.22	3.17	0.06	0	0.86	0	0.57	0.1	0.1	0.1




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		Semester - IV														
207002	Engineering Mathematics III	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
207001.1	Solve higher order linear differential equation using appropriate techniques for modelling/analyzing of electrical circuits and control systems.	1.73	1.73	1.73	0.86	0	0	0	0	0	0	0	0	0	0	0.1
207001.2	Solve system of linear equations using direct and iterative numerical techniques and develop solutions for ordinary differential equations using single step method.	0.86	0.86	0.86	1	0	0	0	0	1	0	0	0	0.1	0	0.1
207001.3	Apply Statistical methods like correlation, regression and probability theory in data analysis and predictions in civil engineering.	2.2	1.46	1.46	0.73	0	0.73	0	0	0	0	1	0	0.2	0	0.2
207001.4	Perform vector differentiation & integration, analyze the vector fields and apply to fluid flow problems.	2.6	1.73	1.73	0.86	0	0	0	0	0	0	0	0	0.1	0	0.1
207001.5	Solve Partial differential equations such that as wave equations, one and two dimensional heat flow equations	2.6	1.73	1.73	0.86	0	0	0	0	0	0	0	0	0.1	0	0.1
	Avg PO attainment.	1.67	1.5	1.88	1.08	0	0.12	0	0	0.17	0	0.17	0	0.1	0	0.1
202047	Kinematics of Machinery	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
202047.1	1. To make the students conversant with kinematic analysis of mechanisms applied to real life and industrial applications.	1.73	1.73	1.73	0.86	0.86	0.86	1.73	0.86	0	0.86	0.1	0	0.1	0	0.1
202047.2	2. To develop the competency to analyze the velocity and acceleration in mechanisms using analytical and graphical approach.	0.86	0.86	0.86	1	0.86	1	1.73	0.1	0.1	0.86	0.1	0	0	0	0
202047.3	3. To develop the skill to propose and synthesize the mechanisms using graphical and analytical technique.	2.2	1.46	1.46	0.73	0.86	0.73	1.73	0.1	0.1	0.86	0.86	0	0	0	0
202047.4	4. To develop the competency to understand & apply the principles of gear theory to design various applications.	2.6	1.73	1.73	0.86	0.86	3	1.73	0.1	0.86	0.86	0	1.73	0	0.1	0
202047.5	5. To develop the competency to design a cam profile for various follower motions.	2.6	1.73	1.73	0.86	0.86	1.73	0.1	0.86	0.86	0	1.73	0	0	0	0
	Avg PO attainment.	1.95	1.85	2.31	1.29	1.29	1.22	2.88	0.25	0.32	0.86	0.18	0.87	0.02	0.02	0.02
202048	Applied Thermodynamics	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
202048.1	CO1. DETERMINE COP of refrigeration system and ANALYZE psychrometric processes.	4.2	1.4	2.8	2.8	4.2	3	2.8	3	0	0	0	2.8	0	0	0.1
202048.2	CO2. DISCUSS basics of engine terminology, air standard, fuel air and actual cycles.	1.87	1.87	2.8	0	1.87	0	0	0	0	0	0	0	0	0	0
202048.3	CO3. IDENTIFY factors affecting the combustion performance of SI and CI engines.	0.9	0.9	2	0	1.8	0	0	0	0	0	0	0	0	0	0
202048.4	CO4. DETERMINE performance parameters of IC Engines and emission control.	0.9	0.9	2	0	1.8	0	0	0	0	0	0	0	0	0	0
202048.5	CO5. EXPLAIN working of various IC Engine systems and use of alternative fuels.	1.4	2.8	2.8	0	0	0	0	0	0	0	0	0	0	0	0
202048.6	CO6. CALCULATE performance of single and multi stage reciprocating compressors and DISCUSS rotary positive displacement compressors	1.4	2.8	2.8	0	0	0	0	0	0	0	0	0	0	0	0
	Avg PO attainment.	1.78	1.78	2.53	0.47	1.61	0.5	0.47	0.5	0	0	0	0.47	0	0	0.02
202049	Fluid Mechanics	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
202049.1	CO1. DETERMINE various properties of fluid	1.73	1.73	1.73	1.73	0	0.86	0	0	0	0	0	0	0.2	0	0.2
202049.2	CO2. APPLY the laws of fluid statics and concepts of buoyancy	0.86	0.86	1.73	1.73	0	1	0	0	0	0	0	0	0	0	0
202049.3	CO3. IDENTIFY types of fluid flow and terms associated in fluid kinematics	2.2	1.46	1.46	1.73	0	0.73	0	0	0	0	0	0	0	0	0
202049.4	CO4. APPLY principles of fluid dynamics to laminar flow	2.6	1.73	1.73	1.73	0	3	0	0	0	0	0	0	1.73	0	1.73
202049.5	CO5. ESTIMATE friction and minor losses in internal flows and DETERMINE boundary layer formation over an external surface	2.6	1.73	1.73	1.73	0	0.86	0	0	0	0	0	0	1.73	0	1.73
202049.6	CO6. CONSTRUCT mathematical correlation considering dimensionless parameters, also ABLE to predict the performance of prototype using model law	1.73	1.73	1.73	1.73	0	0.86	0	0	0	0	0	0	1.73	0	1.73
	Avg PO attainment.	1.95	1.85	2.53	2.6	0	1.22	0	0	0	0	0	0	0.9	0.03	0.9
202050	Manufacturing Processes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
202050.1	CO1. SELECT appropriate moulding, core making and melting practice and estimate pouring time, solidification rate and DESIGN riser size and location	1.73	4.2	4.2	0	1.1	0	0	0	0	0	0	0	0	0	0
202050.2	CO2. UNDERSTAND mechanism of metal forming techniques and CALCULATE load required for flat rolling	0.1	2.1	4.2	0	1.1	0.1	0	0	0	0	0	0	0	0	0
202050.3	CO3. DEMONSTRATE press working operations and APPLY the basic principles to DESIGN dies and tools for forming and shearing operations	0.1	1.4	4.2	0	2.1	0	0.1	0	0	0	0	0	0.1	0	0.1
202050.4	CO4. CLASSIFY and EXPLAIN different welding processes and EVALUATE welding characteristics	0.1	1.4	2.1	0	1.1	0	0	0	0	0	0	0	0	0	0
202050.5	CO5. DIFFERENTIATE thermoplastics and thermosetting and EXPLAIN polymer processing techniques	0.1	2.1	2.1	0	1.4	4.2	0	0	0	0	0	0	0	0	0
202050.6	CO6. UNDERSTAND the principle of manufacturing of fibre-reinforce composites and metal matrix composites	0.1	2.1	2.1	0	1.4	4.2	0	0	0	0	0	0	0	0	0
	Avg PO attainment.	0.36	2.24	4.73	0	1.73	0.72	0.03	0.42	0	0	0	0	0.1	0	0.1




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Semester - VI

		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
302047	Numerical Methods and Optimization*															
302047.1	1. Use appropriate Numerical Methods to solve complex mechanical engineering problems.	3	1	2	1	0	1	0	0	0	3	2	2	3	0	0
302047.2	2. Formulate algorithms and programming.	2	2	2	1	2	2	0	0	0	3	2	2	2	2	2
302047.3	3. Use Mathematical Solver.	2	2	2		1	1	0	0	0	2	1	1	1	0	0
302047.4	4. Generate Solutions for real life problem using optimization techniques.	2	1	2	2	1	0	0	0	0	2	1	1	1	0	0
302047.5	5. Analyze the research problem	1	1	2	2	1	1	0	0	0	2	1	2	0	2	2
	Avg PO attainment.	2	1.33	1.83	1.4	1.25	1.4	0	0	0	2.17	1.4	1.6	1.75	2	2
302048	Design of Machine Elements-II															
302048.1	CO 1: To understand and apply principles of gear design to spur gears and industrial spur gear boxes.	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
302048.2	CO 2: To become proficient in Design of Helical and Bevel Gear	3	2	3	0	0	0	0	0	0	0	0	0	1	1	1
302048.3	CO 3: To develop capability to analyse Rolling contact bearing and its selection from manufacturer's Catalogue.	2	1	3	0	2	0	0	0	0	0	0	0	0	2	2
302048.4	CO 4: To learn a skill to design worm gear box for various industrial applications.	1	1	3	0	2	0	0	0	0	0	0	0	0	2	2
302048.5	CO 5: To inculcate an ability to design belt drives and selection of belt, rope and chain drives.	1	1	3	0	2	0	0	0	0	0	0	0	0	0	0
302048.6	CO 6: To achieve an expertise in design of Sliding contact bearing in industrial applications.	1	2	2	0	0	0	0	0	0	0	0	0	0	0	0
	Avg PO attainment.	1	2	2	0	0	0	0	0	0	0	0	0	0	0	0
302049	Refrigeration and Air Conditioning	1.5	1.5	2.67	0	2	0	0	0	0	0	0	0	1	1.5	1.5
302049.1	Illustrate the fundamental principles and applications of refrigeration and air conditioning system	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
302049.2	Obtain cooling capacity and coefficient of performance by conducting test on vapour compression refrigeration systems	2.9	0	0	0	1.29	0	0	0	0	0	0	0	0.64	0	0
302049.3	Present the properties, applications and environmental issues of different refrigerants	2.9	0	0	0	2.9	0	0	0	0	0	0	0	0	1.93	1.93
302049.4	Calculate cooling load for air conditioning systems used for various	1.93	0.64	1.93	1.29	0	0	0	0	0	0	0	0	0	0.64	0
302049.5	Operate and analyze the refrigeration and air conditioning systems	0	0	1.93	0	2.9	1.93	0	0	0	0	0	0	0	0.97	0
	Avg PO attainment.	0	1.93	1.29	1.29	1.93	0	0	0	0	0	0	0	0	0.64	0
302050	Mechatronics	1.29	0.51	2.01	0.86	2.25	0.32	0	0	0	0	0	0	2.9	0.97	0.97
302050.1	Identification of key elements of mechatronics system and its representation in terms of block diagram	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
302050.2	Understanding the concept of signal processing and use of interfacing systems such as ADC, DAC, digital I/O	2.9	3	0.64	0	0.64	0.64	0.64	0	0	0	0	0	0.64	0.64	0.64
302050.3	Interfacing of Sensors, Actuators using appropriate DAQ micro-controller	2.9	2.9	0.97	0	0.97	0.97	0.97	0	0	0	0	0	0.97	0.97	0.97
302050.4	Time and Frequency domain analysis of system model (for control application)	1.93	1.93	0.64	0	0.64	0.64	0.64	0	0	0	0	0	0.64	0.64	0.64
302050.5	PID control implementation on real time systems	2.9	2.9	0.97	0	0.97	0.97	0.97	0	0	0	0	0	0.97	0.97	0.97
302050.6	Development of PLC ladder programming and implementation of real life system.	1.93	1.93	0.64	0	0.64	0.64	0.64	0	0	0	0	0	0.64	0.64	0.64
	Avg PO attainment.	5.79	5.79	1.93	0	1.93	1.93	1.93	0	0	0	0	0	1.93	1.93	1.93
302051	Manufacturing -Process-IIS	2.06	2.69	1.45	0	1.45	0.97	1.93	0	0	0	0	0	2.79	2.9	2.9
302051.1	1. APPLY fundamentals for the design and/or selection of elements in transmission systems.	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
302051.2	2. UNDERSTAND the philosophy that real engineering design problems are open-ended and challenging.	2.1	0	0	0	0	2.1	1.05	0	0	0	0	0	0	0	0
302051.3	3. DEMONSTRATE design skills for the problems in real life industrial applications.	2.1	0	0	0	0	1.05	0	0	0	0	0	0	0	0	0
302051.4	4. DEVELOP an attitude of team work, critical thinking, communication, planning and scheduling through design projects.	1.4	0	0	0	0	1.4	0.7	0.7	0	0	0	0	0	0	0
302051.5	5. PERCEIVE about safety, ethical, legal, and other societal constraints in execution of their design projects.	0	1.05	1.05	0	0	2.1	2.1	0	1.05	0	0	0	0.7	0.7	0.7
302051.6	6. BUILD a holistic design approach to find out pragmatic solutions to realistic domestic and industrial problems	0	0.7	0	0	0.7	1.4	1.4	0	0.7	0	0	0	2.1	2.1	2.1
	Avg PO attainment.	0	1.05	0	0	1.05	0	1.05	0	2.1	1.05	1.05	1.05	2.1	0.7	1.4
		0.93	0.56	0.26	0	0.44	1.34	2.1	0.14	0.64	0.21	0.21	0.18	6.3	1.75	6.3



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		Semester - VIII														
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
402047	Energy Engineering															
402047.1	Describe the power generation scenario, the layout components of thermal power plant and analyze the improved Rankin cycle, Cogeneration cycle	2.0	1.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
402047.2	Analyze the steam condensers, recognize the an environmental impacts of thermal power plant and method to control the same	2.0	2.0	0.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
402047.3	Recognize the layout, component details of hydroelectric power plant and nuclear power plant	3.0	2.0	2.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
402047.4	Realize the details of diesel power plant, gas power plant and analyze gas turbine power cycle	2.6	1.7	1.7	0.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
402047.5	Emphasize the fundamentals of non-conventional power plants	2.6	1.7	1.7	0.9		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
402047.6	Describe the different power plant electrical instruments and basic principles of economics of power generation.	2.0	2.0	2.0	1.0	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
402048	Mechanical System Design	Avg PO attainment.														
402050C.1	To help mechanical engineers understand broadly the functioning of manufacturing systems.	2.4	1.7	1.2	1.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
402050C.2	To describe the role of facilities and support systems.	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
402050C.3	To enable students understand various types of simulations used in manufacturing environment.	3	3	1	0	1	1	1	0	0	0	0	0	1	1	1
402050C.4	To acquaint with the methodology of manufacturing simulation using computer software and the repercussions of changes & variability therein, over time.	2	2	0.67	0	0.67	0.67	0.67	0	0	0	0	0	0.67	0.67	0.67
402050C.5	To showcase the areas of simulation applications in manufacturing and allied field.	3	3	1	0	1	1	1	0	0	0	0	0	1	1	1
402049	Elective - III	Avg PO attainment.														
402051D.1	To develop an understanding of the nature, functioning and design of organization as social collectivities.	2.83	3.4	1.42	0	1.42	0.94	1.89	0	0	0	0	0	5.67	2.83	5.67
402051D.2	To orient the students to the application of principles of psychology in an industrial and organizational workplace	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
402051D.3	To demonstrate the understanding of job requirement and related fatigue, boredom and ways to handle it.	1.27	1.27	0	1.27	0	0	0	0	0	0	0	0	0.63	0	0.63
402051D.4	To develop the insights into performance management and understanding related improvement strategies.	1.9	2.85	1.9	2.85	0	0	0	0	0	0	0	0	0	0	0
402051D.5	To have an understanding of human behavior in groups and develop knowledge and skills in leadership, power, communication, negotiation and conflict	1.9	1.27	1.9	1.9	0	0	0	0	0	0	0	0	0	0	0
402051D.6	To develop the acumen to understand the organizational culture, change management and organizational development.	2.85	1.9	2.85	2.85	0	0	0	0	0	0	0	0	0	0.63	0
402050	Elective - IV - Product Design and Development	Avg PO attainment.														
402050C.1	To understand essential factors for product design	0.95	2.85	0	2.85	0	0	0	0	0	0	0	0	0.63	0	0.63
402050C.2	To design product as per customer needs and satisfaction	1.79	2.01	1.43	2.27	0	0	0	0	0	0	0	0	0	0.95	0
402050C.3	To understand Processes and concepts during product development	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
402050C.4	To understand methods and processes of Forward and Reverse engineering	2.1	2.1	0.7	0	0.7	0.7	0.7	0	0	0	0	0	0.7	0.7	0.63
402050C.5	To carry various design processes as DFA, DFMEA, design for safety	3.15	3.15	1.05	0	1.05	1.05	1.05	0	0	0	0	0	1.05	1.05	0
402050C.6	To understand the product life cycle and product data management	2.1	2.1	0.7	0	0.7	0.7	0.7	0	0	0	0	0	0.7	0.7	0
	Avg PO attainment.	3.15	3.15	1.05	0	1.05	1.05	1.05	0	0	0	0	0	1.05	1.05	0.95
		3.15	3.15	1.05	0	1.05	1.05	1.05	0	0	0	0	0	1.05	1.05	0.63
		2.8	2.8	0.93	0	1.4	0.93	1.87	0	0	0	0	0	0.93	2.8	0.53



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Mechanical Engineering Department

AY 2019-20

Semester - III

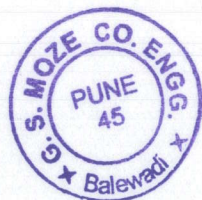
Course Code	Name of Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
207002	Engineering Mathematics - III															
207002.1	1) Solve higher order linear differential equations and apply to modeling and analyzing mass spring systems.	6.3	4.2	6.3	4.2	4.2	0	4.2	0	4.2	2.1	0	2.1	0	4.2	2.1
207002.2	2) Apply Laplace transform and Fourier transform techniques to solve differential equations involved in Vibration theory, Heat transfer and related engineering applications.	3.15	2.1	2.1	1.4	1.4	0	1.4	0	0.7	0.7	0	0.7	0	1.4	0.7
207002.3	3) Apply statistical methods like correlation, regression analysis in analyzing, interpreting experimental data and probability theory in testing and quality control.	2.1	2.1	2.1	1.4	1.4	0	1.4	0	0.7	0.7	0	0.7	0	1.4	0.7
207002.4	4) Perform vector differentiation and integration, analyze the vector fields and apply to fluid flow problems.	1.4	1.4	1.4	0	0	0	0	0	0.7	0.7	0	0.7	0	1.4	0.7
207002.5	5) Solve various partial differential equations such as wave equation, one and two dimensional heat flow equations.	1.4	1.4	0.7	0	0	0	0	0	0.7	0.7	0	0.7	0	1.4	0.7
207002.6		2.1	2.1	3.15	1.05	2.1	0	1.05	0	2.1	1.05	0	1.05	0	1.05	1.05
202041	Manufacturing Process-I															
202041.1	• Understand and analyze foundry practices like pattern making, mold making, Core making and Inspection of defects.	2.74	2.66	3.94	2.92	2.45	0	2.92	0	1.63	1.26	0	1.05	0	1.05	1.05
202041.2	• Understand and analyze Hot and Cold Working, Rolling, Forging, Extrusion and Drawing Processes.	6.3	6.3	0	0	4.2	2.1	0	0	0	0	0	0	2.1	2.1	2.1
202041.3	• Understand different plastic molding processes, Extrusion of Plastic and Thermoforming	3.15	3.15	3.15	0	1.05	1.05	0	0	0	0	0	0	2.1	2.1	2.1
202041.4	• Understand different Welding and joining processes and its defects	2.1	2.1	2.1	0	0.7	0.7	0	0	0	0	0	0	3.15	1.05	3.15
202041.5	• Understand, Design and Analyze different sheet metal working processes	2.1	1.4	0	0	1.4	2.1	0	0	0	0	0	0	0	0	2.1
202041.6	• Understand the constructional details and Working of Centre Lathe	3.15	2.1	0	0	1.4	1.4	0	0	0	0	0	0	0	0	0
202042	Computer Aided Machine Drawing															
202042.1	• Understand the importance of CAD in the light of allied technologies such as CAM, CAE, FEA, CFD, PLM.	3.15	2.1	0	0	2.1	2.1	0	0	0	0	0	0	1.05	1.05	1.05
202042.2	• Understand the significance of parametric technology and its application in 2D sketching.	3.15	3.29	1.31	0	2.71	1.58	0	0	0	0	0	0	8.4	2.8	8.4
202042.3	• Understand the significance of parametric feature-based modeling and its application in 3D machine components modeling.	1.73	0.86													
202042.4	• Ability to create 3D assemblies that represent static or dynamic Mechanical Systems.	2	2											1	0	1
202042.5	• Ability to ensure manufacturability and proper assembly of components and assemblies.	2.2	1.46	1.46	0.73	0	0	0	0	0	0	0	0	2	0	2
202042.6	• Ability to communicate between Design and Manufacturing using 2D drawings.	2.6	1.73	1.73	0.86	0	0	0	0	0	0	0	0	2	0	2
202043	Thermodynamics															
202043.1	• Apply various laws of thermodynamics to various processes and real systems.	2.6	1.73	1.73	0.86	0	0	0	0	0	0	0	0	1	2	1
202043.2	• Apply the concept of Entropy, Calculate heat, work and other important thermodynamic properties for various ideal gas processes.	1.73	1.73	1.73	0.86	0	0	0	0	0	0	0	0	1	1	1
202043.3	• Estimate performance of various Thermodynamic gas power cycles and gas refrigeration cycle and availability in each case.	2.14	1.9	1.66	1.29	0	0	0	0	0	0	0	0	1	1	1
202043.4	• Estimate the condition of steam and performance of vapour power cycle and vapour compression cycle.	1.73	0.86													
202043.5	• Estimate Stoichiometric air required for combustion, performance of steam generators and natural draught requirements in boiler plants.	2.2	1.46	1.46	0.73	0	0.73	0	0	0	0	0	0	1	0	1
202043.6	• Use Psychrometric charts and estimate various essential properties related to Psychrometry and processes	2.6	1.73	1.73	0.86	0	0.86	0	0	0	0	0	0	0	1	0
202044	Material Science															
202044.1	• Understand the basic concepts and properties of Material.	1.73	1.73	1.73	0.86	0	0.86	0	0	0	0	0	0	0	1	0
202044.2	• Understand about material fundamental and processing.	2.14	1.9	1.66	1.29	0	1.22	0	0	0	0	0	0	1	0	1
202044.3	• Select proper metal, alloys, nonmetal and powder metallurgical component for specific requirement	1.73	1.73	1.73	0.86	0.86	0.86	1.73	0	0	0.86	0	0.86	0.86	0.1	0.1
202044.4	• Detect the defects in crystal and its effect on crystal properties.	0.86	0.86	0.86	1	0.86	1	1.73	0.1	0	0.86	0	0.86	0.1	0.1	0.1
202044.5	• Evaluate the different properties of material by studying different test	2.2	1.46	1.46	0.73	0.86	0.73	1.73	0.1	0	0.86	0	0.86	0.1	0.1	0.1
202044.6	• Recognize how metals can be strengthened by cold-working and hot working	2.6	1.73	1.73	0.86	0.86	3	1.73	0.1	0	0.86	0	0.86	0.1	0.1	0.1
203156	Strength of Materials															
203156.1	• Apply knowledge of mathematics, science for engineering applications	1.73	1.73	1.73	0.86	0.86	0.86	0.86	0	0	0.86	0	0	0.1	0.1	0.1
203156.2	• Design and conduct experiments, as well as to analyze and interpret data	1.95	1.85	2.31	1.29	1.29	1.22	3.17	0.06	0	0.86	0	0.57	0.1	0.1	0.1
203156.3	• Design a component to meet desired needs within realistic constraints of health and safety	1.73	1.73	1.73	0.86	0.86	0.86	1.73	0	0	0.86	0	0.86	0.1	0.1	0.1
203156.4	• Identify, formulate, and solve engineering problems	0.86	0.86	0.86	1	0.86	1	1.73	0.1	0	0.86	0	0.86	0.1	0.1	0.1
203156.5	• Practice professional and ethical responsibility	2.2	1.46	1.46	0.73	0.86	0.73	1.73	0.1	0	0.86	0	0.86	0.1	0.1	0.1
203156.6	• Use the techniques, skills, and modern engineering tools necessary for engineering practice	2.6	1.73	1.73	0.86	0.86	3	1.73	0	0	0.86	0	0.86	0.1	0.1	0.1
	Avg PO attainment.	1.73	1.73	1.73	0.86	0.86	0.86	0.86	0	0	0.86	0	0	0.1	0.1	0.1
		1.95	1.85	2.31	1.29	1.29	1.22	3.17	0.06	0	0.86	0	0.57	0.1	0.1	0.1




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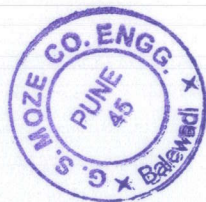
Semester - IV

		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
202045	Fluid Mechanics	1.73	1.73	1.73	0.86	0	0	0	0	0	0	0	0	0	0	0
202049.1	CO1. DETERMINE various properties of fluid	0.86	0.86	0.86	1	0	0	0	0	1	0	0	0	0.1	0	0.1
202049.2	CO2. APPLY the laws of fluid statics and concepts of buoyancy	2.2	1.46	1.46	0.73	0	0.73	0	0	0	0	1	0	0.1	0	0.1
202049.3	CO3. IDENTIFY types of fluid flow and terms associated in fluid kinematics	2.6	1.73	1.73	0.86	0	0	0	0	0	0	0	0	0.2	0	0.2
202049.4	CO4. APPLY principles of fluid dynamics to laminar flow	2.6	1.73	1.73	0.86	0	0	0	0	0	0	0	0	0.1	0	0.1
202049.5	CO5. ESTIMATE friction and minor losses in internal flows and DETERMINE boundary layer formation over an external surface	1.67	1.5	1.58	1.08	0	0.17	0	0	0.17	0	0.17	0	0.1	0	0.1
202049.6	CO6. CONSTRUCT mathematical correlation considering dimensionless parameters, also ABLE to predict the performance of prototype using model laws															
202048	Theory of Machines - I															
202048.1	Identify mechanisms in real life applications.															
202048.2	Perform kinematic analysis of simple mechanisms.															
202048.3	Perform static and dynamic force analysis of slider crank mechanism.															
202048.4	Determine moment of inertia of rigid bodies experimentally.															
202048.5	Analyze velocity and acceleration of mechanisms by vector and graphical methods.															
202049	Engineering Metallurgy															
202049.1	describe how metals and alloys formed and how the properties change due to microstructure															
202049.2	apply core concepts in Engineering Metallurgy to solve engineering problems.															
202049.3	conduct experiments, as well as to analyze and interpret data															
202049.4	select materials for design and construction.															
202049.5	possess the skills and techniques necessary for modern materials engineering practice															
202049.6	recognize how metals can be strengthened by alloying, cold-working, and heat treatment															
202050	Applied Thermodynamics															
202050.1	Classify various types of Engines, Compare Air standard, Fuel Air and Actual cycles and make out various losses in real cycles.															
202050.2	Understand Theory of Carburetion, Modern Carburetor, Stages of Combustion in S. I. Engines and Theory of Detonation, Pre-ignition and factors affecting detonation.															
202050.3	Understand Fuel Supply system, Types of Injectors and Injection Pumps, Stages of Combustion in CI Engines, Theory of Detonation in CI Engines and Comparison of SI and CI Combustion and Knocking and Factors affecting. Criteria for good combustion															
202050.4	Carry out Testing of I. C. Engines and analyze its performance.															
202050.5	Describe construction and working of various I. C. Engine systems (Cooling, Lubrication, Ignition, Governing, and Starting) also various harmful gases emitted from exhaust and different devices to control pollution and emission norms for pollution control.															
202050.6	Describe construction, working of various types of reciprocating and rotary compressors with performance calculations of positive displacement compressors.															
203152	Electrical and Electronics Engineering															
203152.1	Develop the capability to identify and select suitable DC motor and its speed control method for given industrial application.															
203152.2	Develop the capability to identify and select suitable induction motor and its speed control method for given industrial application.															
203152.3	Develop the capability to identify and select suitable special purpose motor and its speed control method for given industrial application.															
203152.4	Program Arduino IDE using conditional statements															
203152.5	Interfacing sensors with Arduino IDE															
203152.6	Data acquisition system for mechanical applications															
	Avg PO attainment.	0.36	2.24	4.73	0	1.73	0.72	0.03	0.42	0	0	0	0	0.1	0	0.1




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Course Code	Name of Course (2015)	Semester - V																
302041	Design of Machine Elements-I																	
302041.1	Ability to identify and understand failure modes for mechanical elements and design of machine elements based on strength.	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3		
302041.2	Ability to design Shafts, Keys and Coupling for industrial applications.	2.6	1.73	1.73	1.73	1.73	0	0	0	0	0	0	0	0.2	2.6	0.2		
302041.3	Ability to design machine elements subjected to fluctuating loads.	0.86	0.86	1.73	1.84	2.6	0	0	0	0	0	0	0	0	0	0		
302041.4	Ability to design Power Screws for various applications.	2.2	1.46	1.46	1.73	2.6	0	0	0	0	0	0	0	0	2.6	0		
302041.5	Ability to design fasteners and welded joints subjected to different loading conditions.	2.6	1.73	1.73	1.73	1.73	0	0	0	0	0	0	0	0	1.46	0		
302041.6	Ability to design various Springs for strength and stiffness.	2.6	1.73	1.73	1.73	1.84	0	0	0	0	0	0	0	0	2.6	1.73		
	Avg PO attainment.	2.1	1.85	2.53	2.62	2.63	0	0	0	0	0	0	0.1	1.73	1.73	1.73		
302042	Heat and Mass Transfer																	
302042.1	IDENTIFY the laws for different modes of heat transfer.	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3		
302042.2	UNDERSTAND the properties and economics of thermal insulation and ANALYZE heat transfer through fins and thermal systems with lumped heat capacitance.	2.1	0.67	2.1	0	0	0	0	1.4	0	0	0	2.1	3.15	0.1	0.1		
302042.3	ANALYZE the natural and forced convective mode of heat transfer in various geometric configurations.	1.4	0	1.4	0	0	0	0	1.73	0.2	0	0	2.1	2.1	2.1	2.1		
302042.4	UNDERSTAND AND REALIZE various laws with their interrelations and analyze Radiation heat transfer in black and grey bodies/surfaces with or without radiation shields.	2.1	0	0	0	0	0	0	1.73	0	0	0	0.7	0.7	0	0		
302042.5	UNDERSTAND the fundamentals and laws of mass transfer and its applications.	0.7	0	0	0	0.7	0	0	1.73	0	0	0	2.1	0	0	0		
302042.6	ANALYZE various performance parameters for existing heat exchanger and DEVELOP methodologies for designing a heat exchanger under prescribed conditions and for a particular application, with references TEMA standards.	2.1	0	0	0	0	0	0	1.73	0	0	0	0.7	0.7	0	0		
	Avg PO attainment.	1.75	1.39	2.54	0	1.14	0	1.14	1.14	2.45	1.33	1.28	6.65	2.1	2.1	2.1		
302043	Theory of Machines-III																	
302043.1	DESIGN AND ANALYZE the cotter and knuckle Joints, levers and components subjected to eccentric loading.	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3		
302043.2	DESIGN shafts, keys and couplings under static loading conditions.	3.3	3	0.73	1.47	1.47	0.73	0	0	0	0	0	0.73	0.73	0.73	0.73		
302043.3	ANALYZE different stresses in power screws and APPLY those in the procedure to design screw jack.	2.2	1.47	2.2	0.73	1.47	0.73	0	0.73	0.73	0.73	0.73	0.73	0	0.73	0		
302043.4	EVALUATE dimensions of machine components under fluctuating loads.	1.47	1.47	1.47	0.73	0.73	0.73	1.47	0.73	0.73	0.73	0.73	0.73	0	0.73	0		
302043.5	EVALUATE & INTERPRET the stress developed on the different type of welded and threaded joints.	2.2	1.1	1.1	1.1	2.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1		
302043.6	APPLY the design and development procedure for different types of springs.	2.44	2.73	1.93	2.08	1.47	0.73	0.68	1.1	0.79	0.95	0.15	0.92	1.83	1.65	1.83		
	Avg PO attainment.	2.0	1.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
302044	Turbo Machines																	
302044.1	Apply Momentum Principle And Velocity Triangle On a Pelton Turbines For Its Analysis.	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3		
302044.2	Apply Momentum Principle And Velocity Triangle On a Reaction Turbine For Its Analysis.	2.0	2.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
302044.3	Apply Momentum Principle And Velocity Triangle On Steam Turbines For Its Analysis.	3.0	2.0	2.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
302044.4	Apply Thermodynamic Concept Using T S Diagram And Used Of Velocity Triangle On Centrifugal Pump For Its Analysis.	2.6	1.7	1.7	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
302044.5	Apply Thermodynamic Concept Using T S Diagram And Used Of Velocity Triangle On axial compress For Its Analysis.	2.6	1.7	1.7	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
	Avg PO attainment.	2.0	2.0	2.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
302045	Metrology and Quality Control																	
302045.1	1. Understand the methods of measurement, selection of measuring instruments / standards of measurement, carryout data collection and its analysis.	2.4	1.7	1.5	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
302045.2	2. Explain tolerance, limits of size, fits, geometric and position tolerances and gauge design.	2.2	2.2	2.2	0.73	0.73	0	0	0	0	0	0	0	0	0	0		
302045.3	3. Understand and use/apply Quality Control Techniques/ Statistical Tools appropriately.	3.3	3.3	2.2	2.2	1.1	0	0	0	0	2.2	0	2.2	0.33	0.82	0.82		
302045.4	4. Develop an ability of problem solving and decision making by identifying and analyzing the cause for variation and recommend suitable corrective actions for quality improvement.	2.2	2.2	2.2	0.73	0.73	0	0	0	0	1.47	0	1.47	0.73	0.73	0.73		
	Avg PO attainment.	3.3	3.3	2.2	2.2	1.1	0	0	0	0	2.2	0	2.2	0.33	0.82	0.82		
		2.75	3.04	2.29	2.2	0.92	0	0	0	0	2.35	0	1.59	1.56	2.53	2.53		



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Semester - VI

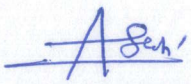
Course Code	Course Name	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	
302047	Numerical Methods and Optimization*	3	1	2	1	0	1	0	0	0	0	3	2	2	3	0	0
302047.1	1. Use appropriate Numerical Methods to solve complex mechanical engineering problems.	2	2	2	1	2	2	0	0	0	3	2	2	3	2	0	0
302047.2	2. Formulate algorithms and programming.	2	2	2		1	1	0	0	0	3	2	2	2	2	2	2
302047.3	3. Use Mathematical Solver.	2	1	2	2	1	0	0	0	0	2	1	1	1	1	0	0
302047.4	4. Generate Solutions for real life problem using optimization techniques.	1	1	2	2	1	1	0	0	0	2	1	2	0	2	2	2
302047.5	5. Analyze the research problem	2	1.33	1.83	1.4	1.25	1.4	0	0	0	2	1	1	1	1	0	0
302048	Design of Machine Elements-II	Avg PO attainment.															
302048.1	CO 1: To understand and apply principles of gear design to spur gears and industrial spur gear boxes.	3	2	3	0	0	0	0	0	0	0	0	0	1	1	1	1
302048.2	CO 2: To become proficient in Design of Helical and Bevel Gear	2	1	3	0	2	0	0	0	0	0	0	0	0	2	2	2
302048.3	CO 3: To develop capability to analyse Rolling contact bearing and its selection from manufacturer's Catalogue.	1	1	3	0	2	0	0	0	0	0	0	0	0	0	0	0
302048.4	CO 4: To learn a skill to design worm gear box for various industrial applications.	1	1	3	0	2	0	0	0	0	0	0	0	0	0	0	0
302048.5	CO 5: To inculcate an ability to design belt drives and selection of belt, rope and chain drives.	1	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0
302048.6	CO 6: To achieve an expertise in design of Sliding contact bearing in industrial applications.	1.5	1.5	2.67	0	2	0	0	0	0	0	0	0	1	1.5	1.5	1.5
302049	Refrigeration and Air Conditioning	Avg PO attainment.															
302049.1	Illustrate the fundamental principles and applications of refrigeration and air conditioning system	2.9	0	0	0	1.29	0	0	0	0	0	0	0	0	0.64	0	0
302049.2	Obtain cooling capacity and coefficient of performance by conducting test on vapour compression refrigeration systems	2.9	0	0	0	2.9	0	0	0	0	0	0	0	0	0.64	0	0
302049.3	Present the properties, applications and environmental issues of different refrigerants	1.93	0.64	1.93	1.29	0	0	0	0	0	0	0	0	0	1.93	1.93	1.93
302049.4	Calculate cooling load for air conditioning systems used for various	0	0	1.93	0	2.9	1.93	0	0	0	0	0	0	0	0.64	0	0
302049.5	Operate and analyze the refrigeration and air conditioning systems	1.79	0.51	2.01	0.86	2.25	0.32	0	0	0	0	0	0	0	0.64	0	0
302050	Mechatronics	Avg PO attainment.															
302050.1	Identification of key elements of mechatronics system and its representation in terms of block diagram	2.9	3	0.64	0	0.64	0.64	0.64	0	0	0	0	0	0	0.64	0.64	0.64
302050.2	Understanding the concept of signal processing and use of interfacing systems such as ADC, DAC, digital I/O	2.9	2.9	0.97	0	0.97	0.97	0.97	0	0	0	0	0	0	0.97	0.97	0.97
302050.3	Interfacing of Sensors, Actuators using appropriate DAQ micro-controller	1.93	1.93	0.64	0	0.64	0.64	0.64	0	0	0	0	0	0	0.64	0.64	0.64
302050.4	Time and Frequency domain analysis of system model (for control application)	2.9	2.9	0.97	0	0.97	0.97	0.97	0	0	0	0	0	0	0.97	0.97	0.97
302050.5	PID control implementation on real time systems	1.93	1.93	0.64	0	0.64	0.64	0.64	0	0	0	0	0	0	0.64	0.64	0.64
302050.6	Development of PLC ladder programming and implementation of real life system.	5.79	5.79	1.93	0	1.93	1.93	1.93	0	0	0	0	0	0	1.93	1.93	1.93
302051	Manufacturing -Process-IIS	Avg PO attainment.															
302051.1	1. APPLY fundamentals for the design and/or selection of elements in transmission systems.	2.1	0	0	0	0	2.1	1.05	0	0	0	0	0	0	0	0	0
302051.2	2. UNDERSTAND the philosophy that real engineering design problems are open-ended and challenging.	2.1	0	0	0	0	1.05	0	0	0	0	0	0	0	0	0	0
302051.3	3. DEMONSTRATE design skills for the problems in real life industrial applications.	1.4	0	0	0	0	1.4	0.7	0.7	0	0	0	0	0	0	0	0
302051.4	4. DEVELOP an attitude of team work, critical thinking, communication, planning and scheduling through design projects.	0	1.05	1.05	0	0	2.1	2.1	0	1.05	0	0	0	0	2.1	2.1	2.1
302051.5	5. PERCEIVE an attitude of safety, ethical, legal, and other societal constraints in execution of their design projects.	0	0.7	0	0	1.05	0	1.05	0	0	0.7	0	0	0	1.4	0.7	1.4
302051.6	6. BUILD a holistic design approach to find out pragmatic solutions to realistic domestic and industrial problems	0	1.05	0	0	0	0	1.05	0	2.1	1.05	1.05	1.05	2.1	0	2.1	2.1
	Avg PO attainment.	0.93	0.56	0.26	0	0.44	1.34	2.1	0.14	0.64	0.21	0.21	0.18	6.3	1.75	6.3	



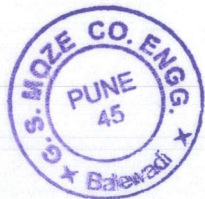
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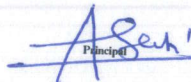
Course Code	Name of Course (2015 Pattern)	Semester - VII														
402041	Hydraulics and Pneumatics	Avg PO attainment.														
402041.1	Understand working principle of components used in hydraulic & pneumatic systems	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
402041.2	Identify various applications of hydraulic & pneumatic systems	0.93	2.8	0	1.87	0	0	0	0	2.8	1.867	0	0.933	0.933	0.933	0.933
402041.3	Selection of appropriate components required for hydraulic and pneumatic systems	0.9	0.9	2	0	1.8	0	0	0	2.8	1.867	0.93	0.933	0.933	0.933	0.933
402041.4	Analyse hydraulic and pneumatic systems for industrial/mobile applications	2.8	0.93	1.87	0	0.93	1.87	0	0	0.93	1.867	0	0.933	0.933	0.933	0.933
402041.5	Design a system according to the requirements	0	1.4	1.4	0	0	1.87	0	0	0.93	1.867	0	0.933	0.933	0.933	0.933
402041.6	Develop and apply knowledge to various applications	1.42	1.16	1.91	0.31	0.76	1.12	0	0.5	1.71	1.24	0.16	1.01	0.47	0.47	0.47
402042	CAD CAM Automation	Avg PO attainment.														
402042.1	Apply homogeneous transformation matrix for geometrical transformations of 2D CAD entities for basic geometric transformations.	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
402042.2	Use analytical and synthetic curves and surfaces in part modeling.	2.12	0.71	0.71	1.41	1.41	1.41	1.41	1.41	0.71	0.71	0.71	0.71	0.71	0.71	0.71
402042.3	Do real times analysis of simple mechanical elements like beams, trusses, etc. and comment on safety of engineering components using analysis software.	3.18	3.18	3.18	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
402042.4	Generate CNC program for Turning / Milling and generate tool path using CAM software.	2.12	2.12	2.12	1.41	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71
402042.5	Demonstrate understanding of various rapid manufacturing techniques and develop competency in designing and developing products using rapid manufacturing technology.	2.12	2.12	1.41	0.71	0.71	0.71	1.41	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71
402042.6	Understand the robot systems and their applications in manufacturing industries.	2.12	2.12	1.41	0.71	0.71	0.71	1.41	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71
402043	Dynamics of Machinery	Avg PO attainment.														
402043.1	Convert with balancing problems of machines.	3.18	2.12	2.12	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
402043.2	Understand mechanisms for system control - Gyroscope.	2.47	2.47	2.74	2.12	1.41	0.94	2.36	0.99	0.82	0.99	0.99	0.82	4.95	2.47	2.47
402043.3	Understand fundamentals of free and forced vibrations.	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
402043.4	To develop competency in understanding of vibration in industry.	2.12	1.41	2.12	1.41	1.41	0	1.41	0	1.41	1.41	1.41	0	1.41	0.71	0.71
402043.5	To develop analytical competency in solving vibration problems.	3.18	2.12	2.12	2.12	2.12	0	1.41	0	2.12	2.12	2.12	0	0	1.06	1.06
402043.6	Understand the various techniques of measurement and control of vibration and noise.	2.12	2.12	2.12	1.41	1.41	0	0.71	0	0.71	0	0.71	0	0	0	0.71
402044	Elective - I (Finite Element Analysis)	Avg PO attainment.														
402044.1	Understand the different techniques used to solve mechanical engineering problems.	2.12	2.12	3.18	1.06	2.12	0	1.06	0	2.12	0	2.12	0	0	0	0
402044.2	Derive and use 1-D and 2-D element stiffness matrices and load vectors from various methods to solve for displacements and stresses.	2.06	2.12	2.92	2	1.77	0	2	0	1.18	0.71	2.12	0	1.41	1.59	2.47
402044.3	Apply mechanics of materials and machine design topics to provide preliminary results used for testing the reasonableness of finite element results.	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
402044.4	Explain the inner workings of a finite element code for linear stress, displacement, temperature and modal analysis.	1.06	3.18	0	2.12	0	0	0	0	3.18	2.12	0	1.06	1.06	0	1.06
402044.5	Use commercial finite element analysis software to solve complex problems in solid mechanics and heat transfer.	1.41	1.41	0.71	0	0	0	0	0	1.41	1.41	0.71	0.71	1.41	0	0.71
402044.6	Interpret the results of finite element analyses and make an assessment of the results in terms of modeling (physics assumptions) errors, discretization (mesh density and refinement toward convergence) errors, and numerical (round-off) errors.	0	0	0	0	0	1.41	0.71	1.41	0.71	0.71	0.71	0.71	0.71	0	0.71
402045	Elective - II	Avg PO attainment.														
402045.1	Understand Product design and Product development processes	2.12	0.71	1.41	0	0.71	1.41	0	0	0.71	0.71	0.71	0.71	0.71	0	0.71
402045.2	Understand Processes, tools and techniques for Market Survey & Product Specification Finalization	0	1.06	1.06	0	2.12	1.06	0	0	1.06	0	0	1.06	1.06	0	1.06
402045.3	Understand Processes, tools and techniques for Concept Inception, Verification and selection	3.12	1.27	1.33	0.71	1.06	0.77	0.24	0.42	1.13	0.85	0.14	0.94	2.83	0	2.47
402045.4	Understand Processes, tools and techniques for Design Verification & Development	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
402045.5	Understand Processes, tools and techniques for Design Verification and Validation	3	0	3	3	3	0	0	0	0	0	0	0	3	2	0.71
402045.6	Understand Processes, tools and techniques for Robust Design and Development	2	3	2	2	3	0	0	0	0	0	0	0	3	2	1.06
		2	0	2	2	2	0	0	0	0	0	0	0	3	2	1.06
		2	3	3	3	2	0	0	0	0	0	0	2	1.33	2	0.71
		2	2	3	3	3	0	0	0	0	0	0	0	0	2	0.71
		3	2	2	2	2	0	0	0	0	0	0	0	3	0	1.06
		2.33	2	3.75	5	3.75	0	0	0	0	0.4	0	0.33	12.33	4	2.47




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		Semester - VIII														
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
402047	Energy Engineering															
402047.1	Describe the power generation scenario, the layout components of thermal power plant and analyze the improved Rankin cycle, Cogeneration cycle	2.0	1.0		1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
402047.2	Analyze the steam condensers, recognize the environmental impacts of thermal power plant and method to control the same	2.0	2.0	0.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
402047.3	Recognize the layout, component details of hydroelectric power plant and nuclear power plant	3.0	2.0	2.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
402047.4	Realize the details of diesel power plant, gas power plant and analyze gas turbine power cycle	2.6	1.7	1.7	0.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
402047.5	Emphasize the fundamentals of non-conventional power plants	2.0	2.0	2.0	1.0	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
402047.6	Describe the different power plant electrical instruments and basic principles of economics of power generation.	2.4	1.7	1.5	1.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
402048	Mechanical System Design															
	Avg PO attainment.															
402050C.1	To help mechanical engineers understand broadly the functioning of manufacturing systems.	3	3	1	0	1	1	1	0	0	0	0	0	1	1	1
402050C.2	To describe the role of facilities and support systems.	2	2	0.67	0	0.67	0.67	0.67	0	0	0	0	0	0.67	0.67	0.67
402050C.3	To enable students understand various types of simulations used in manufacturing environment.	3	3	1	0	1	1	1	0	0	0	0	0	1	1	1
402050C.4	To acquaint with the methodology of manufacturing simulation using computer software and the repercussions of changes & variability therein, over time.	2.83	3.4	1.42	0	1.42	0.94	1.89	0	0	0	0	0	1	1	1
402050C.5	To showcase the areas of simulation applications in manufacturing and allied field.	1.9	2.85	1.9	2.85	0	0	0	0	0	0	0	0	0.63	0	0.63
402049	Elective - III															
	Avg PO attainment.															
402051D.1	To develop an understanding of the nature, functioning and design of organization as social collectivities.	1.27	1.27	0	1.27	0	0	0	0	0	0	0	0	0	0	0
402051D.2	To orient the students to the application of principles of psychology in an industrial and organizational workplace	1.9	2.85	1.9	2.85	0	0	0	0	0	0	0	0	0.63	0	0.63
402051D.3	To demonstrate the understanding of job requirement and related fatigue, boredom and ways to handle it.	1.9	2.85	1.9	2.85	0	0	0	0	0	0	0	0	0.63	0	0.63
402051D.4	To develop the insights into performance management and understanding related improvement strategies.	1.9	2.85	1.9	2.85	0	0	0	0	0	0	0	0	0.63	0	0.63
402051D.5	To have an understanding of human behavior in groups and develop knowledge and skills in leadership, power, communication, negotiation and conflict management.	1.9	2.85	1.9	2.85	0	0	0	0	0	0	0	0	0.63	0	0.63
402051D.6	To develop the acumen to understand the organizational culture, change management and organizational development.	1.9	2.85	1.9	2.85	0	0	0	0	0	0	0	0	0.63	0	0.63
402050	Elective - IV - Product Design and Development															
	Avg PO attainment.															
402050C.1	To understand essential factors for product design	0.95	2.85	1.43	2.27	0	0	0	0	0	0	0	0	0.95	0	0.95
402050C.2	To design product as per customer needs and satisfaction	1.79	2.01	1.43	2.27	0	0	0	0	0	0	0	0	0.95	0	0.95
402050C.3	To understand Processes and concepts during product development	2.1	2.1	0.7	0	0.7	0.7	0.7	0	0	0	0	0	0.53	0.32	0.53
402050C.4	To understand methods and processes of Forward and Reverse engineering	3.15	3.15	1.05	0	1.05	1.05	1.05	0	0	0	0	0	0.7	0.7	0.93
402050C.5	To carry various design processes as DFA, DFMEA, design for safety	2.1	2.1	0.7	0	0.7	0.7	0.7	0	0	0	0	0	0.53	0.32	0.53
402050C.6	To understand the product life cycle and product data management	3.15	3.15	1.05	0	1.05	1.05	1.05	0	0	0	0	0	0.7	0.7	0.93
	Avg PO attainment.	3.15	3.15	1.05	0	1.05	1.05	1.05	0	0	0	0	0	1.05	1.05	0.95
	Avg PO attainment.	3.15	3.15	1.05	0	1.05	1.05	1.05	0	0	0	0	0	1.05	1.05	0.93
	Avg PO attainment.	2.8	2.8	0.93	0	1.4	0.93	1.87	0	0	0	0	0	0.93	2.8	0.53




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Mechanical Engineering Department

AY 2018-19
Semester - III

Course Code	Name of Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
207002	Engineering Mathematics - III															
207002.1	1) Solve higher order linear differential equations and apply to modeling and analyzing mass spring systems.	6.3	4.2	6.3	4.2	4.2	0	4.2	0	4.2	2.1	0	2.1	0	4.2	2.1
207002.2	2) Apply Laplace transform and Fourier transform techniques to solve differential equations involved in Vibration theory, Heat transfer and related engineering applications.	3.15	2.1	2.1	2.1	2.1	0	2.1	0	2.1	1.05	0	1.05	0	2.1	1.05
207002.3	3) Apply statistical methods like correlation, regression analysis in analyzing, interpreting experimental data and probability theory in testing and quality control.	2.1	2.1	2.1	1.4	1.4	0	1.4	0	0.7	0.7	0	0.7	0	1.4	0.7
207002.4	4) Perform vector differentiation and integration, analyze the vector fields and apply to fluid flow problems.	1.4	1.4	1.4	0	0	0	0	0	0.7	0.7	0	0.7	0	1.4	0.7
207002.5	5) Solve various partial differential equations such as wave equation, one and two dimensional heat flow equations.	1.4	1.4	0.7	0	0	0	0	0	0.7	0.7	0	0.7	0	1.4	0.7
202041	Manufacturing Process-I	Avg PO attainment.														
202041.1	• Understand and analyze foundry practices like pattern making, mold making, Core making and Inspection of defects.	2.1	2.1	3.15	1.05	2.1	0	1.05	0	2.1	1.05	0	1.05	0	1.05	1.05
202041.2	• Understand and analyze Hot and Cold Working, Rolling, Forging, Extrusion and Drawing Processes.	2.74	2.65	3.94	2.92	2.45	0	2.92	0	1.63	1.26	0	1.05	0	5.43	1.05
202041.3	• Understand different plastic molding processes, Extrusion of Plastic and Thermoforming	6.3	6.3	0	0	4.2	2.1	0	0	0	0	0	0	2.1	2.1	2.1
202041.4	• Understand different Welding and joining processes and its defects	3.15	3.15	3.15	0	1.05	1.05	0	0	0	0	0	0	2.1	2.1	2.1
202041.5	• Understand, Design and Analyze different sheet metal working processes	2.1	2.1	2.1	0	0.7	0.7	0	0	0	0	0	0	2.1	0	2.1
202041.6	• Understand the constructional details and Working of Centre Lathe	2.1	1.4	0	0	1.4	2.1	0	0	0	0	0	0	2.1	0	2.1
202042	Computer Aided Machine Drawing	Avg PO attainment.														
202042.1	• Understand the importance of CAD in the light of allied technologies such as CAM, CAE, FEA, CFD, PLM.	3.15	2.1	0	0	2.1	2.1	0	0	0	0	0	0	1.05	1.05	1.05
202042.2	• Understand the significance of parametric technology and its application in 2D sketching.	3.15	3.29	1.31	0	2.71	1.58	0	0	0	0	0	0	1.05	1.05	1.05
202042.3	• Understand the significance of parametric feature-based modeling and its application in 3D machine components modeling.	1.73	0.86			0.86	0	0	0	0	0	0	0	1	0	1
202042.4	• Ability to create 3D assemblies that represent static or dynamic Mechanical Systems.	2	2			1	0	0	0	0	0	0	0	1	0	1
202042.5	• Ability to ensure manufacturability and proper assembly of components and assemblies.	2.2	1.46	1.46	0.73	0	0	0	0	0	0	0	0	2	0	2
202042.6	• Ability to communicate between Design and Manufacturing using 2D drawings.	2.6	1.73	1.73	0.86	0	0	0	0	0	0	0	0	2	0	2
202043	Thermodynamics	Avg PO attainment.														
202043.1	• Apply various laws of thermodynamics to various processes and real systems.	1.73	1.73	1.73	0.86	0	0	0	0	0	0	0	0	1	1	1
202043.2	• Apply the concept of Entropy, Calculate heat, work and other important thermodynamic properties for various ideal gas processes.	1.73	1.73	1.73	0.86	0	0	0	0	0	0	0	0	1	1	1
202043.3	• Estimate performance of various Thermodynamic gas power cycles and gas refrigeration cycle and availability in each case.	2.14	1.9	1.66	1.29	0	0	0	0	0	0	0	0	1	1	1
202043.4	• Estimate the condition of steam and performance of vapour power cycle and vapour compression cycle.	2.2	1.46	1.46	0.73	0	0.73	0	0	0	0	0	0	1	0	1
202043.5	• Estimate Stoichiometric air required for combustion, performance of steam generators and natural draught requirements in boiler plants.	2.6	1.73	1.73	0.86	0	3	0	0	0	0	0	0	1	0	1
202043.6	• Use Psychrometric charts and estimate various essential properties related to Psychrometry and processes	2.6	1.73	1.73	0.86	0	0.86	0	0	0	0	0	0	0	1	0
202044	Material Science	Avg PO attainment.														
202044.1	• Understand the basic concepts and properties of Material.	2.14	1.9	1.66	1.29	0	1.22	0	0	0	0	0	0	1	0	1
202044.2	• Understand about material fundamental and processing	1.73	1.73	1.73	0.86	0	0.86	0	0	0	0	0	0	0.83	0.33	0.83
202044.3	• Select proper metal, alloys, nonmetal and powder metallurgical component for specific requirement	1.73	1.73	1.73	0.86	0.86	0.86	1.73	0	0	0.86	0	0.86	0.1	0.1	0.1
202044.4	• Detect the defects in crystal and its effect on crystal properties.	0.86	0.86	0.86	1	0.86	1	1.73	0.1	0	0.86	0	0.86	0.1	0.1	0.1
202044.5	• Evaluate the different properties of material by studying different test	2.2	1.46	1.46	0.73	0.86	0.73	1.73	0.1	0	0.86	0	0.86	0.1	0.1	0.1
202044.6	• Recognize how metals can be strengthened by cold-working and hot working	2.6	1.73	1.73	0.86	0.86	3	1.73	0.1	0	0.86	0	0.86	0.1	0.1	0.1
203156	Strength of Materials	Avg PO attainment.														
203156.1	• Apply knowledge of mathematics, science for engineering applications	1.73	1.73	1.73	0.86	0.86	0.86	1.73	0	0	0.86	0	0	0.1	0.1	0.1
203156.2	• Design and conduct experiments, as well as to analyze and interpret data	1.95	1.85	2.31	1.29	1.29	1.22	3.17	0.06	0	0.86	0	0.57	0.1	0.1	0.1
203156.3	• Design a component to meet desired needs within realistic constraints of health and safety	1.73	1.73	1.73	0.86	0.86	0.86	1.73	0	0	0.86	0	0.86	0.1	0.1	0.1
203156.4	• Identify, formulate, and solve engineering problems	0.86	0.86	0.86	1	0.86	1	1.73	0.1	0	0.86	0	0.86	0.1	0.1	0.1
203156.5	• Practice professional and ethical responsibility	2.2	1.46	1.46	0.73	0.86	0.73	1.73	0.1	0	0.86	0	0.86	0.1	0.1	0.1
203156.6	• Use the techniques, skills, and modern engineering tools necessary for engineering practice	2.6	1.73	1.73	0.86	0.86	3	1.73	0.1	0	0.86	0	0.86	0.1	0.1	0.1
	Avg PO attainment.	1.73	1.73	1.73	0.86	0.86	0.86	1.73	0	0	0.86	0	0	0.1	0.1	0.1
		1.95	1.85	2.31	1.29	1.29	1.22	3.17	0.06	0	0.86	0	0.57	0.1	0.1	0.1




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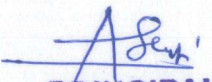
		Semester - IV																
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3		
202045	Fluid Mechanics																	
202049.1	CO1. DETERMINE various properties of fluid	1.73	1.73	1.73	0.86	0	0	0	0	0	0	0	0	0	0	0.1	0	0.1
202049.2	CO2. APPLY the laws of fluid statics and concepts of buoyancy	0.86	0.86	0.86	1	0	0	0	0	1	0	0	0	0	0.1	0	0.1	
202049.3	CO3. IDENTIFY types of fluid flow and terms associated in fluid kinematics	2.2	1.46	1.46	0.73	0	0.73	0	0	0	0	0	1	0.2	0	0.2		
202049.4	CO4. APPLY principles of fluid dynamics to laminar flow	2.6	1.73	1.73	0.86	0	0	0	0	0	0	0	0	0.1	0	0.1		
202049.5	CO5. ESTIMATE friction and minor losses in internal flows and DETERMINE boundary layer formation over an external surface	2.6	1.73	1.73	0.86	0	0	0	0	0	0	0	0	0.1	0	0.1		
202049.6	CO6. CONSTRUCT mathematical correlation considering dimensionless parameters, also ABLE to predict the performance of prototype using model laws	2.6	1.73	1.73	0.86	0	0	0	0	0	0	0	0	0.1	0	0.1		
202048	Theory of Machines - I	Avg PO attainment.																
202048.1	Identify mechanisms in real life applications.	1.67	1.5	1.88	1.08	0	0.12	0	0	0.17	0	0.17	0	0.1	0	0.1		
202048.2	Perform kinematic analysis of simple mechanisms.	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3		
202048.3	Perform static and dynamic force analysis of slider crank mechanism.	1.73	1.73	1.73	0.86	0.86	1.73	0.86	0	0.86	0.1	0	0.1	0	0.1	0		
202048.4	Determine moment of inertia of rigid bodies experimentally.	0.86	0.86	0.86	1	0.86	1	1.73	0.1	0.1	0.86	0.1	0	0	0	0		
202048.5	Analyze velocity and acceleration of mechanisms by vector and graphical methods.	2.2	1.46	1.46	0.73	0.86	0.73	1.73	0.1	0.1	0.86	0.86	0	0	0	0		
202049	Engineering Metallurgy	Avg PO attainment.																
202049.1	describe how metals and alloys formed and how the properties change due to microstructure	2.6	1.73	1.73	0.86	0.86	0.86	1.73	0.1	0.86	0.86	0	1.73	0	0.1	0		
202049.2	apply core concepts in Engineering Metallurgy to solve engineering problems.	1.95	1.85	2.31	1.29	1.29	1.22	2.88	0.25	0.32	0.86	0.18	0.87	0.02	0.02	0.02		
202049.3	conduct experiments, as well as to analyze and interpret data	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3		
202049.4	select materials for design and construction.	4.2	1.4	2.8	2.8	4.2	3	2.8	3	0	0	0	2.8	0	0	0.1		
202049.5	possess the skills and techniques necessary for modern materials engineering practice	1.87	1.87	2.8	0	1.87	0	0	0	0	0	0	0	0	0	0		
202049.6	recognize how metals can be strengthened by alloying, cold-working, and heat treatment	0.9	0.9	2	0	1.8	0	0	0	0	0	0	0	0	0	0		
202050	Applied Thermodynamics	Avg PO attainment.																
202050.1	Classify various types of Engines, Compare Air standard, Fuel Air and Actual cycles and make out various losses in real cycles.	1.4	2.8	2.8	0	0	0	0	0	0	0	0	0	0	0	0		
202050.2	Understand Theory of Carburetion, Modern Carburetor, Stages of Combustion in S. I. Engines and Theory of Detonation, Pre-ignition and factors affecting detonation.	1.4	2.8	2.8	0	0	0	0	0	0	0	0	0	0	0	0		
202050.3	Understand Fuel Supply system, Types of Injectors and Injection Pumps, Stages of Combustion in CI Engines, Theory of Detonation in CI Engines and Comparison of SI and CI Combustion and Knocking and J	1.78	1.78	2.53	0.47	1.61	0.5	0.47	0.5	0	0	0	0.47	0	0	0		
202050.4	Carry out Testing of I. C. Engines and analyze its performance.	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3		
202050.5	Describe construction and working of various I. C. Engine systems (Cooling, Lubrication, Ignition, Governing, and Starting) also various harmful gases emitted from exhaust and different devices to control poi	0.86	0.86	1.73	1.73	0	1	0	0	0	0	0	0	0.2	0	0.2		
202050.6	Describe construction, working of various types of reciprocating and rotary compressors with performance calculations of positive displacement compressors.	2.2	1.46	1.46	1.73	0	0.73	0	0	0	0	0	0	0	0.2	0		
203152	Electrical and Electronics Engineering	Avg PO attainment.																
203152.1	Develop the capability to identify and select suitable DC motor and its speed control method for given industrial application.	2.6	1.73	1.73	1.73	0	0.86	0	0	0	0	0	0	1.73	0	1.73		
203152.2	Develop the capability to identify and select suitable induction motor and its speed control method for given industrial application.	1.73	1.73	1.73	1.73	0	0.86	0	0	0	0	0	0	1.73	0	1.73		
203152.3	Develop the capability to identify and select suitable special purpose motor and its speed control method for given industrial application.	1.95	1.85	2.53	2.6	0	1.22	0	0	0	0	0	0	1.73	0	1.73		
203152.4	Program Arduino IDE using conditional statements	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3		
203152.5	Interfacing sensors with Arduino IDE	1.73	4.2	4.2	0	1.1	0	0	0	0	0	0	0	0	0	0		
203152.6	Data acquisition system for mechanical applications	0.1	2.1	4.2	0	2.1	0	0.1	0	0	0	0	0	0	0	0		
Avg PO attainment.		0.1	1.4	4.2	0	2.1	0	0.1	0	0	0	0	0	0.1	0	0.1		
		0.1	1.4	2.1	0	1.1	0	0	0	0	0	0	0	0	0	0		
		0.1	2.1	2.1	0	1.4	4.2	0	0	0	0	0	0	0	0	0		
				2.1	0	0.1	0	0	2.1	0	0	0	0	0	0	0		
		0.36	2.24	4.73	0	1.73	0.72	0.03	0.42	0	0	0	0	0.1	0	0.1		



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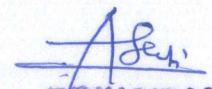
Course Code	Name of Course (2015)	Semester - V																	
302041	Design of Machine Elements-I																		
302041.1	Ability to identify and understand failure modes for mechanical elements and design of machine elements based on strength.	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3			
302041.2	Ability to design Shafts, Keys and Coupling for industrial applications.	2.6	1.73	1.73	1.73	1.73	0	0	0	0	0	0	0	0	0.2	2.6	0.2		
302041.3	Ability to design machine elements subjected to fluctuating loads.	0.86	0.86	1.73	1.84	2.6	0	0	0	0	0	0	0	0	0	2.6	0		
302041.4	Ability to design Power Screws for various applications.	2.2	1.46	1.46	1.73	2.6	0	0	0	0	0	0	0	0	0	1.46	0		
302041.5	Ability to design fasteners and welded joints subjected to different loading conditions.	2.6	1.73	1.73	1.73	1.73	0	0	0	0	0	0	0	0	1.73	2.6	1.73		
302041.6	Ability to design various Springs for strength and stiffness.	1.73	1.73	1.73	1.73	0	0	0	0	0	0	0	0	0.1	1.73	1.73	1.73		
302042	Heat and Mass Transfer	Avg PO attainment.																	
302042.1	IDENTIFY the laws for different modes of heat transfer.	2.1	1.85	2.53	2.62	2.63	0	0	0	0	0	0	0.02	0.9	2.12	0.9			
302042.2	UNDERSTAND the properties and economics of thermal insulation and ANALYZE heat transfer through fins and thermal systems with lumped heat capacitance.	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3			
302042.3	ANALYZE the natural and forced convective mode of heat transfer in various geometric configurations.	2.1	0.67	2.1	0	0	0	0	1.4	0	0	0	0	2.1	3.15	0.1	0.1		
302042.4	UNDERSTAND AND REALIZE various laws with their interrelations and analyze Radiation heat transfer in black and grey bodies/surfaces with or without radiation shields.	2.1	2.1	2.1	0	2.1	0	0	1.73	0.2	0	0	0	2.1	2.1	2.1	2.1		
302042.5	UNDERSTAND the fundamentals and laws of mass transfer and its applications.	1.4	0	1.4	0	0	0	0	1.73	0	0	0	0	0.7	0.7	0	0		
302042.6	ANALYZE various performance parameters for existing heat exchanger and DEVELOP methodologies for designing a heat exchanger under prescribed conditions and for a particular application, with references.	2.1	0	0	0	0	0	0	1.73	0	0	0	0	0.7	0.7	0	0		
302043	Theory of Machines-II	Avg PO attainment.																	
302043.1	DESIGN AND ANALYZE the cotter and knuckle Joints, levers and components subjected to eccentric loading.	1.75	1.39	2.54	0	1.14	0	0	1.14	1.14	2.45	1.33	1.28	6.65	2.1	2.1			
302043.2	DESIGN shafts, keys and couplings under static loading conditions.	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3			
302043.3	ANALYZE different stresses in power screws and APPLY those in the procedure to design screw jack.	3.3	3	0.73	1.47	1.47	0.73	0	0	0	0	0	0	0.73	0.73	0.73	0.73		
302043.4	EVALUATE dimensions of machine components under fluctuating loads.	3.3	3.3	2.2	1.1	0	0	0	0	0	0	0	0	0.73	0.73	0.73	0.73		
302043.5	EVALUATE & INTERPRET the stress developed on the different type of welded and threaded joints.	2.2	1.47	2.2	0.73	1.47	0.73	0	0.73	0.73	1.1	2.2	0	1.1	0	1.1	0		
302043.6	APPLY the design and development procedure for different types of springs.	2.2	3.3	0	1.1	0	1.1	1.1	2.2	1.1	1.1	0	0	1.1	1.1	0	1.1		
302044	Turbo Machines	Avg PO attainment.																	
302044.1	Apply Momentum Principle And Velocity Triangle On a Pelton Turbines For Its Analysis.	2.2	1.1	1.1	1.1	2.2	1.1	1.1	1.1	1.1	0	0	0	1.1	0	0	0		
302044.2	Apply Momentum Principle And Velocity Triangle On a Reaction Turbine For Its Analysis.	2.44	2.73	1.93	2.08	1.47	0.73	0.98	1.1	0.79	0.95	0.15	0.92	1.83	1.65	1.83			
302044.3	Apply Momentum Principle And Velocity Triangle On Steam Turbines For Its Analysis.	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3			
302044.4	Apply Momentum Principle And Velocity Triangle Concept Of Centrifugal Pump For Its Analysis.	2	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0		
302044.5	Apply Thermodynamic Concept Using T S Diagram And Used Of Velocity Triangle On Centrifugal Compressor For Its Analysis.	3	2	2	1	0	0	0	0	0	0	0	0	0	0	0	0		
302044.6	Apply Thermodynamic Concept Using T S Diagram And Used Of Velocity Triangle On axial compress For Its Analysis.	2.6	1.7333	1.733	0.8667	0	0	0	0	0	0	0	0	0	0	0	0		
302045	Metrology and Quality Control	Avg PO attainment.																	
302045.1	1. Understand the methods of measurement, selection of measuring instruments / standards of measurement, carryout data collection and its analysis.	2	2	2	1	0	0	0	0	0	0	0	0	0	0	0	0		
302045.2	2. Explain tolerance, limits of size, fits, geometric and position tolerances and gauge design	2.37	1.74	1.49	0.96	0	0	0	0	0	0	0	0	0	0	0	0		
302045.3	3. Understand and use/apply Quality Control Techniques/ Statistical Tools appropriately.	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3			
302045.4	4. Develop an ability of problem solving and decision making by identifying and analyzing the cause for variation and recommend suitable corrective actions for quality improvement.	2.2	2.2	2.2	0.73	0.73	0	0	0	0	0	1.47	0	1.47	0.73	0.73	0.73		
	Avg PO attainment.	2.2	2.2	2.2	0.73	0.73	0	0	0	0	2.2	0	2.2	0.33	0.82	0.82			
		3.3	3.3	2.2	2.2	1.1	0	0	0	0	1.47	0	1.47	0.73	0.73	0.73			
		2.75	3.04	2.29	2.2	0.92	0	0	0	0	2.2	0	2.2	0.33	0.82	0.82			




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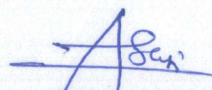
		Semester - VI																	
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3			
302047	Numerical Methods and Optimization*	Avg PO attainment.																	
302047.1	1. Use appropriate Numerical Methods to solve complex mechanical engineering problems.	3	1	2	1	0	1	0	0	0	3	2	2	3	0	0			
302047.2	2. Formulate algorithms and programming.	2	2	2	1	2	2	0	0	0	3	2	2	2	2	2			
302047.3	3. Use Mathematical Solver.	2	2	2		1	1	0	0	0	2	1	1	1	0	0			
302047.4	4. Generate Solutions for real life problem using optimization techniques.	2	1	2	2	1	0	0	0	0	2	1	1	1	0	0			
302047.5	5. Analyze the research problem	1	1	2	2	1	1	0	0	0	2	1	2	0	2	2			
302048	Design of Machine Elements-II	Avg PO attainment.																	
302048.1	CO 1: To understand and apply principles of gear design to spur gears and industrial spur gear boxes.	2	1.33	1.83	1.4	1.25	1.4	0	0	0	2.17	1.4	1.6	1.75	2	2			
302048.2	CO 2: To become proficient in Design of Helical and Bevel Gear	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3			
302048.3	CO 3: To develop capability to analyse Rolling contact bearing and its selection from manufacturer's Catalogue.	3	2	3	0	0	0	0	0	0	0	0	0	0	1	1			
302048.4	CO 4: To learn a skill to design worm gear box for various industrial applications.	2	1	3	0	2	0	0	0	0	0	0	0	0	2	2			
302048.5	CO 5: To inculcate an ability to design belt drives and selection of belt, rope and chain drives.	1	1	3	0	2	0	0	0	0	0	0	0	0	0	0			
302048.6	CO 6: To achieve an expertise in design of Sliding contact bearing in industrial applications.	1	1	3	0	2	0	0	0	0	0	0	0	0	0	0			
302049	Refrigeration and Air Conditioning	Avg PO attainment.																	
302049.1	Illustrate the fundamental principles and applications of refrigeration and air conditioning system	1.5	1.5	2.67	0	2	0	0	0	0	0	0	0	0	0	0			
302049.2	Obtain cooling capacity and coefficient of performance by conducting test on vapour compression refrigeration systems	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3			
302049.3	Present the properties, applications and environmental issues of different refrigerants	2.9	0	0	0	1.29	0	0	0	0	0	0	0	1	1.5	1.5			
302049.4	Calculate cooling load for air conditioning systems used for various	2.9	0	0	0	2.9	0	0	0	0	0	0	0	0	0	0			
302049.5	Operate and analyze the refrigeration and air conditioning systems	1.93	0.64	1.93	1.29	0	0	0	0	0	0	0	0	0	1.93	1.93			
302050	Mechatronics	Avg PO attainment.																	
302050.1	Identification of key elements of mechatronics system and its representation in terms of block diagram	0	0	1.93	0	2.9	1.93	0	0	0	0	0	0	0	0.64	0			
302050.2	Understanding the concept of signal processing and use of interfacing systems such as ADC, DAC, digital I/O	0	1.93	1.29	1.29	1.93	0	0	0	0	0	0	0	0	0.97	0			
302050.3	Interfacing of Sensors, Actuators using appropriate DAQ micro-controller	1.29	0.51	2.01	0.86	2.75	0.32	0	0	0	0	0	0	0	0.64	0			
302050.4	Time and Frequency domain analysis of system model (for control application)	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3			
302050.5	PID control implementation on real time systems	2.9	3	0.64	0	0.64	0.64	0.64	0	0	0	0	0	0	0.64	0.64			
302050.6	Development of PLC ladder programming and implementation of real life system.	2.9	2.9	0.97	0	0.97	0.97	0.97	0	0	0	0	0	0	0.97	0.97			
302051	Manufacturing -Process-IIS	Avg PO attainment.																	
302051.1	1. APPLY fundamentals for the design and/or selection of elements in transmission systems.	1.93	1.93	0.64	0	0.64	0.64	0.64	0	0	0	0	0	0	0.64	0.64			
302051.2	2. UNDERSTAND the philosophy that real engineering design problems are open-ended and challenging.	5.79	5.79	1.93	0	1.93	1.93	1.93	0	0	0	0	0	1.93	1.93	1.93			
302051.3	3. DEMONSTRATE design skills for the problems in real life industrial applications.	2.06	2.69	1.45	0	1.45	0.97	1.93	0	0	0	0	0	2.79	2.9	2.9			
302051.4	4. DEVELOP an attitude of team work, critical thinking, communication, planning and scheduling through design projects.	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3			
302051.5	5. PERCEIVE about safety, ethical, legal, and other societal constraints in execution of their design projects.	2.1	0	0	0	0	2.1	1.05	0	0	0	0	0	0	0	0			
302051.6	6. BUILD a holistic design approach to find out pragmatic solutions to realistic domestic and industrial problems	2.1	0	0	0	0	1.05	0	0	0	0	0	0	0	0	0			
	Avg PO attainment.	1.4	0	0	0	0	1.4	0.7	0.7	0	0	0	0	0.7	0.7	0.7			
		0	1.05	1.05	0	0	2.1	2.1	0	1.05	0	0	0	2.1	2.1	2.1			
		0	0.7	0	0	0.7	1.4	1.4	0	0.7	0	0	0	1.4	0.7	1.4			
		0	1.05	0	0	1.05	0	1.05	0	2.1	1.05	1.05	1.05	2.1	0	2.1			
		0.93	0.56	0.26	0	0.44	1.34	2.1	0.14	0.64	0.21	0.21	0.18	6.3	1.75	6.3			




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Course Code	Name of Course (2015 Pattern)	Semester - VI														
402041	Hydraulics and Pneumatics	Avg PO attainment.														
402041.1	Understand working principle of components used in hydraulic & pneumatic systems	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
402041.2	Identify various applications of hydraulic & pneumatic systems	3	0	4.2	0	0	3	0	3	0	0	0	1.4			
402041.3	Selection of appropriate components required for hydraulic and pneumatic systems	0.93	2.5	0	1.87	0	0	0	0	2.8	1.867	0	0.933	0.933	0.933	0.933
402041.4	Analyse hydraulic and pneumatic systems for industrial/mobile applications	0.9	0.9	2	0	1.8	0	0	0	2.8	1.867	0.93	0.933			
402041.5	Design a system according to the requirements	2.8	0.93	1.87	0	0.93	1.87	0	0	0.93	1.867	0	0.933	0.933	0.933	0.933
402041.6	Develop and apply knowledge to various applications	0	1.4	1.4	0	0	1.87	0	0	0.93		0	0.933			
402042	CAD/CAM Automation	Avg PO attainment.														
402042.1	Apply homogeneous transformation matrix for geometrical transformations of 2D CAD entities for basic geometric transformations.	1.42	1.16	1.91	0.31	0.76	1.12	0	0.5	1.71	1.24	0.16	1.01	0.47	0.47	0.47
402042.2	Use analytical and synthetic curves and surfaces in part modeling.	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
402042.3	Do real time analysis of simple mechanical elements like beams, trusses, etc. and comment on safety of engineering components using analysis software.	2.12	0.71	0.71	1.41	1.41	1.41	1.41	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71
402042.4	Generate CNC program for Turning / Milling and generate tool path using CAM software.	3.18	3.18	3.18	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
402042.5	Demonstrate understanding of various rapid manufacturing techniques and develop competency in designing and developing products using rapid manufacturing technology.	2.12	2.12	2.12	1.41	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71
402042.6	Understand the robot systems and their applications in manufacturing industries.	2.12	2.12	1.41	0.71	0.71	0.71	1.41	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71
402043	Dynamics of Machinery	Avg PO attainment.														
402043.1	To conversant with balancing problems of machines.	3.18	2.12	2.12	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
402043.2	To understand mechanisms for system control – Gyroscope.	2.47	2.47	2.74	2.12	1.41	0.94	2.36	0.99	0.82	0.99	0.99	0.82	4.95	2.47	2.47
402043.3	To understand fundamentals of free and forced vibrations.	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
402043.4	To develop competency in understanding of vibration in industry.	2.12	1.41	2.12	1.41	1.41	0	1.41	0	1.41	1.41	1.41	0	1.41	0.71	0.71
402043.5	To develop analytical competency in solving vibration problems.	3.18	2.12	2.12	2.12	2.12	0	2.12	0	2.12	2.12	2.12	0	0	1.06	1.06
402043.6	To understand the various techniques of measurement and control of vibration and noise.	2.12	2.12	2.12	1.41	1.41	0	1.41	0	1.41	0	1.41	0	0	0	0.71
402044	Elective – I (Finite Element Analysis)	Avg PO attainment.														
402044.1	Understand the different techniques used to solve mechanical engineering problems.	1.41	1.41	0.71	0	0	0	0	0	0	0	0	0	0	1.41	0.71
402044.2	Derive and use 1-D and 2-D element stiffness matrices and load vectors from various methods to solve for displacements and stresses.	2.12	2.12	3.18	1.06	2.12	0	1.06	0	0	0	0	0	0	0	0.71
402044.3	Apply mechanics of materials and machine design topics to provide preliminary results used for testing the reasonableness of finite element results.	2.06	2.12	2.92	2	1.77	0	2	0	2.12	0	2.12	0	0	0	1.06
402044.4	Explain the inner workings of a finite element code for linear stress, displacement, temperature and modal analysis.	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
402044.5	Use commercial finite element analysis software to solve complex problems in solid mechanics and heat transfer.	2.12	0	2.12	0	0	0.71	0	0	0	0	0	0	0.71	0	0.71
402044.6	Interpret the results of finite element analyses and make an assessment of the results in terms of modeling (physics assumptions) errors, discretization (mesh density and refinement toward convergence) errors	1.41	1.41	0.71	0	1.41	0	0	0.71	1.41	0.71	0.71	0.71	1.41	0	0.71
402045	Elective – II	Avg PO attainment.														
402045A.1	Understand Product design and Product development processes	2.12	0.71	1.41	0	0.71	1.41	0	0	0.71	0.71	0	0.71	0	0	0.71
402045A.2	Understand Processes, tools and techniques for Market Survey & Product Specification Finalization	0	1.06	1.06	0	2.12	1.06	0	0	1.06	0	0	0	0	0	0.71
402045A.3	Understand Processes, tools and techniques for Concept Inception, Verification and selection	1.12	1.27	1.33	0.71	1.06	0.77	0.24	0.42	1.18	0.85	0.14	0.94	2.83	0	1.06
402045A.4	Understand Processes, tools and techniques for Concept Exploration & Development	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
402045A.5	Understand Processes, tools and techniques for Design Verification and Validation	3	0	3	3	3	0	0	0	0	0	0	0	0	3	2
402045A.6	Understand Processes, tools and techniques for Robust Design and Development	2	3	2	2	3	0	0	0	0	0	0	0	0	3	2
		2	0	2	2	2	0	0	0	0	0	0	0	0	3	2
		2	3	3	3	2	0	0	0	0	0	0	2	1.33	2	0.71
		2	2	3	3	3	0	0	0	0	0	0	0	0	2	0
		3	2	2	2	2	0	0	0	0	0	0	0	0	2	0.71
		2.33	2	3.75	5	3.75	0	0	0	0	0.4	0	0.33	12.33	4	2.47




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		Semester - VIII														
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
402047	Energy Engineering															
402047.1	Describe the power generation scenario, the layout components of thermal power plant and analyze the improved Rankin cycle, Cogeneration cycle	2.0	1.0		1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
402047.2	Analyze the steam condensers, recognize the an environmental impacts of thermal power plant and method to control the same	3.0	2.0	0.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
402047.3	Recognize the layout, component details of hydroelectric power plant and nuclear power plant	2.0	2.0	2.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
402047.4	Realize the details of diesel power plant, gas power plant and analyze gas turbine power cycle	2.6	1.7	1.7	0.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
402047.5	Emphasize the fundamentals of non-conventional power plants	2.6	1.7	1.7	0.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
402047.6	Describe the different power plant electrical instruments and basic principles of economics of power generation.	2.0	2.0	2.0	1.0	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
402048	Mechanical System Design															
	Avg PO attainment.	2.4	1.7	1.5	1.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
402050C.1	To help mechanical engineers understand broadly the functioning of manufacturing systems.	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
402050C.2	To describe the role of facilities and support systems.	3	3	1	0	1	1	1	0	0	0	0	0	1	1	1
402050C.3	To enable students understand various types of simulations used in manufacturing environment.	3	3	1	0	1	1	1	0	0	0	0	0	1	1	1
402050C.4	To acquaint with the methodology of manufacturing simulation using computer software and the repercussions of changes & variability therein, over time.	2	2	0.67	0	0.67	0.67	0.67	0	0	0	0	0	1	1	1
402050C.5	To showcase the areas of simulation applications in manufacturing and allied field.	3	3	1	0	1	1	1	0	0	0	0	0	0.67	0.67	0.67
402049	Elective - III															
	Avg PO attainment.	3	3	1	0	1	1	1	0	0	0	0	0	1	1	1
402051D.1	To develop an understanding of the nature, functioning and design of organization as social collectivities.	2.83	3.4	1.42	0	1.42	0.94	1.89	0	0	0	0	0	5.67	2.83	5.67
402051D.2	To orient the students to the application of principles of psychology in an industrial and organizational workplace	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
402051D.3	To demonstrate the understanding of job requirement and related fatigue, boredom and ways to handle it.	1.27	1.27	0	1.27	0	0	0	0	0	0	0	0	0	0	0.63
402051D.4	To develop the insights into performance management and understanding related improvement strategies.	1.9	2.85	1.9	2.85	0	0	0	0	0	0	0	0	0	0	0
402051D.5	To have an understanding of human behavior in groups and develop knowledge and skills in leadership, power, communication, negotiation and conflict management.	1.9	1.27	1.9	1.9	0	0	0	0	0	0	0	0	0	0	0
402051D.6	To develop the acumen to understand the organizational culture, change management and organizational development.	2.85	1.9	2.85	2.85	0	0	0	0	0	0	0	0	0	0.63	0
402050	Elective - IV - Product Design and Development															
	Avg PO attainment.	1.9	1.9	1.9	1.9	0	0	0	0	0	0	0	0	0.95	0	0.95
402050C.1	To understand essential factors for product design	0.95	2.85	0	2.85	0	0	0	0	0	0	0	0	0.63	0	0.63
402050C.2	To design product as per customer needs and satisfaction	1.79	2.01	1.43	2.27	0	0	0	0	0	0	0	0	0.95	0	0.95
402050C.3	To understand Processes and concepts during product development	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
402050C.4	To understand methods and processes of Forward and Reverse engineering	2.1	2.1	0.7	0	0.7	0.7	0.7	0	0	0	0	0	0.53	0.32	0.53
402050C.5	To carry various design processes as DFA, DFMEA, design for safety	3.15	3.15	1.05	0	1.05	1.05	1.05	0	0	0	0	0	0.7	0.7	0.63
402050C.6	To understand the product life cycle and product data management	2.1	2.1	0.7	0	0.7	0.7	0.7	0	0	0	0	0	1.05	1.05	0
	Avg PO attainment.	3.15	3.15	1.05	0	1.05	1.05	1.05	0	0	0	0	0	0.7	0.7	0
		3.15	3.15	1.05	0	1.05	1.05	1.05	0	0	0	0	0	1.05	1.05	0.63
		2.8	2.8	0.93	0	1.4	0.93	1.87	0	0	0	0	0	0.93	2.8	0.53



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2.6.2. CO-PO Attainment Matrix (BE E&TC) AY 18-19 to 20-21

Course Code	Name of Course (BE (2015 Pattern) AY 18-19)	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PS01	PS02	PS03
404181	VLSI Design Technology															
404181.1	Write effective HDL coding for digital design	3.12	3.12	3.12	3.12	0	2.08	0	0	0	0	0	0	1.04	0	0
404181.2	Apply knowledge of real time issues in digital design	3.12	2.08	3.12	2.08	3.12	0	0	0	0	0	0	0	0	2.08	0
404181.3	Model digital circuit with HDL, simulate, synthesis and prototype in PLDs	3.12	3.12	3.12	3.12	3.12	0	0	0	0	0	2.08	0	1.04	0	2.08
404181.4	Design CMOS circuits for specified applications.	3.12	3.12	3.12	3.12	2.08	0	0	0	0	0	0	0	0	1.04	1.04
404181.5	Analyze various issues and constraints in design of an ASIC	3.12	3.12	3.12	3.12	0	0	0	0	0	0	0	0	0	0	0
404181.6	Apply knowledge of testability in design and build self test circuit	2.08	3.12	3.12	2.08	3.12	0	0	0	0	0	3.12	0	2.08	0	1.04
404182	Computer Networks & Security															
404182.1	Understand fundamental underlying principles of computer networking	3.6	3.6	3.6	3.6	3.6	0	0	0	0	0	0	3.6	0	0	0
404182.2	Describe and analyze the hardware, software, components of a network and their interrelations.	2.4	2.4	2.4	2.4	0	0	0	2.4	2.4	0	0	2.4	2.4	0	1.2
404182.3	Analyze the requirements for a given organizational structure and select the most appropriate networking architecture and technologies	3.6	3.6	3.6	0	0	3.6	3.6	3.6	0	0	0	3.6	0	2.4	0
404182.4	Have a basic knowledge of installing and configuring networking applications.	3.6	3.6	3.6	0	0	0	0	3.6	0	0	0	3.6	0	0	1.2
404182.5	Specify and identify deficiencies in existing protocols, and then go onto select new and better protocols	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	0	0	0	0	0	3.6	0
404182.6	Have a basic knowledge of the use of cryptography and network security.	2.4	2.4	2.4	2.4			0	0	0	0	0	2.4	0	0	0
404183	Radiation & Microwave Techniques															
404183.1	Differentiate various performance parameters of radiating elements	3.336461538	3.336461538	3.336461538	3.336461538	3.336461538	0		0	0	0	0	3.336461538	1.112153846	2.22841026	2.22841026
404183.2	Analyze various radiating elements and arrays.	3.336461538	2.22841026	2.22841026	2.22841026	0	1.112153846	0	2.22841026	2.22841026	0	0	2.22841026	0	0	0
404183.3	Apply the knowledge of waveguide fundamentals in design of transmission lines.	3.336461538	3.336461538	3.336461538	0	0	3.336461538	3.336461538	3.336461538	0	0	0	3.336461538	0	2.22841026	1.112153846



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404183.4	Design and set up a system consisting of various passive microwave components.	3.338461538	3.338461538	3.338461538	0	2.225641026	0	0	3.338461538	0	0	0	3.338461538	0	0	0
404183.5	Analyze tube based and solid state active devices along with their applications.	3.338461538	3.338461538	3.338461538	3.338461538	3.338461538	3.338461538	3.338461538	3.338461538	2.225641026	0	0	0	0	1.112820513	0
404183.6	Measure various performance parameters of microwave components.	2.225641026	2.225641026	2.225641026	2.225641026	0	2.225641026	0	0	0	0	0	2.225641026	0	0	3.338461538
404184	Elective I (Digital Image and Video Processing)															
404184.1	Develop and implement basic mathematical operations on digital images.	3.909090909	2.608080808	2.608080808	2.608080808	1.303030303	1.303030303	0	1.303030303	0	0	0	2.608080808	2.608080808	0	0
404184.2	Analyze and solve image enhancement and image restoration problems.	2.608080808	2.608080808	3.909090909	1.303030303	0	1.303030303	0	0	0	0	2.608080808	0	1.303030303	0	2.608080808
404184.3	Identify and design image processing techniques for object segmentation and recognition	3.909090909	2.608080808	1.303030303	1.303030303	2.608080808	3.909090909	0	2.608080808	0	0	1.303030303	3.909090909	0	0	2.608080808
404184.4	Represent objects and region of the image with appropriate method.	2.608080808	2.608080808	3.909090909	1.303030303	0	0	0	0	0	0	2.608080808	0	1.303030303	0	2.608080808
404184.5	Apply 2-D data compression techniques for digital images	3.909090909	2.608080808	1.303030303	1.303030303	2.608080808	3.909090909	0	2.608080808	0	0	1.303030303	3.909090909	0	0	2.608080808
404184.6	Explore video signal representation and different algorithm for video processing.	3.909090909	2.608080808	2.608080808	2.608080808	1.303030303	1.303030303	0	1.303030303	0	0	1.303030303	2.608080808	2.608080808	0	1.303030303
404185	Elective II (Electronics Product Design)															
404185.1	Understand various stages of hardware, software and PCB design.	3.338461538	3.338461538	3.338461538	3.338461538	3.338461538	0	0	0	0	0	0	3.338461538	1.112820513	2.225641026	2.225641026
404185.2	Importance of product test & test specifications	3.338461538	2.225641026	2.225641026	2.225641026	0	1.112820513	0	2.225641026	2.225641026	0	0	2.225641026	0	0	0
404185.3	Special design considerations and importance of documentation.	3.338461538	3.338461538	3.338461538	0	0	3.338461538	3.338461538	3.338461538	0	0	0	3.338461538	0	2.225641026	1.112820513
404185.4	Learn the different consideration of analog, digital and mixed circuit design.	3.338461538	3.338461538	3.338461538	0	2.225641026	0	0	3.338461538	0	0	0	3.338461538	0	0	0
404185.5	Understand the processes and importance of documentations	3.338461538	3.338461538	3.338461538	3.338461538	3.338461538	3.338461538	3.338461538	3.338461538	2.225641026	0	0	0	0	1.112820513	0
404185.6	Learn PCB design and learn different tools in PCB design.	2.225641026	2.225641026	2.225641026	2.225641026	0	2.225641026	0	0	0	0	0	2.225641026	0	0	3.338461538
404189	Mobile Communication															
404189.1	Explain and apply the concepts telecommunication switching, trunk and networks	3.909090909	2.608080808	2.608080808	2.608080808	1.303030303	1.303030303	0	1.303030303	0	0	0	2.608080808	2.608080808	0	0
404189.2	Analyze the telecommunication traffic.	2.608080808	2.608080808	3.909090909	1.303030303	0	1.303030303	0	0	0	0	2.608080808	0	1.303030303	0	2.608080808

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404189.3	Analyze radio channel and cellular capacity	3.80808080	2.80808080	1.30303030	1.30303030	2.80808080	3.80808080	0	2.80808080	0	0	1.30303030	3.80808080	0	0	2.80808080
404189.4	Comparative study of different generation of Mobile system like 1G,2G,3G	2.80808080	2.80808080	3.80808080	1.30303030	0	0	0	0	0	0	2.80808080	0	1.30303030	0	2.80808080
404189.5	Explain and apply concepts of GSM	3.80808080	2.80808080	1.30303030	1.30303030	2.80808080	3.80808080	0	2.80808080	0	0	1.30303030	3.80808080	0	0	2.80808080
404189.6	Explain and apply concepts of CDMA system.	3.80808080	2.80808080	2.80808080	2.80808080	1.30303030	1.30303030	0	1.30303030	0	0	1.30303030	2.80808080	2.80808080	0	1.30303030
404190	Broadband Communication Systems															
404190.1	Understand the basic elements of optical fiber transmission link, fiber modes configurations, different kind of losses, optical sources and detectors	3.90909091	2.60606061	2.60606061	2.60606061	1.30303030	1.30303030	0	1.30303030	0	0	0	2.60606061	2.60606061	0	0
404190.2	Carry out Link power budget and Rise Time Budget	2.60606061	3.90909091	1.30303030	2.60606061	1.30303030	2.60606061	0	0	2.60606061	0	1.30303030	1.30303030	1.30303030	0	0
404190.3	Learn the fiber optical network components and optical amplifiers.	2.60606061	3.90909091	1.30303030	2.60606061	2.60606061	0	0	0	2.60606061	0	2.60606061	0	0	0	3.90909091
404190.4	Understand the basic principle & terminologies of Satellite communication systems	2.60606061	1.30303030	1.30303030	0	1.30303030	0	0	0	3.90909091	0	2.60606061	1.30303030	0	1.30303030	0
404190.5	Explain the principles, concepts and operation of satellite communication systems	1.30303030	2.60606061	2.60606061	2.60606061	1.30303030	1.30303030	0	1.30303030	0	0	1.30303030	2.60606061	2.60606061	0	1.30303030
404190.6	Analyze the design requirements and the performance of satellite communication systems	2.60606061	2.60606061	3.90909091	1.30303030	0	1.30303030	0	0	0	0	2.60606061	0	1.30303030	0	2.60606061
404191	Elective III (Audio Video Engineering)															
404191.1	To study the analysis and synthesis of TV Pictures, Composite Video Signal, Receiver, Picture Tubes and Television Camera Tubes.	3.87272727	2.58181818	2.58181818	1.28080808	2.58181818	2.58181818	0	0	1.28080808	0	0	2.58181818	0	3.87272727	3.87272727
404191.2	To study the various Colour Television systems .	2.58181818	3.87272727	1.28080808	2.58181818	1.28080808	2.58181818	0	0	2.58181818	0	1.28080808	1.28080808	1.28080808	0	0
404191.3	Greater emphasis on television standards.	2.58181818	3.87272727	1.28080808	2.58181818	2.58181818	0	0	0	2.58181818	0	2.58181818	0	0	0	3.87272727
404191.4	To study the advanced topics in Digital Television and High Definition Television.	2.58181818	1.28080808	1.28080808	1.28080808	1.28080808	0	0	0	3.87272727	0	2.58181818	1.28080808	0	1.28080808	0
404191.5	To study audio recording systems such CD/DVD recording, Audio Standards,	2.58181818	3.87272727	1.28080808	1.28080808	1.28080808	2.58181818	0	0	2.58181818	0	1.28080808	1.28080808	1.28080808	0	0
404191.6	To Study Acoustics principles. Application	2.58181818	3.87272727	1.28080808	2.58181818	2.58181818	0	0	0	2.58181818	0	2.58181818	0	0	0	3.87272727
404192	Elective IV (Wireless Sensor Networks)															
404192.1	Explain various concepts and terminologies used in WSN	3.12	2.08	2.08	2.08	1.04	1.04	0	1.04	0	0	0	2.08	2.08	0	0



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404182.6	Have a basic knowledge of the use of cryptography and network security.	2.225841026	2.225841026	2.225841026	2.225841026	0	2.225841026	0	0	0	0	0	2.225841026	0	0	3.338481938	
404183	Radiation & Microwave Techniques																
404183.1	Differentiate various performance parameters of radiating elements.	3.6	3.6	3.6	3.6	3.6	0	0	0	0	0	0	3.6	0	0	0	
404183.2	Analyze various radiating elements and arrays.	2.4	2.4	2.4	2.4	0	0	0	2.4	2.4	0	0	2.4	2.4	0	1.2	
404183.3	Apply the knowledge of waveguide fundamentals in design of transmission lines.	3.6	3.6	3.6	0	0	3.6	3.6	3.6	0	0	0	3.6	0	2.4	0	
404183.4	Design and set up a system consisting of various passive microwave components.	3.6	3.6	3.6	0	0	0	0	3.6	0	0	0	3.6	0	0	1.2	
404183.5	Analyze tube based and solid state active devices along with their applications.	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	0	0	0	0	0	3.6	0	
404183.6	Measure various performance parameters of microwave components.	2.4	2.4	2.4	2.4	0	2.4	0	0	0	0	0	2.4	0	0	0	
404184	Elective I (Digital Image and Video Processing)																
404184.1	Develop and implement basic mathematical operations on digital images.	3.12	2.08	2.08	1.04	2.08	2.08	0	0	1.04	0	0	2.08	0	3.12	3.12	
404184.2	Analyze and solve image enhancement and image restoration problems.	2.08	3.12	1.04	2.08	1.04	2.08	0	0	2.08	0	1.04	1.04	1.04	0	0	
404184.3	Identify and design image processing techniques for object segmentation and recognition	2.08	3.12	1.04	2.08	2.08	0	0	0	2.08	0	2.08	0	0	0	3.12	
404184.4	Represent objects and region of the image with appropriate method.	2.08	1.04	1.04	0	1.04	0	0	0	3.12	0	2.08	1.04	0	1.04	0	
404184.5	Apply 2-D data compression techniques for digital images	3.12	2.08	2.08	2.08	2.08	2.08	0	0	1.04	0	2.08	2.08	0	3.12	0	
404184.6	Explain video signal representation and different algorithm for video processing.	2.08	3.12	1.04	2.08	1.04	2.08	0	0	2.08	0	1.04	1.04	1.04	0	0	
404185	Elective II (Electronics Product Design)																
404185.1	Understand various stages of hardware, software and PCB design.	3.388230789	0	2.248193848	1.123078823	1.123078823	1.123078823	1.123078823	1.123078823	1.123078823	1.123078823	1.123078823	0	1.123078823	1.123078823	1.123078823	1.123078823
404185.2	Importance of product test & test specifications	3.388230789	0	3.388230789	1.123078823	1.123078823	1.123078823	1.123078823	1.123078823	1.123078823	1.123078823	1.123078823	1.123078823	1.123078823	1.123078823	1.123078823	1.123078823
404185.3	Special design considerations and importance of documentation.	3.388230789	0	3.388230789	1.123078823	1.123078823	1.123078823	1.123078823	1.123078823	1.123078823	1.123078823	1.123078823	1.123078823	1.123078823	1.123078823	1.123078823	1.123078823
404185.4	Learn the different consideration of analog, digital and mixed circuit design.	3.388230789	0	1.123078823	1.123078823	1.123078823	0	0	1.123078823	1.123078823	1.123078823	1.123078823	1.123078823	1.123078823	1.123078823	1.123078823	1.123078823



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404185.5	Understand the processes and importance of documentations	3.369230769	0	2.246153846	2.246153846	1.123076923	1.123076923	1.123076923	1.123076923	1.123076923	1.123076923	1.123076923	1.123076923	1.123076923	1.123076923	1.123076923
404185.6	Learn PCB design and learn different tools in PCB design.	3.369230769	0	1.123076923	1.123076923	1.123076923	1.123076923	1.123076923	1.123076923	1.123076923	1.123076923	1.123076923	1.123076923	1.123076923	1.123076923	0
404189	Mobile Communication															
404189.1	Explain and apply the concepts telecommunication switching, trunk and networks	3.369230769	2.246153846	2.246153846	2.246153846	1.123076923	1.123076923	0	1.123076923	0	0	0	2.246153846	2.246153846	0	0
404189.2	Analyze the telecommunication traffic.	2.246153846	2.246153846	3.369230769	1.123076923	0	1.123076923	0	0	0	0	2.246153846	0	1.123076923	0	2.246153846
404189.3	Analyze radio channel and cellular capacity.	3.369230769	2.246153846	1.123076923	1.123076923	2.246153846	3.369230769	0	2.246153846	0	0	1.123076923	3.369230769	0	0	2.246153846
404189.4	Comparative study of different generation of Mobile system like 1G,2G,3G	2.246153846	2.246153846	3.369230769	1.123076923	0	0	0	0	0	0	2.246153846	0	1.123076923	0	2.246153846
404189.5	Explain and apply concepts of GSM.	3.369230769	2.246153846	1.123076923	1.123076923	2.246153846	3.369230769	0	2.246153846	0	0	1.123076923	3.369230769	0	0	2.246153846
404189.6	Explain and apply concepts of CDMA system.	3.369230769	2.246153846	2.246153846	2.246153846	1.123076923	1.123076923	0	1.123076923	0	0	1.123076923	2.246153846	2.246153846	0	1.123076923
404190	Broadband Communication Systems															
404190.1	Understand the basic elements of optical fiber transmission link, fiber modes configurations, different kind of losses, optical sources and detectors	3.945454545	2.63030303	2.63030303	2.63030303	1.315151515	1.315151515	0	1.315151515	0	0	0	2.63030303	2.63030303	0	0
404190.2	Carry out Link power budget and Rise Time Budget	2.63030303	3.945454545	1.315151515	2.63030303	1.315151515	2.63030303	0	0	2.63030303	0	1.315151515	1.315151515	1.315151515	0	0
404190.3	Learn the fiber optical network components and optical amplifiers.	2.63030303	3.945454545	1.315151515	2.63030303	2.63030303	0	0	0	2.63030303	0	2.63030303	0	0	0	3.945454545
404190.4	Understand the basic principle & terminologies of Satellite communication systems	2.63030303	1.315151515	1.315151515	0	1.315151515	0	0	0	3.945454545	0	2.63030303	1.315151515	0	1.315151515	0
404190.5	Explain the principles, concepts and operation of satellite communication systems	1.315151515	2.63030303	2.63030303	2.63030303	1.315151515	1.315151515	0	1.315151515	0	0	1.315151515	2.63030303	2.63030303	0	1.315151515
404190.6	Analyze the design requirements and the performance of satellite communication systems	2.63030303	2.63030303	3.945454545	1.315151515	0	1.315151515	0	0	0	0	2.63030303	0	1.315151515	0	2.63030303
404191	Elective III (Audio Video Engineering)															
404191.1	To study the analysis and synthesis of TV Pictures, Composite Video Signal, Receiver, Picture Tubes and Television Camera Tubes	3.908080808	2.608080808	2.608080808	1.303030303	2.608080808	2.608080808	0	0	1.303030303	0	0	2.608080808	0	3.908080808	3.908080808
404191.2	To study the various Colour Television systems.	2.608080808	3.908080808	1.303030303	2.608080808	1.303030303	2.608080808	0	0	2.608080808	0	1.303030303	1.303030303	1.303030303	0	0
404191.3	Greater emphasis on television standards.	2.608080808	3.908080808	1.303030303	2.608080808	2.608080808	2.608080808	0	0	0	0	2.608080808	0	2.608080808	0	3.908080808



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404191.4	To study the advanced topics in Digital Television and High Definition Television.	2.60000000	1.30000000	1.30000000	0	1.30000000	0	0	0	3.90000000	0	2.60000000	1.30000000	0	1.30000000	0
404191.5	To study audio recording systems such as DVD recording, Audio Standards,	2.60000000	3.90000000	1.30000000	1.30000000	1.30000000	2.60000000	0	0	2.60000000	0	1.30000000	1.30000000	1.30000000	0	0
404191.6	To Study Acoustics principles, Applications	2.60000000	3.90000000	1.30000000	2.60000000	2.60000000	0	0	0	2.60000000	0	2.60000000	0	0	0	3.90000000
404192	Elective IV (Wireless Sensor Networks)															
404192.1	Explain various concepts and terminologies used in WSN	3.38220769	2.24615384	2.24615384	2.24615384	1.12307692	1.12307692	0	1.12307692	0	0	0	2.24615384	2.24615384	0	0
404192.2	Describe importance and use of radio communication and link management in WSN	2.24615384	2.24615384	3.38220769	1.12307692	0	1.12307692	0	0	0	0	2.24615384	0	1.12307692	0	2.24615384
404192.3	Explain various wireless standards and protocols associated with WSN	3.38220769	2.24615384	1.12307692	1.12307692	2.24615384	3.38220769	0	2.24615384	0	0	1.12307692	3.38220769	0	0	2.24615384
404192.4	Recognize importance of localization and routing techniques used in WSN	1.12307692	2.24615384	2.24615384	2.24615384	1.12307692	0	0	1.12307692	0	0	1.12307692	2.24615384	2.24615384	0	1.12307692
404192.5	Understand techniques of data aggregation and importance of security in WSN	2.24615384	2.24615384	3.38220769	3.38220769	0	1.12307692	0	0	0	0	2.24615384	0	1.12307692	0	2.24615384
404192.6	Examine the issues involved in design and deployment of WSN	3.38220769	2.24615384	1.12307692	1.12307692	2.24615384	3.38220769	0	2.24615384	0	0	1.12307692	3.38220769	0	0	2.24615384
Course Code	Name of Course BE (2015 Pattern) AY 20-21	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PS01	PS02	PS03
404181	VLSI Design & Technology															
404181.1	Write effective HDL coding for digital design	3	3	3	3	3	0	0	0	0	0	0	3	0	0	0
404181.2	Apply knowledge of real time issues in digital design	2	2	2	2	0	0	0	2	2	0	0	2	2	0	1
404181.3	Model digital circuit with HDL, simulate, synthesis and prototype in PLDs	3	3	3	0	0	3	3	3	0	0	0	3	0	2	0
404181.4	Design CMOS circuits for specified applications.	3	3	3	0	0	0	0	3	0	0	0	3	0	0	1
404181.5	Analyze various issues and constraints in design of an ASIC	3	3	3				3	3	0	0	0	0	0	3	0
404181.6	Apply knowledge of testability in design and build self test circuit	2	2	2			2	0	0	0	0	0	2	0	0	0



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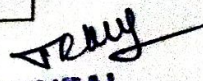
404182	Computer Networks & Security																
404182.1	Understand fundamental underlying principles of computer networking	3	3	3	3	3	0	0	0	0	0	0	3	1	2	2	
404182.2	Describe and analyze the hardware, software, components of a network and their interrelations.	3	2	2	2	0	1	0	2	2	0	0	2	0	0	0	
404182.3	Analyze the requirements for a given organizational structure and select the most appropriate networking architecture and technologies	3	3	3	0	0	3	3	3	0	0	0	3	0	2	1	
404182.4	Have a basic knowledge of installing and configuring networking applications.	3	3	3	0	2	0	0	3	0	0	0	3	0	0	0	
404182.5	Specify and identify deficiencies in existing protocols, and then go onto select new and better protocols	3	3	3	3	3	3	3	3	2	0	0	0	0	1	0	
404182.6	Have a basic knowledge of the use of cryptography and network security.	2	2	2	2	0	2	0	0	0	0	0	2	0	0	3	
404183	Radiation & Microwave Techniques																
404183.1	Differentiate various performance parameters of radiating elements.	3	3	3	3	3	0	0	0	0	0	0	3	0	0	0	
404183.2	Analyze various radiating elements and arrays.	2	2	2	2	0	0	0	2	2	0	0	2	2	0	1	
404183.3	Apply the knowledge of waveguide fundamentals in design of transmission lines.	3	3	3	0	0	3	3	3	0	0	0	3	0	2	0	
404183.4	Design and set up a system consisting of various passive microwave components.	3	3	3	0	0	0	0	3	0	0	0	3	0	0	1	
404183.5	Analyze tube based and solid state active devices along with their applications.	3	3	3	3	3	3	3	3	0	0	0	0	0	2	0	
404183.6	Measure various performance parameters of microwave components.	2	2	2	2	0	2	0	0	0	0	0	2	0	0	0	
404184	Elective I (Digital Image and Video Processing)																
404184.1	Develop and implement basic mathematical operations on digital images.	3	2	2	1	2	2	0	0	1	0	0	2	0	3	3	
404184.2	Analyze and solve image enhancement and image restoration problems.	2	3	1	2	1	2	0	0	2	0	1	1	1	0	0	
404184.3	Identify and design image processing techniques for object segmentation and recognition	2	3	1	2	0	0	0	2	0	2	0	0	0	0	3	
404184.4	Represent objects and region of the image with appropriate method.	2	1	1	0	0	0	0	3	0	2	1	0	1	0	0	
404184.5	Apply 2-D data compression techniques for digital images	3	2	2	0	2	0	1	0	2	2	0	3	0	0	0	
404184.6	Explore video signal representation and different algorithm for video processing.	2	3	1	2	0	0	2	0	1	1	1	0	0	0	0	



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404185	Elective II (Electronics Product Design)																	
404185.1	Understand various stages of hardware, software and PCB design.	3	0	2	1	1	1	1	1	1	1	1	0	1	1	1	1	1
404185.2	Importance of product test & test specifications	3	0	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1
404185.3	Special design considerations and importance of documentation.	3	0	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1
404185.4	Learn the different consideration of analog, digital and mixed circuit design.	3	0	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1
404185.5	Understand the processes and importance of documentations	3	0	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1
404185.6	Learn PCB design and learn different tools in PCB design.	3	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
404189	Mobile Communication																	
404189.1	Explain and apply the concepts telecommunication switching, traffic and networks	3	2	2	2	1	1	0	1	0	0	0	0	2	2	0	0	0
404189.2	Analyze the telecommunication traffic.	2	2	3	1	0	1	0	0	0	0	2	0	0	1	0	0	2
404189.3	Analyze radio channel and cellular capacity.	3	2	1	1	2	3	0	2	0	0	1	3	0	0	0	0	2
404189.4	Comparative study of different generation of Mobile system like 1G,2G,3G	2	2	3	1	0	0	0	0	0	0	2	0	1	0	0	0	2
404189.5	Explain and apply concepts of GSM.	3	2	1	1	2	3	0	2	0	0	1	3	0	0	0	0	2
404189.6	Explain and apply concepts of CDMA system.	3	2	2	2	1	1	0	1	0	0	1	2	2	2	0	0	1
404190	Broadband Communication Systems																	
404190.1	Understand the basic elements of optical fiber transmission link, fiber modes configurations, different kind of losses, optical sources and detectors	3	2	2	2	1	1	0	1	0	0	0	2	2	0	0	0	0
404190.2	Carry out Link power budget and Rise Time Budget	2	3	1	2	1	1	0	0	2	0	1	1	1	1	0	0	0
404190.3	Learn the fiber optical network components and optical amplifiers.	2	3	1	2	1	1	0	0	2	0	2	0	0	0	0	0	3
404190.4	Understand the basic principle & terminologies of Satellite communication systems	2	1	1	0	1	1	0	0	3	0	2	1	0	1	0	1	0
404190.5	Explain the principles, concepts and operation of satellite communication systems	1	2	2	2	1	1	0	0	0	0	1	2	2	2	0	0	1




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2.6.2. CO-PO Attainment Matrix (SE E&TC) AY 18-19 to 20-21

Course Code	Name of Course SE (2015 Pattern) AY 18-19	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
204181	Signals and Systems															
204181.1	Understand mathematical description and representation of continuous and discrete time signals and systems.	3.872727273	3.872727273	2.581818182	1.280808081	1.280808081	1.280808081	2.581818182	1.280808081	1.280808081	1.280808081	0	1.280808081	1.280808081	1.280808081	1.280808081
204181.2	Develop input output relationship for linear shift invariant system and understand the Convolution operator for continuous and discrete time system.	3.872727272	2.581818181	2.581818181	1.290909090	2.581818181	1.290909090	1.290909090	0	1.290909090	0	0	2.581818181	0	0	2.581818182
204181.3	Use transform domain technique for analysis of linear shift invariant system.	2.581818181	3.872727272	3.872727272	3.872727272	1.290909090	2.581818181	1.290909090	0	0	0	0	2.581818181	0	2.581818182	1.280808081
204181.4	Understand and resolve the signals in frequency domain using Fourier series and Fourier transforms.	3.872727272	3.872727272	2.581818181	1.290909090	1.290909090	0	0	0	0	0	0	0	0	0	1.290909091
204181.5	Understand the limitations of Fourier transform and need for Laplace transform. Develop the ability to analyze the system in s-domain.	3.872727272	2.581818181	1.290909090	1.290909090	0	1.290909090	0	0	0	0	0	0	0	0	1.290909091
204181.6	Understand the basic concept of probability, random variables and random signals.	1.280808081	3.872727273	1.280808081	2.581818182	2.581818182	2.581818182	2.581818182	1.280808081	1.280808081	1.280808081	1.280808081	1.280808081	1.280808081	1.280808081	1.280808081
204182	Electronic Devices and Circuits															
204182.1	Comply and verify parameters after exciting devices by any stated method.	1.4	1.4	1.4	1.4	1.4	0	0	0	0.46666667	1.4	0	0	0	0	0
204182.2	Implement circuit and test the performance.	1.4	0	0	1.4	1.4	0.46666667	0.46666667	0.46666667	0.46666667	1.4	1.4	0	0	0	0
204182.3	Analyze small signal model of FET	1.4	0	0	1.4	1.4	0	0	0	0	0	0.93333333	1.4	0.93333333	1.4	0.46666667
204182.4	Explain behaviour of FET at low frequency.	1.4	0	0	1.4	1.4	0	0	0	0	0	0.93333333	1.4	0.46666667	0.93333333	1.4
204182.5	Analyze small signal model MOSFET.	0.93333333	0	0	0	0.93333333	0	0	0	0	0	0.93333333	1.4	0.93333333	0.46666667	1.4
204182.6	Design an adjustable voltage regulator circuits	0.93333333	1.4	0.93333333	0.46666667	1.4	0	0	0	0	0	0.46666667	0	0.93333333	0.46666667	0.46666667
204183	Electrical Circuits and Machines															
204183.1	Analyze basic AC & DC circuit for voltage, current and power by using various circuit simplification techniques & network theorems.	1.4	1.4			1.4	0	0	0	0.46666667	1.4	0	0	0	0	0
204183.2	Explain working principle & different types of transformers.	1.4	0			1.4	0.46666667	0.46666667	0.46666667	0.46666667	1.4	1.4	0	0	0	0
204183.3	Explain the working principle of DC motor & different methods of speed control of DC motor	1.4	0			1.4	0	0	0	0	0	0.93333333	1.4	0.93333333	1.4	0.46666667
204183.4	Explain working principle, slip & torque equation of AC motor.	1.4	0			1.4	0	0	0	0	0	0.93333333	1.4	0.46666667	0.93333333	1.4



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204183.5	Select motors for given application.	0.93333333	0	0	0	0.93333333	0	0	0	0	0	0.93333333	1.4	0.93333333	0.46666667	1.4
204183.6	Explain the construction and working principle of stepper motor and single phase induction motor.	0.93333333	1.4	0.93333333	0.46666667	1.4	0	0	0	0	0.46666667	0	0.93333333	0.93333333	0.46666667	0.93333333
204184	Data Structures and Algorithms															
204184.1	Discuss the computational efficiency of the principal algorithms such as sorting & searching.	3.33846154	2.22564103	2.22564103	2.22864103	0	1.11282051	0	2.22564103	2.22564103	0	0	2.22564103	0	0	0
204184.2	Write and understand the programs that use arrays & pointers in C	3.33846154	2.22564103	1.11282051	2.22564103	0	1.11282051	0	0	0	0	0	0	0	0	1.11282051
204184.3	Describe how arrays, records, linked structures are represented in memory and use them in algorithms.	3.33846154	3.33846154	3.33846154	0	0	3.33846154	3.33846154	3.33846154	0	0	0	3.33846154	0	0	0
204184.4	Implement stacks & queues for various applications.	3.33846154	3.33846154	3.33846154	0	2.22564103	0	0	3.33846154	0	0	0	3.33846154	2.22564103	0	2.22564103
204184.5	Understand various terminologies and traversals of trees and use them for various applications.	3.33846154	3.33846154	3.33846154	3.33846154	3.33846154	3.33846154	3.33846154	3.33846154	5.56410256	0	0	0	0	0	0
204184.6	Understand various terminologies and traversals of graphs and use them for various applications	3.33846154	2.22564103	1.11282051	2.22564103	0	1.11282051	0	0	0	0	0	0	1.11282051	0	1.11282051
204184	Digital Electronics															
204184.1	Use the basic logic gates and various reduction techniques of digital logic circuit in detail and design of combinational circuits	3.33846154	2.22564103	2.22564103	2.22564103	0	1.11282051	0	2.22564103	2.22564103	0	0	2.22564103	0	0	0
204184.2	Design sequential circuits and use of application	3.33846154	2.22564103	1.11282051	2.22564103	0	1.11282051	0	0	0	0	0	0	0	0	1.11282051
204184.3	Conceptualize the State Machine	3.33846154	3.33846154	3.33846154	0	0	3.33846154	3.33846154	3.33846154	0	0	0	3.33846154	0	0	0
204184.4	Design Logic families and use of it	3.33846154	3.33846154	3.33846154	0	2.22564103	0	0	3.33846154	0	0	0	3.33846154	2.22564103	0	2.22564103
204184.5	Design PLD and implement hardware circuit to test performance and application	3.33846154	3.33846154	3.33846154	3.33846154	3.33846154	3.33846154	3.33846154	3.33846154	5.56410256	0	0	0	0	0	0
204184.6	Understand the architecture and use of microcontrollers for basic operations and Simulate using simulation software	3.33846154	2.22564103	1.11282051	2.22564103	0	1.11282051	0	0	0	0	0	0	1.11282051	0	1.11282051
207005	Engineering Mathematics -III															
207005.1	Solve higher order linear differential equation using appropriate techniques for modeling and analyzing electrical circuits.	1.4	1.4	1.4	1.4	1.4	0	0	0	0.46666667	1.4	0	0	0	0	0
207005.2	Solve problems related to Fourier transform, Z-transform and applications to Communication systems and Signal processing.	1.4	0	0	1.4	1.4	0.46666667	0.46666667	0.46666667	0.46666667	1.4	1.4	0	0	0	0
207005.3	Obtain Interpolating polynomials, numerically differentiate and integrate functions, numerical solutions of differential equations using single step and multi-step iterative methods used in modern scientific computing.	1.4	0	0	1.4	1.4	0	0	0	0	0	0.93333333	1.4	0.93333333	1.4	0.46666667
207005.4	Perform vector differentiation and integration, analyze the vector fields and apply to Electro-Magnetic fields.	1.4	0	0	1.4	1.4	0	0	0	0	0	0.93333333	1.4	0.46666667	0.93333333	1.4

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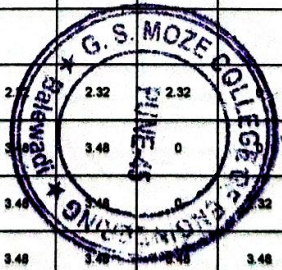
207005.5	Analyze conformal mappings, transformations and perform contour integration of complex functions in the study of electrostatics and signal processing.	0.93333333	0	0	0	0.93333333	0	0	0	0	0	0.93333333	1.4	0.93333333	0.46666667	1.4
		0.93333333	1.4	0.93333333	0.46666667	1.4	0	0	0	0	0.46666667	0	0.93333333	0.93333333	0.46666667	0.93333333
204187	Integrated Circuits															
204187.1	Understand the characteristics of IC and Op-Amp and identify the internal structure.	2.20512821	3.30769231	1.1025641	3.30769231	2.20512821	1.1025641	1.1025641	1.1025641	3.30769231	3.30769231	0	3.30769231	3.30769231	1.1025641	1.102564103
204187.2	Understand and identify various manufacturing techniques.	2.20512821	2.20512821	2.20512821	2.20512821	2.20512821	2.20512821	2.20512821	2.20512821	0	0	2.20512821	0	1.1025641	3.30769231	2.205128205
204187.3	Derive and determine various performances based parameters and their significance for Op-Amp. Comply and verify parameters after exciting IC by any stated method.	2.20512821	0	0	0	0	0	0	0	2.20512821	3.30769231	3.30769231	3.30769231	2.20512821	1.1025641	0
204187.4	Analyze and identify the closed loop stability considerations and I/O limitations. And linear and nonlinear applications of Op-Amp.	2.20512821	2.20512821	0	0	0	0	0	0	0	0	0	0	3.30769231	0	1.1025641
204187.5	Implement hardwired circuit to test performance and application for what it is being designed.	0	3.307692308	1.102564103	1.102564103	0	2.205128205	0	0	0	0	0	0	1.102564103	1.102564103	1.102564103
204187.6	Understand and apply the functionalities of PLL to Frequency synthesizer, multiplier, FM, and AM demodulators	3.307692308	3.307692308	0	0	1.102564103	0	0	1.102564103	0	2.205128205	1.102564103	1.102564103	1.102564103	1.102564103	1.102564103
204188	Control Systems															
204188.1	Determine and use models of physical systems in forms suitable for use in the analysis and design of control systems.	3.872727273	3.872727273	2.581818182	1.290909091	1.290909091	1.290909091	2.581818182	1.290909091	1.290909091	1.290909091	1.290909091	0	1.290909091	1.290909091	1.290909091
204188.2	Determine the (absolute) stability of a closed-loop control system.	3.872727273	2.581818182	2.581818182	1.290909091	2.581818182	1.290909091	1.290909091	1.290909091	0	1.290909091	0	0	2.581818182	0	0
204188.3	Perform time domain and frequency domain analysis of control systems required for stability analysis.	2.581818182	3.872727273	3.872727273	3.872727273	1.290909091	2.581818182	1.290909091	0	0	0	0	0	2.581818182	0	2.581818182
204188.4	Perform time domain and frequency domain correlation analysis.	3.872727273	3.872727273	2.581818182	1.290909091	1.290909091	0	0	0	0	0	0	0	0	0	1.290909091
204188.5	Apply root-locus, Frequency Plots technique to analyze control systems.	3.872727273	2.581818182	1.290909091	1.290909091	0	1.290909091	0	0	0	0	0	0	0	0	1.290909091
204188.6	Express and solve system equations in state variable form.	1.290909091	3.872727273	1.290909091	2.581818182	2.581818182	2.581818182	2.581818182	1.290909091	1.290909091	1.290909091	1.290909091	1.290909091	1.290909091	1.290909091	1.290909091
204189	Analog Communications															
204189.1	Understand and identify the fundamental concepts and various components of analog communication systems.	3.33846154	2.2284103	2.2284103	2.2284103	0	1.11282051	0	2.2284103	2.2284103	0	0	2.2284103	0	0	0
204189.2	Analyze the fundamental concepts and various components of analog communication systems.	3.33846154	2.2284103	1.11282051	2.2284103	0	1.11282051	0	0	0	0	0	0	0	0	1.112820513
204189.3	Explain signal to noise ratio, noise figure and noise temperature for single and cascaded stages in a communication system.	3.33846154	3.33846154	3.33846154	0	0	3.33846154	3.33846154	3.33846154	0	0	0	0	3.33846154	0	0
204189.4	Describe analog pulse modulation techniques and digital modulation technique.	3.33846154	3.33846154	3.33846154	0	2.2284103	0	3.33846154	0	0	0	0	3.33846154	2.2284103	0	2.22841038
204189.5	Develop the ability to compare and contrast the strengths and weaknesses of various communication systems.	3.33846154	3.33846154	3.33846154	3.33846154	3.33846154	3.33846154	3.33846154	3.33846154	5.58410208	0	0	0	0	0	0



204190.0	Convert analog signals to digital format and describe Pulse and digital Modulation techniques	3.3304104	3.3304103	1.1128203	2.22564103	0	1.1128205	0	0	0	0	0	0	1.1128201	0	1.11282013
204190	Object Oriented Programming															
204190.1	Describe the principles of object oriented programming	1.6952381	2.54285714	0	2.54285714	1.6952381	0.84761905	0.84761905	0	2.54285714	2.54285714	0	0	2.54285714	0.84761905	0.847619048
204190.2	Apply the concepts of data encapsulation, inheritance in C++	0	1.6952381	1.6952381	1.6952381	1.6952381	0	0	0	0	2.54285714	0	0	0	2.54285714	1.695238095
204190.3	Understand basic program constructs in Java	1.6952381	0	1.6952381	0	2.54285714	0	0	0	0	0	0	1.6952381	0.84761905	0	1.695238095
204190.4	Apply the concepts of classes, methods and inheritance to write programs Java	0	1.6952381	0	0	0	0	0	0	0	0.84761905	0	2.54285714	1.6952381	1.6952381	0
204190.5	Use arrays, vectors and strings concepts and interfaces to write programs in Java	1.6952381	1.6952381	0	0	1.6952381	0	0	0	0	1.6952381	1.6952381	0	1.6952381	0	0
204190.6	Describe and use the concepts in Java to develop user friendly program	0	0	1.6952381	0	0.847619048	0	1.6952381	0	0.847619048	0.847619048	0	2.54285714	0.847619048	0	0.847619048
	New- SE (2015 Pattern) AY 19-20															
204191	Signals and Systems															
204191.1	Understand mathematical description and representation of continuous and discrete time signals and systems.	2.6	1.73333333	1.73333333	0	0	0	0	0	0	0.86666667	0	0.86666667	1.73333333	1.73333333	1.73333333
204191.2	Develop input output relationship for linear shift invariant system and understand the Convolution operator for continuous and discrete time system.	0	0	1.73333333	1.73333333	2.6	0	0.86666667	0	0	0.86666667	0	1.73333333	1.73333333	1.73333333	0.86666667
204191.3	Use transform domain technique for analysis of linear shift invariant system.	0	2.6	1.73333333	0.86666667	2.6	0	0	0	0	0.86666667	0	1.73333333	1.73333333	0.86666667	0
204191.4	Understand and resolve the signals in frequency domain using Fourier series and Fourier transforms.	2.6	2.6	2.6	0	0	0	0	0	0	0.86666667	0	0.86666667	0	1.73333333	0
204191.5	Understand the limitations of Fourier transform and need for Laplace transform. Develop the ability to analyze the system in s-domain.	2.6	1.73333333	0	0	2.6	0	0.86666667	0	0	0.86666667	0	1.73333333	1.73333333	0.86666667	1.73333333
204191.6	Understand the basic concept of probability, random variables and random signals.	1.73333333	2.6	1.73333333	0.86666667	2.6	0	0	0	0	0.86666667	0	1.73333333	1.73333333	0.86666667	1.73333333
204192	Electronic Devices and Circuits															
204192.1	Comply and verify parameters after exciting devices by any stated method.	2.6	1.73333333	1.73333333	0.86666667	1.73333333	0.86666667	0.86666667	0	0.86666667	0	0	1.73333333	0	0	0
204192.2	Implement circuit and test the performance.	1.73333333	2.6	2.6	0	0.86666667	1.73333333	0.86666667	0	0	0	0	1.73333333	0	1.73333333	0.86666667
204192.3	Analyze small signal model of FET	1.73333333	2.6	1.73333333	0.86666667	1.73333333	1.73333333	1.73333333	0	0.86666667	0	0	0.86666667	0	0.86666667	1.73333333
204192.4	Explain behaviour of FET at low frequency.	1.73333333	2.6	2.6	0	0.86666667	0	0	0	0	0	0	1.73333333	0	0.86666667	2.6



204182.5	Analyze small signal model MOSFET.	1.73333333	0.80000007	2.0	2.0	1.73333333	1.73333333	0	0	0	0	0	0.80000007	0	1.73333333	0.80000007
204182.6	Design an adjustable voltage regulator circuits	1.73333333	2.0	2.0	2.0	0.80000007	1.73333333	0.80000007	0	0	0	0	1.73333333	0	0.80000007	2.0
204183	Electrical Circuits and Machines															
204183.1	Analyze basic AC & DC circuit for voltage, current and power by using various circuit simplification techniques & network theorems.	3.08	2.05333333	2.05333333	1.02666667	2.05333333	1.02666667	1.02666667	0	1.02666667	0	0	2.05333333	0	0	0
204183.2	Explain working principle & different types of transformers.	2.05333333	3.08	3.08	3.08	1.02666667	2.05333333	1.02666667	0	0	0	0	2.05333333	1.02666667	2.05333333	1.02666667
204183.3	Explain the working principle of DC motor & different methods of speed control of DC motor	3.08	3.08	2.05333333	1.02666667	1.02666667	1.02666667	0	0	0	0	0	0	0	0	1.02666667
204183.4	Explain working principle, slip & torque equation of AC motor.	3.08	2.05333333	1.02666667	2.05333333	0	0	0	0	0	0	0	0	1.02666667	0	1.02666667
204183.5	Select motors for given application.	2.05333333	3.08	3.08	3.08	1.02666667	2.05333333	1.02666667	0	0	0	0	2.05333333	0	2.05333333	1.02666667
204183.6	Explain the construction and working principle of stepper motor and single phase induction motor.	3.08	3.08	2.05333333	1.02666667	1.02666667	1.02666667	0	0	0	0	0	0	0	0	1.02666667
204184	Data Structures and Algorithms															
204184.1	Discuss the computational efficiency of the principal algorithms such as sorting & searching.	2.05333333	3.08	0	3.08	2.05333333	1.02666667	1.02666667	0	3.08	3.08	0	0	3.08	1.02666667	1.02666667
204184.2	Write and understand the programs that use arrays & pointers in C	0	2.05333333	2.05333333	2.05333333	2.05333333	0	0	0	0	3.08	0	0	0	3.08	2.05333333
204184.3	Describe how arrays, records, linked structures are represented in memory and use them in algorithms.	2.05333333	0	2.05333333	0	3.08	0	0	0	0	0	0	2.05333333	1.02666667	0	2.05333333
204184.4	Implement stacks & queues for various applications.	0	2.05333333	0	0	0	0	0	0	0	1.02666667	0	3.08	2.05333333	2.05333333	0
204184.5	Understand various terminologies and traversals of trees and use them for various applications.	2.05333333	2.05333333	0	0	2.05333333	0	0	0	0	2.05333333	2.05333333	0	2.05333333	0	0
204184.6	Understand various terminologies and traversals of graphs and use them for various applications	0	0	2.05333333	0	1.02666667	0	2.05333333	0	1.02666667	1.02666667	0	3.08	1.02666667	0	1.02666667
204184	Digital Electronics															
204184.1	Use the basic logic gates and various reduction techniques of digital logic circuit in detail and design of combinational circuits	3.40	2.32	2.32	2.32	1.10	0	2.32	2.32	0	0	0	2.32	0	2.32	2.32
204184.2	Design sequential circuits and use of application	0	3.40	0	0	3.40	3.40	3.40	0	0	0	0	3.40	1.10	0	0
204184.3	Conceptualize the State Machine	0	3.40	0	0	3.40	3.40	3.40	0	0	0	0	3.40	0	1.10	1.10
204184.4	Design Logic families and use of it	0	3.40	0	0	3.40	0	0	3.40	2.32	0	0	0	0	2.32	0



204184.5	Design PLD and implement hardware circuit to test performance and application	3.48	3.48	0	0	3.48	3.48	3.48	0	0	0	3.48	0	0	2.32	2.32
204184.6	Understand the architecture and use of microcontrollers for basic operations and Simulate using simulation software	3.48	3.48	3.48	3.48	3.48	3.48	3.48	2.32	0	0	0	0	0	0	0
Engineering Mathematics -III																
207005																
207005.1	Solve higher order linear differential equation using appropriate techniques for modeling and analyzing electrical circuits.	3.33846154	3.33846154	3.33846154	3.33846154	3.33846154	0	0	0	1.11282051	3.33846154	0	0	0	0	0
207005.2	Solve problems related to Fourier transform, Z-transform and applications to Communication systems and Signal processing.	3.33846154	0	0	3.33846154	3.33846154	1.11282051	1.11282051	1.11282051	1.11282051	3.33846154	3.33846154	0	0	0	0
207005.3	Obtain Interpolating polynomials, numerically differentiate and integrate functions, numerical solutions of differential equations using single step and multi-step iterative methods used in modern scientific computing.	3.33846154	0	0	3.33846154	3.33846154	0	0	0	0	0	2.22564103	3.33846154	2.22564103	3.33846154	1.11282051
207005.4	Perform vector differentiation and integration, analyze the vector fields and apply to Electro-Magnetic fields.	3.33846154	0	0	3.33846154	3.33846154	0	0	0	0	0	2.22564103	3.33846154	1.11282051	2.22564103	3.338461538
207005.5	Analyze conformal mappings, transformations and perform contour integration of complex functions in the study of electrostatics and signal processing.	2.22564103	0	0	0	2.22564103	0	0	0	0	0	2.22564103	3.33846154	2.22564103	1.11282051	3.338461538
207005.6	Understand the basic concept of probability, random variables and random signals..	2.225641026	3.338461538	2.225641026	1.112820513	3.338461538	0	0	0	0	1.112820513	0	2.225641026	2.225641026	1.112820513	2.225641026
Integrated Circuits																
204187																
204187.1	Understand the characteristics of IC and Op-Amp and identify the internal structure.	2.22564103	3.33846154	1.11282051	3.33846154	2.22564103	1.11282051	1.11282051	1.11282051	3.33846154	3.33846154	0	3.33846154	3.33846154	1.11282051	1.112820513
204187.2	Understand and identify various manufacturing techniques.	2.22564103	2.22564103	2.22564103	2.22564103	2.22564103	2.22564103	2.22564103	2.22564103	0	0	2.22564103	0	1.11282051	3.33846154	2.225641026
204187.3	Derive and determine various performances based parameters and their significance for Op-Amp. Comply and verify parameters after exciting IC by any stated method.	2.22564103	0	0	0	0	0	0	2.22564103	3.33846154	3.33846154	3.33846154	2.22564103	1.11282051	0	2.225641026
204187.4	Analyze and identify the closed loop stability considerations and I/O limitations. And linear and nonlinear applications of Op-Amp.	2.22564103	2.22564103	0	0	0	0	0	0	0	0	0	3.33846154	0	1.11282051	3.338461538
204187.5	Implement hardwired circuit to test performance and application for what it is being designed.	0	3.338461538	1.112820513	1.112820513	0	2.225641026	0	0	0	0	0	0	0	1.112820513	1.112820513
204187.6	Understand and apply the functionalities of PLL to Frequency synthesizer, multiplier, FM, and AM demodulators	3.338461538	3.338461538	0	0	1.112820513	0	0	1.112820513	0	2.225641026	1.112820513	1.112820513	1.112820513	1.112820513	1.112820513
Control Systems																
204188																
204188.1	Determine and use models of physical systems in forms suitable for use in the analysis and design of control systems.	3.87272727	3.87272727	1.29090909	1.29090909	1.29090909	1.29090909	1.29090909	1.29090909	1.29090909	1.29090909	1.29090909	0	1.29090909	1.29090909	1.29090909
204188.2	Determine the (absolute) stability of a closed-loop control system.	3.87272727	2.58181818	2.58181818	1.29090909	2.58181818	1.29090909	1.29090909	0	1.29090909	0	0	0	2.58181818	0	2.58181818
204188.3	Perform time domain and frequency domain analysis of control systems required for stability analysis.	2.58181818	3.87272727	1.29090909	1.29090909	1.29090909	2.58181818	1.29090909	0	0	0	0	0	2.58181818	0	2.58181818
204188.4	Perform time domain and frequency domain correlation analysis.	3.87272727	3.87272727	2.58181818	1.29090909	1.29090909	0	0	0	0	0	0	0	0	0	1.29090909



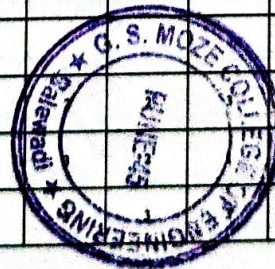
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204188.5	Apply root-locus, Frequency Plots technique to analyze control systems.	3.87272727	2.38181818	1.29090909	1.29090909	0	1.29090909	0	0	0	0	0	0	0	0	1.29090909
204188.6	Express and solve system equations in state variable form.	1.29090909	3.87272727	1.29090909	2.38181818	2.38181818	2.38181818	2.38181818	1.29090909	1.29090909	1.29090909	1.29090909	1.29090909	1.29090909	1.29090909	1.29090909
204189	Analog Communications															
204189.1	Understand and identify the fundamental concepts and various components of analog communication systems.	3.36923077	2.24615385	2.24615385	2.24615385	0	1.12307692	0	2.24615385	2.24615385	0	0	2.24615385	0	0	0
204189.2	Analyze the fundamental concepts and various components of analog communication systems.	3.36923077	2.24615385	1.12307692	2.24615385	0	1.12307692	0	0	0	0	0	0	0	0	1.12307692
204189.3	Explain signal to noise ratio, noise figure and noise temperature for single and cascaded stages in a communication system.	3.36923077	3.36923077	3.36923077	0	0	3.36923077	3.36923077	3.36923077	0	0	0	3.36923077	0	0	0
204189.4	Describe analog pulse modulation techniques and digital modulation technique.	3.36923077	3.36923077	3.36923077	0	2.24615385	0	0	3.36923077	0	0	0	3.36923077	2.24615385	0	2.24615385
204189.5	Develop the ability to compare and contrast the strengths and weaknesses of various communication systems.	3.36923077	3.36923077	3.36923077	3.36923077	3.36923077	3.36923077	3.36923077	3.36923077	5.61538462	0	0	0	0	0	0
204189.6	Convert analog signals to digital format and describe Pulse and digital Modulation techniques	3.36923077	2.24615385	1.12307692	2.24615385	0	1.12307692	0	0	0	0	0	0	1.12307692	0	1.12307692
204190	Object Oriented Programming															
204190.1	Describe the principles of object oriented programming.	2.05333333	3.08	0	3.08	2.05333333	1.02666667	1.02666667	0	3.08	3.08	0	0	3.08	1.02666667	1.02666667
204190.2	Apply the concepts of data encapsulation, inheritance in C++.	0	2.05333333	2.05333333	2.05333333	2.05333333	0	0	0	3.08	0	0	0	3.08	2.05333333	2.05333333
204190.3	Understand basic program constructs in Java	2.05333333	0	2.05333333	0	3.08	0	0	0	0	0	2.05333333	1.02666667	0	2.05333333	2.05333333
204190.4	Apply the concepts of classes, methods and inheritance to write programs Java	0	2.05333333	0	0	0	0	0	0	1.02666667	0	3.08	2.05333333	2.05333333	0	0
204190.5	Use arrays, vectors and strings concepts and interfaces to write programs in Java	2.05333333	2.05333333	0	0	2.05333333	0	0	0	0	2.05333333	2.05333333	0	2.05333333	0	0
204190.6	Describe and use the concepts in Java to develop user friendly program	0	0	2.05333333	0	1.02666667	0	2.05333333	0	1.02666667	1.02666667	0	3.08	1.02666667	0	1.02666667
Note- SE (2019 Pattern) AY 20-21																
Course Code	Name of Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PS01	PS02	PS03
207005	Engineering Mathematics III															
207005.1	Solve higher order linear differential equation using appropriate techniques for modelling, analyzing of electrical circuits and control systems	3	2											2	2	2
207005.2	Apply concept of Fourier transform & Z-transform and its applications to continuous & discrete systems, signal & image processing and communication systems.	0	0	2										2	2	1



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207005.3	Obtain Interpolating polynomials, numerically differentiate and integrate functions, numerical solutions of differential equations using single step and multi-step iterative methods used in modern scientific computing	0	3	2	1	3	0	0	0	0	0	0	0	2	1	0
207005.4	Perform vector differentiation & integration, analyze the vector fields and apply to electro-magnetic fields & wave theory.	3	3	3	0	0	0	0	0	0	0	0	0	0	2	0
207005.5	Analyze Complex functions, Conformal mappings, Contour integration applicable to electrostatics, digital filters, signal and image processing.	3	2	0	0	3	0	0	0	0	0	0	0	2	1	2
Electronic Circuits																
204181																
204181.1	Assimilate the physics, characteristics and parameters of MOSFET towards its application as amplifier.	3	2	2	1	2	1	1	0	1	0	0	2	2	2	2
204181.2	Design MOSFET amplifiers, with and without feedback, & MOSFET oscillators, for given specifications	3	2	2	1	2	1	1	0	1	0	0	2	0	0	2
204181.3	Analyze and assess the performance of linear and switching regulators, with their variants, towards applications in regulated power supplies.	2	3	3	3	1	2	1	0	0	0	0	2	0	2	1
204181.4	Explain internal schematic of Op-Amp and define its performance parameters.	2	3	2	2	1	0	0	0	1	0	0	1	0	1	2
204181.5	Design, Build and test Op-amp based analog signal processing and conditioning circuits towards various real time applications.	2	3	3	3	1	2	1	0	0	0	0	2	0	1	3
204181.6	Understand and compare the principles of various data conversion techniques and PLL with their applications.	2	1	3	1	2	2	0	0	0	0	0	1	0	2	1
Digital Circuits																
204182																
204182.1	Identify and prevent various hazards and timing problems in a digital design	3	2	2	1	2	1	1	0	1	0	0	2	2	2	2
204182.2	Use the basic logic gates and various reduction techniques of digital logic circuit.	3	2	2	1	2	1	1	0	1	0	0	2	0	0	2
204182.3	Analyze, design and implement combinational logic circuits.	2	3	3	3	1	2	1	0	0	0	0	2	0	2	1
204182.4	Analyze, design and implement sequential circuits.	3	3	2	1	1	0	0	0	0	0	0	0	0	0	1
204182.5	Differentiate between Mealy and Moore machines	3	2	1	1	0	1	0	0	0	0	0	0	0	0	1
204182.6	Analyze digital system design using PLD.	2	2	1	2	1	2	0	0	0	0	0	0	0	0	2
Electrical Circuits																
204183																
204183.1	Analyze the simple DC and AC circuit with circuit simplification techniques.	3	3					1	0	0	0	0	0	0	0	0
204183.2	Formulate and analyze driven and source free RL and RC circuits.	3	2					3	0	0	0	0	0	0	0	2
204183.3	Formulate & determine network parameters for given network and analyze the given network using Laplace Transform to find the network transfer function	3	2					1	0	0	0	0	0	0	0	1

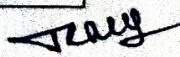


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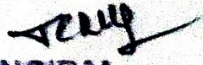
204183.4	Explain construction, working and applications of DC Machines / Single Phase & Three Phase AC Motors.	3	3	2	1	1	0	0	0	0	0	0	0	0	0	1
204183.5	Explain construction, working and applications of special purpose motors & understand motors used in electrical vehicles	3	2	1	1	0	1	0	0	0	0	0	0	0	0	1
204183.6	Analyze and select a suitable motor for different applications.	2	2	1	2	1	2	0	0	0	0	0	0	0	0	2
204184	Data structures															
204184.1	Solve mathematical problems using C programming language	3	3	3	3	3	0	0	0	0	0	0	3	0	0	0
204184.2	Implement sorting and searching algorithms and calculate their complexity	3	2	2	2	0	1	0	2	2	0	0	2	0	0	0
204184.3	Develop applications of stack and queue using array	3	3	3	0	0	3	3	3	0	0	0	3	0	0	0
204184.4	Demonstrate applicability of Linked List.	3	3	3	0	2	0	0	3	0	0	0	3	0	0	0
204184.5	Demonstrate applicability of nonlinear data structures - Binary Tree with respect to its time complexity	3	3	3	3	3	3	3	3	2	0	0	0	0	0	0
204184.6	Apply the knowledge of graph for solving the problems of spanning tree and shortest path algorithm	2	2	2	2	0	2	0	0	0	0	0	2	0	0	0
204191	Signals & Systems															
204191.1	Identify, classify basic signals and perform operations on signals.	1	3	1	2	2	0	0	0	0	0	0	1	1	1	1
204191.2	Identify, Classify the systems based on their properties in terms of input output relation and in terms of impulse response and will be able to determine the convolution between to signals.	3	3	2	1	1	1	0	0	0	0	0	0	0	0	0
204191.3	Analyze and resolve the signals in frequency domain using Fourier series and Fourier Transform	3	3	3	2	1	1	0	0	0	0	0	0	0	0	0
204191.4	Resolve the signals in complex frequency domain using Laplace Transform, and will be able to apply and analyze the LTI systems using Laplace Transforms.	3	3	2	2	1	0	0	0	0	0	0	0	0	0	0
204191.5	Define and Describe the probability, random variables and random signals. Compute the probability of a given event, model, compute the CDF and PDF.	3	3	2	2	1	1	0	0	0	0	0	0	0	0	0
204191.6	Compute the mean, mean square, variance and standard deviation for given random variables using PDF	3	1	2	1	1	1	0	0	0	0	0	0	0	0	0
204192	Control Systems															
204192.1	Determine and use models of physical systems in forms suitable for use in the analysis and design of control systems	3	0		1	3		0	0	0	0	0	0	1	1	1
204192.2	Determine the (absolute) stability of a closed-loop control system	3	2	1				0	0	0	0	3	0	0	0	3
204192.3	Perform time domain analysis of control systems required for stability analysis.	3	3	3	3	3	0	0	0	0	3	0	0	0	0	3




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204192.1	Perform frequency domain analysis of control systems required for stability analysis. Apply root-locus, Frequency Plots technique to analyse control systems.	3	0	0	3	3	0	0	0	0	1	0	0	0	0	3
204192.2	Express and solve system equations in state variable form	3	0	0	3	3	0	0	0	0	1	0	0	0	0	3
204192.6	Differentiate between various digital controllers and understand the role of the controllers in Industrial automation.	3	0	0	3	3	0	0	0	0	1	0	0	0	0	3
Principles of Communication Systems																
204193.1	To compute & compare the bandwidth and transmission power requirements by analyzing time and frequency domain spectra of signal required for modulation schemes under study.	2	2	3	2	1	2	3	3	3	3	0	2	1	2	2
204193.2	Describe and analyze the techniques of generation, transmission and reception of Amplitude Modulation Systems.	2	3	1	3	2	1	1	1	3	3	3	3	3	1	2
204193.3	Explain generation and detection of FM systems and compare with AM systems	2	2	0	0	0	0	0	0	2	3	2	1	1	3	2
204193.4	Exhibit the importance of Sampling Theorem and correlate with Pulse Modulation technique (PAM, PWM, and PPM)	2	1	0	0	0	0	0	0	3	3	3	2	1	3	2
204193.5	Characterize the quantization process and elaborate digital representation techniques (PCM, DPCM, DM and ADPCM)	2	2	0	0	0	0	0	0	2	1	2	3	2	2	3
204193.6	Illustrate waveform coding, multiplexing and synchronization techniques and articulate their importance in baseband digital transmission.	2	2	0	0	0	0	0	0	2	2	2	3	2	1	3
Object Oriented Programming																
204194.1	Describe the principles of object oriented programming.	3	0	0	1	3	0	0	0	0	0	0	0	1	1	1
204194.2	Apply the concepts of data encapsulation, inheritance in C++.	3	2	1	2	3	0	0	0	0	2	0	0	0	0	3
204194.3	Understand Operator overloading and friend functions in C++.	3	3	3	3	3	0	0	0	0	3	0	0	0	0	3
204194.4	Apply the concepts of classes, methods inheritance and polymorphism to write programs C++.	3	0	0	3	3	0	0	0	0	3	0	0	0	0	3
204194.5	Apply Templates, Namespaces and Exception Handling concepts to write programs in C++.	3	0	0	3	3	0	0	0	0	1	0	0	0	0	3
204194.6	Describe and use of File handling in C++.	3	0	0	3	3	0	0	0	0	1	0	0	0	0	3




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2.6.2. CO-PO Attainment Matrix (TE E&TC) AY 18-19 to 20-21

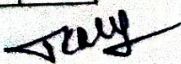
Course Code	Name of Course TE (2015 Pattern) AY 18-19	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PS01	PS02	PS03
304181	Digital Communication															
304181.1	Understand working of waveform coding techniques and analyse their performance.	2.42666667	1.21333333	2.42666667	1.21333333	1.21333333	0	0	0	0	0	0	2.42666667	0	3.64	3.64
304181.2	CO-2: Analyze the performance of a baseband and pass band digital communication system in terms of error rate and spectral efficiency.	1.21333333	2.42666667	2.42666667	1.21333333	2.42666667	0	0	0	0	0	1.21333333	2.42666667	1.21333333	2.42666667	2.42666667
304181.3	Perform the time and frequency domain analysis of the signals in a digital communication system.	2.42666667	1.21333333	2.42666667	1.21333333	1.21333333	0	0	0	0	0	1.21333333	2.42666667	0	3.64	2.42666667
304181.4	Study of signal space representation.	1.21333333	2.42666667	2.42666667	1.21333333	2.42666667	0	0	0	0	0	1.21333333	2.42666667	1.21333333	2.42666667	2.42666667
304181.5	Design of digital communication system.	2.42666667	1.21333333	2.42666667	2.42666667	1.21333333	0	0	0	0	0	1.21333333	2.42666667	0	3.64	2.42666667
304181.6	Understand working of spread spectrum communication system and analyze its performance	2.42666667	2.42666667	2.42666667	1.21333333	1.21333333	0	0	0	0	0	1.21333333	2.42666667	0	1.21333333	2.42666667
304182	Digital Signal Processing															
304182.1	Analyze the discrete time signals and concept of sampling theorem in time domain.	2.32	2.32	2.32	1.16	0	0	0	0	0	0	0	1.16	1.16	0	0
304182.2	Analyze fourier transform in discrete domain and concepts of linear and circular convolution.	2.32	2.32	1.16	1.16	0	0	0	0	0	0	0	0	2.32	1.16	0
304182.3	Analyze the need of Z transform and relation between with different transforms	1.16	2.32	2.32	3.48	1.16	1.16	0	0	0	0	0	0	0	2.32	1.16
304182.4	Design and implement the IIR filter for filtering different real world signals.	2.32	2.32	1.16	1.16	0	0	0	0	0	0	0	0	2.32	1.16	0
304182.5	Design and implement the FIR filter for filtering different real world signals.	1.16	2.32	2.32	2.32	1.16	1.16	0	0	0	0	0	0	0	2.32	0
304182.6	Develop different signal processing applications using DSP processor.	2.32	2.32	1.16	1.16	0	0	0	0	0	0	0	0	2.32	1.16	2.32
304183	Electromagnetics															
304183.1	Understand the basic mathematical concepts related to electromagnetic vector fields.	3.7	2.40000007	2.40000007	2.40000007	3.7	0	0	0	0	0	2.40000007	0	1.20000003	0	1.20000003
304183.2	Apply the principles of electrostatics to the solutions of problems relating to electric field and electric potential, boundary conditions and electric energy density.	3.7	2.40000007	2.40000007	2.40000007	3.7	0	0	0	0	0	2.40000007	0	1.20000003	1.20000003	0



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304183.3	Apply the principles of magnetostatics to the solutions of problems relating to magnetic field and magnetic potential, boundary conditions and magnetic energy density.	3.7	2.400000007	2.400000007	2.400000007	3.7	0	0	0	0	2.400000007	0	1.233333333	0	0	0
304183.4	Understand the concepts related to Faraday's law, induced emf and Maxwell's equations.	3.7	3.7	3.7	3.7	2.400000007	0	0	0	0	0	2.400000007	0	0	0	0
304183.5	Apply Maxwell's equations to solutions of problems relating to transmission lines	3.7	2.400000007	2.400000007	2.400000007	3.7	0	0	0	0	2.400000007	0	1.233333333	0	2.400000007	1.233333333
304183.6	Apply Maxwell's equations to solutions of problems relating to uniform plane wave propagation.	3.7	3.7	3.7	3.7	2.400000007	1.233333333	0	0	0	0	2.400000007	0	0	1.233333333	1.233333333
304184	Microcontroller															
	To understand architecture and features of typical Microcontroller.	3.87272727	2.58181818	3.87272727	3.87272727	3.87272727	1.29000000	1.29000000	0	0	0	0	1.29000000	0	1.29000000	1.29000000
304184.1	Learn importance of microcontroller in designing embedded application	3.87272727	3.87272727	3.87272727	1.29000000	1.29000000	1.29000000	1.29000000	0	0	0	2.58181818	1.29000000	0	1.29000000	1.29000000
304184.2	To understand need of microcontrollers in real life applications	2.58181818	2.58181818	2.58181818	2.58181818	1.29000000	1.29000000	1.29000000	0	0	0	1.29000000	1.29000000	0	1.29000000	1.29000000
304184.3	To study various hardware and software tools for developing applications.	2.58181818	3.87272727	3.87272727	3.87272727	1.29000000	0	0	0	0	0	1.29000000	0	1.29000000	1.29000000	0
304184.4	Develop interfacing to real world devices.LED, LCD (4&8 bits), and Key board	3.87272727	3.87272727	3.87272727	3.87272727	1.29000000	1.29000000	1.29000000	0	0	0	2.58181818	1.29000000	0	1.29000000	1.29000000
304184.5	Develop interfacing to real world devices. UART, Sensor interfacing using ADC, RTC	3.87272727	3.87272727	3.87272727	1.29000000	1.29000000	1.29000000	0	0	0	0	1.29000000	1.29000000	0	1.29000000	1.29000000
304184.6																
304185	Mechatronics															
304185.1	Identification of key elements of mechatronics system and its representation in terms of block diagram	3.87272727	3.87272727	2.58181818	3.87272727	3.87272727	0	0	0	0	0	0	3.87272727	0	0	0
304185.2	Understanding basic principal of Sensors and Transducer. Understanding basic principal of Sensors and Transducer.	3.87272727	2.58181818	2.58181818	2.58181818	0	1.29000000	0	2.58181818	2.58181818	0	0	2.58181818	0	1.29000000	2.58181818
304185.3	Study the Hydraulic systems	3.87272727	3.87272727	3.87272727	0	0	3.87272727	3.87272727	3.87272727	0	2.58181818	1.29000000	3.87272727	0	2.58181818	0
304185.4	Understand pneumatic systems	3.87272727	3.87272727	2.58181818	0	2.58181818	0	0	0	0	0	0	3.87272727	0	0	0
304185.5	Study of electrical and electromechanical actuators	3.87272727	2.58181818	2.58181818	2.58181818	0	1.29000000	0	0	0	0	0	2.58181818	0	1.29000000	2.58181818
304185.6	Understand the mechatronics system in automobile	3.87272727	3.87272727	3.87272727	3.87272727	3.87272727	3.87272727	3.87272727	3.87272727	2.58181818	0	3.87272727	0	0	1.29000000	1.29000000
304186	Power Electronics															




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201001.1	Design and implement a triggering logic circuit for a power device	0.00000000	2.00000000	0.00000000	2.00000000	0.00000000	0	0	0	0	2.00000000	0	1.20000000	0	0	0
201001.2	Perform & analyze different DC to AC power converters	0.00000000	2.00000000	0.00000000	2.00000000	0.00000000	0	0	0	0	2.00000000	0	1.20000000	0	1.20000000	1.20000000
201001.3	Perform & analyze different DC to A.C power converters	0.00000000	2.00000000	2.00000000	2.00000000	0.00000000	0	0	0	0	2.00000000	0	1.20000000	0	1.20000000	1.20000000
201001.4	Perform & analyze DC-DC converters & AC Voltage Controller	0.00000000	0.00000000	2.00000000	0	2.00000000	0	0	0	0	0	0	0.00000000	0	0	0
201001.5	Design & implement over voltage / over current protection circuit	0.00000000	2.00000000	2.00000000	2.00000000	0	1.20000000	0	0	0	0	0	2.00000000	0	1.20000000	1.20000000
201001.6	Perform battery loading time & design a battery charger	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0	0	0	0	0.00000000	0	0	1.20000000	1.20000000
201002	Information Theory Coding Techniques and Communication Networks															
201002.1	Perform information theoretic analysis of communication system	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0	0	0	0	0	0	0	0	0
201002.2	1/2- Design & data compression scheme using variable source coding technique	0.00000000	2.00000000	0	0	0	0	0	0	0	0	0	0	0	0	0
201002.3	Design & data compression scheme using variable source coding technique	0.00000000	2.00000000	0	0	0	0	0	0	0	0	0	0	0	0	0
201002.4	Design & channel coding scheme for a communication system	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0	0	0	0	0	0	0	0	0
201002.5	Design of different coding, interleaving techniques	0.00000000	0.00000000	0.00000000	0.00000000	2.00000000	0	0	0	0	0	0	0	0	0	0
201002.6	Understand and apply fundamental principles of data transmission and interfacing	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0	0	0	0	0	0	0	0	0	0
201002.7	Apply error and error control techniques in communication systems	0.00000000	0.00000000	0.00000000	0.00000000	2.00000000	1.00000000	0	0	0	0	0	0	0	0	0
201003	Business Management															
201003.1	Get concepts of Management Science applied in business	0.00000000	0.00000000	2.00000000	0.00000000	0.00000000	0	0	0	0	0	0	0	0	0	0
201003.2	To understand concepts of Quality Management, Financial Management and Project Management	0.00000000	2.00000000	2.00000000	2.00000000	0	1.00000000	0	2.00000000	2.00000000	0	0	2.00000000	0	1.00000000	1.00000000
201003.3	Get introduction to Entrepreneurship	0.00000000	0.00000000	0.00000000	0	0	0.00000000	0.00000000	0.00000000	0	2.00000000	1.00000000	0.00000000	0	1.00000000	0
201003.4	To learn Human Resource Management including management and the human factor in business	0.00000000	0.00000000	2.00000000	0	0.00000000	0	0	0	0	0	0	0.00000000	0	0	0
201003.5	Get Quality Concepts for Organizational Learning for Business	0.00000000	2.00000000	2.00000000	2.00000000	0	1.00000000	0	0	0	0	0	2.00000000	0	1.00000000	1.00000000
201003.6	To learn Key Project Management aspects and Entrepreneurship Skills	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0	0.00000000	0	0	0
201003.7																



304189	Advanced Processors																
	To understand need and application of ARM Microprocessors in embedded system	2.32	2.32	2.32	1.16	0	0	0	0	0	0	0	1.16	1.16	0	0	
304189.1	Describe the ARM microprocessor architectures and its features.	2.32	2.32	1.16	1.16	0	0	0	0	0	0	0	0	2.32	1.16	0	
304189.2	Interface the advanced peripherals to ARM based microcontroller	1.16	2.32	2.32	3.48	1.16	1.16	0	0	0	0	0	0	0	2.32	1.16	
304189.3	Design embedded system with available resources	2.32	2.32	1.16	1.16	0	0	0	0	0	0	0	0	2.32	1.16	0	
304189.4	Use of DSP Processors and resources for signal processing applications.	1.16	2.32	2.32	2.32	1.16	1.16	0	0	0	0	0	0	0	2.32	0	
304189.5	To understand architecture and features of typical ARM7R DSP Processors.	2.32	2.32	1.16	1.16	0	0	0	0	0	0	0	0	2.32	1.16	2.32	
304189.6																	
304190	System Programming and Operating System															1	2
	Demonstrate the knowledge of Systems Programming	3	2	3	2	3						2		1			
304190.1	Formulate the Problem and develop the solution for same.	3	2	3	2	3						2		1			
304190.2	Compare and analyze the different implementation approach of system programming	3	2	2	2	3						2		1			
304190.3	Demonstrate the knowledge of Operating Systems	3	3	3	3	2	1						2				
304190.4	Formulate the Problem and develop the solution for same.	3	2	2	2	3						2		1		2	1
304190.5	Compare and analyze the different implementation approach operating system abstractions. Interpret various OS functions used in Linux / Ubuntu	3	3	3	3	2	1						2			1	1
304190.6																	
Course Code	Name of Course TE (2015 Pattern) AY 19-20	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PO14	PO15	PO16	PO17
304181	Digital Communication																
	Understand working of waveform coding techniques and analyze their performance.	3.0	2.63333333	3.0	2.63333333	3.0	0	0	0	0	2.53333333	0	1.20000007	0	0	0	
304181.1	CO-2: Analyze the performance of a baseband and pass band digital communication system in	3.0	2.63333333	3.0	2.63333333	3.0	0	0	0	0	2.53333333	0	1.20000007	0	1.20000007	2.53333333	
304181.2	Analyze the performance of a baseband and pass band digital communication system in terms of error rate and spectral efficiency.	3.0	2.63333333	3.0	2.63333333	3.0	0	0	0	0	2.53333333	0	1.20000007	0	1.20000007	2.53333333	
304181.3	Perform the time and frequency domain analysis of the signals in a digital communication system.	3.0	2.63333333	2.63333333	2.63333333	3.0	0	0	0	0	2.53333333	0	1.20000007	0	1.20000007	1.20000007	



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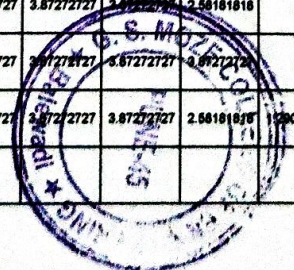
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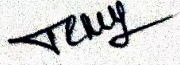
	Study of signal space representation.	3.8	3.8	2.53333333	0	2.53333333	0	0	0	0	0	0	3.8	0	0	0
304181.4																
	Design of digital communication system.	3.8	2.53333333	2.53333333	2.53333333	0	1.26666667	0	0	0	0	0	2.53333333	0	1.26666667	2.53333333
304181.5																
	Understand working of spread spectrum communication system and analyze its performance	3.8	3.8	3.8	3.8	3.8	3.8	0	0	0	0	3.8	0	0	1.26666667	1.26666667
304181.6																
	Digital Signal Processing															
304182																
	Analyze the discrete time signals and concept of sampling theorem in time domain.	2.32	2.32	2.32	1.16	0	0	0	0	0	0	0	1.16	1.16	0	0
304182.1																
	Analyze fourier transform in discrete domain and concepts of linear and circular convolution.	2.32	2.32	1.16	1.16	0	0	0	0	0	0	0	0	2.32	1.16	0
304182.2																
	Analyze the need of Z transform and relation between with different transforms	1.16	2.32	2.32	3.48	1.16	1.16	0	0	0	0	0	0	0	2.32	1.16
304182.3																
	Design and implement the IIR filter for filtering different real world signals.	2.32	2.32	1.16	1.16	0	0	0	0	0	0	0	0	2.32	1.16	0
304182.4																
	Design and implement the FIR filter for filtering different real world signals.	1.16	2.32	2.32	2.32	1.16	1.16	0	0	0	0	0	0	0	2.32	0
304182.5																
	Develop different signal processing applications using DSP processor.	2.32	2.32	1.16	1.16	0	0	0	0	0	0	0	0	2.32	1.16	2.32
304182.6																
	Electromagnetics															
304183																
	Understand the basic mathematical concepts related to electromagnetic vector fields.	3.87272727	3.87272727	2.58181818	3.87272727	3.87272727	0	0	0	0	0	0	3.87272727	0	0	0
304183.1																
	Apply the principles of electrostatics to the solutions of problems relating to electric field and electric potential, boundary conditions and electric energy density.	3.87272727	2.58181818	2.58181818	2.58181818	0	1.29090909	0	2.58181818	2.58181818	0	0	2.58181818	0	1.29090909	2.58181818
304183.2																
	Apply the principles of magnetostatics to the solutions of problems relating to magnetic field and magnetic potential, boundary conditions and magnetic energy density.	3.87272727	3.87272727	3.87272727	0	0	3.87272727	3.87272727	3.87272727	0	2.58181818	1.29090909	3.87272727	0	2.58181818	0
304183.3																
	Understand the concepts related to Faraday's law, induced emf and Maxwell's equations.	3.87272727	3.87272727	2.58181818	0	2.58181818	0	0	0	0	0	0	3.87272727	0	0	0
304183.4																
	Apply Maxwell's equations to solutions of problems relating to transmission lines	3.87272727	2.58181818	2.58181818	2.58181818	0	1.29090909	0	0	0	0	0	2.58181818	0	1.29090909	2.58181818
304183.5																
	Apply Maxwell's equations to solutions of problems relating to uniform plane wave propagation.	3.87272727	3.87272727	3.87272727	3.87272727	3.87272727	3.87272727	3.87272727	3.87272727	3.87272727	2.58181818	0	3.87272727	0	0	1.29090909
304183.6																
	Microcontroller															
304184																
	To understand architecture and features of typical microcontroller.	3.4	3.4	1.13333333	1.13333333	1.13333333	1.13333333	0	0	0	0	0	0	1.13333333	0	0
304184.1																



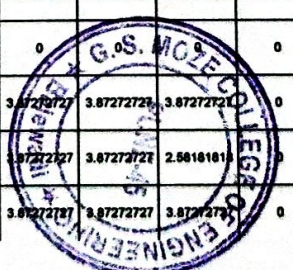
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304184.2	Learn importance of microcontroller in designing embedded application	3.4	3.4	3.4	3.4	3.4	3.4	0	0	0	0	3.4	0	0	0	0
304184.3	To understand need of microcontrollers in real life applications	3.4	2.20000067	3.4	2.20000067	3.4	0	0	0	0	2.20000067	0	1.13333333	0	1.13333333	2.20000067
304184.4	To study various hardware and software tools for developing applications.	3.4	2.20000067	2.20000067	2.20000067	3.4	0	0	0	0	2.20000067	0	1.13333333	2.20000067	1.13333333	1.13333333
304184.5	Develop interfacing to real world devices.LED, LCD (4&8 bits), and Key board	3.4	3.4	2.20000067	2.20000067	2.20000067	3.4	0	0	0	0	0	3.4	0	0	0
304184.6	Develop interfacing to real world devices. UART, Sensor interfacing using ADC, RTC	3.4	2.20000067	1.13333333	0	3.4	3.4	0	0	0	0	0	0	2.26666667	3.4	2.26666667
304185	Mechatronics															
304185.1	Identification of key elements of mechatronics system and its representation in terms of block diagram	3.8	2.53333333	3.8	2.53333333	3.8	0	0	0	0	2.53333333	0	1.20000067	0	0	0
304185.2	Understanding basic principal of Sensors and Transducer. Understanding basic principal of Sensors and Transducer.	3.8	2.53333333	3.8	2.53333333	3.8	0	0	0	0	2.53333333	0	1.20000067	0	1.20000067	2.53333333
304185.3	Study the Hydraulic systems	3.8	2.53333333	2.53333333	2.53333333	3.8	0	0	0	0	2.53333333	0	1.20000067	0	1.20000067	1.20000067
304185.4	Understand pneumatic systems	3.8	3.8	2.53333333	0	2.53333333	0	0	0	0	0	0	3.8	0	0	0
304185.5	Study of electrical and electromechanical actuators	3.8	2.53333333	2.53333333	2.53333333	0	1.20000067	0	0	0	0	0	2.53333333	0	1.20000067	2.53333333
304185.6	Understand the mechatronics system in automobile	3.8	3.8	3.8	3.8	3.8	3.8	0	0	0	0	3.8	0	0	1.20000067	1.20000067
304186	Power Electronics															
304186.1	Design and implement a triggering /gate drive circuit for a power device.	3.87272727	3.87272727	3.87272727	3.87272727	3.87272727	3.87272727	0	0	0	0	0	0	0	0	0
304186.2	Perform & analyze different AC to DC power converters.	3.87272727	2.58181818	0	0	0	0	0	0	0	0	0	0	0	0	0
304186.3	Perform & analyze different DC to A C power converters.	3.87272727	3.87272727	3.87272727	3.87272727	3.87272727	0	0	0	0	0	2.58181818	0	0	0	0
304186.4	Perform & analyze DC-DC converters & AC Voltage Controller.	3.87272727	3.87272727	3.87272727	2.58181818	2.58181818	0	0	0	0	0	2.58181818	0	0	0	0
304186.5	Design & implement over voltage / over current protection circuit.	3.87272727	3.87272727	3.87272727	3.87272727	3.87272727	0	0	0	0	0	2.58181818	0	0	1.20000067	2.58181818
304186.6	Evaluate battery backup time & design a battery charger.	3.87272727	3.87272727	3.87272727	3.87272727	2.58181818	1.20000067	0	0	0	0	2.58181818	0	2.58181818	2.58181818	1.20000067




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304187	Information Theory, Coding Techniques and Communication Network																	
304187.1	Perform information theoretic analysis of communication system	3.83636364	2.55757576	3.83636364	2.55757576	3.83636364	0	0	0	0	2.55757576	0	1.27878788	0	0	0		
304187.2	CU-2: Design a data-compression scheme using suitable source coding technique.	3.83636364	2.55757576	3.83636364	2.55757576	3.83636364	0	0	0	0	2.55757576	0	1.27878788	0	1.27878788	2.55757576		
304187.3	Design a channel coding scheme for a communication system.	3.83636364	2.55757576	2.55757576	2.55757576	3.83636364	0	0	0	0	2.55757576	0	1.27878788	0	1.27878788	1.27878788		
304187.4	Design of different coding/delaying techniques.	3.83636364	3.83636364	2.55757576	0	2.55757576	0	0	0	0	0	0	3.83636364	0	0	0		
304187.5	Understand and apply fundamental principles of data communication and networking.	3.83636364	2.55757576	2.55757576	2.55757576	0	1.27878788	0	0	0	0	0	2.55757576	0	1.27878788	2.55757576		
304187.6	Apply flow and error-control techniques in communication networks.	3.83636364	3.83636364	3.83636364	3.83636364	3.83636364	3.83636364	0	0	0	0	3.83636364	0	0	1.27878788	1.27878788		
304188	Business Management																	
304188.1	Get overview of Management Science aspects useful in business.	3.87272727	2.58181818	3.87272727	3.87272727	3.87272727	1.29090909	1.29090909	0	0	0	0	1.29090909	0	1.29090909	1.29090909		
304188.2	To understand concept of Quality Management, Financial Management and Project Management.	3.87272727	3.87272727	3.87272727	1.29090909	1.29090909	1.29090909	1.29090909	0	0	0	2.58181818	1.29090909	0	1.29090909	1.29090909		
304188.3	Get motivation for Entrepreneurship	2.58181818	2.58181818	2.58181818	2.58181818	1.29090909	1.29090909	1.29090909	0	0	0	1.29090909	1.29090909	0	1.29090909	1.29090909		
304188.4	To learn Human Resource Management, marketing management are the major tasks in Business	2.58181818	3.87272727	3.87272727	3.87272727	1.29090909	0	0	0	0	0	1.29090909	0	1.29090909	1.29090909	0		
304188.5	Get Quality Aspects for Systematically Running the Business	3.87272727	3.87272727	3.87272727	3.87272727	1.29090909	1.29090909	1.29090909	0	0	0	2.58181818	1.29090909	0	1.29090909	1.29090909		
304188.6	To Develop Project Management aspect and Entrepreneurship Skills.	3.87272727	3.87272727	3.87272727	1.29090909	1.29090909	1.29090909	0	0	0	0	1.29090909	1.29090909	0	1.29090909	1.29090909		
304189	Advanced Processors																	
304189.1	To understand need and application of ARM Microprocessors in embedded system.	3.87272727	3.87272727	3.87272727	3.87272727	3.87272727	3.87272727	0	0	0	0	0	0	0	2.58181818	2.58181818		
304189.2	Describe the ARM microprocessor architectures and its feature.	3.87272727	2.58181818	0	0	0	0	0	0	0	0	0	0	0	3.87272727	2.58181818	2.58181818	
304189.3	Interface the advanced peripherals to ARM based microcontroller	3.87272727	3.87272727	3.87272727	3.87272727	3.87272727	0	0	0	0	0	2.58181818	0	0	0	0		
304189.4	Design embedded system with available resources	3.87272727	3.87272727	3.87272727	3.87272727	2.58181818	0	0	0	0	0	2.58181818	0	2.58181818	0	0		
304189.5	Use of DSP Processors and resources for signal processing applications.	3.87272727	3.87272727	3.87272727	3.87272727	3.87272727	0	0	0	0	0	2.58181818	0	0	0	0		



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304190.6	To understand architecture and features of typical ARM7& DSP Processors.	3.87272727	3.87272727	3.87272727	3.87272727	2.58181818	1.29090909	0	0	0	0	2.58181818	0	2.58181818	0	0
304190	Systems Programming and Operating System															
304190.1	Demonstrate the knowledge of Systems Programming	3.7	2.40000007	3.7	2.40000007	3.7	0	0	0	0	2.40000007	0	1.23333333	0	1.23333333	1.23333333
304190.2	Formulate the Problem and develop the solution for same.	3.7	2.40000007	3.7	2.40000007	3.7	0	0	0	0	2.40000007	0	1.23333333	1.23333333	0	0
304190.3	Compare and analyze the different implementation approach of system programming	3.7	2.40000007	2.40000007	2.40000007	3.7	0	0	0	0	2.40000007	0	1.23333333	0	0	0
304190.4	Demonstrate the knowledge of Operating Systems	3.7	3.7	3.7	3.7	2.40000007	0	0	0	0	0	2.40000007	0	0	0	0
304190.5	Formulate the Problem and develop the solution for same.	3.7	2.40000007	2.40000007	2.40000007	3.7	0	0	0	0	2.40000007	0	1.23333333	0	2.40000007	1.23333333
304190.6	Compare and analyze the different implementation approach operating system abstractions. Interpret various OS functions used in Linux / Ubuntu	3.7	3.7	3.7	3.7	2.40000007	1.23333333	0	0	0	0	2.40000007	0	0	1.23333333	1.23333333
Course Code	Name of Course TE (2015 Pattern) AY 20-21	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PO13	PO14	PO15
304181	Digital Communication															
304181.1	Understand working of waveform coding techniques and analyze their performance.	2.58181818	1.29090909	2.58181818	1.29090909	1.29090909	0	0	0	0	0	0	2.58181818	0	3.87272727	3.87272727
304181.2	CO-2: Analyze the performance of a baseband and pass band digital communication system in terms of error rate and spectral efficiency.	1.29090909	2.58181818	2.58181818	1.29090909	2.58181818	0	0	0	0	0	1.29090909	2.58181818	1.29090909	2.58181818	2.58181818
304181.3	Perform the time and frequency domain analysis of the signals in a digital communication system.	2.58181818	1.29090909	2.58181818	1.29090909	1.29090909	0	0	0	0	0	1.29090909	2.58181818	0	3.87272727	2.58181818
304181.4	Study of signal space representation.	1.29090909	2.58181818	2.58181818	1.29090909	2.58181818	0	0	0	0	0	1.29090909	2.58181818	1.29090909	2.58181818	2.58181818
304181.5	Design of digital communication system.	2.58181818	1.29090909	2.58181818	2.58181818	1.29090909	0	0	0	0	0	1.29090909	2.58181818	0	3.87272727	2.58181818
304181.6	Understand working of spread spectrum communication system and analyze its performance	2.58181818	2.58181818	2.58181818	1.29090909	1.29090909	0	0	0	0	0	1.29090909	2.58181818	0	1.29090909	2.58181818
304182	Digital Signal Processing															
304182.1	Analyze the discrete time signals and concept of sampling theorem in time domain.	2.58181818	2.58181818	2.58181818	1.29090909	1.29090909	0	0	0	0	0	0	1.29090909	1.29090909	0	0



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304182.2	Analyze fourier transform in discrete domain and concepts of linear and circular convolution.	2.58181818	2.58181818	1.29090909	1.29090909	0	0	0	0	0	0	0	0	0	0	0	0	0
304182.3	Analyze the need of Z transform and relation between with different transforms	1.29090909	2.58181818	2.58181818	3.87272727	1.29090909	1.29090909	0	0	0	0	0	0	0	0	0	0	0
304182.4	Design and implement the IIR filter for filtering different real world signals.	2.58181818	2.58181818	1.29090909	1.29090909	0	0	0	0	0	0	0	0	0	0	0	0	0
304182.5	Design and implement the FIR filter for filtering different real world signals.	1.29090909	2.58181818	2.58181818	2.58181818	1.29090909	1.29090909	0	0	0	0	0	0	0	0	0	0	0
304182.6	Develop different signal processing applications using DSP processor.	2.58181818	2.58181818	1.29090909	1.29090909	0	0	0	0	0	0	0	0	0	0	0	0	0
304183	Electromagnetics																	
304183.1	Understand the basic mathematical concepts related to electromagnetic vector fields.	3.87272727	3.87272727	2.58181818	3.87272727	3.87272727	0	0	0	0	0	0	0	0	0	0	0	0
304183.2	Apply the principles of electrostatics to the solutions of problems relating to electric field and electric potential, boundary conditions and electric energy density.	3.87272727	2.58181818	2.58181818	2.58181818	0	1.29090909	0	2.58181818	2.58181818	0	0	2.58181818	0	1.29090909	2.58181818		
304183.3	Apply the principles of magnetostatics to the solutions of problems relating to magnetic field and magnetic potential, boundary conditions and magnetic energy density.	3.87272727	3.87272727	3.87272727	0	0	3.87272727	3.87272727	3.87272727	0	2.58181818	1.29090909	3.87272727	0	2.58181818	0		
304183.4	Understand the concepts related to Faraday's law, induced emf and Maxwell's equations.	3.87272727	3.87272727	2.58181818	0	2.58181818	0	0	0	0	0	0	0	0	3.87272727	0	0	0
304183.5	Apply Maxwell's equations to solutions of problems relating to transmission lines	3.87272727	2.58181818	2.58181818	2.58181818	0	1.29090909	0	0	0	0	0	0	0	2.58181818	0	1.29090909	2.58181818
304183.6	Apply Maxwell's equations to solutions of problems relating to uniform plane wave propagation.	3.87272727	3.87272727	3.87272727	3.87272727	3.87272727	3.87272727	3.87272727	3.87272727	2.58181818	0	3.87272727	0	0	1.29090909	1.29090909		
304184	Microcontroller																	
304184.1	To understand architecture and features of typical Microcontroller.	3.83636363	3.83636363	2.58757576	1.27878787	2.58757576	1.27878787	0	0	0	0	0	0	0	1.27878787	0	0	0
304184.2	Learn importance of microcontroller in designing embedded application	3.83636363	3.83636363	3.83636363	3.83636363	3.83636363	3.83636363	0	0	0	0	0	3.83636363	0	0	0	0	0
304184.3	To understand need of microcontrollers in real life applications	3.83636363	2.58757576	3.83636363	2.58757576	3.83636363	0	0	0	0	2.58757576	0	1.27878787	0	1.27878787	2.58757576		
304184.4	To study various hardware and software tools for developing applications.	3.83636363	2.58757576	2.58757576	2.58757576	3.83636363	0	0	0	0	2.58757576	0	1.27878787	2.58757576	1.27878787	1.27878787		
304184.5	Develop interfacing to real world devices LED, LCD (4&8 bits), and Key board	3.83636363	3.83636363	2.58757576	2.58757576	2.58757576	3.83636363	0	0	0	0	0	0	0	3.83636363	0	0	0
304184.6	Develop interfacing to real world devices. UART, Sensor interfacing using ADC, RTC	3.83636363	2.58757576	1.27878787	0	3.83636363	3.83636363	0	0	0	0	0	0	0	2.58757576	3.83636363	2.58757576	



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304185	Mechatronics																	
304185.1	Identification of key elements of mechatronics system and its representation in terms of block diagram	3.872727273	2.581818182	3.872727273	2.581818182	3.872727273	0	0	0	0	2.581818182	0	1.290909091	0	0	0		
304185.2	Understanding basic principal of Sensors and Transducer. Understanding basic principal of Sensors and Transducer.	3.872727273	2.581818182	3.872727273	2.581818182	3.872727273	0	0	0	0	2.581818182	0	1.290909091	0	1.290909091	2.581818182		
304185.3	Study the Hydraulic systems	3.872727273	2.581818182	2.581818182	2.581818182	3.872727273	0	0	0	0	2.581818182	0	1.290909091	0	1.290909091	1.290909091		
304185.4	Understand pneumatic systems	3.872727273	3.872727273	2.581818182	0	2.581818182	0	0	0	0	0	0	3.872727273	0	0	0		
304185.5	Study of electrical and electromechanical actuators	3.872727273	2.581818182	2.581818182	2.581818182	0	1.290909091	0	0	0	0	0	2.581818182	0	1.290909091	2.581818182		
304185.6	Understand the mechatronics system in automobile	3.872727273	3.872727273	3.872727273	3.872727273	3.872727273	3.872727273	0	0	0	0	3.872727273	0	0	1.290909091	1.290909091		
304186	Power Electronics																	
304186.1	Design and implement a triggering /gate drive circuit for a power device.	3.981818182	3.981818182	3.981818182	3.981818182	3.981818182	3.981818182	0	0	0	0	0	0	0	0	0	0	
304186.2	Perform & analyze different AC to DC power converters.	3.981818182	2.654545455	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
304186.3	Perform & analyze different DC to AC power converters.	3.981818182	3.981818182	3.981818182	3.981818182	3.981818182	0	0	0	0	0	2.654545455	0	0	0	0	0	
304186.4	Perform & analyze DC-DC converters & AC Voltage Controller.	3.981818182	3.981818182	3.981818182	3.981818182	2.654545455	0	0	0	0	0	2.654545455	0	0	0	0	0	
304186.5	Design & implement over voltage / over current protection circuit.	3.981818182	3.981818182	3.981818182	3.981818182	3.981818182	0	0	0	0	0	2.654545455	0	0	1.327272727	2.654545455		
304186.6	Evaluate battery backup time & design a battery charger.	3.981818182	3.981818182	3.981818182	3.981818182	2.654545455	1.327272727	0	0	0	0	2.654545455	0	2.654545455	2.654545455	1.327272727		
304187	Information Theory Coding Techniques and Communication Network																	
304187.1	Perform information theoretic analysis of communication system.	3.872727272	2.581818181	3.872727272	2.581818181	3.872727272	0	0	0	0	2.581818181	0	1.290909091	0	0	0		
304187.2	CO-2: Design a data compression scheme using suitable source coding technique.	3.872727272	2.581818181	3.872727272	2.581818181	3.872727272	0	0	0	0	2.581818181	0	1.290909091	0	1.290909091	2.581818181		
304187.3	Design a channel coding scheme for a communication system.	3.872727272	2.581818181	2.581818181	2.581818181	3.872727272	0	0	0	0	2.581818181	0	1.290909091	0	1.290909091	1.290909091		
304187.4	Design of different coding & decoding techniques.	3.872727272	3.872727272	2.581818181		2.581818181	0	0	0	0	0	0	3.872727272	0	0	0		
304187.5	Understand and apply fundamental principles of data communication and networking.	3.872727272	2.581818181	2.581818181	2.581818181	0	1.290909091	0	0	0	0	0	2.581818181	0	1.290909091	2.581818181		



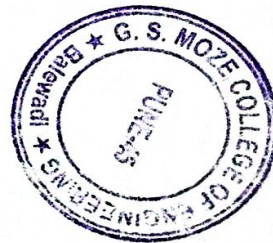
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304187.6	Apply flow and error control techniques in communication networks.	3.87272727	3.87272727	3.87272727	3.87272727	3.87272727	3.87272727	0	0	0	0	3.87272727	0	0	1.29090909	1.29090909
304188	Business Management															
304188.1	Get overview of Management Science aspects useful in business.	3.83636363	2.55757575	3.83636363	3.83636363	3.83636363	1.27878787	1.27878787	0	0	0	0	1.27878787	0	1.27878787	1.27878787
304188.2	To understand concept of Quality Management, Financial Management and Project Management.	3.83636363	3.83636363	3.83636363	1.27878787	1.27878787	1.27878787	1.27878787	0	0	0	2.55757575	1.27878787	0	1.27878787	1.27878787
304188.3	Get motivation for Entrepreneurship	2.55757575	2.55757575	2.55757575	2.55757575	1.27878787	1.27878787	1.27878787	0	0	0	1.27878787	1.27878787	0	1.27878787	1.27878787
304188.4	To learn Human Resource Management, marketing management are the major tasks in Business	2.55757575	3.83636363	3.83636363	3.83636363	1.27878787	0	0	0	0	0	1.27878787	0	1.27878787	1.27878787	0
304188.5	Get Quality Aspects for Systematically Running the Business	3.83636363	3.83636363	3.83636363	3.83636363	1.27878787	1.27878787	1.27878787	0	0	0	2.55757575	1.27878787	0	1.27878787	1.27878787
304188.6	To Develop Project Management aspect and Entrepreneurship Skills.	3.83636363	3.83636363	3.83636363	1.27878787	1.27878787	1.27878787	0	0	0	0	1.27878787	1.27878787	0	1.27878787	1.27878787
304189	Advanced Processors															
304189.1	To understand need and application of ARM Microprocessors in embedded system.	3.90808080	3.90808080	3.90808080	3.90808080	3.90808080	3.90808080	0	0	0	0	0	0	0	2.60606061	2.60606061
304189.2	Describe the ARM microprocessor architectures and its feature.	3.90808080	2.60606061	0	0	0	0	0	0	0	0	0	0	3.90808080	2.60606061	2.60606061
304189.3	Interface the advanced peripherals to ARM based microcontroller	3.90808080	3.90808080	3.90808080	3.90808080	3.90808080	0	0	0	0	0	2.60606061	0	0	0	0
304189.4	Design embedded system with available resources	3.90808080	3.90808080	3.90808080	3.90808080	2.60606061	0	0	0	0	0	2.60606061	0	2.60606061	0	0
304189.5	Use of DSP Processors and resources for signal processing applications.	3.90808080	3.90808080	3.90808080	3.90808080	3.90808080	0	0	0	0	0	2.60606061	0	0	0	0
304189.6	To understand architecture and features of typical ARM7& DSP Processors.	3.90808080	3.90808080	3.90808080	3.90808080	2.60606061	1.30303030	0	0	0	0	2.60606061	0	2.60606061	0	0
304190	System Programming and Operating System															
304190.1	Demonstrate the knowledge of Systems Programming	3.87272727	2.58181818	3.87272727	2.58181818	3.87272727	0	0	0	0	0	2.58181818	0	1.28080808	0	1.28080808
304190.2	Formulate the Problem and develop the solution for same.	3.87272727	2.58181818	3.87272727	2.58181818	3.87272727	0	0	0	0	0	2.58181818	0	1.28080808	1.28080808	0
304190.3	Compare and analyze the different implementation approach of system programming	3.87272727	2.58181818	3.87272727	2.58181818	3.87272727	0	0	0	0	0	2.58181818	0	1.28080808	0	0



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304190.4	Demonstrate the knowledge of Operating Systems	3.872727273	3.872727273	3.872727273	3.872727273	2.581818182	0	0	0	0	0	2.581818182	0	0	0	0
304190.5	Formulate the Problem and develop the solution for same.	3.872727273	2.581818182	2.581818182	2.581818182	3.872727273	0	0	0	0	2.581818182	0	1.290909091	0	2.581818182	1.290909091
304190.6	Compare and analyze the different implementation approach operating system abstractions. Interpret various OS functions used in Linux / Ubuntu	3.872727273	3.872727273	3.872727273	3.872727273	2.581818182	1.290909091	0	0	0	0	2.581818182	0	0	1.290909091	1.290909091



TRDY
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CO Attainment 2021-22

DIGITAL CIRCUIT

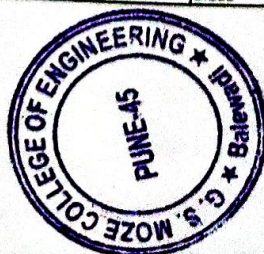
CO→	204182.1	204182.2	204182.3	204182.4	204182.5	204182.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	3.00	3.00	2.00	2.00	3.00	3.00
Assignment	3	3	3	3	2	2
Average direct Assessment=	3.00	3.00	2.50	2.50	2.50	2.50
A = Internal attainment X 0.3=	0.9	0.9	0.75	0.75	0.75	0.75
University exams						
Phase Result	1	1				
End Sem Result	1	1	2	2	2	2
B = University Result X 0.7=	0.7	0.7	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.12	1.12	1.505	1.505	1.505	1.505
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.02	2.02	2.405	2.405	2.405	2.405

Data Structure

CO→	204184.1	204184.2	204184.3	204184.4	204184.5	204184.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	3.00	3.00	3.00	3.00	3.00	3.00
Assignment	3.00	3.00	3.00	2.00	3.00	3.00
Average direct Assessment=	3.00	3.00	3.00	2.50	3.00	3.00
A = Internal attainment X 0.3=	0.9	0.9	0.9	0.75	0.9	0.9
University exams						
Phase Result	2	2	2	2	2	2
End Sem Result	2	2	2	2	2	2
B = University Result X 0.7=	1.4	1.4	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.61	1.61	1.61	1.505	1.61	1.61
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.51	2.51	2.51	2.405	2.51	2.51

Electronic Circuits

CO→	204181.1	204181.2	204181.3	204181.4	204181.5	204181.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	2	2	3	3	3	3
Assignment	2	1	2	2	3	2
Average direct Assessment=	2.00	1.50	2.50	2.50	3.00	2.50
A = Internal attainment X 0.3=	0.6	0.45	0.75	0.75	0.9	0.75
University exams						
Phase Result	1	1	1	1	1	1
End Sem Result	2	2	2	2	2	2
B = University Result X 0.7=	1.4	1.4	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.4	1.295	1.505	1.505	1.61	1.505
Indirect Assessment						
C = Course Exit Survey Attainment	2	1	2	2	2	2
Total Attainment -Indirect Assessment I= (C)*.3	0.6	0.3	0.6	0.6	0.6	0.6
CO Attainment = D+I	2	1.595	2.105	2.105	2.21	2.105



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ELECTRICALCIRCUIT

CO→	204183.1	204183.2	204183.3	204183.4	204183.5	204183.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	2	2	3	3	2	2
Assignment	2	3	2	2	3	2
Average direct Assessment=	2.00	2.50	2.50	2.50	2.50	2.00
A = Internal attainment X 0.3=	0.6	0.75	0.75	0.75	0.75	0.6
University exams						
Phase Result	3	3	0	0	0	1
End Sem Result	3	3	2	2	2	2
B = University Result X 0.7=	2.1	2.1	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.89	1.995	1.505	1.505	1.505	1.4
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.79	2.895	2.405	2.405	2.405	2.3

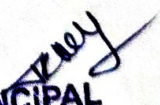
M III

CO→	207005.1	207005.2	207005.3	207005.4	207005.5	207005.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	2	2	3	3	3	3
Assignment	1	2	2	2	3	2
Average direct Assessment=	1.50	2.00	2.50	2.50	3.00	2.50
A = Internal attainment X 0.3=	0.45	0.6	0.75	0.75	0.9	0.75
University exams						
Phase Result	1	1	1	1	1	1
End Sem Result	2	2	2	2	2	2
B = University Result X 0.7=	1.4	1.4	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.295	1.4	1.505	1.505	1.61	1.505
Indirect Assessment						
C = Course Exit Survey Attainment	2	1	3	2	2	2
Total Attainment -Indirect Assessment I= (C)*.3	0.6	0.3	0.9	0.6	0.6	0.6
CO Attainment = D+I	1.895	1.7	2.405	2.105	2.21	2.105

Principles of Communication Systems

CO→	204193.1	204193.2	204193.3	204193.4	204193.5	204193.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	3	3	2	2.00	1.00	1.00
Assignment	2.00	2.00	2.00	2.00	2.00	3.00
Average direct Assessment=	2.50	2.50	2.00	2.00	1.50	2.00
A = Internal attainment X 0.3=	0.75	0.75	0.6	0.6	0.45	0.6
University exams						
Phase Result	3	3				
End Sem Result			2	2	2	2
B = University Result X 0.7=	0	0	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	0.525	0.525	1.4	1.4	1.295	1.4
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	1.425	1.425	2.3	2.3	2.195	2.3




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Signals & Systems

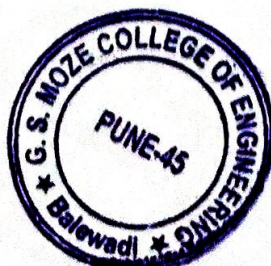
CO→	204191.1	204191.2	204191.3	204191.4	204191.5	204191.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	1	1	1	1.00	1.00	1.00
Assignment	2.00	2.00	2.00	2.00	2.00	3.00
Average direct Assessment=	1.50	1.50	1.50	1.50	1.50	2.00
A = Internal attainment X 0.3=	0.45	0.45	0.45	0.45	0.45	0.6
University exams						
Phase Result	1	1				
End Sem Result	1	1	1	1	1	1
B = University Result X 0.7=	0.7	0.7	0.7	0.7	0.7	0.7
Total Attainment -Direct Assessment D= (A+B)*.7	0.805	0.805	0.805	0.805	0.805	0.91
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	1.705	1.705	1.705	1.705	1.705	1.81

Object Oriented Programming

CO→	204194.1	204194.2	204194.3	204194.4	204194.5	204194.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	3	3	2	2	3	3
Assignment	3	3	3	3	3	3
Average direct Assessment=	3.00	3.00	2.50	2.50	3.00	3.00
A = Internal attainment X 0.3=	0.9	0.9	0.75	0.75	0.9	0.9
University exams						
Phase Result	1	1	0	0	0	0
End Sem Result	1	1	2	2	2	2
B = University Result X 0.7=	0.7	0.7	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.12	1.12	1.505	1.505	1.61	1.61
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.02	2.02	2.405	2.405	2.51	2.51

Control System

CO→	204192.1	204192.2	204192.3	204192.4	204192.5	204192.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	1	1	1	1.00	1.00	1.00
Assignment	2.00	2.00	2.00	2.00	2.00	3.00
Average direct Assessment=	1.50	1.50	1.50	1.50	1.50	2.00
A = Internal attainment X 0.3=	0.45	0.45	0.45	0.45	0.45	0.6
University exams						
Phase Result	1	1				
End Sem Result	1	1	1	1	1	1
B = University Result X 0.7=	0.7	0.7	0.7	0.7	0.7	0.7
Total Attainment -Direct Assessment D= (A+B)*.7	0.805	0.805	0.805	0.805	0.805	0.91
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	1.705	1.705	1.705	1.705	1.705	1.81



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DBM

CO→	0	0	0	0	0	0
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	3.00	3.00	3.00	3.00	3.00	3.00
Assignment	2.00	3.00	2.00	3.00	3.00	3.00
Average direct Assessment=	2.50	3.00	2.50	3.00	3.00	3.00
A = Internal attainment X 0.3=	0.75	0.9	0.75	0.9	0.9	0.9
University exams						
Phase Result	3	3	0	0	0	0
End Sem Result	3	3	2	2	2	2
B = University Result X 0.7=	2.1	2.1	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.995	2.1	1.505	1.61	1.61	1.61
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.895	3	2.405	2.51	2.51	2.51


EMFT

CO→	0	0	0	0	0	0
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	3	3	3	3	3	3
Assignment	3	3	2	3	2	2
Average direct Assessment=	3.00	3.00	2.50	3.00	2.50	2.50
A = Internal attainment X 0.3=	0.9	0.9	0.75	0.9	0.75	0.75
University exams						
Phase Result	2	2				
End Sem Result	2	2	2	2	2	2
B = University Result X 0.7=	1.4	1.4	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.61	1.61	1.505	1.61	1.505	1.505
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.51	2.51	2.405	2.51	2.405	2.405

Microcontroller

CO→	401011.1	401011.2	401011.3	401011.4	401011.5	401011.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	2	2	3	3	3	3
Assignment	2	3	2	3	2	2
Average direct Assessment=	2.00	2.50	2.50	3.00	2.50	2.50
A = Internal attainment X 0.3=	0.6	0.75	0.75	0.9	0.75	0.75
University exams						
Phase Result	2	2	2	2	2	2
End Sem Result	3	3	3	3	3	3
B = University Result X 0.7=	2.1	2.1	2.1	2.1	2.1	2.1
Total Attainment -Direct Assessment D= (A+B)*.7	1.89	1.995	1.995	2.1	1.995	1.995
Indirect Assessment						
C = Course Exit Survey Attainment	3	2	3	2	2	2
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.6	0.9	0.6	0.6	0.6
CO Attainment = D+I	2.79	2.595	2.895	2.7	2.595	2.595




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Digital Communication

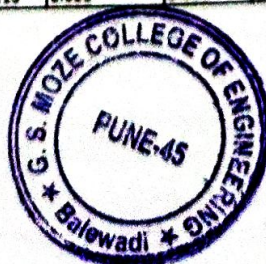
CO→	304181.1	304181.2	304181.2	304181.3	304181.4	304181.5
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	3	3	2	2	3	3
Assignment	3	3	2	2	3	2
Average direct Assessment=	3.00	3.00	2.00	2.00	3.00	2.50
A = Internal attainment X 0.3=	0.9	0.9	0.6	0.6	0.9	0.75
University exams						
Phase Result	1	1				
End Sem Result	1	1	1	1	1	1
B = University Result X 0.7=	0.7	0.7	0.7	0.7	0.7	0.7
Total Attainment -Direct Assessment D= (A+B)*.7	1.12	1.12	0.91	0.91	1.12	1.015
Indirect Assessment						
C = Course Exit Survey Attainment	2	3	3	3	3	2
Total Attainment -Indirect Assessment I= (C)*.3	0.6	0.9	0.9	0.9	0.9	0.6
CO Attainment = D+I	1.72	2.02	1.81	1.81	2.02	1.615

PDC

CO→	304194.1	304194.2	304194.3	304194.4	304194.5	304194.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	2.00	2.00	2.00	2.00	1.00	1.00
Assignment	3	2	3	3	2	3
Average direct Assessment=	2.50	2.00	2.50	2.50	1.50	2.00
A = Internal attainment X 0.3=	0.75	0.6	0.75	0.75	0.45	0.6
University exams						
Phase Result	3	3	0	0	0	0
End Sem Result	3	3	1	1	1	1
B = University Result X 0.7=	2.1	2.1	0.7	0.7	0.7	0.7
Total Attainment -Direct Assessment D= (A+B)*.7	1.995	1.89	1.015	1.015	0.805	0.91
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.895	2.79	1.915	1.915	1.705	1.81

Cellular Network

CO→	304192.1	304192.2	304192.3	304192.4	304192.5	304192.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	3	3	3	3	3	3
Assignment	2	1	2	2	3	2
Average direct Assessment=	2.50	2.00	2.50	2.50	3.00	2.50
A = Internal attainment X 0.3=	0.75	0.6	0.75	0.75	0.9	0.75
University exams						
Phase Result	2	2	2	2	2	2
End Sem Result	3	3	3	3	2	2
B = University Result X 0.7=	2.1	2.1	2.1	2.1	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.995	1.89	1.995	1.995	1.61	1.505
Indirect Assessment						
C = Course Exit Survey Attainment	2	1	2	2	2	2
Total Attainment -Indirect Assessment I= (C)*.3	0.6	0.3	0.6	0.6	0.6	0.6
CO Attainment = D+I	2.595	2.19	2.595	2.595	2.21	2.105



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Network Security

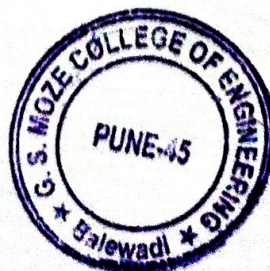
CO→	304195.1	304195.2	304195.3	304195.4	304195.5	304196.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	2	2	2	2	3	3
Assignment	1	2	2	2	2	2
Average direct Assessment=	1.50	2.00	2.00	2.00	2.50	2.50
A = Internal attainment X 0.3=	0.45	0.6	0.6	0.6	0.75	0.75
University exams						
Phase Result	2	2	2	2	2	2
End Sem Result	3	3	3	3	3	3
B = University Result X 0.7=	2.1	2.1	2.1	2.1	2.1	2.1
Total Attainment -Direct Assessment D= (A+B)*.7	1.89	1.995	1.995	2.1	1.995	1.995
Indirect Assessment						
C = Course Exit Survey Attainment	3	2	3	2	2	2
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.6	0.9	0.6	0.6	0.6
CO Attainment = D+I	2.79	2.595	2.895	2.7	2.595	2.595

Project Management

CO→	304193.1	304193.2	304193.3	304193.4	304193.5	304193.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	1	1	1	1.00	1.00	1.00
Assignment	2.00	2.00	2.00	2.00	2.00	3.00
Average direct Assessment=	1.50	1.50	1.50	1.50	1.50	2.00
A = Internal attainment X 0.3=	0.45	0.45	0.45	0.45	0.45	0.6
University exams						
Phase Result	1	1				
End Sem Result	1	1	1	1	1	1
B = University Result X 0.7=	0.7	0.7	0.7	0.7	0.7	0.7
Total Attainment -Direct Assessment D= (A+B)*.7	0.805	0.805	0.805	0.805	0.805	0.91
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	1.705	1.705	1.705	1.705	1.705	1.81

RMT

CO→	0	0	0	0	0	0
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	3.00	3.00	3.00	3.00	3.00	3.00
Assignment	3	2	3	2	3	3
Average direct Assessment=	3.00	2.50	3.00	2.50	3.00	3.00
A = Internal attainment X 0.3=	0.9	0.75	0.9	0.75	0.9	0.9
University exams						
Phase Result	3	3				
End Sem Result	3	3	2	2	2	2
B = University Result X 0.7=	2.1	2.1	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	2.1	1.995	1.61	1.505	1.61	1.61
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	3	2.895	2.51	2.405	2.51	2.51



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VLSI

CO→	401011.1	401011.2	401011.3	401011.4	401011.5	401011.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	2	2	3	3	3	3
Assignment	1	3	3	1	2	2
Average direct Assessment=	1.50	2.50	3.00	2.00	2.50	2.50
A = Internal attainment X 0.3=	0.45	0.75	0.9	0.6	0.75	0.75
University exams						
Phase Result	1	1	1	1	1	1
End Sem Result	2	2	2	1	2	2
B = University Result X 0.7=	1.4	1.4	1.4	0.7	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.295	1.505	1.61	0.91	1.505	1.505
Indirect Assessment						
C = Course Exit Survey Attainment	2	2	3	2	2	2
Total Attainment -Indirect Assessment I= (C)*.3	0.6	0.6	0.9	0.6	0.6	0.6
CO Attainment = D+I	1.895	2.105	2.51	1.51	2.105	2.105

ELECTRONICS PRODUCT DESIGN

CO→	404185.1	404185.2	404185.3	404185.4	404185.5	0
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	3.00	3.00	3.00	3.00	3.00	3.00
Assignment	3	2	3	2	3	3
Average direct Assessment=	3.00	2.50	3.00	2.50	3.00	3.00
A = Internal attainment X 0.3=	0.9	0.75	0.9	0.75	0.9	0.9
University exams						
Phase Result	2	2				
End Sem Result	2	2	2	2	2	2
B = University Result X 0.7=	1.4	1.4	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.61	1.505	1.61	1.505	1.61	1.61
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.045	2.405	2.895	2.895	2.895	2.895

Computer Network

CO→	0	0	0	0	0	0
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	3.00	3.00	2.00	2.00	3.00	3.00
Assignment	3	3	3	3	2	2
Average direct Assessment=	3.00	3.00	2.50	2.50	2.50	2.50
A = Internal attainment X 0.3=	0.9	0.9	0.75	0.75	0.75	0.75
University exams						
Phase Result	1	1				
End Sem Result	1	1	2	2	2	2
B = University Result X 0.7=	0.7	0.7	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.12	1.12	1.505	1.505	1.505	1.505
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.02	2.02	2.405	2.405	2.405	2.405

IOT



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CO→	0	0	0	0	0	0
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	3.00	3.00	3.00	3.00	3.00	3.00
Assignment	3.00	3.00	3.00	2.00	3.00	3.00
Average direct Assessment=	3.00	3.00	3.00	2.50	3.00	3.00
A = Internal attainment X 0.3=	0.9	0.9	0.9	0.75	0.9	0.9
University exams						
Phase Result	2	2	2	2	2	2
End Sem Result	2	2	2	2	2	2
B = University Result X 0.7=	1.4	1.4	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.61	1.61	1.61	1.505	1.61	1.61
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.51	2.51	2.51	2.405	2.51	2.51

Mobile Communication

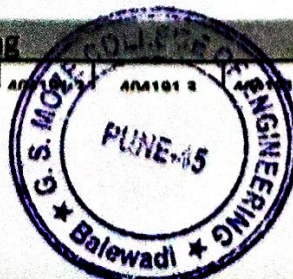
CO→	404189.1	404189.2	404189.3	404189.4	404189.5	404189.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	2	2	3	3	2	2
Assignment	2	3	2	2	3	2
Average direct Assessment=	2.00	2.50	2.50	2.50	2.50	2.00
A = Internal attainment X 0.3=	0.6	0.75	0.75	0.75	0.75	0.6
University exams						
Phase Result	3	3	0	0	0	1
End Sem Result	3	3	2	2	2	2
B = University Result X 0.7=	2.1	2.1	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.89	1.995	1.505	1.505	1.505	1.4
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.79	2.895	2.405	2.405	2.405	2.3

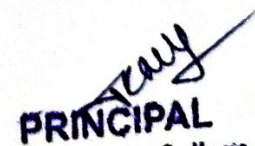
Broadband Communication System

CO→	404190.1	404190.2	404190.3	404190.4	404190.5	404190.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	2	2	3	3	3	3
Assignment	1	2	2	2	3	2
Average direct Assessment=	1.50	2.00	2.50	2.50	3.00	2.50
A = Internal attainment X 0.3=	0.45	0.6	0.75	0.75	0.9	0.75
University exams						
Phase Result	1	1	1	1	1	1
End Sem Result	2	2	2	2	2	2
B = University Result X 0.7=	1.4	1.4	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.295	1.4	1.505	1.505	1.61	1.505
Indirect Assessment						
C = Course Exit Survey Attainment	2	1	3	2	2	2
Total Attainment -Indirect Assessment I= (C)*.3	0.6	0.3	0.9	0.6	0.6	0.6
CO Attainment = D+I	1.895	1.7	2.405	2.105	2.21	2.105

Audio Video Engineering

CO→	AM101.1	AM101.2	AM101.3	AM101.4	AM101.5	AM101.6
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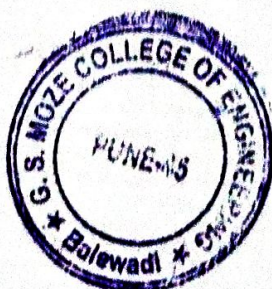
Assessment tools ↓	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL
Direct Assessment						
Internal Assessment						
Internal exam	3	3	2	2.00	1.00	1.00
Assignment	2.00	2.00	2.00	2.00	2.00	3.00
Average direct Assessment=	2.50	2.50	2.00	2.00	1.50	2.00
A = Internal attainment X 0.3=	0.75	0.75	0.6	0.6	0.45	0.6
University exams						
Phase Result	3	3				
End Sem Result			2	2	2	2
B = University Result X 0.7=	0	0	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	0.525	0.525	1.4	1.4	1.295	1.4
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	1.425	1.425	2.3	2.3	2.195	2.3

Wireless Sensor Network

CO →	404192.1	404192.2	404192.3	404192.4	404192.5	404192.6
Assessment tools ↓						
Direct Assessment						
Internal Assessment						
Internal exam	1	1	1	1.00	1.00	1.00
Assignment	2.00	2.00	2.00	2.00	2.00	3.00
Average direct Assessment=	1.50	1.50	1.50	1.50	1.50	2.00
A = Internal attainment X 0.3=	0.45	0.45	0.45	0.45	0.45	0.6
University exams						
Phase Result	1	1				
End Sem Result	1	1	1	1	1	1
B = University Result X 0.7=	0.7	0.7	0.7	0.7	0.7	0.7
Total Attainment -Direct Assessment D= (A+B)*.7	0.805	0.805	0.805	0.805	0.805	0.91
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	1.705	1.705	1.705	1.705	1.705	1.81

Mary

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DIGITAL CIRCUIT

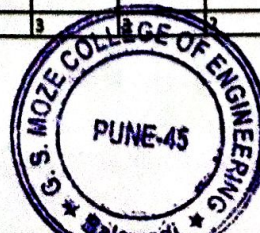
CO→	204182.1	204182.2	204182.3	204182.4	204182.5	204182.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	3.00	3.00	2.00	2.00	3.00	3.00
Assignment	3	3	3	3	2	2
Average direct Assessment=	3.00	3.00	2.50	2.50	2.50	2.50
A = Internal attainment X 0.3=	0.9	0.9	0.75	0.75	0.75	0.75
University exams						
Phase Result	1	1				
End Sem Result	1	1	2	2	2	2
B = University Result X 0.7=	0.7	0.7	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.12	1.12	1.505	1.505	1.505	1.505
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.02	2.02	2.405	2.405	2.405	2.405

Data Structure

CO→	204184.1	204184.2	204184.3	204184.4	204184.5	204184.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	3.00	3.00	3.00	3.00	3.00	3.00
Assignment	3.00	3.00	3.00	2.00	3.00	3.00
Average direct Assessment=	3.00	3.00	3.00	2.50	3.00	3.00
A = Internal attainment X 0.3=	0.9	0.9	0.9	0.75	0.9	0.9
University exams						
Phase Result	2	2	2	2	2	2
End Sem Result	2	2	2	2	2	2
B = University Result X 0.7=	1.4	1.4	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.61	1.61	1.61	1.505	1.61	1.61
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.51	2.51	2.51	2.405	2.51	2.51

Electronic Circuits

CO→	204181.1	204181.2	204181.3	204181.4	204181.5	204181.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	2	2	3	3	3	3
Assignment	2	3	2	3	2	3
Average direct Assessment=	2.00	2.50	2.50	3.00	2.50	3.00
A = Internal attainment X 0.3=	0.6	0.75	0.75	0.9	0.75	0.9
University exams						
Phase Result	1	1				
End Sem Result	1	1	1	1	1	1
B = University Result X 0.7=	0.7	0.7	0.7	0.7	0.7	0.7
Total Attainment -Direct Assessment D= (A+B)*.7	0.91	1.015	1.015	1.12	1.015	1.12
Indirect Assessment						
C = Course Exit Survey Attainment	2	3	3	3	3	3



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Total Attainment -Indirect Assessment I= (C)*.3	0.6	0.9	0.9	0.9	0.9	0.6
CO Attainment = D+I	1.51	1.915	1.915	2.02	1.915	1.72

ELECTRICALCIRCUIT

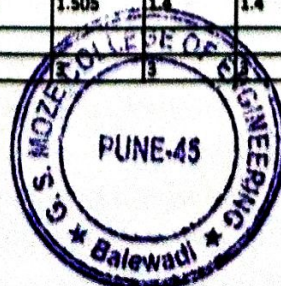
CO→	204183.1	204183.2	204183.3	204183.4	204183.5	204183.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	3.00	3.00	2.00	2.00	3.00	3.00
Assignment	3	3	3	3	2	2
Average direct Assessment=	3.00	3.00	2.50	2.50	2.50	2.50
A = Internal attainment X 0.3=	0.9	0.9	0.75	0.75	0.75	0.75
University exams						
Phase Result	1	1				
End Sem Result	1	1	2	2	2	2
B = University Result X 0.7=	0.7	0.7	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.12	1.12	1.505	1.505	1.505	1.505
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.02	2.02	2.405	2.405	2.405	2.405

M III

CO→	207005.1	207005.2	207005.3	207005.4	207005.5	207005.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	2	2	3	3	3	3
Assignment	1	3	3	1	2	2
Average direct Assessment=	1.50	2.50	3.00	2.00	2.50	2.50
A = Internal attainment X 0.3=	0.45	0.75	0.9	0.6	0.75	0.75
University exams						
Phase Result	1	1	1	1	1	1
End Sem Result	2	2	2	1	2	2
B = University Result X 0.7=	1.4	1.4	1.4	0.7	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.295	1.505	1.61	0.91	1.505	1.505
Indirect Assessment						
C = Course Exit Survey Attainment	2	2	3	2	2	2
Total Attainment -Indirect Assessment I= (C)*.3	0.6	0.6	0.9	0.6	0.6	0.6
CO Attainment = D+I	1.895	2.105	2.51	1.51	2.105	2.105

Principles of communication systems

CO→	204193.1	204193.2	204193.3	204193.4	204193.5	204193.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	3	3	3	3.00	1.00	1.00
Assignment	3.00	3.00	3.00	2.00	3.00	3.00
Average direct Assessment=	3.00	3.00	3.00	2.50	2.00	2.00
A = Internal attainment X 0.3=	0.9	0.9	0.9	0.75	0.6	0.6
University exams						
Phase Result	1	1				
End Sem Result	1	1	2	2	2	2
B = University Result X 0.7=	0.7	0.7	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.12	1.12	1.61	1.505	1.4	1.4
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3



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Total Attainment -Indirect Assessment $I = (C) \times 0.3$	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.02	2.02	2.51	2.405	2.3	2.3

Signals & Systems

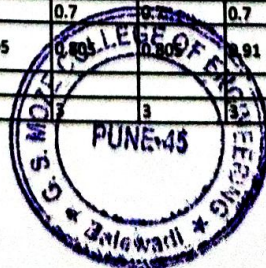
CO→	204191.1	204191.2	204191.3	204191.4	204191.5	204191.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	3	3	3	3.00	1.00	1.00
Assignment	3.00	3.00	3.00	2.00	3.00	3.00
Average direct Assessment=	3.00	3.00	3.00	2.50	2.00	2.00
A = Internal attainment X 0.3=	0.9	0.9	0.9	0.75	0.6	0.6
University exams						
Phase Result	1	1				
End Sem Result	1	1	2	2	2	2
B = University Result X 0.7=	0.7	0.7	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment $D = (A+B) \times 0.7$	1.12	1.12	1.61	1.505	1.4	1.4
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment $I = (C) \times 0.3$	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.02	2.02	2.51	2.405	2.3	2.3

Object Oriented Programming Lab

CO→	204194.1	204194.2	204194.3	204194.4	204194.5	204194.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	2	2	2	2	2	2
Assignment	3	3	3	3	2	2
Average direct Assessment=	2.50	2.50	2.50	2.50	2.00	2.00
A = Internal attainment X 0.3=	0.75	0.75	0.75	0.75	0.6	0.6
University exams						
Phase Result	1	1	0	0	0	0
End Sem Result	1	1	2	2	2	2
B = University Result X 0.7=	0.7	0.7	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment $D = (A+B) \times 0.7$	1.015	1.015	1.505	1.505	1.4	1.4
Indirect Assessment						
C = Course Exit Survey Attainment	2	3	3	3	3	3
Total Attainment -Indirect Assessment $I = (C) \times 0.3$	0.6	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	1.615	1.915	2.405	2.405	2.3	2.3

Control System

CO→	204192.1	204192.2	204192.3	204192.4	204192.5	204192.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	1	1	1	1.00	1.00	1.00
Assignment	2.00	2.00	2.00	2.00	2.00	3.00
Average direct Assessment=	1.50	1.50	1.50	1.50	1.50	2.00
A = Internal attainment X 0.3=	0.45	0.45	0.45	0.45	0.45	0.6
University exams						
Phase Result	1	1				
End Sem Result	1	1	1	1	1	1
B = University Result X 0.7=	0.7	0.7	0.7	0.7	0.7	0.7
Total Attainment -Direct Assessment $D = (A+B) \times 0.7$	0.805	0.805	0.805	0.805	0.805	0.91
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3



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Total Attainment -Indirect Assessment $I = (C) \times 3$	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	1.705	1.705	1.705	1.705	1.705	1.81

Computer Network

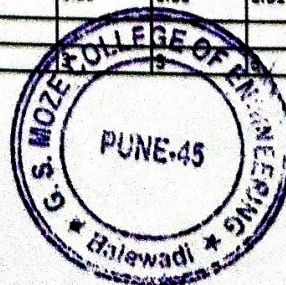
CO→	304185.1	304186.2	304187.3	304188.4	304189.5	304190.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	2	2	2	2	3	3
Assignment	1	2	2	2	2	2
Average direct Assessment=	1.50	2.00	2.00	2.00	2.50	2.50
A = Internal attainment X 0.3=	0.45	0.6	0.6	0.6	0.75	0.75
University exams						
Phase Result	1	1	1	1	1	1
End Sem Result	2	2	2	1	2	2
B = University Result X 0.7=	1.4	1.4	1.4	0.7	1.4	1.4
Total Attainment -Direct Assessment $D = (A+B) \times 0.7$	1.295	1.4	1.4	0.91	1.505	1.505
Indirect Assessment						
C = Course Exit Survey Attainment	2	1	2	2	2	2
Total Attainment -Indirect Assessment $I = (C) \times 3$	0.6	0.3	0.6	0.6	0.6	0.6
CO Attainment = D+I	1.895	1.7	2	1.51	2.105	2.105

Database Management

CO→	304183.1	304183.2	304183.3	304183.4	304183.5	304183.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	3.00	3.00	3.00	3.00	3.00	3.00
Assignment	2.00	3.00	2.00	3.00	3.00	3.00
Average direct Assessment=	2.50	3.00	2.50	3.00	3.00	3.00
A = Internal attainment X 0.3=	0.75	0.9	0.75	0.9	0.9	0.9
University exams						
Phase Result	1	1	0	0	0	0
End Sem Result	1	1	1	1	1	1
B = University Result X 0.7=	0.7	0.7	0.7	0.7	0.7	0.7
Total Attainment -Direct Assessment $D = (A+B) \times 0.7$	1.015	1.12	1.015	1.12	1.12	1.12
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment $I = (C) \times 3$	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	1.915	2.02	1.915	2.02	2.02	2.02

EMFT

CO→	304182.1	304182.2	304182.3	304182.4	304182.5	304182.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	2	2	2	2	3	3
Assignment	3	3	3	2	3	3
Average direct Assessment=	2.50	2.50	2.50	2.00	3.00	3.00
A = Internal attainment X 0.3=	0.75	0.75	0.75	0.6	0.9	0.9
University exams						
Phase Result	1	1				
End Sem Result	1	1	3	3	2	2
B = University Result X 0.7=	0.7	0.7	2.1	2.1	1.4	1.4
Total Attainment -Direct Assessment $D = (A+B) \times 0.7$	1.015	1.015	1.995	1.89	1.61	1.61
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3			



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Total Attainment -Indirect Assessment $I = (C)*.3$	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	1.915	1.915	2.895	2.79	2.51	2.51

Microcontroller

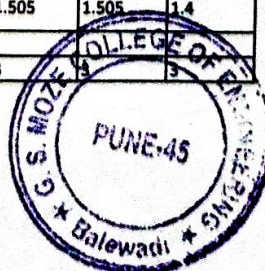
CO→	401011.1	401011.2	401011.3	401011.4	401011.5	401011.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	2	2	3	3	3	3
Assignment	2	3		2	3	2
Average direct Assessment=	2.00	2.50	2.50	3.00	2.50	2.50
A = Internal attainment X 0.3=	0.6	0.75	0.75	0.9	0.75	0.75
University exams						
Phase Result	1	2	2	2	2	2
End Sem Result	3	3	3	3	3	3
B = University Result X 0.7=	2.1	2.1	2.1	2.1	2.1	2.1
Total Attainment -Direct Assessment $D = (A+B)*.7$	1.89	1.995	1.995	2.1	1.995	1.995
Indirect Assessment						
C = Course Exit Survey Attainment	3	2	3	2	2	2
Total Attainment -Indirect Assessment $I = (C)*.3$	0.9	0.6	0.9	0.6	0.6	0.6
CO Attainment = D+I	2.79	2.595	2.895	2.7	2.595	2.595

Digital Communication

CO→	304181.1	304181.2	304181.2	304181.3	304181.4	304181.5
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	3	3	2	2	3	3
Assignment	3	3	2	2	3	2
Average direct Assessment=	3.00	3.00	2.00	2.00	3.00	2.50
A = Internal attainment X 0.3=	0.9	0.9	0.6	0.6	0.9	0.75
University exams						
Phase Result	1	1				
End Sem Result	1	1	1	1	1	1
B = University Result X 0.7=	0.7	0.7	0.7	0.7	0.7	0.7
Total Attainment -Direct Assessment $D = (A+B)*.7$	1.12	1.12	0.91	0.91	1.12	1.015
Indirect Assessment						
C = Course Exit Survey Attainment	2	3	3	3	3	2
Total Attainment -Indirect Assessment $I = (C)*.3$	0.6	0.9	0.9	0.9	0.9	0.6
CO Attainment = D+I	1.72	2.02	1.81	1.81	2.02	1.615

PDC

CO→	304194.1	304194.2	304194.3	304194.4	304194.5	304194.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	3.00	3.00	2.00	2.00	2.00	2.00
Assignment	3	3	3	3	3	2
Average direct Assessment=	3.00	3.00	2.50	2.50	2.50	2.00
A = Internal attainment X 0.3=	0.9	0.9	0.75	0.75	0.75	0.6
University exams						
Phase Result	2	2	0	0	0	0
End Sem Result	2	2	2	2	2	2
B = University Result X 0.7=	1.4	1.4	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment $D = (A+B)*.7$	1.61	1.61	1.505	1.505	1.505	1.4
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3



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Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.51	2.51	2.405	2.405	2.405	2.3

Cellular Network

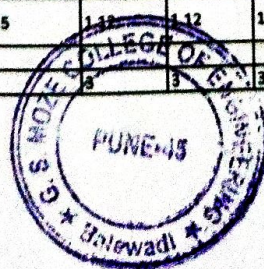
CO→	304192.1	304192.2	304192.3	304192.4	304192.5	304192.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	3.00	3.00	3.00	3.00	3.00	3.00
Assignment	2.00	3.00	2.00	3.00	3.00	3.00
Average direct Assessment=	2.50	3.00	2.50	3.00	3.00	3.00
A = Internal attainment X 0.3=	0.75	0.9	0.75	0.9	0.9	0.9
University exams						
Phase Result	1	1	0	0	0	0
End Sem Result	1	1	1	1	1	1
B = University Result X 0.7=	0.7	0.7	0.7	0.7	0.7	0.7
Total Attainment -Direct Assessment D= (A+B)*.7	1.015	1.12	1.015	1.12	1.12	1.12
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	1.915	2.02	1.915	2.02	2.02	2.02

Network Security

CO→	304195.1	304195.2	304195.3	304195.4	304195.5	304196.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	2	2	2	2	3	3
Assignment	1	2	2	2	2	2
Average direct Assessment=	1.50	2.00	2.00	2.00	2.50	2.50
A = Internal attainment X 0.3=	0.45	0.6	0.6	0.6	0.75	0.75
University exams						
Phase Result	1	1	1	1	1	1
End Sem Result	2	2	2	1	2	2
B = University Result X 0.7=	1.4	1.4	1.4	0.7	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.295	1.4	1.4	0.91	1.505	1.505
Indirect Assessment						
C = Course Exit Survey Attainment	2	1	2	2	2	2
Total Attainment -Indirect Assessment I= (C)*.3	0.6	0.3	0.6	0.6	0.6	0.6
CO Attainment = D+I	1.895	1.7	2	1.51	2.105	2.105

Project Management

CO→	304193.1	304193.2	304193.3	304193.4	304193.5	304193.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	3.00	3.00	3.00	3.00	3.00	3.00
Assignment	2.00	3.00	2.00	3.00	3.00	3.00
Average direct Assessment=	2.50	3.00	2.50	3.00	3.00	3.00
A = Internal attainment X 0.3=	0.75	0.9	0.75	0.9	0.9	0.9
University exams						
Phase Result	1	1	0	0	0	0
End Sem Result	1	1	1	1	1	1
B = University Result X 0.7=	0.7	0.7	0.7	0.7	0.7	0.7
Total Attainment -Direct Assessment D= (A+B)*.7	1.015	1.12	1.015	1.12	1.12	1.12
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3



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Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	1.915	2.02	1.915	2.02	2.02	2.02

Cloud Computing

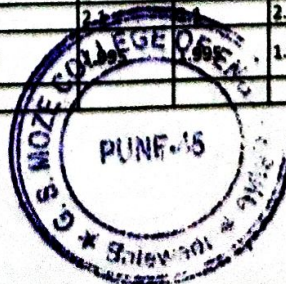
CO→	404184.1	404181.2	404181.3	404181.4	404181.5	404181.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	2	2	3	3	3	3
Assignment	2	1	2	2	3	2
Average direct Assessment=	2.00	1.50	2.50	2.50	3.00	2.50
A = Internal attainment X 0.3=	0.6	0.45	0.75	0.75	0.9	0.75
University exams						
Phase Result	1	1	1	1	1	1
End Sem Result	2	2	2	2	2	2
B = University Result X 0.7=	1.4	1.4	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.4	1.295	1.505	1.505	1.61	1.505
Indirect Assessment						
C = Course Exit Survey Attainment	2	1	2	2	2	2
Total Attainment -Indirect Assessment I= (C)*.3	0.6	0.3	0.6	0.6	0.6	0.6
CO Attainment = D+I	2	1.595	2.105	2.105	2.21	2.105

ELECTRONICS PRODUCT DESIGN

CO→	404185.1	404185.2	404185.3	404185.4	404185.5	0
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	3.00	3.00	3.00	3.00	3.00	3.00
Assignment	3	2	3	2	3	3
Average direct Assessment=	3.00	2.50	3.00	2.50	3.00	3.00
A = Internal attainment X 0.3=	0.9	0.75	0.9	0.75	0.9	0.9
University exams						
Phase Result	2	2				
End Sem Result	2	2	2	2	2	2
B = University Result X 0.7=	1.4	1.4	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.61	1.505	1.61	1.505	1.61	1.61
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.51	2.405	2.51	2.405	2.51	2.51

M IoT

CO→	404184.1	404184.2	404184.3	404184.4	404184.5	404184.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	3.00	3.00	3.00	3.00	3.00	3.00
Assignment	2.00	2.00	2.00	2.00	2.00	2.00
Average direct Assessment=	2.50	2.50	2.50	2.50	2.50	2.50
A = Internal attainment X 0.3=	0.75	0.75	0.75	0.75	0.75	0.75
University exams						
Phase Result	3	3	1	1	1	1
End Sem Result	2	2	3	3	3	3
B = University Result X 0.7=	1.4	1.4	2.1	2.1	2.1	2.1
Total Attainment -Direct Assessment D= (A+B)*.7	1.505	1.505	1.995	1.995	1.995	1.995
Indirect Assessment						



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C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment - Indirect Assessment I = (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.405	2.405	2.895	2.895	2.895	2.895

RMI

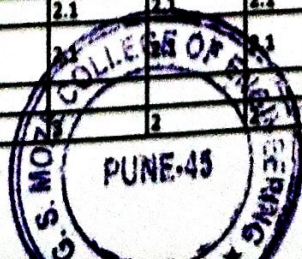
CO→	404181.1	404181.2	404181.3	404181.4	404181.5	404181.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	3.00	3.00	3.00	3.00	3.00	3.00
Assignment	2.00	2.00	2.00	2.00	2.00	2.00
Average direct Assessment=	2.50	2.50	2.50	2.50	2.50	2.50
A = Internal attainment X 0.3=	0.75	0.75	0.75	0.75	0.75	0.75
University exams						
Phase Result	1	1	1	1	1	1
End Sem Result	3	3	3	3	3	3
B = University Result X 0.7=	2.1	2.1	2.1	2.1	2.1	2.1
Total Attainment - Direct Assessment D = (A+B)*.7	1.995	1.995	1.995	1.995	1.995	1.995
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment - Indirect Assessment I = (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.895	2.895	2.895	2.895	2.895	2.895

VLSI Design & Technology

CO→	404184.1	404181.2	404181.3	404181.4	404181.5	404181.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	2	2	3	3	3	3
Assignment	1	2	2	2	3	2
Average direct Assessment=	1.50	2.00	2.50	2.50	3.00	2.50
A = Internal attainment X 0.3=	0.45	0.6	0.75	0.75	0.9	0.75
University exams						
Phase Result	1	1	1	1	1	1
End Sem Result	2	2	2	2	2	2
B = University Result X 0.7=	1.4	1.4	1.4	1.4	1.4	1.4
Total Attainment - Direct Assessment D = (A+B)*.7	1.295	1.4	1.505	1.505	1.61	1.505
Indirect Assessment						
C = Course Exit Survey Attainment	2	1	3	2	2	2
Total Attainment - Indirect Assessment I = (C)*.3	0.6	0.3	0.9	0.6	0.6	0.6
CO Attainment = D+I	1.895	1.7	2.405	2.105	2.21	2.105

FOC

CO→	404190.1	404190.2	404190.3	404190.4	404190.5	404190.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	1	1	1	1	1	1
Assignment	2	3	2	2	2	2
Average direct Assessment=	2.00	2.00	3.00	3.00	3.00	3.00
A = Internal attainment X 0.3=	0.6	0.6	0.9	0.9	0.9	0.9
University exams						
Phase Result	1	1	3	3	3	3
End Sem Result	1	1	3	3	3	3
B = University Result X 0.7=	0.7	0.7	2.1	2.1	2.1	2.1
Total Attainment - Direct Assessment D = (A+B)*.7	0.91	0.91	2.1	2.1	2.1	2.1
Indirect Assessment						
C = Course Exit Survey Attainment	2	2	2	2	2	2



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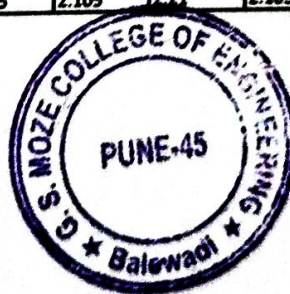
Total Attainment -Indirect Assessment I= (C)*.3	0.6	0.6	0.6	0.9	0.6	0.6
CO Attainment = D+I	1.51	1.51	2.7	3	2.7	2.7

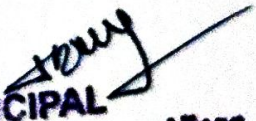
Mobile Computing

CO→	404191.1	404191.2	404191.3	404191.4	404191.5	404191.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	3.00	3.00	3.00	3.00	3.00	3.00
Assignment	2.00	2.00	2.00	2.00	2.00	2.00
Average direct Assessment=	2.50	2.50	2.50	2.50	2.50	2.50
A = Internal attainment X 0.3=	0.75	0.75	0.75	0.75	0.75	0.75
University exams						
Phase Result	3	3	1	1	1	1
End Sem Result	2	2	3	3	3	3
B = University Result X 0.7=	1.4	1.4	2.1	2.1	2.1	2.1
Total Attainment -Direct Assessment D= (A+B)*.7	1.505	1.505	1.995	1.995	1.995	1.995
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.405	2.405	2.895	2.895	2.895	2.895

Digital Marketing

CO→	404192.1	404192.2	404192.3	404192.4	404192.5	404192.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	2	2	3	3	3	3
Assignment	2	1	2	2	3	2
Average direct Assessment=	2.00	1.50	2.50	2.50	3.00	2.50
A = Internal attainment X 0.3=	0.6	0.45	0.75	0.75	0.9	0.75
University exams						
Phase Result	1	1	1	1	1	1
End Sem Result	2	2	2	2	2	2
B = University Result X 0.7=	1.4	1.4	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.4	1.295	1.505	1.505	1.61	1.505
Indirect Assessment						
C = Course Exit Survey Attainment	2	1	2	2	2	2
Total Attainment -Indirect Assessment I= (C)*.3	0.6	0.3	0.6	0.6	0.6	0.6
CO Attainment = D+I	2	1.595	2.105	2.105	2.21	2.105




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“ EMPOWERMENT THROUGH TECHNOLOGICAL EXCELLENCE ”
GENBA SOPANRAO MOZE COLLEGE OF ENGINEERING
 Department of Computer Engineering
 Academic Year 2018-19

Semester - III

Course Code	Name of Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
210241	Discrete Mathematics															
210241.1	Solve real world problems logically using appropriate set, function, and relation models and interpret the associated															
210241.2	Analyze and synthesize the real world problems using discrete mathematics.	2	3	3	2	0	0	0	0	0	0	0	0	1	1	1
210241.3	Associate the applications of Graph theory models and data structures.	3	3	0	2	0	0	0	0	0	0	0	0	1	1	1
210241.4	Describe the concepts and properties of algebraic structures such as groups, rings and fields.	0	3	3	2	0	0	0	0	0	0	0	0	1	1	1
210241.5	Extend the concepts of Boolean algebra in the area of lattices.	3	0	3	0	0	0	0	0	0	0	0	0	1	1	1
210241.6	Apply the knowledge of argumental discrete mathematical problems.	3	3	3	3	0	0	0	0	0	0	0	0	1	1	1
	Avg PO attainment.	3	3	3	2	0	0	0	0	0	0	0	0	1	1	1
210242	Digital Electronics and Logic Design	2.33	1	3.75	3.7	0	0	0	0	0	0	0	0	6	3	6
210242.1	Realize and simplify Boolean Algebraic assignments for designing digital circuits using K- Maps.															
210242.2	Design and implement Sequential and Combinational digital circuits as per the specifications	2	0	2	0	0	0	0	0	0	0	0	0	0	1	1
210242.3	Apply the knowledge to appropriate IC as per the design specifications	2	1	2	0	0	0	0	0	0	0	0	0	1	1	0
210242.4	Design simple digital systems using VHDL.	0	1	2	0	0	0	0	0	0	0	0	0	1	1	1
210242.5	Develop simple embedded system for simple real world application.	2	0	2	1	0	0	0	0	0	0	0	0	0	1	1
210242.6	Compare various digital logic families based on power, speed and interfacing characteristics	2	2	0	0	0	0	0	0	0	0	0	0	1	1	0
	Avg PO attainment.	2	0	0	0	0	0	0	0	0	0	0	0	1	1	1
210243	Data Structures and Algorithms	1.67	1	2	0.3	0	0	0	0	0	0	0	0	4	3	4
210243.1	To discriminate the usage of various structures in approaching the problem solution.															
		1.73	1.73	1.73	0.9	0.9	0.9	1.73	0	0	0.86	0	0.9	0.1	0.1	0.1



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210243.2	To design the algorithms to solve the programming problems.	0.86	0.86	0.86	1	0.9	1	1.73	0.1	0	0.86	0	0.9	0.1	0
210243.3	To use effective and efficient data structures in solving various	2.2	1.46	1.46	0.7	0.9	0.7	1.73	0.1	0	0.86	0	0.9	0.1	0
210243.4	To analyze the problems to apply suitable algorithm and data structure.	2.6	1.73	1.73	0.9	0.9	3	1.73	0.1	0	0.86	0	0.9	0.1	0
210243.5	To use appropriate algorithmic strategy for better efficiency	2.6	1.73	1.73	0.9	0.9	0.9	1.73	0	0	0.86	0	0.9	0.1	0
210243.6	Understand the concepts of Hashing, Files and their Organization at	1.73	1.73	1.73	0.9	0.9	0.9	0.86	0	0	0.86	0	0	0.1	0
	Avg PO attainment.	1.95	1.85	2.31	1.3	1.3	1.2	3.17	0.1	0	0.86	0	0.6	0.1	0
210244	Computer Organization and Architecture	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
210244.1	Demonstrate computer architecture concepts related to design of modern processors, memories and I/Os	2	1	1	0	0	0	0	0	0	0	0	0	1	1
210244.2	Analyze the principles of computer architecture using examples drawn from commercially available computers.	3	0	1	1	0	0	0	0	0	0	0	0	1	1
210244.3	Evaluate various design alternatives in processor organization.	1	2	0	1	0	0	0	0	0	0	0	0	1	1
210244.4	Understand the basics of memory systems and cache Memories.	2	1	0	2	0	0	0	0	0	0	0	0	1	1
210244.5	Design arithmetic and logical operations with integer and floating-point operands.	1	0	1	1	0	0	0	0	0	0	0	0	1	1
210244.6	Understand the basic processing unit, embedded and other large computing systems.	2	1	1	0	0	0	0	0	0	0	0	0	1	1
	Avg PO attainment.	1.83	1	1	1.7	0	0	0	0	0	0	0	0	6	3
210245	Object Oriented Programming	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
210245.1	Analyze the strengths of object oriented programming	2	1	1	0	0	0	0	0	0	0	0	0	0	1
210245.2	Design and apply OOP principles for effective programming	3	0	1	1	0	0	0	0	0	0	0	0	1	1
210245.3	Develop programming application using object oriented programming language C++	1	2	0	1	0	0	0	0	0	0	0	0	1	0
210245.4	Percept the utility and applicability of OOP	2	1	0	2	0	0	0	0	0	0	0	0	1	0
210245.5	Relate Java applications with threads and generics classes	1	0	1	1	0	0	0	0	0	0	0	0	0	1
207003.6	Demonstrate simple Graphical User Interfaces	2	1	1	0	0	0	0	0	0	0	0	0	1	1
	Avg PO attainment.	1.83	1	1	1.7	0	0	0	0	0	0	0	0	4	2.5



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Semester - IV

Course Code	Name of Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
207004	Engineering Mathematics III														

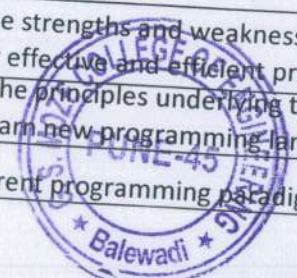
207003.1	Solve higher order linear differential equation using appropriate techniques for modeling and analyzing electrical circuits.	2	2	3	2	2	2	2	1	1	1	0	1	1	1
207003.2	Solve problems related to Fourier transform, Z-Transform and applications to Signal and Image processing.	2	3	3	1	1	1	1	1	1	1	1	1	1	1
207003.3	Apply statistical methods like correlation, regression analysis and probability theory for analysis and prediction of a given data as applied to machine intelligence.	3	2	3	3	3	1	1	1	1	1	1	1	1	1
207003.4	Perform vector differentiation and integration to analyze the vector fields and apply to compute line, surface and volume integrals.	3	3	3	1	1	1	2	1	1	1	1	1	1	1
207003.5	Analyze conformal mappings, transformations and perform contour integration of complex functions required in Image processing, Digital filters and Computer graphics.	2	3	2	2	1	1	1	1	1	1	1	1	1	1
207003.6	Determine the externals of functional using calculus of variations and solve problems arising in dynamics of rigid bodies and vibrational analysis.	2	0	0	0	0	0	0	0	0	0	0	0	1	1
	Avg PO attainment.	2.33	1	3.5	3	2	1	2.33	1	0.8	1	0.8	0.8	6	3
210251	Computer Graphics	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
210251.1	Apply mathematics and logic to develop Computer programs for elementary graphic operations	2	1	2	1	0	0	0	0	0	0	0	0	1	1
210251.2	Develop scientific and strategic approach to solve complex problems in the domain of Computer Graphics	1	2	0	0	0	0	0	0	0	0	0	0	1	1
210251.3	Develop the competency to understand the concepts related to Computer Vision and Virtual reality	2	0	0	0	0	0	0	0	0	0	0	0	1	1
210251.4	Apply the logic to develop animation and gaming programs	0	2	0	1	0	0	0	0	0	0	0	0	1	1
210251.5	Design Geometric transformations on 3D objects, 2D clipping and color models.	2	1	1	1	0	0	0	0	0	0	0	0	1	1
210251.6	Demonstrate visible surface detection methods and different types of projections.	1	0	0	0	0	0	0	0	0	0	0	0	1	1
	Avg PO attainment.	1.33	1	0.75	1	0	0	0	0	0	0	0	0	6	3
210252	Advanced Data Structures	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2



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210252.1	To apply appropriate advanced data structure and efficient algorithms to approach the problems of various domain.	0	2	0	0	0	0	0	0	0	0	0	0	0	0	1	
210252.2	To design the algorithms to solve the programming problems.	1	0	0	1	0	2	2	2	0	0	0	0	0	0	1	1
210252.3	To use effective and efficient data structures in solving various Computer Engineering domain problems.	0	0	2	0	0	2	0	0	0	0	0	0	0	0	1	1
210252.4	To analyze the algorithmic solutions for resource requirements and optimization	0	2	2	0	0	0	0	0	0	0	0	0	0	0	1	1
210252.5	To use appropriate modern tools to understand and analyze the functionalities confined to the data structure usage	0	2	2	2	0	0	0	0	0	0	0	0	0	0	1	1
210252.6	Understand the concepts of Hashing, Files and their organization ar	3	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
	Avg PO attainment.	0.67	1	1	0.5	0	0.7	0.33	0.3	0	0	0	0	0	0	1	1
210253	Microprocessor	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2		
210253.1	To apply the assembly language programming to develop small real life embedded application.	1.73	4.2	4.2	0	1.1	0	0	0	0	0	0	0	1	0		
210253.2	To understand the architecture of the advanced processor thoroughly to use the resources for programming	0.1	2.1	4.2	0	1.1	0.1	0	0	0	0	0	0	0	0	1	0
210253.3	To understand the higher processor architectures descended from 80386 architecture	0.1	1.4	4.2	0	2.1	0	0.1	0	0	0	0	0	0	0	0	1
210253.4	Apply 8086 assembly language code to handle strings and overflow conditions and I/O programming interface using 8255 PPI	0.1	1.4	2.1	0	1.1	0	0	0	0	0	0	0	1	0		
210253.5	Understand the architecture and features of ARM Embedded system	0.1	2.1	2.1	0	1.4	4.2	0	0	0	0	0	0	0	0	0	1
210253.6	Apply arm assembly code to solve problems related to Embedded systems	0	0	2.1	0	0.1	0	0	2.1	0	0	0	0	0	0	0	0
	Avg PO attainment.	0.36	2.24	4.73	0	1.7	0.7	0.03	0.4	0	0	0	0	2	1		
210254	Principles of Programming Languages	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2		
210254.1	To analyze the strengths and weaknesses of programming languages for effective and efficient program development	2	0	2	2	0	0	0	0	0	0	0	0	1	1		
210254.2	To inculcate the principles underlying the programming languages enabling to learn new programming languages	2	0	1	0	0	0	0	0	0	0	0	0	1	1		
210254.3	To grasp different programming paradigms	2	0	2	0	0	0	0	0	0	0	0	0	1	1		
	Avg PO attainment.	2	0	2	0	0	0	0	0	0	0	0	0	1	1		

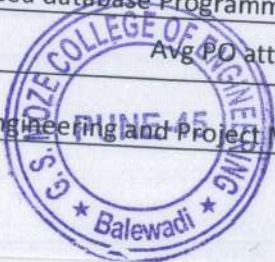


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210254.4	To use the programming paradigms effectively in application development.	2	0	2	0	0	0	0	0	0	0	0	0	0	1	
210254.5	Design to program in different language paradigms and evaluate their relative benefits	1	1	0	0	0	0	0	0	0	0	0	0	0	1	
210254.6	Knowledge to compare the features of various programming languages	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Avg PO attainment.		1.67	0.17	1.17	0.3	0	0	0	0	0	0	0	0	0	1	1

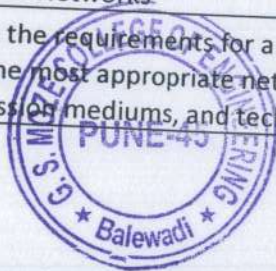
Semester - V

Course Code	Name of Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
310241	Theory of Computation														
310241.1	Design deterministic Turing machine for all inputs and all outputs	1.73	2.2	2.2	1.9	1.1	0	0	0	0	0	0	0	1	0
310241.2	Subdivide problem space based on input subdivision using constraint	0.1	2.1	2.2	0	1.1	0.1	0	0	0	0	0	0	0	1
310241.3	Apply linguistic theory	0.1	0	2.7	0	2.1	0	0	0	0	0	0	0	0	0
310241.4	Apply Turing machine to propose computation solutions	0.1	1.4	2.1	0	1.1	0	0	0	0	0	0	0	0	0
310241.5	Interpret whether a problem is decidable or not	0.1	2.1	2.1	0	1.4	2.2	0.1	0	0	0	0	2	1	0
310241.6	Interpret NP class problems	2.1	1.4	2.1	0	0.1	0	0	0	0	1.8	0	1	0	1
Avg PO attainment.		0.71	1.84	3.35	0.6	1.7	0.4	0.03	0	0	0.36	0	0.8	2	1
310242	Database Management Systems														
310242.1	Design E-R Model for given requirements and convert the same into database tables.	2	3	2	2	1	2	0	0	0	0	0	2	1	1
310242.2	Use database techniques such as SQL & PL/SQL.	3	3	2	2	1	0	1	0	1	0	1	1	1	2
310242.3	Use modern database techniques such as NOSQL.	2	3	2	1	1	0	0	0	0	2	0	1	1	1
310242.4	Explain transaction Management in relational database System.	3	2	1	2	1	2	2	1	0	0	2	1	2	1
310242.5	Describe different database architecture and analyses the use of appropriate architecture in real time environment.	3	3	3	3	1	0	0	0	2	1	0	2	1	1
310242.6	Use advanced database Programming concepts	3	3	3	3	1	0	0	0	0	0	0	1	1	1
Avg PO attainment.		2.67	2.83	2.17	2.2	1.5	0.7	0.5	0.2	0.5	0.5	0.5	1.3	1.17	1.17
310243	Software Engineering and Project Management														
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2



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310243.1	Decide on a process model for a developing a software project	3.3	3	0.73	1.5	1.5	0.7	0	0	0	0	0	0.7	0.73	0.73
310243.2	Classify software applications and Identify unique features of various domains	3.3	3.3	2.2	1.1	0	0	0	0	1.1	2.2	0	1.1	0	1.1
310243.3	Design test cases of a software system.	2.2	1.47	2.2	0.7	1.5	0.7	0	0.7	0.7	0.73	0.73	0.7	0	0.73
310243.4	Understand basics of IT Project management.	2.2	3.3	0	1.1	0	1.1	1.1	2.2	1.1	1.1	0	1.1	1.1	0
310243.5	Plan, schedule and execute a project considering the risk management.	1.47	1.47	1.47	0.7	0.7	0.7	0.73	1.5	0.7	0.73	0	0.7	0	0.73
310243.6	Apply quality attributes in software development life cycle.	2.2	1.1	1.1	1.1	2.2	1.1	1.1	1.1	1.1	0	0	1.1	0	0
	Avg PO attainment.	2.44	2.73	1.93	2.1	1.5	0.7	0.98	1.1	0.8	0.95	0.15	0.9	1.83	1.65
310244	Information Systems and Engineering Economics	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
310244.1	Understand the need, usage and importance of an Information System to an organization.	2	0	1	2	2	1	0	0	0	0	0	1	1	1
310244.2	Understand the activities that are undertaken while managing, designing, planning, implementation, and deployment of computerized information system in an organization.	1	1	1	1	1	0	1	0	0	1	0	0	1	1
310244.3	Further the student would be aware of various Information System solutions like ERP, CRM, Data warehouses and the issues in successful implementation of these technology solutions in any organizations	3	1	2	1	2	2	2	2	2	0	2	1	1	1
310244.4	Outline the past history, present position and expected performance of a company engaged in engineering practice or in the computer industry.	1	2	1	2	2	2	2	0	0	0	1	1	1	1
310244.5	Perform and evaluate present worth, future worth and annual worth analyses on one of more economic alternatives.	1	3	0	0	1	0	1	1	1	2	0	0	1	1
310244.6	Be able to carry out and evaluate benefit/cost, life cycle and breakeven analyses on one or more economic alternatives.	1	0	2	1	0	1	0	0	0	0	0	1	1	1
	Avg PO attainment.	1.5	1.17	1.17	1.2	2	1	1	0.5	0.5	0.5	0.5	0.7	1	1
310245	Computer Networks	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
310245.1	Analyze the requirements for a given organizational structure to select the most appropriate networking architecture, topologies, transmission mediums, and technologies	2	1	1	2	0	0	0	0	1	0	0	0	1	1



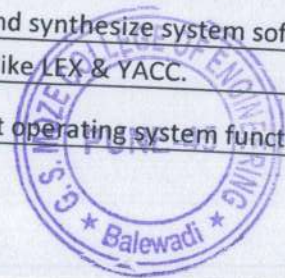
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310245.2	Demonstrate design issues, flow control and error control	3	2	1	2	1	0	0	0	0	0	0	0	1	1
310245.3	Analyze data flow between TCP/IP model using Application, Transport and Network Layer Protocols.	2	3	3	3	2	3	1	0	2	0	1	0	0	1
310245.4	Illustrate applications of Computer Network capabilities, selection and usage for various sectors of user community.	1	2	2	2	3	2	2	0	2	1	2	2	1	1
310245.5	Illustrate Client-Server architectures and prototypes by the means of correct standards and technology.	2	2	2	2	3	3	0	0	2	1	2	2	1	1
310245.6	Demonstrate different routing and switching algorithms	2	2	1	2	2	2	0	1	1	0	1	1	1	0
	Avg PO attainment.	2	2	1.67	2.2	2.8	1.7	0.5	0.2	1.3	0.33	1	0.8	0.83	0.83

Semester - VI

310250	Design and Analysis of Algorithms	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
310250.1	Formulate the problem	2	2	2	2	0	0	0	0	0	0	0	0	1	1
310250.2	Analyze the asymptotic performance of algorithms.	2	0	1	0	0	1	0	0	0	0	0	0	1	1
310250.3	Decide and apply algorithmic strategies to solve given problem	2	0	2	0	0	0	0	0	0	0	0	0	1	1
310250.4	Find optimal solution by applying various methods	2	1	1	0	0	0	0	0	0	0	0	0	1	1
310250.5	Analyze the performance of merge sort and quick sort algorithms using divide and conquer technique.	1	1	1	1	0	0	1	0	0	1	0	1	1	1
310250.6	Design algorithms using dynamic programming and back tracking methods.	2	1	1	0	1	0	0	0	0	0	0	2	1	1
	Avg PO attainment.	1.83	1	2	1	0.3	0.2	0.33	0	0	0.2	0	0.8	6	3
310251	Systems Programming and Operating System	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
310251.1	Analyze and synthesize system software	2	1	2	1	1	0	0	1	0	0	0	0	1	1
310251.2	Use tools like LEX & YACC.	0	2	1	3	1	0	2	0	1	0	0	0	1	1
310251.3	Implement operating system functions.	2	0	2	1	0	1	0	0	0	0	1	0	1	1



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310251.4	Understand the concepts related to deadlock and memory management.	1	1	0	0	0	0	0	0	2	0	0	0	2	1	1
310251.5	Understand the concepts of virtual memory management, file system	1	1	0	0	0	0	1	0	2	1	2	2	1	1	1
310251.6	Understand the concepts of secondary storage structure, protection and case study of Linux operating system.	1	1	0	0	0	0	0	0	0	0	0	2	1	1	1
	Avg PO attainment.	1.17	1	0.83	0.8	0.5	0.2	0.5	0.5	0.5	0.17	0.5	1	1	1	1
310252	Embedded Systems and Internet of Things	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
310252.1	Implement an architectural design for IoT for specified requirement	2.9	0	0	0	1.3	0	0	0	0	0	0	0	0.64	0	
310252.2	Solve the given societal challenge using IoT	2.9	0	0	0	2.9	0	0	0	0	0	0	0	0	1.93	
310252.3	Choose between available technologies and devices for stated IoT challenge	1.93	0.64	1.93	1.3	0	0	0	0	0	0	0	0	0.64	0	
310252.4	Understand device drivers and interrupt service mechanism.	0	0	1.93	0	2.9	1.9	0	0	0	0	0	0	0.97	0	
310252.5	Apply threads, tasks, process, semaphores and RPC for IPC.	0	1.93	1.29	1.3	1.9	0	0	0	0	0	0	0	0.64	0	
310252.6	Develop embedded systems modules using RTOS	0	0	2.9	0	0	0	0	0	0	0	0	0	0	0	
	Avg PO attainment.	1.29	0.51	2.01	0.9	2.3	0.3	0	0	0	0	0	0	2.9	0.97	
310253	Software Modeling and Design	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
310253.1	Analyze the problem statement (SRS) and choose proper design technique for designing web- based/ desktop application	2	2	1	0	0	0	0	0	0	0	0	0	1	1	
310253.2	Design and analyze an application using UML modeling as fundamental tool	1	2	1	0	0	0	0	0	0	0	0	0	1	1	
310253.3	Apply design patterns to understand reusability in OO design	1	2	1	0	2	0	0	0	0	0	0	0	1	1	
310253.4	Decide and apply appropriate modern tool for designing and modeling	1	2	2	1	0	1	1	0	0	0	0	0	1	1	
310253.5	Decide and apply appropriate modern testing tool for testing web-based/desktop application	1	2	2	2	0	0	0	0	0	0	0	0	1	1	
	Avg PO attainment.	1	2	2	2	0	0	0	0	0	0	0	0	1	1	

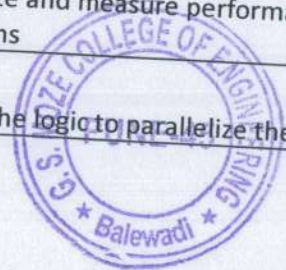


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310253.6	Apply their knowledge of modelling and design to solve computing problems.																
	Avg PO attainment.	1	2	2	0	0	0	0	0	0	0	0	0	1	1		
310254	Web Technology	1.17	2	1.5	0.5	0.5	0.2	0.17	0	0	0	0	0	1	1		
310254.1	Analyze given assignment to select sustainable web development and design methodology	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2		
310254.2	Develop web based application using suitable client side and server side web technologies	2	2	2	1	0	0	1	3	0	2	0	0	1	2		
310254.3	Develop solution to complex problems using appropriate method, technologies, frameworks, web services and content management	1	3	3	2	3	1	0	3	1	2	0	0	1	1		
310254.4	Develop Client-Side programs using JavaScript and Server-Side programs using PHP	3	2	2	2	1	1	1	0	0	2	0	0	1	1		
310254.5	Outline Object Oriented Programming capabilities of PHP.	1	0	2	0	0	0	0	0	0	0	1	2	2	1		
310254.6	Examine JavaScript frameworks such as jQuery and Backbone.	1	0	1	1	1	0	0	0	0	0	0	2	1	1		
	Avg PO attainment.	1	0	2	0	0	0	0	1	0	0	0	2	1	2		
		1.5	1	3	2	1.3	0.3	0.67	1.4	0.2	1.2	0.2	1	7	4		

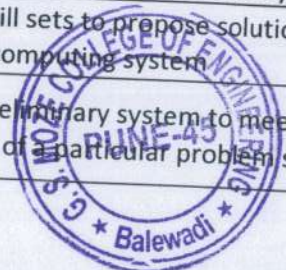
Semester - VII

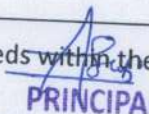
410241	High Performance Computing																
410241.1	Describe different parallel architectures, inter-connect networks, programming models	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2		
410241.2	Develop an efficient parallel algorithm to solve given problem	2	2	3	2	2	2	2	1	1	1	0	1	1	1		
410241.3	Analyze and measure performance of modern parallel computing systems	2	3	3	1	1	1	1	1	1	1	1	1	1	1		
410241.4	Build the logic to parallelize the programming task	3	2	3	3	3	1	1	1	1	1	1	1	1	1		
		3	3	3	1	1	1	1	1	1	1	1	1	1	1		



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		Avg PO attainment.														
		2.5	1	3	1.8	1.8	1.3	1.25	1	1	1	0.75	1	1		
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
410242	Artificial Intelligence and Robotics															
410242.1	Identify and apply suitable Intelligent agents for various AI applications	2	3	2	3	3	2	2	1	1	1	0	1	1	1	
410242.2	Design smart system using different informed search / uninformed search or heuristic approaches.	3	3	2	2	1	3	1	1	1	1	1	1	1	1	
410242.3	Identify knowledge associated and represent it by ontological engineering to plan a strategy to solve given problem.	3	3	2	2	2	1	1	1	1	1	1	2	1	1	
410242.4	Apply the suitable algorithms to solve AI problems															
Avg PO attainment.		2	2	3	1	2	1	1	1	1	1	1	1	1	1	
410243	Data Analytics	2.5	1	2.25	2	2	1.8	1.25	1	1	1	0.75	1.3	1	1	
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
410243.1	Write case studies in Business Analytic and Intelligence using mathematical models															
410243.2	Present a survey on applications for Business Analytic and Intelligence	2	2	2	3	1	2	2	1	3	1	0	2	1	1	
410243.3	Provide problem solutions for multi-core or distributed, concurrent/Parallel environments	3	3	2	2	1	3	1	2	1	1	1	1	1	1	
Avg PO attainment.		1	3	2	2	2	1	1	2	1	2	1	2	1	1	
410244(C)	Pervasive & Ubiquitous Computing	2	2.67	2	2.3	1.3	2	1.33	1.7	1.7	1.33	0.67	1.7	1	1	
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
410244(C).1	Design and implement primitive pervasive applications															
410244(C).2	Analyze and estimate the impact of pervasive computing on future computing applications and society	2	3	2	3	3	2	2	3	1	1	0	1	1	1	
410244(C).3	Develop skill sets to propose solutions for problems related to pervasive computing system	2	2	2	2	1	3	1	1	2	2	1	1	1	1	
410244(C).4	Design a preliminary system to meet desired needs within the constraints of a particular problem space	3	3	2	2	2	1	1	1	1	1	1	2	1	1	
Avg PO attainment.		1	1	3	1	2	1	1	2	1	1	1	3	1	1	

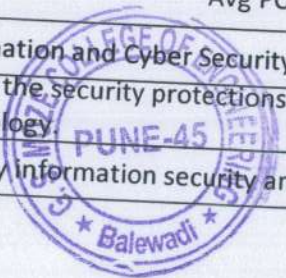



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		Avg PO attainment.														
410245(B)	Software Testing and Quality Assurance	2	1	2.25	2	2	1.8	1.25	1.8	1.3	1.25	0.75	1.8	1	1	
410245(B).1	Describe fundamental concepts in software testing such as manual testing, automation testing and software quality assurance.	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
410245(B).2	Design and develop project test plan, design test cases, test data, and conduct test operations	3	0	3	3	3	0	0	0	0	0	0	0	3	2	
410245(B).3	Apply recent automation tool for various software testing for testing software	2	3	2	2	3	0	0	0	0	0	0	0	3	2	
410245(B).4	Apply different approaches of quality management, assurance, and quality standard to software system	2	0	2	2	2	0	0	0	0	0	0	2	1.33	2	
410245(B).5	Apply and analyze effectiveness Software Quality Tools	2	3	3	3	2	0	0	0	0	2	0	0	2	0	
Avg PO attainment.		2	2	3	3	3	0	0	0	0	0	0	0	0	2	
		2.33	2	3.75	5	3.8	0	0	0	0	0.4	0	0.3	12.3	4	

Semester - VIII

		Avg PO attainment.														
410250	Machine Learning	2	1	2.25	2	2	1.8	1.25	1.8	1.3	1.25	0.75	1.8	1	1	
410250.1	Distinguish different learning based applications	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
410250.2	Apply different preprocessing methods to prepare training data set for machine learning.	2	2	3	2	2	2	2	1	1	1	0	1	1	1	
410250.3	Design and implement supervised and unsupervised machine learning algorithm.	2	3	3	1	1	1	1	1	1	1	1	1	1	1	
410250.4	Implement different learning models	3	2	3	3	3	1	1	1	1	1	1	1	1	1	
410250.5	Learn Meta classifiers and deep learning concepts	3	2	3	3	3	1	1	1	1	1	1	1	1	1	
Avg PO attainment.		2	3	3	3	1	3	1	1	1	1	1	1	1	1	
		2.25	2.5	3	2.3	1.8	1.8	1.25	1	1	1	0.75	1	1	1	
410251	Information and Cyber Security	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
410251.1	Gauge the security protections and limitations provided by today's technology.	2	2	3	2	2	2	2	1	2	1	0	1	1	1	
410251.2	Identify information security and cyber security threats.	2	3	3	2	1	1	1	1	1	1	1	1	1	1	



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410251.3	Analyze threats in order to protect or defend it in cyberspace from cyber-attacks.	3	3	3	3	3	1	2	1	1	1	2	1	1	1
410251.4	Build appropriate security solutions against cyber-attacks.	3	3	3	1	1	1	1	2	1	2	1	2	1	1
	Avg PO attainment.	2.5	1	3	2	1.8	1.3	1.5	1.3	1.3	1.25	1	1.3	1	1
410252(C)	Embedded & Real Time Operating System	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
410252(C).1	Recognize and classify embedded and real-time systems.	2	2	3	2	2	2	2	1	1	1	0	1	1	1
410252(C).2	Explain communication bus protocols used for embedded and real-time systems.	2	3	3	1	1	1	2	2	1	1	2	1	1	1
410252(C).3	Classify and exemplify scheduling algorithms.	3	2	3	3	3	2	1	1	1	1	1	1	1	1
410252(C).4	Apply software development process to a given RTOS application.	3	2	3	3	3	2	1	1	1	1	1	1	1	1
410252(C).5	Design a given RTOS based application.	3	3	3	3	1	3	1	3	1	3	1	1	1	1
	Avg PO attainment.	2.5	2.5	3	2.3	1.8	2	1.5	1.8	1	1.5	1	1	1	1
410253	Cloud Computing	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
410253.1	To install cloud computing environments.	2	2	3	2	2	2	2	2	2	2	0	2	1	1
410253.2	To develop any one type of cloud.	3	3	3	2	1	1	3	2	1	1	2	1	1	1
410253.3	To explore future trends of cloud computing.	3	2	2	3	3	3	1	1	2	3	1	2	1	1
	Avg PO attainment.	2.67	2.33	2.67	2.3	2	2	2	1.7	1.7	2	1	1.7	1	1



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“ EMPOWERMENT THROUGH TECHNOLOGICAL EXCELLENCE ”
GENBA SOPANRAO MOZE COLLEGE OF ENGINEERING

Department of Computer Engineering
 Academic Year 2019-20

Semester - III

Course Code	Name of Course													
Course Code	Name of Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1
210241	Discrete Mathematics													
210241.1	Solve real world problems logically using appropriate set, function, and relation models and interpret the associated operations and terminologies in context.	3	3	3	2	0	0	0	2	0	0	3	0	1
210241.2	Analyze and synthesize the real world problems using discrete mathematics.	3	3	0	2	0	0	2	0	0	1	0	0	1
210241.3	Associate the applications of Graph theory models and data structures.	0	3	3	2	3	0	0	0	0	0	0	2	0
210241.4	Describe the concepts and properties of algebraic structures such as groups, rings and fields.	3	0	3	0	0	0	0	0	2	0	0	0	1
210241.5	Extend the concepts of Boolean algebra in the area of lattices.	3	3	3	2	0	1	0	3	0	2	1	0	1
210241.6	Apply the knowledge of argumental discrete mathematical problems.	3	3	3	2	0	1	0	3	0	2	1	0	1
	Avg PO attainment.	2.5	2.5	2.5	1.666667	0.5	0.166667	0.5	0.833333	0.3333	0.5	0.667	0.3333	0.8333
210242	Digital Electronics and Logic Design	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1
210242.1	Realize and simplify Boolean Algebraic assignments for designing digital circuits using K- Maps.	2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00
210242.2	Design and implement Sequential and Combinational digital circuits as per the specifications	2.00	1.00	2.00	0.00	0.00	3.00	0.00	3.00	0.00	3.00	0.00	0.00	1.00
210242.3	Apply the knowledge to appropriate IC as per the design specifications	3.00	1.00	2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
210242.4	Design simple digital systems using VHDL.	2.00	0.00	2.00	1.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00	3.00	0.00
210242.5	Develop simple embedded system for simple real world application.	2.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	1.00



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210242.6	based on power, speed and interfacing characteristics	2.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	3.00	0.00	1.00	2.00	2
	Avg PO attainment.	2.17	0.67	1.50	0.17	0.33	0.50	0.17	0.83	0.50	0.67	1.00	0.50	0.83	1.00	1
210243	Data Structures and Algorithms	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
210243.1	To discriminate the usage of various structures in approaching the problem solution.	2	1	2	1	0	0	0	3	0	0	0	0	1	1	1
210243.2	To design the algorithms to solve the programming problems.	1	2	0	0	2	0	1	0	2	0	0	3	1	0	1
210243.3	To use effective and efficient data	2	0	1	2	0	1	0	2	3	0	3	0	1	1	1
210243.4	To analyze the problems to apply suitable algorithm and data structure.	1	2	0	1	3	0	2	0	0	0	0	1	0	1	1
210243.5	To use appropriate algorithmic strategy for better efficiency	1	0	1	1	0	0	0	0	1	2	0	0	1	1	1
210243.6	Understand the concepts of Hashing, Files and their Organization and Sorting Algorithms.	2	1	1	1	0	3	0	0	0	0	0	2	1	2	2
	Avg PO attainment.	1.5	1	0.8	1	0.8	0.7	0.5	0.83	1	0.33	0.5	1	0.83	1	1.1
210244	Computer Organization and Architecture	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
210244.1	Demonstrate computer architecture concepts related to design of modern processors, memories and I/Os	2	1	1	0	0	0	2	0	3	0	3	0	1	1	1
210244.2	Analyze the principles of computer architecture using examples drawn from commercially available computers.	3	0	1	1	1	0	0	1	0	1	0	1	1	1	1

210244.3	Evaluate various design alternatives in proc	1	2	0	1	0	3	2	0	1	2	1	2	1	1	
210244.4	Understand the basics of memory systems	2	1	0	2	2	0	1	3	0	0	0	0	1	1	
210244.5	Design arithmetic and logical operations with integer and floating-point operands.	1	0	1	1	0	1	0	0	0	2	2	3	0	1	
210244.6	Understand the basic processing unit, embedded and other large computing systems.	2	1	1	0	0	0	0	0	0	0	0	0	1	2	
	Avg PO attainment.	1.8	0.8	0.7	0.8	0.5	0.7	0.8	0.67	0.67	0.83	1	1	0.83	1.2	
210245	Object Oriented Programming	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
210245.1	Analyze the strengths of object oriented pr	2	0	2	0	3	0	2	0	2	0	0	0	1	1	1
210245.2	Design and apply OOP principles for effective programming	2	1	2	2	0	0	0	1	0	0	3	0	1	1	1
210245.3	Develop programming application using object oriented programming language C++	2	1	2	0	1	2	0	0	3	2	2	0	0	1	1
210245.4	Percept the utility and applicability of OOP	2	0	2	1	0	0	3	3	0	0	0	0	1	1	1
210245.5	Relate Java applications with threads and g	1	0	0	0	0	3	0	2	1	0	0	1	1	1	1
207003.6	Demonstrate simple Graphical User Interfaces	1	2	3	0	0	0	0	0	0	0	0	0	1	2	2
	Avg PO attainment.	1.7	0.7	1.8	0.5	0.7	0.8	0.8	1	1	0.33	0.5	0.5	0.83	1.2	1.17

Semester - IV

Course Code	Name of Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
207004	Engineering Mathematics III															
207003.1	equation using appropriate techniques for modeling and analyzing electrical circuits.	3	2	3	2	2	2	2	1	1	1	1	1	1	1	1



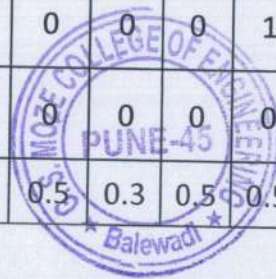
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207003.2	Solve problems related to Fourier transform, Z-Transform and applications	2	3	3	1	1	1	1	1	1	1	1	1	1	1	1
207003.3	regression analysis and probability theory for analysis and prediction of a given data as applied to machine intelligence.	3	2	3	3	3	1	1	1	1	1	1	1	1	1	1
207003.4	integration to analyze the vector fields and apply to compute line, surface and volume integrals.	3	3	3	1	1	1	2	1	1	1	1	1	1	1	1
207003.5	transformations and perform contour integration of complex functions required in Image processing, Digital filters and	2	3	2	3	1	1	1	1	1	1	1	1	1	1	1
207003.6	using calculus of variations and solve problems arising in dynamics of rigid bodies and vibrational analysis.	2	0	0	0	0	0	0	0	0	0	0	0	1	1	1
	Avg PO attainment.	2.5	2.2	2.3	1.7	1.3	1	1.2	0.83	0.83	0.83	0.83	0.83	1	1	1
210251	Computer Graphics	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
210251.1	Computer programs for elementary graphic operations	2	1	2	1	0	0	3	0	0	0	3	0	1	1	1
210251.2	Develop scientific and strategic approach to solve complex problems in the domain of Computer Graphics	1	2	0	0	0	0	0	3	2	0	0	0	1	1	1
210251.3	Develop the competency to understand the concepts related to Computer Vision	2	0	0	0	3	0	0	0	0	2	0	0	0	1	1
210251.4	Apply the logic to develop animation and gaming programs	0	2	0	1	0	2	2	0	1	0	0	2	1	1	1
210251.5	Design Geometric transformations on 3D objects, 2D clipping and color models.	2	1	1	0	0	0	0	1	0	0	0	0	1	2	1
210251.6	methods and different types of projections.	1	0	0	0	0	0	0	0	0	1	0	0	1	1	2
	Avg PO attainment.	1.3	1	0.5	0.3	0.5	0.3	0.8	0.67	0.5	0.5	0.5	0.33	0.83	1.2	1.17



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210252	Advanced Data Structures	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
210252.1	structure and efficient algorithms to approach the problems of various domain.	0	2	0	3	0	0	0	0	3	3	0	0	1	1	1
210252.2	To design the algorithms to solve the programming problems.	1	0	0	0	3	2	2	2	0	0	0	3	1	1	1
210252.3	To use effective and efficient data structures in solving various Computer	0	0	2	2	0	2	0	0	1	0	1	0	1	1	1
210252.4	To analyze the algorithmic solutions for resource requirements and optimization	0	2	2	0	0	0	0	0	0	2	0	2	0	1	1
210252.5	To use appropriate modern tools to understand and analyze the functionalities	0	2	2	0	1	0	1	0	0	0	0	0	1	1	1
210252.6	Understand the concepts of Hashing, Files a	3	0	0	0	0	0	0	0	0	0	0	0	1	2	1
	Avg PO attainment.	0.7	1	1	0.8	0.7	0.7	0.5	0.33	0.67	0.83	0.17	0.83	0.83	1.2	1
210253	Microprocessor	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
210253.1	To apply the assembly language programming to develop small real life	2	2	2	2	0	3	0	3	0	0	3	3	1	1	1
210253.2	advanced processor thoroughly to use the resources for programming	2	0	1	0	0	0	2	0	0	3	0	0	1	1	1
210253.3	To understand the higher processor architectures descended from 80386	2	0	2	0	2	0	0	0	2	0	2	0	1	1	1
210253.4	Apply 8086 assembly language code to handle strings and overflow conditions	2	1	1	1	0	0	0	0	0	0	0	2	0	1	1
210253.5	Understand the architecture and features of ARM Embedded system	1	1	1	0	0	0	1	0	0	2	0	1	1	0	1
210253.6	Apply arm assembly code to solve problems related to Embedded systems	2	1	1	0	0	0	0	0	1	0	3	2	1	2	2
	Avg PO attainment.	1.8	0.8	1.3	0.5	0.3	0.5	0.5	0.5	0.5	0.83	1.33	1.33	0.83	1	1.17



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210254	Principles of Programming Languages	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
210254.1	To analyze the strengths and weaknesses of programming languages for effective	2	2	2	2	3	3	3	3	3	0	3	3	1	1	1
210254.2	To inculcate the principles underlying the programming languages enabling to learn	2	0	1	0	0	0	0	0	0	3	0	2	1	1	1
210254.3	To grasp different programming paradigms	2	1	2	1	0	2	0	2	0	2	0	0	1	1	1
210254.4	To use the programming paradigms effectively in application development.	2	0	2	0	2	0	2	0	2	0	2	0	0	1	1
210254.5	Design to program in different language paradigms and evaluate their relative benefits	1	1	0	0	0	1	0	0	0	2	0	1	1	2	1
210254.6	Knowledge to compare the features of various programming languages	2	0	0	0	0	0	0	0	1	0	0	0	1	1	2
	Avg PO attainment.	1.8	0.7	1.2	0.5	0.8	1	0.8	0.83	1	1.17	0.83	1	0.83	1.2	1.1

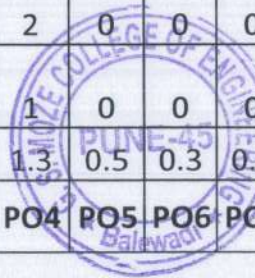
Semester - V

Course Code	Name of Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
310241	Theory of Computation	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
310241.1	Design deterministic Turing machine for all	2	2	3	1	0	0	0	1	0	1	0	3	1	1	1
310241.2	Subdivide problem space based on input su	0	2	3	0	0	2	0	0	0	0	0	3	1	1	1
310241.3	Apply linguistic theory	0	2	3	0	1	0	0	2	0	0	0	3	1	1	1
310241.4	Apply Turing machine to propose computat	1	0	0	0	0	0	1	0	0	0	1	2	1	1	1
310241.5	Interpret whether a problem is decidable o	1	0	0	0	0	0	0	0	1	0	0	2	1	1	1
310241.6	Interpret NP class problems	1	0	0	0	0	0	0	0	0	0	0	2	1	1	1
	Avg PO attainment.	0.8	1	1.5	0.2	0.2	0.3	0.2	0.5	0.17	0.17	0.17	2.5	1	1	1
310242	Database Management Systems	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3



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310242.1	Design E-R Model for given requirements and convert the same into database tables.	3	3	2	1	1	0	0	0	0	0	2	2	1	1	1
310242.2	Use database techniques such as SQL & PL/	3	2	2	2	1	0	0	0	0	1	0	1	1	1	1
310242.3	Use modern database techniques such as NOSQL.	3	3	1	2	1	0	2	0	2	0	0	1	1	1	1
310242.4	Explain transaction Management in relational database System.	2	3	2	2	1	0	0	2	0	2	0	1	1	1	1
310242.5	Describe different database architecture and analyses the use of appropriate architecture in real time environment.	3	3	3	2	1	2	0	0	0	0	1	2	2	1	2
310242.6	Use advanced database Programming concepts	3	3	3	3	1	0	1	0	0	0	0	1	1	1	1
	Avg PO attainment.	2.8	2.8	2.2	2	1	0.3	0.5	0.33	0.33	0.5	0.5	1.33	1.17	1	1.17
310243	Software Engineering and Project Management	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
310243.1	Decide on a process model for a developing a software project	2	2	2	1	1	2	3	0	0	3	0	0	1	1	1
310243.2	Classify software applications and Identify unique features of various domains	1	2	1	2	0	0	0	0	0	0	3	0	1	0	1
310243.3	Design test cases of a software system.	2	2	1	1	2	0	0	0	2	2	0	1	1	1	1
310243.4	Understand basics of IT Project management	2	1	2	1	0	0	0	2	0	0	0	0	1	1	1
310243.5	Plan, schedule and execute a project considering the risk management.	2	2	1	2	0	0	0	0	0	0	2	0	2	1	0
310243.6	Apply quality attributes in software development life cycle.	2	1	2	1	0	0	0	0	0	1	0	0	1	1	1
	Avg PO attainment.	1.8	1.7	1.5	1.3	0.5	0.3	0.5	0.33	0.33	1	0.83	0.17	1.17	0.8	0.83
310244	Information Systems and Engineering Econ	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3



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310244.1	importance of an Information System to an organization.	1	0	1	2	2	1	0	0	0	0	1	1	1	1	1
310244.2	undertaken while managing, designing, planning, implementation, and deployment of computerized information	1	1	1	1	1	0	1	0	0	1	0	0	1	1	1
310244.3	Further the student would be aware of various Information System solutions like ERP, CRM, Data warehouses and the issues in successful implementation of	3	1	2	1	2	0	0	0	2	0	0	1	1	1	1
310244.4	Outline the past history, present position and expected performance of a company engaged in engineering practice or in the	1	2	1	2	2	0	0	0	0	0	1	1	1	1	1
310244.5	Perform and evaluate present worth, future worth and annual worth analyses on one of more economic alternatives.	1	3	0	0	1	0	1	1	0	0	0	0	1	1	1
310244.6	Be able to carry out and evaluate benefit/cost, life cycle and breakeven	1	0	2	1	0	1	0	0	0	0	0	1	1	1	1
	Avg PO attainment.	1.3	1.2	1.2	1.2	1.3	0.3	0.3	0.17	0.33	0.17	0.33	0.67	1	1	1
310245	Computer Networks	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
310245.1	organizational structure to select the most appropriate networking architecture, topologies, transmission mediums, and	3	1	1	2	0	0	0	0	1	0	1	0	1	1	1
310245.2	Demonstrate design issues, flow control and error control	3	2	1	2	1	0	0	0	0	0	0	0	1	1	1
310245.3	Analyze data flow between TCP/IP model using Application, Transport and Network	2	3	3	3	2	3	2	0	2	0	1	0	1	1	1
310245.4	Illustrate applications of Computer Network capabilities, selection and usage for various sectors of user community.	1	2	2	2	3	3	0	0	2	1	2	2	1	1	1
310245.5	Illustrate Client-Server architectures and prototypes by the means of correct	2	2	2	3	3	3	0	0	2	1	2	2	1	1	1

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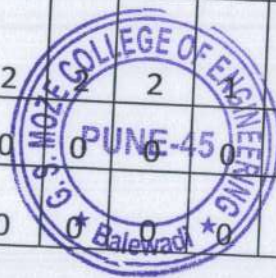
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310245.6	Demonstrate different routing and switching algorithms	2	2	1	2	2	2	0	1	1	0	1	1	1	1	1
	Avg PO attainment.	2.2	2	1.7	2.3	1.8	1.8	0.3	0.17	1.33	0.33	1.17	0.83	1	1	1
Semester - VI																
310250	Design and Analysis of Algorithms	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
310250.1	Formulate the problem	1	3	2	1	0	0	0	1	1	0	0	1	1	1	1
310250.2	Analyze the asymptotic performance of alg	1	2	1	2	0	1	0	0	1	0	0	1	1	1	1
310250.3	Decide and apply algorithmic strategies to solve given problem	2	1	2	1	0	1	2	0	1	0	2	1	1	1	1
310250.4	Find optimal solution by applying various methods	1	2	2	2	2	0	0	0	1	1	0	1	1	1	1
310250.5	Analyze the performance of merge sort and quick sort algorithms using divide and conquer technique.	1	1	2	1	0	0	0	0	0	0	0	1	1	1	1
310250.6	Design algorithms using dynamic programming and back tracking methods.	1	2	2	2	0	0	0	0	0	0	0	1	1	1	1
	Avg PO attainment.	1.2	1.8	1.8	1.5	0.3	0.3	0.3	0.17	0.67	0.17	0.33	1	1	1	1
310251	Systems Programming and Operating System	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
310251.1	Analyze and synthesize system software	1	1	2	1	1	0	0	0	0	0	0	0	1	1	1
310251.2	Use tools like LEX & YACC.	0	2	1	3	1	0	0	1	1	0	0	0	1	1	1
310251.3	Implement operating system functions.	2		2	1	0	1	0	0	0	1	1	0	0	1	1
310251.4	Understand the concepts related to deadlock and memory management.	1	1	0	0	0	0	1	0	0	0	0	2	1	1	1



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310251.5	Understand the concepts of virtual memory management, file system	1	1	0	0	0	0	0	0	0	0	0	0	2	1	1	0
310251.6	Understand the concepts of secondary storage structure, protection and case study of Linux operating system.	1	1	0	0	0	0	0	0	0	0	0	0	2	1	1	0
	Avg PO attainment.	1	1	0.8	0.8	0.3	0.2	0.2	0.17	0.17	0.17	0.17	1	0.83	1	1	0
310252	Embedded Systems and Internet of Things	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	
310252.1	Implement an architectural design for IoT for specified requirement	1	2	2	1	0	0	1	3	0	2	2	0	1	1	1	
310252.2	Solve the given societal challenge using IoT	1	3	3	2	3	1	0	3	1	2	0	0	1	1	1	
310252.3	Choose between available technologies and devices for stated IoT challenge	3	2	2	2	1	1	1	0	0	2	0	0	1	1	1	
310252.4	Understand device drivers and interrupt se	2	0	0	0	0	0	0	0	0	0	0	2	1	1	1	
310252.5	Apply threads, tasks, process, semaphores	2	0	0	0	0	0	0	0	0	0	0	2	1	1	1	
310252.6	Develop embedded systems modules using	2	0	0	0	0	0	0	0	0	0	0	2	1	1	1	
	Avg PO attainment.	1.8	1.2	1.2	0.8	0.7	0.3	0.3	1	0.17	1	0.33	0.67	1	1	1	
310253	Software Modeling and Design	1	2	2	1	0	0	1	3	0	2	2	0	1	1	1	
310253.1	choose proper design technique for designing web- based/ desktop application	1	3	3	2	3	1	0	3	1	2	0	0	1	1	1	
310253.2	Design and analyze an application using UML modeling as fundamental tool	3	2	2	2	1	1	0	0	2	0	0	0	1	1	1	
310253.3	Apply design patterns to understand reusal	2	0	0	0	0	0	0	0	0	0	0	2	1	1	1	
310253.4	Decide and apply appropriate modern tool for designing and modeling	2	0	0	0	0	0	0	0	0	0	0	2	1	1	1	




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310253.5	Decide and apply appropriate modern testing tool for testing web-based/desktop	2	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
310253.6	Apply their knowledge of modelling and design to solve computing problems.	1.8	1.2	1.2	0.8	0.7	0.3	0.3	1	0.17	1	0.33	0.67	1	1	1	
	Avg PO attainment.	1	2	2	1	0	0	1	3	0	2	2	0	1	1	1	
310254	Web Technology	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	
310254.1	Analyze given assignment to select sustainable web development and design	1	2	2	1	0	0	1	3	0	2	0	0	1	1	0	
310254.2	Develop web based application using suitable client side and server side web technologies	1	3	3	2	3	1	0	3	1	2	0	0	0	1	1	
310254.3	Develop solution to complex problems using appropriate method, technologies, frameworks, web services and content	3	2	2	2	1	1	1	0	0	2	1	0	1	1	1	
310254.4	Develop Client-Side programs using JavaScript and Server-Side programs using PHP	1	0	2	0	0	0	0	0	0	0	0	2	1	0	1	
310254.5	Outline Object Oriented Programming capabilities of PHP.	1	0	2	0	0	0	0	0	0	0	0	2	1	1	1	
310254.6	Examine JavaScript frameworks such as jQuery and Backbone.	1	0	2	0	0	0	0	0	0	0	0	2	1	1	1	
	Avg PO attainment.	1.3	1.2	2.2	0.8	0.7	0.3	0.3	1	0.17	1	0.17	1	0.83	0.8	0.83	

Semester - VII

410241	High Performance Computing	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
410241.1	inter-connect networks, programming models	3	2	3	2	2	2	2	1	1	1	0	1	1		
410241.2	Develop an efficient parallel algorithm to solve	2	3	3	1	1	1	1	1	1	1	1				



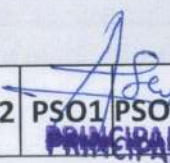
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410241.3	Analyze and measure performance of modern parallel computing systems	3	2	3	3	3	1	1	1	1	1	1	1	1	1	1
410241.4	Build the logic to parallelize the programming task	3	3	3	1	1	1	1	1	1	1	1	1	1	1	1
	Avg PO attainment.	2.8	2.5	3	1.8	1.8	1.3	1.3	1	1	1	0.75	1	1	1	1
410242	Artificial Intelligence and Robotics	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
410242.1	Identify and apply suitable Intelligent agents for various AI applications	2	3	2	3	3	2	2	1	1	1	0	1	1	1	1
410242.2	informed search / uninformed search or heuristic approaches.	3	3	2	2	1	3	1	1	1	1	1	1	1	1	1
410242.3	Identify knowledge associated and represent it by ontological engineering to plan a strategy to solve given problem.	3	3	2	2	2	1	1	1	1	1	1	2	1	1	1
410242.4	Apply the suitable algorithms to solve AI problems	2	2	3	1	2	1	1	1	1	1	1	1	1	1	1
	Avg PO attainment.	2.5	2.8	2.3	2	2	1.8	1.3	1	1	1	0.75	1.25	1	1	1
410243	Data Analytics	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
410243.1	Write case studies in Business Analytic and Intelligence using mathematical models	2	3	2	3	3	2	2	1	1	1	0	1	1	1	1
410243.2	Present a survey on applications for Business Analytic and Intelligence	3	3	2	2	1	3	1	1	1	1	1	1	1	1	1
410243.3	Provide problem solutions for multi-core or distributed, concurrent/Parallel	3	3	2	2	2	1	1	1	1	1	1	2	1	1	1
	Avg PO attainment.	2.7	3	2	2.3	2	2	2	1.3	1	1	1	0.67	1.33	1	1



410244(C)	Pervasive & Ubiquitous Computing	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
410244(C).1	Design and implement primitive pervasive applications	3	3	2	3	3	2	2	3	1	1	0	1	1	1	1
410244(C).2	Analyze and estimate the impact of pervasive computing on future computing	2	2	2	2	1	3	1	1	2	2	1	1	1	1	1
410244(C).3	Develop skill sets to propose solutions for problems related to pervasive computing	3	3	2	2	2	1	1	1	1	1	1	2	1	1	1
410244(C).4	Design a preliminary system to meet desired needs within the constraints of a	1	1	3	1	2	1	1	2	1	1	1	3	1	1	1
	Avg PO attainment.	2.3	2.3	2.3	2	2	1.8	1.3	1.75	1.25	1.25	0.75	1.75	1	1	1
410245(B)	Software Testing and Quality Assurance	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
410245(B).1	Describe fundamental concepts in software testing such as manual testing,	2	3	2	3	3	2	2	3	1	1	1	1	1	1	1
410245(B).2	Design and develop project test plan, design test cases, test data, and conduct	2	2	2	2	1	3	1	1	2	2	1	2	1	1	1
410245(B).3	Apply recent automation tool for various software testing for testing software	3	3	2	2	2	1	3	2	1	1	3	2	1	1	1
410245(B).4	Apply different approaches of quality management, assurance, and quality	3	1	3	1	3	1	1	2	1	1	1	3	1	1	1
410245(B).5	Apply and analyze effectiveness Software Quality Tools	2	3	2	3	2	3	1	1	1	2	1	1	1	1	1
	Avg PO attainment.	2.4	2.4	2.2	2.2	2.2	2	1.6	1.8	1.2	1.4	1.4	1.8	1	1	1
Semester VIII																
410250	Machine Learning	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3




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410250.1	Distinguish different learning based applications	3	2	3	2	2	2	2	1	1	1	1	1	1	1	1
410250.2	Apply different preprocessing methods to prepare training data set for machine	2	3	3	1	1	1	1	1	1	1	1	1	1	1	1
410250.3	Design and implement supervised and unsupervised machine learning algorithm.	3	2	3	3	3	1	1	1	1	1	1	1	1	1	1
410250.4	Implement different learning models	3	3	3	1	1	1	1	1	1	1	1	1	1	1	1
410250.5	Learn Meta classifiers and deep learning concepts	2	3	3	3	1	3	2	1	1	1	1	1	1	1	1
	Avg PO attainment.	2.6	2.6	3	2	1.6	1.6	1.4	1	1	1	1	1	1	1	1
410251	Information and Cyber Security	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
410251.1	Gauge the security protections and limitations	3	2	3	2	2	2	2	1	2	1	0	1	1	1	1
410251.2	Identify information security and cyber security threats.	2	3	3	2	1	1	1	1	1	1	1	1	1	1	1
410251.3	Analyze threats in order to protect or defend it in cyberspace from cyber-	3	3	3	3	3	1	2	1	1	1	2	1	1	1	1
410251.4	Build appropriate security solutions against cyber-attacks.	3	3	3	1	1	1	1	2	1	2	1	2	1	1	1
	Avg PO attainment.	2.8	2.8	3	2	1.8	1.3	1.5	1.25	1.25	1.25	1	1.25	1	1	1
410252(C)	Embedded & Real Time Operating System	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
410252(C).1	Recognize and classify embedded and real-time systems.	3	2	3	2	2	2	2	1	1	1	1	1	1	1	1
410252(C).2	Explain communication bus protocols used for embedded and real-time systems.	2	3	3	1	1	1	1	1	1	1	1	1	1	1	1



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410252(C).3	Classify and exemplify scheduling algorithms.	3	2	3	3	3	1	1	1	1	1	1	1	1	1	1
410252(C).4	Apply software development process to a given RTOS application.	3	3	3	1	1	1	1	1	1	1	1	1	1	1	1
410252(C).5	Design a given RTOS based application.	2	3	3	3	1	3	2	1	1	1	1	1	1	1	1
	Avg PO attainment.	2.6	2.6	3	2	1.6	1.6	1.4	1	1	1	1	1	1	1	1
410253	Cloud Computing	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO
410253.1	To install cloud computing environments.	3	2	3	2	2	2	2	2	2	2	0	2	1	1	1
410253.2	To develop any one type of cloud.	3	3	3	2	1	1	3	2	1	1	2	1	1	1	1
410253.3	To explore future trends of cloud computing.	3	2	2	3	3	3	1	1	2	3	1	2	1	1	1
	Avg PO attainment.	3	2.3	2.7	2.3	2	2	2	1.67	1.67	2	1	1.67	1	1	1



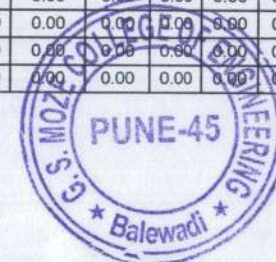

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 Department of Computer Engineering
 Academic Year 2020-21

Semester - III

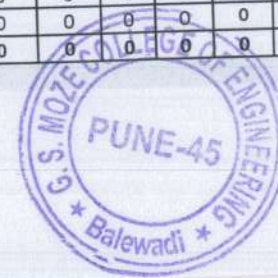
Course Code	Name of Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
210241	Discrete Mathematics															
210241.1	Design and analyze real world engineering problems by applying	1.00	1.00	2.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00
210241.2	Develop skill in expressing mathematical properties of relation and	1.00	2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00
210241.3	Identify number of logical possibilities of events to design professi	2.00	1.00	2.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	1.00
210241.4	Model and solve computing problem using tree and graph Analyze	1.00	2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00
210241.5	Apply abstract algebra in combinatorics, coding theory and	0.00	0.00	2.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00
210241.6	Analysis concept of Algebric structures	0.00	2.00	1.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	2.00	1.00
	Avg PO attainment.	0.83	1.33	1.17	1.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.83	1.33	0.83
210242	Fundamentals of Data Structures															
210242.1	Design the algorithms to solve the programming problems,	2.00	2.00	1.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00
210242.2	Discriminate the usage of various structures,	1.00	2.00	2.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00
210242.3	Demonstrate use of sequential data structures- Array and Linked	1.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00
210242.4	Understand the computational efficiency of the principal	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00
210242.5	Compare and contrast different implementations of data structures	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00
210242.6	Understand, Implement and apply principles of data structures-	1.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00
	Avg PO attainment.	1.17	1.17	1.00	0.67	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00
210243	Object Oriented Programming(OOP)															
210243.1	Apply constructs- sequence, selection and iteration; classes and	2.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00
210243.2	Design object-oriented solutions for small systems involving	1.00	2.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00
210243.3	Use virtual and pure virtual function and complex programming	2.00	1.00	2.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00
210243.4	Apply object-oriented software principles in problem solving.	2.00	1.00	2.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00
210243.5	Analyze the strengths of object-oriented programming.	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00
210243.6	Develop the application using object oriented programming	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00
	Avg PO attainment.	1.17	1.00	1.17	0.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	1.00	1.00	1.00
210244	Computer Graphics															
210244.1	Identify the basic terminologies of Computer Graphics and	2.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00
210244.2	Apply mathematics to develop Computer programs for elementary	3.00	0.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00
210244.3	Illustrate the concepts of windowing and clipping and apply	1.00	2.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00
210244.4	Understand and apply the core concepts of computer graphics,	2.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00
210244.5	Understand the concepts of color models, lighting, shading models	1.00	0.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00
210244.6	Create effective programs using concepts of curves, fractals,	0.00	2.00	2.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00
	Avg PO attainment.	1.50	1.00	1.00	0.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00
210245	Digital Electronics and Logic Design															
210245.1	Simplify Boolean Expressions using K Map.	2.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00
210245.2	Design and implement combinational circuits.	3.00	0.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00
210245.3	Design and implement sequential circuits	1.00	2.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00
210245.4	Develop simple real-world application using ASM and PLD	2.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00
210245.5	Differentiate and Choose appropriate logic families IC packages	1.00	0.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00



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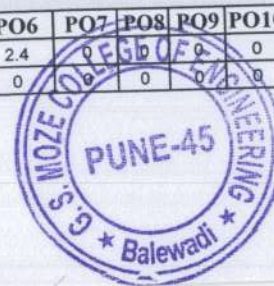
210245.6	Explain organization and architecture of computer system	0.00	2.00	2.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00
	Avg PO attainment.	1.50	1.00	1.00	0.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00
207003	Engineering Mathematics III	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	
207003 .1	Solve Linear differential equations, essential in modelling and	3.00	2.00	3.00	2.00	2.00	2.00	2.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	
207003 .2	Apply concept of Fourier transform and Z-transform and its	2.00	3.00	3.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	
207003 .3	Apply Statistical methods like correlation & regression analysis	3.00	2.00	3.00	3.00	3.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	
207003 .4	Solve Algebraic & Transcendental equations and System of linear	3.00	3.00	3.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	
207003 .5	integration, numerical solutions of ordinary differential equations	2.00	3.00	2.00	2.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	
207003 .6	Use appropriate modern tools to understand and analyze the functionalities	3.00	1.00	3.00	1.00	3.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	
	Avg PO attainment.	2.67	2.33	2.83	1.67	2.75	1.00	2.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	
210252	Data Structures and Algorithms	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	
210252 .1	Identify and articulate the complexity goals and benefits of a good	2	1	2	1	0	0	0	0	0	0	0	0	1	1	1	
210252 .2	Identify and articulate the complexity goals and benefits of a good	1	2	0	0	0	0	0	0	0	0	0	0	1	1	1	
210252 .3	Apply non-linear data structures for solving problems of various	2	0	0	0	0	0	0	0	0	0	0	0	1	1	1	
210252 .4	Design and specify the operations of a nonlinear-based abstract	0	2	0	1	0	0	0	0	0	0	0	0	1	1	1	
210252 .5	Analyze the algorithmic solutions for resource requirements and	1	0	1	1	0	0	0	0	0	0	0	0	1	1	1	
210252 .6	Use efficient indexing methods and multiway search techniques to	2	1	1	1	0	0	0	0	0	0	0	0	1	1	1	
210252 .7	Use appropriate modern tools to understand and analyze the	1.33	1	0.67	0.67	0	0	0	0	0	0	0	0	1	1	1	
	Avg PO attainment.	1.33	1	0.67	0.67	0	0	0	0	0	0	0	0	1	1	1	
210253	Software Engineering	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	
210253 .1	Analyze software requirements and formulate design solution for	0	2	0	0	0	0	0	0	0	0	0	0	1	1	1	
210253 .2	Analyze software requirements and formulate design solution for	1	0	0	0	0	2	2	2	0	0	0	0	1	1	1	
210253 .3	Design applicable solutions in one or more application domains	0	0	2	0	0	0	0	0	0	0	0	0	1	1	1	
210253 .4	Apply new software models, techniques and technologies to bring	0	2	2	0	0	0	0	0	0	0	0	0	1	1	1	
210253 .5	Model and design User interface and component-level.	0	2	2	0	0	0	0	0	0	0	0	0	1	1	1	
210253 .6	Identify and handle risk management and software configuration	0	2	2	0	0	0	0	0	0	0	0	0	1	1	1	
210253 .7	Utilize knowledge of software testing approaches, approaches to	1	0	1	1	0	0	0	0	0	0	0	0	1	1	1	
210253 .8	Construct software of high quality – software that is reliable and	0.29	1.1429	1.29	0.14	0	0.2857	0.286	0.29	0	0	0	0	1	1	1	
	Avg PO attainment.	0.29	1.1429	1.29	0.14	0	0.2857	0.286	0.29	0	0	0	0	1	1	1	
210254	Microprocessor	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	
210254 .1	Exhibit skill of assembly language programming for the application.	2	2	2	2	0	0	0	0	0	0	0	0	1	1	1	
210254 .2	Exhibit skill of assembly language programming for the application.	2	0	1	0	0	0	0	0	0	0	0	0	1	1	1	
210254 .3	Classify Processor architectures.	2	0	2	0	0	0	0	0	0	0	0	0	1	1	1	
210254 .4	Illustrate advanced features of 80386 Microprocessor.	2	0	2	0	0	0	0	0	0	0	0	0	1	1	1	
210254 .5	Compare and contrast different processor modes.	2	0	2	0	0	0	0	0	0	0	0	0	1	1	1	
210254 .6	Use interrupts mechanism in applications	2	0	2	0	0	0	0	0	0	0	0	0	1	1	1	
210254 .7	Use interrupts mechanism in applications	2	1	0	0	0	0	0	0	0	0	0	0	1	1	1	
210254 .8	Differentiate between Microprocessors and Microcontrollers.	2	1	1	1	0	0	0	0	0	0	0	0	1	1	1	
210254 .9	Identify and analyze the tools and techniques used to design.	2	0.5714	1.43	0.43	0	0	0	0	0	0	0	0	1	1	1	
	Avg PO attainment.	2	0.5714	1.43	0.43	0	0	0	0	0	0	0	0	1	1	1	
210255	Principles of Programming Languages	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	
210255 .1	Describe project life cycle and the domains of Project	2	2	2	2	0	0	0	0	0	0	0	0	1	1	1	
210255 .2	Describe project life cycle and the domains of Project	2	0	1	0	0	0	0	0	0	0	0	0	1	1	1	
210255 .3	Explain networking methods and their applications in planning	2	0	2	0	0	0	0	0	0	0	0	0	1	1	1	
210255 .4	Categorize the materials as per their annual usage and also	2	0	2	0	0	0	0	0	0	0	0	0	1	1	1	
210255 .5	Demonstrates resource allocation techniques and apply it for	2	0	2	0	0	0	0	0	0	0	0	0	1	1	1	
210255 .6	Understand economical terms and different laws associated with	2	1	0	0	0	0	0	0	0	0	0	0	1	1	1	
210255 .7	Apply the methods of project selection and recommend the best	2	0.5	1.5	0.33	0	0	0	0	0	0	0	0	1	1	1	
	Avg PO attainment.	2	0.5	1.5	0.33	0	0	0	0	0	0	0	0	1	1	1	

Semester - V



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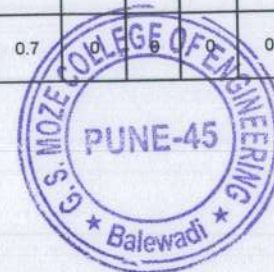
Course Code	Name of Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
310241	Theory of Computation															
310241.1	Design deterministic Turing machine for all inputs and all outputs	2	2	3	1	0	0	0	1	0	0	0	3	1	1	1
310241.2	Subdivide problem space based on input subdivision using constraint	0	2	3	0	0	2	0	0	0	0	0	3	0	1	1
310241.3	Apply linguistic theory	0	2	3	0	1	0	0	0	0	0	0	3	0	1	1
310241.4	Apply Turing machine to propose computation solutions	1	0	0	0	0	0	0	0	0	0	0	2	1	1	1
310241.5	Interpret whether a problem is decidable or not	1	0	0	0	0	0	0	0	0	0	0	2	1	1	1
310241.6	Interpret NP class problems	1	0	0	0	0	0	0	0	0	0	0	2	1	1	1
	Avg PO attainment.	0.83	1	1.5	0.17	0.25	0.3333	0	0.2	0	0	0	2.5	0.8333	0.8333	1
310242	Database Management Systems															
310242.1	Design E-R Model for given requirements and convert the same into	3	3	2	2	1	0	0	0	0	0	0	2	1	1	1
310242.2	Use database techniques such as SQL & PL/SQL.	3	3	2	2	1	0	0	0	0	0	0	1	1	1	1
310242.3	Use modern database techniques such as NOSQL.	2	2	3	2	2	0	0	0	0	0	0	1	0	1	1
310242.4	Use modern database techniques such as NOSQL.	2	2	3	2	2	0	0	0	0	0	0	1	0	1	1
310242.4	Explain transaction Management in relational database System.	3	3	2	3	1	0	0	0	0	0	0	1	1	1	1
310242.5	Explain transaction Management in relational database System.	2	3	3	3	1	0	0	0	0	0	0	2	1	0	1
310242.5	Describe different database architecture and analyses the use of app	2	3	3	3	1	0	0	0	0	0	0	1	1	1	1
310242.6	Describe different database architecture and analyses the use of app	3	3	3	3	1	0	0	0	0	0	0	1	1	1	1
310242.6	Use advanced database Programming concepts	3	3	3	3	1	0	0	0	0	0	0	1	1	1	1
	Avg PO attainment.	2.67	2.83	2.50	2.50	1.75	0.00	0.00	0.00	0.00	0.00	0.00	1.33	0.83	0.83	1.00
310243	Software Engineering & Project Management															
310243.1	Decide on a process model for a developing a software project	2	2	2	1	0	0	0	0	0	0	0	0	1	0	0
310243.1	Decide on a process model for a developing a software project	2	2	2	1	0	0	0	0	0	0	0	0	1	0	0
310243.2	Classify software applications and Identify unique features of various	3	2	1	2	0	0	0	0	0	0	0	0	1	1	1
310243.2	Classify software applications and Identify unique features of various	3	2	1	2	0	0	0	0	0	0	0	0	1	1	1
310243.3	Design test cases of a software system.	2	2	1	1	0	0	0	0	0	0	0	0	0	1	1
310243.3	Design test cases of a software system.	2	2	1	1	0	0	0	0	0	0	0	0	0	1	1
310243.4	Understand basics of IT Project management.	2	1	2	1	0	0	0	0	0	0	0	0	0	1	1
310243.4	Understand basics of IT Project management.	2	1	2	1	0	0	0	0	0	0	0	0	0	1	1
310243.4	Understand basics of IT Project management.	2	1	2	1	0	0	0	0	0	0	0	0	0	1	1
310243.4	Understand basics of IT Project management.	2	1	2	1	0	0	0	0	0	0	0	0	0	1	1
310243.5	Plan, schedule and execute a project considering the risk management	3	2	1	1	0	0	0	0	0	0	0	0	1	1	0
310243.5	Plan, schedule and execute a project considering the risk management	3	2	1	1	0	0	0	0	0	0	0	0	1	1	0
310243.5	Plan, schedule and execute a project considering the risk management	3	2	1	1	0	0	0	0	0	0	0	0	1	1	0
310243.5	Plan, schedule and execute a project considering the risk management	3	2	1	1	0	0	0	0	0	0	0	0	1	1	0
310243.6	Apply quality attributes in software development life cycle.	2	1	2	1	0	0	0	0	0	0	0	0	0.8333	0.833	0.6667
310243.6	Apply quality attributes in software development life cycle.	2	1	2	1	0	0	0	0	0	0	0	0	0.8333	0.833	0.6667
	Avg PO attainment.	2.33	1.6667	1.5	1.17	0	0	0	0	0	0	0	0	0.8333	0.833	0.6667
310244	Operating Systems															
310244.1	Understand the need, usage and importance of an Information	1	0	1	2	2	1	0	0	0	0	0	1	1	1	1
310244.1	Understand the need, usage and importance of an Information	1	0	1	2	2	1	0	0	0	0	0	1	1	1	1
310244.2	Understand the activities that are undertaken while managing,	1	1	1	1	1	0	1	0	0	1	0	0	0	1	0
310244.2	Understand the activities that are undertaken while managing,	1	1	1	1	1	0	1	0	0	1	0	0	0	1	0
310244.3	Further the student would be aware of various Information System	3	1	2	1	2	0	0	0	0	0	0	1	1	1	1
310244.3	Further the student would be aware of various Information System	3	1	2	1	2	0	0	0	0	0	0	1	1	1	1
310244.4	Outline the past history, present position and expected	1	2	1	2	2	0	0	0	0	0	0	1	1	1	1
310244.4	Outline the past history, present position and expected	1	2	1	2	2	0	0	0	0	0	0	1	1	1	1
310244.5	Perform and evaluate present worth, future worth and annual	1	3	0	0	1	0	1	1	0	0	0	0	1	1	1
310244.5	Perform and evaluate present worth, future worth and annual	1	3	0	0	1	0	1	1	0	0	0	0	1	1	1
310244.6	Be able to carry out and evaluate benefit/cost, life cycle and	1	0	2	1	0	1	0	0	0	0	0	1	1	1	1
310244.6	Be able to carry out and evaluate benefit/cost, life cycle and	1	0	2	1	0	1	0	0	0	0	0	1	1	1	1
	Avg PO attainment.	1.33	1.1667	1.17	1.17	2	0.3333	0.667	0.2	0	0.2	0.2	0.667	0.8333	0.833	0.8333
310245	Computer Networks															
310245.1	Analyze the requirements for a given organizational structure to	3	1	1	2	0	0	0	0	1	0	0	0	1	1	1
310245.1	Analyze the requirements for a given organizational structure to	3	1	1	2	0	0	0	0	1	0	0	0	1	1	1
310245.2	Demonstrate design issues, flow control and error control	3	2	1	2	1	0	0	0	0	0	0	0	1	1	1
310245.2	Demonstrate design issues, flow control and error control	3	2	1	2	1	0	0	0	0	0	0	0	1	1	1
310245.3	Analyze data flow between TCP/IP model using Application,	2	3	3	3	2	3	0	0	2	0	1	0	0	1	1
310245.3	Analyze data flow between TCP/IP model using Application,	2	3	3	3	2	3	0	0	2	0	1	0	0	1	1
310245.4	Illustrate applications of Computer Network capabilities, selection	1	2	2	2	3	0	0	0	2	1	2	2	1	0	1
310245.4	Illustrate applications of Computer Network capabilities, selection	1	2	2	2	3	0	0	0	2	1	2	2	1	0	1
310245.5	Illustrate Client-Server architectures and prototypes by the means	2	2	2	2	3	3	0	0	2	1	2	2	1	0	1
310245.5	Illustrate Client-Server architectures and prototypes by the means	2	2	2	2	3	3	0	0	2	1	2	2	1	0	1
310245.6	Demonstrate different routing and switching algorithms	2	2	1	2	2	2	0	1	1	0	1	1	1	1	1
310245.6	Demonstrate different routing and switching algorithms	2	2	1	2	2	2	0	1	1	0	1	1	1	1	1
	Avg PO attainment.	2.17	2	1.67	2.17	2.75	1.3333	0	0.2	1.33	0.4	1.2	0.833	0.8333	0.833	1
Semester - VI																
310250	Design and Analysis of Algorithms															
310250.1	Formulate the problem	3.1		2.4	1.2	2.4	2.4				0	0	0	1.2	0	1
310250.1	Formulate the problem	3.1		2.4	1.2	2.4	2.4				0	0	0	1.2	0	1
310250.2	Analyze the asymptotic performance of algorithms.	3.2	2.4	1.2	2.4	2.4	0				0	0	0	1.2	0	1
310250.2	Analyze the asymptotic performance of algorithms.	3.2	2.4	1.2	2.4	2.4	0				0	0	0	1.2	0	1



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310250.3	Decide and apply algorithmic strategies to solve given problem	2.4	2.4	1.6	0.8	0.8	0	0	0	0	0	0	0	0	0	1
310250.4	Find optimal solution by applying various methods	3.12	3.6	2.4	2.4	2.4	2.4	0	0	0	0	0	0	0	0	1
310250.5	Analyze the performance of merge sort and quick sort algorithms using divide and conquer technique.	2.4	1.2	2.4	0	2.4	2.4	0	0	0	0	0	0	0.1	0	1
310250.6	Design algorithms using dynamic programming and back tracking methods.	3.6	0	0	0	1.2	1.2	0	0	0	0	0	0	0.2	0	1
	Avg PO attainment.	2.97	1.92	2.5	2.27	2.9	1.4	0	0	0	0	0	0	0.6	0	1
310251	Systems Programming and Operating System	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
310251.1	Analyze and synthesize system software	3.87	2	2.32	0	0	0	0	0	0	0	0	0	0	0	1
310251.2	Use tools like LEX & YACC.	3.87	1.93	5.8	0	3.87	0	0	0	0	0	0	0	0	0	1
310251.3	Implement operating system functions.	1.93	1.93	5.8	0	3.87	0	0	0	0	0	0	0	0	0	1
310251.4	Understand the concepts related to deadlock and memory management.	2.9	2.9	8.7	0	5.8	0	0	0	0	0	0	0	0	0	1
310251.5	Understand the concepts of virtual memory management, file system	2.9	5.8	5.8	0	0	0	0	0	0	0	0	0	0	0	1
310251.6	Understand the concepts of secondary storage structure, protection and	1.93	3.87	3.87	0	0	0	0	0	0	0	0	0	0	0	1
	Avg PO attainment.	2.9	3.69	8.07	0	3.38	0	0	0	0	0	0	0	0	0	1.00
310252	Embedded Systems and Internet of Things	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
310252.1	Implement an architectural design for IoT for specified requirement	2.24	0	0	0	1.49	0	0	0	0	0	0	0	0	0	0
310252.2	Solve the given societal challenge using IoT	2.24	0	0	0	2.24	0	0	0	0	0	0	0	0	0	1
310252.3	Choose between available technologies and devices for stated IoT challenge	2.24	0.75	2.24	1.49	0	0	0	0	0	0	0	0	0	0	1
310252.4	Understand device drivers and interrupt service mechanism.	0	0	2.04	0	3.05	2.04	0	0	0	0	0	0	0	0	1
310252.5	Apply threads, tasks, process, semaphores and RPC for IPC.	0	2.58	1.72	1.72	2.58	0	0	0	0	0	0	0	0	0	1
310252.6	Develop embedded systems modules using RTOS	0	0	5.6	0	0	0	0	0	0	0	0	0	0	0	0
	Avg PO attainment.	1.12	0.67	2.9	1.07	2.34	0.34	0	0	0	0	0	0	0	0	0.6667
310253	Software Modeling and Design	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
310253.1	Analyze the problem statement (SRS) and choose proper design technique for designing web- based/ desktop application	2.08	3	0.69	0	0.69	0.69	0.69	0	0	0	0	0	0.69	0.69	1
310253.2	Design and analyze an application using UML modeling as fundamental tool	2.08	2.08	0.69	0	0.69	0.69	0.69	0	0	0	0	0	0.69	0.69	0
310253.3	Apply design patterns to understand reusability in OO design	2.84	2.84	0.95	0	0.95	0.95	0.95	0	0	0	0	0	0.95	0.95	1
310253.4	Decide and apply appropriate modern tool for designing and modeling	2.84	2.84	0.95	0	0.95	0.95	0.95	0	0	0	0	0	0.95	0.95	1
310253.5	Decide and apply appropriate modern testing tool for testing web-based/desktop application	2.4	2.4	0.8	0	0.8	0.8	0.8	0	0	0	0	0	0.8	0.8	1
310253.6	Apply their knowledge of modelling and design to solve computing problems.	5.2	5.2	1.73	0	1.73	1.73	1.73	0	0	0	0	0	1.73	1.73	1
	Avg PO attainment.	2.91	3.67	1.45	0	1.45	0.97	1.94	0	0	0	0	0	5.81	2.91	0.8333
310254	Web Technology	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
310254.1	Analyze given assignment to select sustainable web development and design methodology	1.4	0	0	0	0	1.4	0.7	0	0	0	0	0	0	0	1
310254.2	Develop web based application using suitable client side and server side web technologies	1.4	0	0	0	0	0.7	0	0	0	0	0	0	0	0	1



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310254.3	Develop solution to complex problems using appropriate method, technologies, frameworks, web services and content	1.91	0	0	0	0	1.91	0.95	0.95	0	0	0	0	0.95	0.95	1	
310254.4	Develop Client-Side programs using JavaScript and Server-Side programs using PHP	0	0.95	0.95	0	0	1.91	1.91	0	0.95	0	0	0	1.91	1.91	1	
310254.5	Outline Object Oriented Programming capabilities of PHP.	0	0.81	0	0	0.81	1.62	1.62	0	0.81	0	0	0	1.62	0.81	1	
310254.6	Examine JavaScript frameworks such as jQuery and Backbone.	0	1.75	0	0	1.75	0	1.75	0	3.5	1.75	1.75	1.75	3.5	0	1	
Avg PO attainment.		0.78	0.7	0.24	0	0.64	1.26	2.31	0.19	0.88	0.35	0.35	0.29	7.98	1.84	1	
Semester - VII																	
410241	High Performance Computing	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	
410241.1	Describe different parallel architectures, inter-connect networks,	2	2	3	2	2	2	2	1	1	1	0	1	1	1	1	
410241.2	Develop an efficient parallel algorithm to solve given problem	2	3	3	1	1	1	1	1	1	1	1	1	1	1	1	
410241.3	Analyze and measure performance of modern parallel computing	3	2	3	3	3	1	1	1	1	1	1	1	1	1	1	
410241.4	Build the logic to parallelize the programming task	3	3	3	1	1	1	1	1	1	1	1	1	1	1	1	
Avg PO attainment.		2.5	1	3	1.8	1.8	1.25	1.25	1	1	1	0.75	1	1	1	1	
410242	Artificial Intelligence and Robotics	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	
410242.1	Identify and apply suitable Intelligent agents for various AI applica	2	3	2	3	3	2	2	1	1	1	0	1	1	1	1	
410242.2	Design smart system using different informed search / uninformed	3	3	2	2	1	3	1	1	1	1	1	1	1	1	1	
410242.3	Identify knowledge associated and represent it by ontological eng	3	3	2	2	2	1	1	1	1	1	1	2	1	1	1	
410242.4	Apply the suitable algorithms to solve AI problems	2	2	3	1	2	1	1	1	1	1	1	1	1	1	1	
Avg PO attainment.		2.5	1	2.3	2	2	1.75	1.25	1	1	1	0.75	1.25	1	1	1	
410243	Data Analytics	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	
410243.1	Write case studies in Business Analytic and Intelligence using mat	2	2	2	3	1	2	2	1	3	1	0	2	1	1	1	
410243.2	Present a survey on applications for Business Analytic and Intellig	3	3	2	2	1	3	1	2	1	1	1	1	1	1	1	
410243.3	Provide problem solutions for multi-core or distributed, concurrent	1	3	2	2	2	1	1	2	1	2	1	2	1	1	1	
Avg PO attainment.		2	2.67	2	2.3	1.3	2	1.33	1.7	1.67	1.33	0.67	1.67	1	1	1	
410244(C)	Pervasive & Ubiquitous Computing	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	
410244(C).1	Design and implement primitive pervasive applications	2	3	2	3	3	2	2	3	1	1	0	1	1	1	1	
410244(C).2	Analyze and estimate the impact of pervasive computing on futur	2	2	2	2	1	3	1	1	2	2	1	1	1	1	1	
410244(C).3	Develop skill sets to propose solutions for problems related to pe	3	3	2	2	2	1	1	1	1	1	1	2	1	1	1	
410244(C).4	Design a preliminary system to meet desired needs within the con	1	1	3	1	2	1	1	2	1	1	1	3	1	1	1	
Avg PO attainment.		2	1	2.3	2	2	1.75	1.25	1.8	1.25	1.25	0.75	1.75	1	1	1	
410245(B)	Software Testing and Quality Assurance	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	
410245(B).1	Describe fundamental concepts in software testing such as manua	3	0	3	3	3	0	0	0	0	0	0	0	3	2	1	
410245(B).2	Design and develop project test plan, design test cases, test data,	2	3	2	2	3	0	0	0	0	0	0	2	1.33	2	1	
410245(B).3	Apply recent automation tool for various software testing for test	2	0	2	2	2	0	0	0	0	0	0	0	2	0	1	
410245(B).4	Apply different approaches of quality management, assurance, an	2	3	3	3	2	0	0	0	0	2	0	0	0	2	1	
410245(B).5	Apply and analyze effectiveness Software Quality Tools	2	2	3	3	3	0	0	0	0	0	0	0	0	2	1	
Avg PO attainment.		2.33	2	3.8	5	3.8	0	0	0	0	0.4	0	0.33	12.33	4	1	
Semester - VIII																	
410250	Machine Learning	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	
410250.1	Distinguish different learning based applications	2	2	3	2	2	2	2	2	1	1	1	0	1	1	1	
410250.2	Apply different preprocessing methods to prepare training data s	2	3	3	1	1	1	1	1	1	1	1	1	1	1	1	



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410250.3	Design and implement supervised and unsupervised machine learning models	3	2	3	3	3	1	1	1	1	1	1	1	1	1	1	1	1
410250.4	Implement different learning models	3	2	3	3	3	1	1	1	1	1	1	1	1	1	1	1	1
410250.5	Learn Meta classifiers and deep learning concepts	2	3	3	3	1	3	1	1	1	1	1	1	1	1	1	1	1
	Avg PO attainment.	2.25	2.5	3	2.3	1.8	1.75	1.25	1	1	1	0.75	1	1	1	1	1	1
410251	Information and Cyber Security	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3		
410251.1	Gauge the security protections and limitations provided by today's systems	2	2	3	2	2	2	2	1	2	1	0	1	1	1	1	1	1
410251.2	Identify information security and cyber security threats.	2	3	3	2	1	1	1	1	1	1	1	1	1	1	1	1	1
410251.3	Analyze threats in order to protect or defend it in cyberspace from attacks.	3	3	3	3	3	1	2	1	1	1	2	1	2	1	1	1	1
410251.4	Build appropriate security solutions against cyber-attacks.	3	3	3	1	1	1	1	2	1	2	1	2	1	1	1	1	1
	Avg PO attainment.	2.5	1	3	2	1.8	1.25	1.5	1.3	1.25	1.25	1	1.25	1	1	1	1	1
410252(C)	Embedded & Real Time Operating System	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3		
410252(C).1	Recognize and classify embedded and real-time systems.	2	2	3	2	2	2	2	1	1	1	0	1	1	1	1	1	1
410252(C).2	Explain communication bus protocols used for embedded and real-time systems.	2	3	3	1	1	1	2	2	1	1	2	1	1	1	1	1	1
410252(C).3	Classify and exemplify scheduling algorithms.	3	2	3	3	3	2	1	1	1	1	1	1	1	1	1	1	1
410252(C).4	Apply software development process to a given RTOS application.	3	2	3	3	3	2	1	1	1	1	1	1	1	1	1	1	1
410252(C).5	Design a given RTOS based application.	3	3	3	3	1	3	1	3	1	3	1	1	1	1	1	1	1
	Avg PO attainment.	2.5	2.5	3	2.3	1.8	2	1.5	1.8	1	1.5	1	1	1	1	1	1	1
410253	Cloud Computing	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3		
410253.1	To install cloud computing environments.	2	2	3	2	2	2	2	2	2	2	0	2	1	1	1	1	1
410253.2	To develop any one type of cloud.	3	3	3	2	1	1	3	2	1	1	2	1	1	1	1	1	1
410253.3	To explore future trends of cloud computing.	3	2	2	3	3	3	1	1	2	3	1	2	1	2	1	1	1
	Avg PO attainment.	2.67	2.33	2.7	2.3	2	2	2	1.7	1.67	2	1	1.67	1	1	1	1	1



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“ EMPOWERMENT THROUGH TECHNOLOGICAL EXCELLENCE ”
GENBA SOPANRAO MOZE COLLEGE OF ENGINEERING

Department of Computer Engineering
Academic Year 2021-22

Semester - III

Discrete Mathematics

CO→	210241.1	210241.2	210241.3	210241.4	210241.5	210241.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	2	1	1	1	1	2
Assignment	2	1	2	2	3	2
Average direct	2	1	1.25	1.25	2	2
A = Internal attainment	0.6	0.3	0.375	0.375	0.6	0.6
University exams						
Phase Result	1.5	1.5				



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End Sem Result	1.5	1.5	0.5	0.5	0.5	0.5
B = University Result X 0.7=	1.05	1.05	0.35	0.35	0.35	0.35
Total Attainment - Direct Assessment D=	1.155	0.945	0.5075	0.5075	0.665	0.665
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment - Indirect Assessment I=	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.055	1.845	1.4075	1.4075	1.565	1.565

Fundamentals of Data Structure

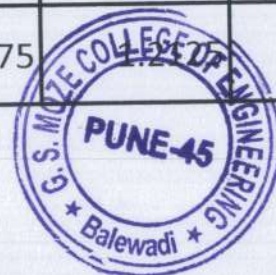
CO→	210242.1	210242.2	210242.3	210242.4	210242.5	210242.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	1.5	1.5	1.5	1.5	1.5	1.5



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Assignment	3	3	3	2	2	3
Average direct Assessment=	2.25	2.25	2.25	1.75	1.75	2.25
A = Internal attainment X 0.3=	0.675	0.675	0.675	0.525	0.525	0.675
University exams						
Phase Result	1.5	1.5				
End Sem Result	1.5	1.5	0.5	0.5	0.5	0.5
B = University Result X 0.7=	1.05	1.05	0.35	0.35	0.35	0.35
Total Attainment - Direct Assessment D=	1.2075	1.2075	0.7175	0.6125	0.6125	0.7175
Indirect Assessment						
C = Course Exit Survey Attainment	2	2	3	2	2	2
Total Attainment - Indirect Assessment I=	0.6	0.6	0.9	0.6	0.6	0.6
CO Attainment = D+I	1.8075	1.8075	1.6175	1.2125	1.2125	1.3175



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OBJECT ORIENTED PROGRAMMING

CO→	410241.1	410241.2	410241.3	410241.4	410241.5	410241.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	2	1	1	1	1	2
Assignment	2	1	2	2	3	2
Average direct Assessment=	2	1	1.25	1.25	2	2
A = Internal attainment X 0.3=	0.6	0.3	0.375	0.375	0.6	0.6
University exams						
Phase Result	2	1				
End Sem Result	2	1	0.5		0.5	0.5
B = University Result X 0.7=	1.4	0.7	0.35		0.35	0.35



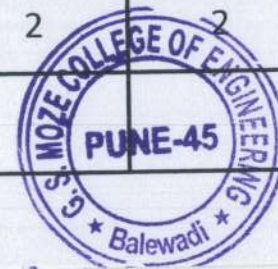
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Total Attainment - Direct Assessment D=	1.4	0.7	0.5075	0.5075	0.665	0.665
Indirect Assessment						
C = Course Exit Survey Attainment	3	1	2	2	1	1
Total Attainment - Indirect Assessment I=	0.9	0.3	0.6	0.6	0.3	0.3
CO Attainment = D+I	2.3	1	1.1075	1.1075	0.965	0.965

Computer Graphics

CO→	210244.1	210244.2	210244.3	210244.4	210244.5	210244.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	1.5	1.5	1.5	1.5	1.5	1.5
Assignment	3	3	3	2	2	3



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Average direct Assessment=	2.25	2.25	2.25	1.75	1.75	2.25
A = Internal attainment X 0.3=	0.675	0.675	0.675	0.525	0.525	0.675
University exams						
Phase Result	1.5	1.5				
End Sem Result	1.5	1.5	0.5	0.5	0.5	0.5
B = University Result X 0.7=	1.05	1.05	0.35	0.35	0.35	0.35
Total Attainment - Direct Assessment D=	1.2075	1.2075	0.7175	0.6125	0.6125	0.7175
Indirect Assessment						
C = Course Exit Survey Attainment	2	2	3	2	2	2
Total Attainment - Indirect Assessment I=	0.6	0.6	0.9	0.6	0.6	0.6
CO Attainment = D+I	1.8075	1.8075	1.6175	1.2125	1.2125	1.3175

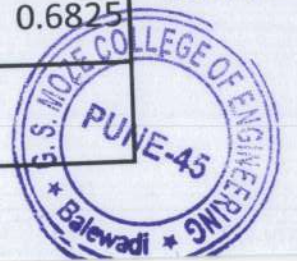
Digital Electronics & Logic Design

CO→	210245 1	210245 2	210245 3	210245 4	210245 5	210245 6
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Assessment tools ↓	210243.1	210243.2	210243.3	210243.4	210243.5	210243.0
Direct Assessment						
Internal Assessment						
Internal exam	1.5	1.5	1.5	1.5	1	1
Assignment	3	3	3	3	2	2
Average direct Assessment=	2.25	2.25	2.25	2.25	1.5	1.5
A = Internal attainment X 0.3=	0.675	0.675	0.675	0.675	0.45	0.45
University exams						
Phase Result	1.5	1.5				
End Sem Result			0.75	0.75	0.75	0.75
B = University Result X 0.7=	1.05	1.05	0.525	0.525	0.525	0.525
Total Attainment - Direct Assessment D=	1.2075	1.2075	0.84	0.84	0.6825	0.6825
Indirect Assessment						



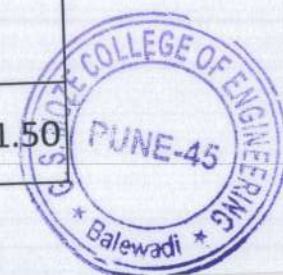
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C = Course Exit Survey Attainment	3	2	3	3	3	3
Total Attainment - Indirect Assessment I=	0.9	0.6	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.1075	1.8075	1.74	1.74	1.5825	1.5825

Semester - IV

Mathematics III

CO→	207003.1	207003.2	207003.4	207003.5	207003.5	207003.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	1.00	1.00	1.00	1.00	1.00	1.00
Assignment	2.00	1.00	2.00	2.00	3.00	2.00
Average direct Assessment=	1.50	1.00	1.50	1.50	2.00	1.50



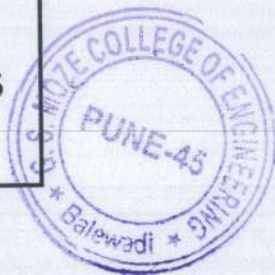
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A = Internal attainment X 0.3=	0.45	0.3	0.45	0.45	0.6	0.45
University exams						
Phase Result	0.5	0.5				
End Sem Result			0.25	0.25	0.25	0.25
B = University Result X 0.7=	0	0	0.175	0.175	0.175	0.175
Total Attainment - Direct Assessment D=	0.315	0.21	0.4375	0.4375	0.5425	0.4375
Indirect Assessment						
C = Course Exit Survey Attainment	2	1	2	2	2	2
Total Attainment - Indirect Assessment I=	0.6	0.3	0.6	0.6	0.6	0.6
CO Attainment = D+I	0.915	0.51	1.0375	1.0375	1.1425	1.0375

Data Structure and Algorithms

CO→	210252.1	210252.2	210252.3	210252.4	210252.5	210252.6
Assessment tools↓						

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Direct Assessment						
Internal Assessment						
Internal exam	1.5	1.5	1	1	1	1
Assignment	3	3	3	2	2	3
Average direct Assessment= A = Internal attainment X 0.3=	2.25	2.25	0.25	0.25	0.25	0.25
	0.675	0.675	0.075	0.075	0.075	0.075
University exams						
Phase Result	1.5	1.5				
End Sem Result	1.5	1.5	0.25	0.25	0.25	0.25
B = University Result X 0.7=	1.05	1.05	0.175	0.175	0.175	0.175
Total Attainment - Direct Assessment D=	1.2075	1.2075	0.175	0.175	0.175	0.175
Indirect Assessment						
C = Course Exit Survey Attainment	2	2	3	2	2	

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Total Attainment - Indirect Assessment I=	0.6	0.6	0.9	0.6	0.6	0.9
CO Attainment = D+I	1.8075	1.8075	1.075	0.775	0.775	1.075

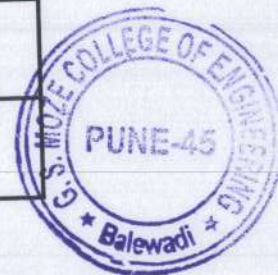
SOFTWARE ENGINEERING						
CO→	410241.1	410241.2	410241.3	410241.4	410241.5	410241.6&7
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	1	1	1	1	1	1
Assignment	2	1	2	2	3	2
Average direct Assessment=	1.5	1	1.5	1.5	2	1.5
A = Internal attainment X 0.3=	0.45	0.3	0.45	0.45	0.6	0.45
University exams						



Phase Result	1	1	1	1	1	1
End Sem Result	2	2	2	1	2	2
B = University Result X 0.7=	1.4	1.4	1.4	0.7	1.4	1.4
Total Attainment - Direct Assessment D=	1.295	1.19	1.295	0.805	1.4	1.295
Indirect Assessment						
C = Course Exit Survey Attainment	2	1	2	1	1	1
Total Attainment - Indirect Assessment I=	0.6	0.3	0.6	0.3	0.3	0.3
CO Attainment = D+I	1.895	1.49	1.895	1.105	1.7	1.595

Microprocessor						
CO→	210254.1	210254.2	210254.3	210254.4	210254.5	210254.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						

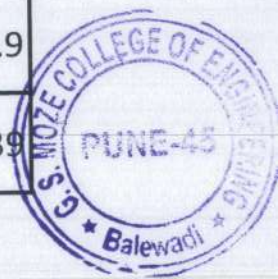
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Internal exam	1	1	1	1	1	1.5
Assignment	2	1	1	2	3	2
Average direct Assessment=	1.5	1	1	1.5	2	1.75
A = Internal attainment X 0.3=	0.45	0.3	0.3	0.45	0.6	0.525
University exams						
Phase Result	0.5	0.25	0.25			
End Sem Result				0.25	0.25	0.25
B = University Result X 0.7=	0.35	0.175	0.175	0.175	0.175	0.175
Total Attainment - Direct Assessment D=	0.56	0.3325	0.3325	0.4375	0.5425	0.49
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment - Indirect Assessment I=	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	1.46	1.2325	1.2325	1.3375	1.4425	1.39

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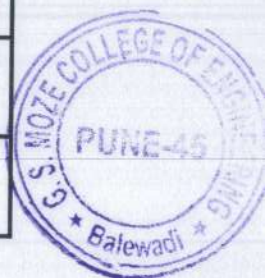
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PRINCIPLES OF PROGRAMMING LANGUAGE

CO→	410241.1	410241.2	410241.3	410241.4	410241.5	410241.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	2	1	2	1	1	2
Assignment	2	1	2	2	3	2
Average direct Assessment=	2	1	2	1.5	2	2
A = Internal attainment X 0.3=	0.6	0.3	0.6	0.45	0.6	0.6
University exams						
Phase Result	2	1				
End Sem Result			0.5	0.5	0.5	0.5


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B = University Result X 0.7=	0	0	0.35	0.35	0.35	0.35
Total Attainment - Direct Assessment D=	0.42	0.21	0.665	0.56	0.665	0.665
Indirect Assessment						
C = Course Exit Survey Attainment	3	1	2	2	1	1
Total Attainment - Indirect Assessment I=	0.9	0.3	0.6	0.6	0.3	0.3
CO Attainment = D+I	1.32	0.51	1.265	1.16	0.965	0.965

Semester - V

Database Management Systems

CO→	310241.1	310241.2	310241.3	310241.4	310241.5	310241.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						

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Internal exam	1.5	1.5	1.5	1.5	1.5	1.5
Assignment	2	2	1	1	1	1
Average direct Assessment=	1.75	1.75	1.25	1.25	1.25	1.25
A = Internal attainment X 0.3=	0.525	0.525	0.375	0.375	0.375	0.375
University exams						
Phase Result	1.5	1.5				
End Sem Result			1.5	1.5	1	1
B = University Result X 0.7=	0	0	1.05	1.05	0.7	0.7
Total Attainment - Direct Assessment D=	0.3675	0.3675	0.9975	0.9975	0.7525	0.7525
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment - Indirect Assessment I=	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	1.2675	1.2675	1.8975	1.8975	1.6525	1.6525


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Theory of Computation

CO→	410242.1	410242.2	410242.3	410242.4	410242.5	410242.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	1.5	1.5	1.5	1.5	1	1
Assignment	3	3	2	2	3	2
Average direct Assessment=	2.25	2.25	1.75	1.75	2	1.5
A = Internal attainment X 0.3=	0.675	0.675	0.525	0.525	0.6	0.45
University exams						
Phase Result	1.5	1.5				
End Sem Result			1.5	1.5	1.5	1.5


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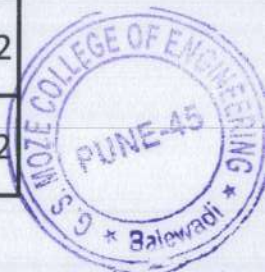


B = University Result X 0.7=	1.05	1.05	1.05	1.05	1.05	1.05
Total Attainment - Direct Assessment D=	1.2075	1.2075	1.1025	1.1025	1.155	1.05
Indirect Assessment						
C = Course Exit Survey Attainment	3	2	3	2	3	3
Total Attainment - Indirect Assessment I=	0.9	0.6	0.9	0.6	0.9	0.9
CO Attainment = D+I	2.1075	1.8075	2.0025	1.7025	2.055	1.95

System Programming and Operating System

CO→	310243.1	310243.2	310243.3	310243.4	310243.5	310243.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	1	1	1	1	2	2
Assignment	3	3	2	3	2	2

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Average direct Assessment=	2	2	1.5	2	2	2
A = Internal attainment X 0.3=	0.6	0.6	0.45	0.6	0.6	0.6
University exams						
Phase Result	1.5	1.5				
End Sem Result	1.5	1.5	0.5	0.5	1	1
B = University Result X 0.7=	1.05	1.05	0.35	0.35	0.7	0.7
Total Attainment - Direct Assessment D=	1.155	1.155	0.56	0.665	0.91	0.91
Indirect Assessment						
C = Course Exit Survey Attainment	3	1	3	1	2	3
Total Attainment - Indirect Assessment I=	0.9	0.3	0.9	0.3	0.6	0.9
CO Attainment = D+I	2.055	1.455	1.46	0.965	1.51	1.81

CO→	310244.1	310244.2	310244.3	310244.4	310244.5	310244.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	1.5	1.5	1	1	1.5	1.5
Assignment	3	2	3	2	3	3
Average direct Assessment=	2.25	1.75	2	1.5	2.25	2.25
A = Internal attainment X 0.3=	0.675	0.525	0.6	0.45	0.675	0.675
University exams						
Phase Result	1.5	1.5				
End Sem Result			1	1	0.5	0.5
B = University Result X 0.7=	1.05	1.05	0.7	0.7	0.35	0.35
Total Attainment - Direct Assessment D=	1.2075	1.1025	0.91	0.805	0.7175	0.7175



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Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment - Indirect Assessment I=	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.1075	2.0025	1.81	1.705	1.6175	1.6175

SOFTWARE PROJECT MANAGEMENT

CO→	310245(D).1	310245(D).2	310245(D).3	310245(D).4	310245(D).5	310245(D).6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	1.5	1.5	1.5	1.5	1	1
Assignment	3	3	2	2	3	2
Average direct Assessment=	2.25	2.25	1.75	1.75		



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A = Internal attainment X 0.3=	0.675	0.675	0.525	0.525	0.6	0.45
University exams						
Phase Result	1.5	1.5				
End Sem Result			1	1	0.5	0.5
B = University Result X 0.7=	1.05	1.05	0.7	0.7	0.35	0.35
Total Attainment - Direct Assessment D=	1.2075	1.2075	0.8575	0.8575	0.665	0.56
Indirect Assessment						
C = Course Exit Survey Attainment	3	2	3	2	3	3
Total Attainment - Indirect Assessment I=	0.9	0.6	0.9	0.6	0.9	0.9
CO Attainment = D+I	2.1075	1.8075	1.7575	1.4575	1.565	1.46

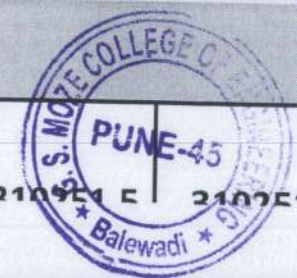
Semester - VI

Data Science and Big Data Analytics

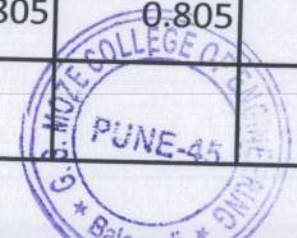
CO →	210251 1	210251 2	210251 3	210251 4	210251 5	210251 6
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Prabhu
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Assessment tools↓	310231.1	310231.2	310231.3	310231.4	310231.5	310231.6
Direct Assessment						
Internal Assessment						
Internal exam	1.5	1.5	1.5	1.5	1.5	1.5
Assignment	3	3	1.5	1.5	1.5	1.5
Average direct Assessment=	2.25	2.25	1.5	1.5	1.5	1.5
A = Internal attainment X 0.3=	0.675	0.675	0.45	0.45	0.45	0.45
University exams						
Phase Result	1	1				
End Sem Result			1	1	1	1
B = University Result X 0.7=	0	0	0.7	0.7	0.7	0.7
Total Attainment - Direct Assessment D=	0.4725	0.4725	0.805	0.805	0.805	0.805
Indirect Assessment						

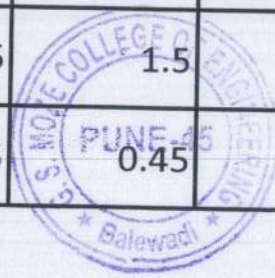


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C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment - Indirect Assessment I=	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	1.3725	1.3725	1.705	1.705	1.705	1.705

Web Technology						
CO→	310252.1	310252.2	310252.3	310252.4	310252.5	310252.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	1	1	1	1	1	1
Assignment	2	2	2	2	2	2
Average direct Assessment=	1.5	1.5	1.5	1.5	1.5	1.5
A = Internal attainment X 0.3=	0.45	0.45	0.45	0.45	0.45	0.45



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University exams						
Phase Result	0.5	0.5				
End Sem Result			0.25	0.25	0.25	0.25
B = University Result X 0.7=	0.35	0.35	0.175	0.175	0.175	0.175
Total Attainment - Direct Assessment D=	0.56	0.56	0.4375	0.4375	0.4375	0.4375
Indirect Assessment						
C = Course Exit Survey Attainment	2	2	3	2	2	2
Total Attainment - Indirect Assessment I=	0.6	0.6	0.9	0.6	0.6	0.6
CO Attainment = D+I	1.16	1.16	1.3375	1.0375	1.0375	1.0375

Artificial Intelligence

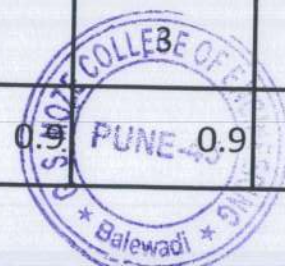
CO→	310253.1	310253.2	310253.3	310253.4	310253.5	310253.6
Assessment tools↓						
Direct Assessment						



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Internal Assessment						
Internal exam	1.5	1.5	1	1	1.5	1.5
Assignment	3	2	3	2	2	3
Average direct Assessment=	2.25	1.75	2	1.5	1.75	2.25
A = Internal attainment X 0.3=	0.675	0.525	0.6	0.45	0.525	0.675
University exams						
Phase Result	1.5	1.5				
End Sem Result			0.5	0.5	0.5	0.5
B = University Result X 0.7=	1.05	1.05	0.35	0.35	0.35	0.35
Total Attainment - Direct Assessment D=	1.2075	1.1025	0.665	0.56	0.6125	0.7175
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3		3
Total Attainment - Indirect Assessment I=	0.9	0.9	0.9	0.9	0.9	0.9

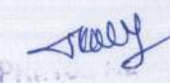


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CO Attainment = D+I	2.1075	2.0025	1.565	1.46	1.5125	1.6175
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Cloud Computing						
CO→	310254C.1	310254C.2	310254C.3	310254C.4	310254C.5	310254C.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	1.5	1.5	1.5	1.5	1.5	1.5
Assignment	3	3	3	2	2	3
Average direct Assessment=	2.25	2.25	2.25	1.75	1.75	2.25
A = Internal attainment X 0.3=	0.675	0.675	0.675	0.525	0.525	0.675
University exams						
Phase Result	1.5	1.5				


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End Sem Result	1.5	1.5	0.5	0.5	0.5	0.5
B = University Result X 0.7=	1.05	1.05	0.35	0.35	0.35	0.35
Total Attainment - Direct Assessment D=	1.2075	1.2075	0.7175	0.6125	0.6125	0.7175
Indirect Assessment						
C = Course Exit Survey Attainment	2	2	3	2	2	2
Total Attainment - Indirect Assessment I=	0.6	0.6	0.9	0.6	0.6	0.6
CO Attainment = D+I	1.8075	1.8075	1.6175	1.2125	1.2125	1.3175

Semester - VII

HIGH PERFORMANCE COMPUTING

CO→	410241.1	410241.2	410241.3	410241.4
Assessment tools↓				
Direct Assessment				



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Internal Assessment				
Internal exam	3	3	1	2
Assignment	2	1	2	2
Average direct Assessment=	2.5	2	1.5	1.75
A = Internal attainment X 0.3=	0.75	0.6	0.45	0.525
University exams				
Phase Result	3			
End Sem Result	2	2	2	1
B = University Result X 0.7=	1.4	1.4	1.4	0.7
Total Attainment - Direct Assessment D=	1.505	1.4	1.295	0.8575
Indirect Assessment				
C = Course Exit Survey Attainment	3	3	3	3
Total Attainment - Indirect Assessment I=	0.9	0.9	0.9	0.9



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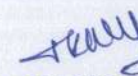
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CO Attainment = D+I	2.405	2.3	2.195	1.7575
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ARTIFICIAL INTELLIGENCE & ROBOTICS

CO→	410242.1	410242.2	410242.3	410242.4
Assessment tools↓				
Direct Assessment				
Internal Assessment				
Internal exam	2	1	2	3
Assignment	2	2	2	2
Average direct Assessment=	2	1.5	2	2.5
A = Internal attainment X 0.3=	0.6	0.45	0.6	0.75
University exams				
Phase Result	1.5	1.5		




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End Sem Result	0.75	0.75	0.75	0.75
B = University Result X 0.7=	0.525	0.525	0.525	0.525
Total Attainment - Direct Assessment D=	0.7875	0.6825	0.7875	0.8925
Indirect Assessment				
C = Course Exit Survey Attainment	3	2	3	3
Total Attainment - Indirect Assessment I=	0.9	0.6	0.9	0.9
CO Attainment = D+I	1.6875	1.2825	1.6875	1.7925

DATA ANALYTICS

CO→	410243.1	410243.2	410243.3
Assessment tools↓			
Direct Assessment			
Internal Assessment			
Internal exam	3	2	3



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Assignment	2	2	2
Average direct Assessment=	2.5	2	2.5
A = Internal attainment X 0.3=	0.75	0.6	0.75
University exams			
Phase Result	3		
End Sem Result	0.67	0.67	0.66
B = University Result X 0.7=	0.469	0.469	0.462
Total Attainment - Direct Assessment D=	0.8533	0.7483	0.8484
Indirect Assessment			
C = Course Exit Survey Attainment	3	2	3
Total Attainment - Indirect Assessment I=	0.9	0.6	0.9
CO Attainment = D+I	1.7533	1.3483	1.7484



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PERVASIVE & UBIQUITOUS COMPUTING

CO→	410244(C).1	410244(C).2	410244(C).3	410244(C).4
Assessment tools↓				
Direct Assessment				
Internal Assessment				
Internal exam	2	1	2	3
Assignment	2	2	2	3
Average direct Assessment=	2	1.5	2	3
A = Internal attainment X 0.3=	0.6	0.45	0.6	0.9
University exams				
Phase Result	1.5	1.5		
End Sem Result	0.5	0.5	0.5	0.5
B = University Result X 0.7=	0.35	0.35	0.35	0.35



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Total Attainment - Direct Assessment D=	0.665	0.56	0.665	0.875
Indirect Assessment				
C = Course Exit Survey Attainment	1	2	3	3
Total Attainment - Indirect Assessment I=	0.3	0.6	0.9	0.9
CO Attainment = D+I	0.965	1.16	1.565	1.775

SOFTWARE TESTING & QUALITY ASSURANCE

CO→	410245(B).1	410245(B).2	410245(B). 3	410245(B). 4	410245(B). .5
Assessment tools↓					
Direct Assessment					
Internal Assessment					
Internal exam	1	1	1	1	2
Assignment	2	3	2	3	2

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Average direct Assessment=	1.25	1.75	1.5	2	2
A = Internal attainment X 0.3=	0.375	0.525	0.45	0.6	0.6
University exams					
Phase Result	1.5	1.5			
End Sem Result	0.5	0.5	0.5	0.5	0.5
B = University Result X 0.7=	0.35	0.35	0.35	0.35	0.35
Total Attainment - Direct Assessment D=	0.5075	0.6125	0.56	0.665	0.665
Indirect Assessment					
C = Course Exit Survey Attainment	3	3	3	3	3
Total Attainment - Indirect Assessment I=	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	1.4075	1.5125	1.46	1.565	1.565

Semester - VIII

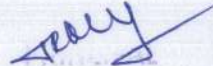
Machine Learning

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CO→	410250.1	410250.2	410250.3	410250.4	410250.5
Assessment tools↓					
Direct Assessment					
Internal Assessment					
Internal exam	2	2	2		
Assignment	2	1		2	3
Average direct Assessment=	2	1.5	2	2	3
A = Internal attainment X 0.3=	0.6	0.45	0.6	0.6	0.9
University exams					
Phase Result	1	2			
End Sem Result	1	0.25	0.25	0.25	0.25
B = University Result X 0.7=	0.7	0.175	0.175	0.175	0.175
Total Attainment - Direct Assessment D=	0.91	0.4375	0.5425	0.5425	0.7525


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Indirect Assessment					
C = Course Exit Survey Attainment	1	3	3	3	3
Total Attainment - Indirect Assessment I=	0.3	0.9	0.9	0.9	0.9
CO Attainment = D+I	1.21	1.3375	1.4425	1.4425	1.6525

Information and Cyber Security				
CO→	410251.1	410251.2	410251.3	410251.4
Assessment tools↓				
Direct Assessment				
Internal Assessment				
Internal exam	2	2	2	2
Assignment	2	2	2	2
Average direct Assessment=	2	2	2	2

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A = Internal attainment X 0.3=	0.6	0.6	0.6	0.6
University exams				
Phase Result	1.5	1.5		
End Sem Result	0.5	0.5	0.5	0.5
B = University Result X 0.7=	0.35	0.35	0.35	0.35
Total Attainment - Direct Assessment D=	0.665	0.665	0.665	0.665
Indirect Assessment				
C = Course Exit Survey Attainment	3	3	3	3
Total Attainment - Indirect Assessment I=	0.9	0.9	0.9	0.9
CO Attainment = D+I	1.565	1.565	1.565	1.565

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Embedded and Real Time Operating System

CO→	410252.1	410252.2	410252.3	410252.4	410252.5
Assessment tools↓					



Direct Assessment					
Internal Assessment					
Internal exam	2	2	2	2	2
Assignment	3	3	3	3	3
Average direct Assessment=	2.5	2.25	2.25	2.5	2.5
A = Internal attainment X 0.3=	0.75	0.675	0.675	0.75	0.75
University exams					
Phase Result	3				
End Sem Result	2	2	2	2	2
B = University Result X 0.7=	1.4	1.4	1.4	1.4	1.4
Total Attainment - Direct Assessment D=	1.505	1.4525	1.4525	1.505	1.505
Indirect Assessment					
C = Course Exit Survey Attainment	3	3	3	3	3

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Total Attainment - Indirect Assessment I=	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.405	2.3525	2.3525	2.405	2.405

Cloud Computing			
CO→	410252.1	410252.2	410252.3
Assessment tools↓			
Direct Assessment			
Internal Assessment			
Internal exam	2	3	3
Assignment	3	3	3
Average direct Assessment=	2.5	3	3
A = Internal attainment X 0.3=	0.75	0.9	0.9
University exams			



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Phase Result	3		
End Sem Result	2	2	2
B = University Result X 0.7=	1.4	1.4	1.4
Total Attainment - Direct Assessment D=	1.505	1.61	1.61
Indirect Assessment			
C = Course Exit Survey Attainment	3	3	3
Total Attainment - Indirect Assessment I=	0.9	0.9	0.9
CO Attainment = D+I	2.405	2.51	2.51



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“ EMPOWERMENT THROUGH TECHNOLOGICAL EXCELLENCE ”

GENBA SOPANRAO MOZE COLLEGE OF ENGINEERING

Department of Computer Engineering

Academic Year 2022-23

Semester - III

Discrete Mathematics

CO→	210241.1	210241.2	210241.3	210241.4	210241.5	210241.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	1	1	1	1	1	1
Assignment	2	1	2	2	3	2
Average direct Assessment=	1.5	1	1.5	1.5	2	1.5
A = Internal attainment X 0.3=	0.45	0.3	0.45	0.45	0.6	0.45
University exams						
Phase Result	1	1				
End Sem Result	1	1	0.25	0.25	0.25	0.25
B = University Result X 0.7=	0.7	0.7	0.175	0.175	0.175	0.175



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Total Attainment -Direct Assessment D= (A+B)*.7	0.805	0.7	0.4375	0.4375	0.5425	0.4375
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	1.705	1.6	1.3375	1.3375	1.4425	1.3375

Fundamentals of Data Structure						
CO→	210242.1	210242.2	210242.3	210242.4	210242.5	210242.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	1.5	1.5	1	1	1.5	1.5
Assignment	3	3	3	2	2	3
Average direct Assessment=	2.25	2.25	2	1.5	1.75	2.25
A = Internal attainment X 0.3=	0.675	0.675	0.6	0.45	0.525	0.675



University exams						
Phase Result	0.5	0.5				
End Sem Result	0.5	0.5	0.5	0.5	0.5	0.5
B = University Result X 0.7=	0.35	0.35	0.35	0.35	0.35	0.35
Total Attainment -Direct Assessment D= (A+B)*.7	0.7175	0.7175	0.665	0.56	0.6125	0.7175
Indirect Assessment						
C = Course Exit Survey Attainment	2	2	3	2	2	2
Total Attainment -Indirect Assessment I= (C)*.3	0.6	0.6	0.9	0.6	0.6	0.6
CO Attainment = D+I	1.3175	1.3175	1.565	1.16	1.2125	1.3175

OBJECT ORIENTED PROGRAMMING

CO→	410241.1	410241.2	410241.3	410241.4	410241.5	410241.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	1	1	2	1	1	2



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Assignment	2	1	2	2	3	2
Average direct Assessment=	1.5	1	2	1.5	2	2
A = Internal attainment X 0.3=	0.45	0.3	0.6	0.45	0.6	0.6
University exams						
Phase Result	1	1				
End Sem Result			0.25	0.25	0.25	0.25
B = University Result X 0.7=	0	0	0.175	0.175	0.175	0.175
Total Attainment -Direct Assessment D= (A+B)*.7	0.315	0.21	0.5425	0.4375	0.5425	0.5425
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	1.215	1.11	1.4425	1.3375	1.4425	1.4425

Computer Graphics

CO→	210244 1	210244 2	210244 3	210244 4
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Assessment tools↓	210244.1	210244.2	210244.3	210244.4	210244.5	210244.6
Direct Assessment						
Internal Assessment						
Internal exam	1.5	1.5	1.5	1.5	1.5	1.5
Assignment	3	3	3	2	2	3
Average direct Assessment=	2.25	2.25	2.25	1.75	1.75	2.25
A = Internal attainment X 0.3=	0.675	0.675	0.675	0.525	0.525	0.675
University exams						
Phase Result	1.5	1.5				
End Sem Result	1.5	1.5	0.5	0.5	0.5	0.5
B = University Result X 0.7=	1.05	1.05	0.35	0.35	0.35	0.35
Total Attainment -Direct Assessment D= (A+B)*.7	1.2075	1.2075	0.7175	0.6125	0.6125	0.7175
Indirect Assessment						
C = Course Exit Survey Attainment	2	2	3	2		2
Total Attainment -Indirect Assessment I= (C)*.3	0.6	0.6	0.9	0.6		



CO Attainment = D+I	1.8075	1.8075	1.6175	1.2125	1.2125	1.3175
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Digital Electronics & Logic Design

CO→	210245.1	210245.2	210245.3	210245.4	210245.5	210245.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	1.5	1.5	1.5	1.5	1	1
Assignment	3	3	3	3	3	3
Average direct Assessment=	2.25	2.25	2.25	2.25	2	2
A = Internal attainment X 0.3=	0.675	0.675	0.675	0.675	0.6	0.6
University exams						
Phase Result	0.5	0.5				
End Sem Result			0.5	0.5	0.5	0.5
B = University Result X 0.7=	0.35	0.35	0.35	0.35	0.35	0.35



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Total Attainment -Direct Assessment D= (A+B)*.7	0.7175	0.7175	0.7175	0.7175	0.665	0.665
Indirect Assessment						
C = Course Exit Survey Attainment	3	2	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.6	0.9	0.9	0.9	0.9
CO Attainment = D+I	1.6175	1.3175	1.6175	1.6175	1.565	1.565

Semester - IV

Mathematics III

CO→	207003.1	207003.2	207003.3	207003.4	207003.5	207003.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	1	1	1	1	1	1
Assignment	2	1	2	2	3	2
Average direct Assessment=	1.5	1	1.5	1.5	2	1.5



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A = Internal attainment X 0.3=	0.45	0.3	0.45	0.45	0.6	0.45
University exams						
Phase Result	0.5	0.5				
End Sem Result			0.25	0.25	0.25	0.25
B = University Result X 0.7=	0	0	0.175	0.175	0.175	0.175
Total Attainment -Direct Assessment D= (A+B)*.7	0.315	0.21	0.4375	0.4375	0.5425	0.4375
Indirect Assessment						
C = Course Exit Survey Attainment	2	1	2	2	2	2
Total Attainment -Indirect Assessment I= (C)*.3	0.6	0.3	0.6	0.6	0.6	0.6
CO Attainment = D+I	0.915	0.51	1.0375	1.0375	1.1425	1.0375



Data Structure and Algorithms						
CO→	210252.1	210252.2	210252.3	210252.4	210252.5	210252.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						

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Internal exam	1.5	1.5	1.5	1.5	1.5	1.5
Assignment	3	3	3	2	2	3
Average direct Assessment=	2.25	2.25	2.25	1.75	1.75	2.25
A = Internal attainment X 0.3=	0.675	0.675	0.675	0.525	0.525	0.675
University exams						
Phase Result	1	1				
End Sem Result	0.5	0.5	0.5	0.5	0.5	0.5
B = University Result X 0.7=	0.35	0.35	0.35	0.35	0.35	0.35
Total Attainment -Direct Assessment D= (A+B)*.7	0.7175	0.7175	0.7175	0.6125	0.6125	0.7175
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	1.6175	1.6175	1.6175	1.5125	1.5125	1.6175



CO→	410241.1	410241.2	410241.3	410241.4	410241.5	410241.6&7
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	1	1	1	1	1	1
Assignment	2	2	2	1	2	2
Average direct Assessment=	1.5	1.5	1.5	1	1.5	1.5
A = Internal attainment X 0.3=	0.45	0.45	0.45	0.3	0.45	0.45
University exams						
Phase Result	1	1				
End Sem Result			0.5	0.5	0.5	0.5
B = University Result X 0.7=	0	0	0.35	0.35	0.35	0.35
Total Attainment -Direct Assessment D= (A+B)*.7	0.315	0.315	0.56	0.455	0.56	0.56
Indirect Assessment						
C = Course Exit Survey Attainment	2	2	2	2	2	2



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Total Attainment -Indirect Assessment I= (C)*.3	0.6	0.6	0.6	0.6	0.6	0.6
CO Attainment = D+I	0.915	0.915	1.16	1.055	1.16	1.16

Microprocessor

CO→	210254.1	210254.2	210254.3	210254.4	210254.5	210254.6	210255
Assessment tools↓							
Direct Assessment							
Internal Assessment							
Internal exam	1	0.5	0.5	1.5	1.5	1.5	1.5
Assignment	2	1.5	1.5	2	3	2	
Average direct Assessment=	1.5	1	1	1.75	2.25	1.75	2.25
A = Internal attainment X 0.3=	0.45	0.3	0.3	0.525	0.675	0.525	0.675
University exams							
Phase Result	0.5	0.25	0.25				
End Sem Result				0.5	0.5	0.5	

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B = University Result X 0.7=	0.35	0.175	0.175	0.35	0.35	0.35	0.35
Total Attainment -Direct Assessment D= (A+B)*.7	0.56	0.3325	0.3325	0.6125	0.7175	0.6125	0.7175
Indirect Assessment							
C = Course Exit Survey Attainment	3	2	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.6	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	1.46	0.9325	1.2325	1.5125	1.6175	1.5125	1.6175

PRINCIPLES OF PROGRAMMING LANGUAGES

CO→	410241.1	410241.2	410241.3	410241.4	410241.5	410241.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	1	1	2	1	1	2
Assignment	2	1	2	2	3	2
Average direct Assessment=	1.5	1	2	1.5	2	2



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A = Internal attainment X 0.3=	0.45	0.3	0.6	0.45	0.6	0.6
University exams						
Phase Result	0.5	0.5				
End Sem Result			0.5	0.5	0.5	0.5
B = University Result X 0.7=	0	0	0.35	0.35	0.35	0.35
Total Attainment -Direct Assessment D= (A+B)*.7	0.315	0.21	0.665	0.56	0.665	0.665
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	1.215	1.11	1.565	1.46	1.565	1.565

Semester - V

Database Management Systems

CO→	310241.1	310241.2	310241.3	310241.4	310241.5	310241.6
Assessment tools↓						
Direct Assessment						



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Internal Assessment						
Internal exam	1.5	1.5	1.5	1.5	1.5	1.5
Assignment	2	2	1	1	1	1
Average direct Assessment=	1.75	1.75	1.25	1.25	1.25	1.25
A = Internal attainment X 0.3=	0.525	0.525	0.375	0.375	0.375	0.375
University exams						
Phase Result	1	1				
End Sem Result			1.5	1.5	1	1
B = University Result X 0.7=	0	0	1.05	1.05	0.7	0.7
Total Attainment -Direct Assessment D= (A+B)*.7	0.3675	0.3675	0.9975	0.9975	0.7525	0.7525
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	1.2675	1.2675	1.8975	1.8975	1.6525	1.6525



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Theory of Computation

CO→	410241.1	410241.2	410241.3	410241.4	410241.5	410241.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	1	1	1.5	1.5	1.5	1.5
Assignment	2	1	2	2	2	2
Average direct Assessment=	1.5	1	1.75	1.75	1.75	1.75
A = Internal attainment X 0.3=	0.45	0.3	0.525	0.525	0.525	0.525
University exams						
Phase Result	1.5	1.5				
End Sem Result			0.25	0.25	0.25	0.25
B = University Result X 0.7=	1.05	1.05	0.175	0.175	0.175	0.175
Total Attainment -Direct Assessment D= (A+B)*.7	1.05	0.945	0.49	0.49	0.49	0.49
Indirect Assessment						



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C = Course Exit Survey Attainment	3	1	2	2	2	1
Total Attainment - Indirect Assessment I = (C)*.3	0.9	0.3	0.6	0.6	0.6	0.3
CO Attainment = D+I	1.95	1.245	1.09	1.09	1.09	0.79

System Programming and Operating System						
CO →	310243.1	310243.2	310243.3	310243.4	310243.5	310243.6
Assessment tools ↓						
Direct Assessment						
Internal Assessment						
Internal exam	2	1	1	1	1	3
Assignment	2	1	2	2	3	2
Average direct Assessment =	2	1	1.25	1.25	2	2.5
A = Internal attainment X 0.3 =	0.6	0.3	0.375	0.375	0.6	0.75
University exams						
Phase Result	0.5	0.5				



End Sem Result	0.5	0.5	0.5	0.5	1	1
B = University Result X 0.7=	0.35	0.35	0.35	0.35	0.7	0.7
Total Attainment -Direct Assessment D= (A+B)*.7	0.665	0.455	0.5075	0.5075	0.91	1.015
Indirect Assessment						
C = Course Exit Survey Attainment	3	1	2	1	1	2
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.3	0.6	0.3	0.3	0.6
CO Attainment = D+I	1.565	0.755	1.1075	0.8075	1.21	1.615

Computer Networks and Security

CO→	310244.1	310244.2	310244.3	310244.4	310244.5	310244.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	1.5	1.5	0.5	0.5	1.5	1.5
Assignment	3	1	3	2	3	3



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Average direct Assessment=	2.25	1.25	1.75	1.25	2.25	2.25
A = Internal attainment X 0.3=	0.675	0.375	0.525	0.375	0.675	0.675
University exams						
Phase Result	0.5	0.5				
End Sem Result			0.5	0.5	0.5	0.5
B = University Result X 0.7=	0	0	0.35	0.35	0.35	0.35
Total Attainment -Direct Assessment D= (A+B)*.7	0.4725	0.2625	0.6125	0.5075	0.7175	0.7175
Indirect Assessment						
C = Course Exit Survey Attainment	2	2	3	3	2	2
Total Attainment -Indirect Assessment I= (C)*.3	0.6	0.6	0.9	0.9	0.6	0.6
CO Attainment = D+I	1.0725	0.8625	1.5125	1.4075	1.3175	1.3175



INTERNET OF THINGS and Embedded Systems

CO→	310245(A).1	310245(A).2	310245(A).3	310245(A).4	310245(A).5	310245(A).6
Assessment tools↓						
Direct Assessment						

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Internal Assessment						
Internal exam	1	1	1	1	1	1
Assignment	2	1	2	2	3	2
Average direct Assessment=	1.5	1	1.25	1.25	2	1.5
A = Internal attainment X 0.3=	0.45	0.3	0.375	0.375	0.6	0.45
University exams						
Phase Result	0.5	0.5				
End Sem Result			0.5	0.5	1	1
B = University Result X 0.7=	0	0	0.35	0.35	0.7	0.7
Total Attainment -Direct Assessment D= (A+B)*.7	0.315	0.21	0.5075	0.5075	0.91	0.805
Indirect Assessment						
C = Course Exit Survey Attainment	2	1	2	2	2	2
Total Attainment -Indirect Assessment I= (C)*.3	0.6	0.3	0.6	0.6	0.6	0.6
CO Attainment = D+I	0.915	0.51	1.1075	1.1075	1.51	1.405



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Semester - VI

Data Science and Big Data Analytics

CO→	310251.1	310251.2	310251.3	310251.4	310251.5	310251.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	1.5	1.5	1.5	1.5	1.5	1.5
Assignment	3	3	1.5	1.5	1.5	1.5
Average direct Assessment=	2.25	2.25	1.5	1.5	1.5	1.5
A = Internal attainment X 0.3=	0.675	0.675	0.45	0.45	0.45	0.45
University exams						
Phase Result	1	1				
End Sem Result			1	1	1	1
B = University Result X 0.7=	0	0	0.7	0.7	0.7	0.7
Total Attainment -Direct Assessment D= (A+B)*.7	0.4725	0.4725	0.805	0.805	0.805	0.805



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Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment - Indirect Assessment = $I = (C) \times 0.3$	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = $D + I$	1.3725	1.3725	1.705	1.705	1.705	1.705

Web Tecnology						
CO →	310252.1	310252.2	310252.3	310252.4	310252.5	310252.6
Assessment tools ↓						
Direct Assessment						
Internal Assessment						
Internal exam	2	2	3	3	2	2
Assignment	2	3	3	3	3	3
Average direct Assessment =	2	2.5	3	3	2.5	2.5
A = Internal attainment X 0.3 =	0.6	0.75	0.9	0.9	0.75	0.75
University exams						



Phase Result	3	3				
End Sem Result	3	3	2	2	2	2
B = University Result X 0.7=	2.1	2.1	1.4	1.4	1.4	1.4
Total Attainment -Direct Assessment D= (A+B)*.7	1.89	1.995	1.61	1.61	1.505	1.505
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.79	2.895	2.51	2.51	2.405	2.405

Artificial Intelligence

CO→	310253.1	310253.2	310253.3	310253.4	310253.5	310253.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	1.5	1.5	1.5	1.5	1.5	1.5
Assignment	3	1	3	2	3	3



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Average direct Assessment=	2.25	1.25	2.25	1.75	2.25	2.25
A = Internal attainment X 0.3=	0.675	0.375	0.675	0.525	0.675	0.675
University exams						
Phase Result	1	1				
End Sem Result			0.5	0.5	0.5	0.5
B = University Result X 0.7=	0.7	0.7	0.35	0.35	0.35	0.35
Total Attainment -Direct Assessment D= (A+B)*.7	0.9625	0.7525	0.7175	0.6125	0.7175	0.7175
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	1.8625	1.6525	1.6175	1.5125	1.6175	1.6175



Cloud Computing						
CO→	310254C.1	310254C.2	310254C.3	310254C.4	310254C.5	310254C.6
Assessment tools↓						

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Direct Assessment						
Internal Assessment						
Internal exam	1.5	1.5	1.5	1.5	1.5	1.5
Assignment	3	3	3	2	2	3
Average direct Assessment=	2.25	2.25	2.25	1.75	1.75	2.25
A = Internal attainment X 0.3=	0.675	0.675	0.675	0.525	0.525	0.675
University exams						
Phase Result	1.5	1.5				
End Sem Result	1.5	1.5	0.5	0.5	0.5	0.5
B = University Result X 0.7=	1.05	1.05	0.35	0.35	0.35	0.35
Total Attainment -Direct Assessment D= (A+B)*.7	1.2075	1.2075	0.7175	0.6125	0.6125	0.7175
Indirect Assessment						
C = Course Exit Survey Attainment	2	2	3	2	2	2
Total Attainment -Indirect Assessment I= (C)*.3	0.6	0.6	0.9	0.6	0.6	0.6
CO Attainment = D+I	1.8075	1.8075	1.6175	1.2125	1.2125	1.3175



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Semester - VII

Design and Analysis of Algorithms

CO→	410241.1	410241.2	410241.3	410241.4	410241.5	410241.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	2	1	2	1	1	1
Assignment	2	1	2	2	3	2
Average direct Assessment=	2	1	2	1.5	2	1.5
A = Internal attainment X 0.3=	0.6	0.3	0.6	0.45	0.6	0.45
University exams						
Phase Result	1	1				
End Sem Result	1	1	0.25	0.25	0.25	0.25
B = University Result X 0.7=	0.7	0.7	0.175	0.175	0.175	0.175



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Total Attainment -Direct Assessment D= (A+B)*.7	0.91	0.7	0.5425	0.4375	0.5425	0.4375
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	1.81	1.6	1.4425	1.3375	1.4425	1.3375

Machine Learning						
CO→	410242.1	410242.2	410242.3	410242.4	410242.5	410242.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	1.5	1.5	1.5	1.5	1	1
Assignment	2	1	2	2	3	2
Average direct Assessment=	1.75	1.25	1.75	1.75	2	1.5
A = Internal attainment X 0.3=	0.525	0.375	0.525	0.525	0.6	0.45



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University exams						
Phase Result	1	1				
End Sem Result			0.5	0.5	0.5	0.5
B = University Result X 0.7 =	0.7	0.7	0.35	0.35	0.35	0.35
Total Attainment -Direct Assessment D= (A+B)*.7	0.8575	0.7525	0.6125	0.6125	0.665	0.56
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	2	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.6	0.9	0.9
CO Attainment = D+I	1.7575	1.6525	1.5125	1.2125	1.565	1.46



BLOCKCHAIN TECHNOLOGY

CO →	410243.1	410243.2	410243.3	410243.4	410243.5	410243.6
Assessment tools ↓						
Direct Assessment						
Internal Assessment						
Internal exam	2	2	2	2	2	2

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Assignment	2	1	2	2	3	2
Average direct Assessment=	1.75	1.25	1.75	1.75	2.25	1.75
A = Internal attainment X 0.3=	0.525	0.375	0.525	0.525	0.675	0.525
University exams						
Phase Result	1.5	1.5				
End Sem Result			0.75	0.75	0.75	0.75
B = University Result X 0.7=	0	0	0.525	0.525	0.525	0.525
Total Attainment -Direct Assessment D= (A+B)*.7	0.3675	0.2625	0.735	0.735	0.84	0.735
Indirect Assessment						
C = Course Exit Survey Attainment	3	1	2	2	2	1
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.3	0.6	0.6	0.6	0.3
CO Attainment = D+I	1.2675	0.5625	1.335	1.335	1.44	1.035

Pervasive Computing

CO→	410244.1	410244.2	410244.3	410244.4	410244.5	410244.6
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Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	1.5	1.5	1.5	1.5	1.5	1.5
Assignment	2	2	2	2	2	2
Average direct Assessment=	1.75	1.75	1.75	1.75	1.75	1.75
A = Internal attainment X 0.3=	0.525	0.525	0.525	0.525	0.525	0.525
University exams						
Phase Result	1	1				
End Sem Result			0.5	0.5	0.5	0.5
B = University Result X 0.7=	0	0	0.35	0.35	0.35	0.35
Total Attainment -Direct Assessment D= (A+B)*.7	0.3675	0.3675	0.6125	0.6125	0.6125	0.6125
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	2	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.6	0.9	0.9



Principal

CO Attainment = D+I	1.2675	1.2675	1.5125	1.2125	1.5125	1.5125
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Elective – IV Software Testing and Quality Assurance

CO→	410245 (D).1	410245 (D).2	410245 (D).3	410245 (D).4	410245 (D).5	410245 (D).6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	3	3	3	3	3	3
Assignment	3	3	3	3	3	3
Average direct Assessment=	3	3	3	3	3	3
A = Internal attainment X 0.3=	0.9	0.9	0.9	0.9	0.9	0.9
University exams						
Phase Result	2	2	2	2	2	2
End Sem Result	2	2	2	2	2	2
B = University Result X 0.7=	1.4	1.4	1.4	1.4	1.4	1.4



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Total Attainment -Direct Assessment D= (A+B)*.7	1.61	1.61	1.61	1.61	1.61	1.61
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.51	2.51	2.51	2.51	2.51	2.51

Semester - VIII

High Performance Computing

CO→	410241.1	410241.2	410241.3	410241.4	410241.5	410241.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	1	1	1	1	1	1
Assignment	2	2	2	2	3	2
Average direct Assessment=	1.5	1.5	1.5	1.5	2	1.5



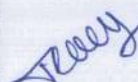
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A = Internal attainment X 0.3=	0.45	0.45	0.45	0.45	0.6	0.45
University exams						
Phase Result	1.5	1.5				
End Sem Result	1.5	1.5	0.5	0.5	0.5	0.5
B = University Result X 0.7=	1.05	1.05	0.35	0.35	0.35	0.35
Total Attainment -Direct Assessment D= (A+B)*.7	1.05	1.05	0.56	0.56	0.665	0.56
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	2	2	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.6	0.6	0.9
CO Attainment = D+I	1.95	1.95	1.46	1.16	1.265	1.46

Deep Learning						
CO→	410241.1	410241.2	410241.3	410241.4	410241.5	410241.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						




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Internal exam	1	1	2	2	1	1
Assignment	2	1	2	2	3	2
Average direct Assessment=	1.5	1	1.75	1.75	2	1.5
A = Internal attainment X 0.3=	0.45	0.3	0.525	0.525	0.6	0.45
University exams						
Phase Result	1.5	1.5				
End Sem Result	1.5	1.5	0.5	0.5	0.5	0.5
B = University Result X 0.7=	1.05	1.05	0.35	0.35	0.35	0.35
Total Attainment -Direct Assessment D= (A+B)*.7	1.05	0.945	0.6125	0.6125	0.665	0.56
Indirect Assessment						
C = Course Exit Survey Attainment	3	1	3	1	2	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.3	0.9	0.3	0.6	0.9
CO Attainment = D+I	1.95	1.245	1.5125	0.9125	1.265	1.46



Natural Language Processing

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CO→	410241.1	410241.2	410241.3	410241.4	410241.5	410241.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	1	1	1.5	1.5	1	1
Assignment	2	1	2	2	3	2
Average direct Assessment=	1.5	1	1.75	1.75	2	1.5
A = Internal attainment X 0.3=	0.45	0.3	0.525	0.525	0.6	0.45
University exams						
Phase Result	1	1				
End Sem Result			1	1	0.5	0.5
B = University Result X 0.7=	0.7	0.7	0.7	0.7	0.35	0.35
Total Attainment -Direct Assessment D= (A+B)*.7	0.805	0.7	0.8575	0.8575	0.665	0.56
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	2	3	3



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Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.6	0.9	0.9
CO Attainment = D+I	1.705	1.6	1.7575	1.4575	1.565	1.46

BUSINESS INTELLIGENCE

CO→	410241.1	410241.2	410241.3	410241.4	410241.5	410241.6
Assessment tools↓						
Direct Assessment						
Internal Assessment						
Internal exam	1.5	1.5	1.5	1.5	1	1
Assignment	2	1	2	2	3	2
Average direct Assessment=	1.75	1.25	1.75	1.75	2	1.5
A = Internal attainment X 0.3=	0.525	0.375	0.525	0.525	0.6	0.45
University exams						
Phase Result	1.5	1.5				



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End Sem R esult			0.5	0.5	0.5	0.5
B = University Result X 0.7=	1.05	1.05	0.35	0.35	0.35	0.35
Total Attainment -Direct Assessment D= (A+B)*.7	1.1025	0.9975	0.6125	0.6125	0.665	0.56
Indirect Assessment						
C = Course Exit Survey Attainment	3	3	3	3	3	3
Total Attainment -Indirect Assessment I= (C)*.3	0.9	0.9	0.9	0.9	0.9	0.9
CO Attainment = D+I	2.0025	1.8975	1.5125	1.5125	1.565	1.46



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