

Savitribai Phule Pune University, Pune



Syllabus for TE Civil Engineering (2019 Pattern)

Implemented from Academic year 2021-22

Board of Studies in Civil Engineering

Faculty of Science and Technology

Savitribai Phule Pune University, Pune
TE (Civil Engineering) 2019 Pattern
(With effect from Academic Year 2021-22)

SEMESTER: V

| Course Code | Course Name | Teaching Scheme (Hours/Week) | | | Examination Scheme and Marks | | | | | | Credit | | | | | |
|--------------|--|---------------------------------|-----------|-----------|------------------------------|------------|------------|-----------|-----------|------------|-----------|-----------|-----------|-----------|-----------|-----------|
| | | Theory | Practical | Tutorial | IN-Sem | End-Sem | TW | PR | OR | Total | TH | TW | PR | OR | TUT | Total |
| | | | | | | | | | | | | | | | | |
| 301001 | Hydrology and Water Resources Engineering | 03 | - | -- | 30 | 70 | -- | -- | -- | 100 | 03 | -- | -- | - | - | 03 |
| 301002 | Water Supply Engineering | 03 | - | -- | 30 | 70 | -- | - | -- | 100 | 03 | -- | -- | - | - | 03 |
| 301003 | Design of Steel Structures | 03 | - | -- | 30 | 70 | -- | -- | -- | 100 | 03 | -- | -- | - | - | 03 |
| 301004 | Engineering Economics and Financial Management | 03 | - | -- | 30 | 70 | -- | -- | -- | 100 | 03 | - | -- | -- | -- | 03 |
| 301005 | Elective I | 03 | - | -- | 30 | 70 | -- | -- | -- | 100 | 03 | -- | -- | -- | -- | 03 |
| 301006 | Seminar | - | - | 01 | - | - | 50 | -- | -- | 50 | -- | -- | -- | -- | 01 | 01 |
| 301007 | Hydrology and Water Resources Engineering Lab | -- | 02 | -- | -- | -- | 25 | -- | -- | 25 | -- | 01 | -- | -- | -- | 01 |
| 301008 | Water Supply Engineering Lab | -- | 02 | -- | -- | -- | 50 | -- | 50 | 50 | -- | -- | 01 | -- | -- | 01 |
| 301009 | Design of Steel Structures Lab | -- | 04 | -- | -- | -- | 50 | -- | 50 | 50 | -- | -- | -- | 02 | -- | 02 |
| 301010 | Elective I Lab | -- | 02 | -- | -- | -- | 25 | -- | 25 | 25 | -- | 01 | -- | -- | -- | 01 |
| 301011 | Audit Course I: Professional Ethics and Etiquettes/ Sustainable Energy Systems | -- | -- | 01 | -- | GR | -- | -- | GR | GR | -- | -- | -- | -- | -- | -- |
| Total | | 15 | 10 | 02 | 150 | 350 | 100 | 50 | 50 | 700 | 15 | 02 | 01 | 02 | 01 | 21 |

Abbreviations: TH : Theory, TW: Term Work, PR : Practical, OR: Oral, TUT : Tutorial, GR: Grade

Elective I: 301005

| S N | Course Code | Course Name |
|-----|-------------|---|
| 01 | 301005 a | Advanced Fluid Mechanics and Hydraulic Machines |
| 02 | 301005 b | Research Methodology and IPR |
| 03 | 301005 c | Construction Management |
| 04 | 301005 d | Advanced Concrete Technology |
| 05 | 301005 e | Matrix Methods of Structural Analysis |
| 06 | 301005 f | Advanced Mechanics of Structures |

SAVITRIBAI PHULE PUNE UNIVERSITY

Board of Studies in Civil Engineering

Structure for B.E. Civil 2015 Course (w. e. f. June 2018)

Semester-I

| Subject code | Subject | Teaching Scheme Hrs/Week | | | In-Semester Assessment | TW | Pract /Or | End- Semester Exam | Total | Credit | |
|---------------|--------------------------------------|-----------------------------|----|----|---------------------------|-----|--------------|--------------------------|-------|-------------------|-----|
| | | Lect | Tu | Pr | | | | | | Th | Lab |
| 401001 | Environmental Engineering I | 3 | -- | 2 | 30 | -- | 50 | 70 | 150 | 3 | 1 |
| 401002 | Transportation Engineering | 3 | -- | 2 | 30 | 50 | -- | 70 | 150 | 3 | 1 |
| 401002 | Structural Design and Drawing III | 4 | -- | 2 | 30 | -- | 50 | 70 | 150 | 4 | 1 |
| 401004 | Elective I | 3 | -- | 2 | 30 | 50 | -- | 70 | 150 | 3 | 1 |
| 401005 | Elective II | 3 | -- | -- | 30 | -- | -- | 70 | 100 | 3 | -- |
| 401006 | Project (Phase-I) | -- | 2 | -- | -- | 50 | -- | -- | 50 | -- | 2 |
| Total: | | 16 | 2 | 8 | 150 | 150 | 100 | 350 | 750 | 16 | 6 |
| | | | | | | | | | | 22 Credits | |



G. S. MODEL COLLEGE OF ENGINEERING

Department of Civil Engineering

Roll Call

Class: D.C.E. A.Y. 2021-22

| Roll No. | Name of Student |
|----------|----------------------------------|
| 18 B 1 | LOHAR VISHAL KESHAV BABA |
| 18 B 2 | PAVA SACHIN RAJESH KUMAR |
| 18 B 3 | MAHAPATRA VIKRANT KUMAR |
| 18 B 4 | SATAPATHY ANANT MOHAN BHASINI |
| 18 B 5 | REDDY HANU JAYASHANKAR |
| 18 B 6 | NAKAPATI RAMANANDHAR |
| 18 B 7 | WADHANI SHREEMANUJ K. SHREYAS |
| 18 B 8 | SHANKAR ANANDHAKRISHNAN |
| 18 B 9 | SRINIVAS RAO ANJAN |
| 18 B 10 | KARATI P. R. SHIKHAR SUDES KUMAR |
| 18 B 11 | SHRIKANTH ANANDHAKRISHNAN |
| 18 B 12 | CHAVAN ANANDHAKRISHNAN |
| 18 B 13 | GHOSH VISHAL KUMAR |
| 18 B 14 | SHANKAR ANANTH KUMAR |
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Date: / /

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G S MOZE COLLEGE OF ENGINEERING

Department of Civil Engineering
Solid waste Management (Elective II)

Class TE

A.Y. 2021-22

| | |
|---------|---|
| TE A 8 | GA. BAYLAKH |
| TE A 9 | MUNISH BHAIK SUNKAR |
| TE A 10 | ABHIM PRITHVIRAJ YADAV |
| TE A 11 | ANISH UDAY MANJARI |
| TE A 14 | HAASILI SUSHAM CHANDRAN |
| TE A 15 | HHAGWA ADITYA BHASKAR |
| TE A 16 | HIRADAR GA. PRADHYANES SHAW |
| TE A 19 | CHM. BHADIRABEN KOPURKAR |
| TE A 21 | SHAM SAMBHRAM RAMSING |
| TE A 23 | S. JYOTIKABHAI SANKAR |
| TE A 24 | CHM. VIDYAJYOTIBHAI |
| TE A 25 | TE. RAJESH HANUMANT |
| TE A 27 | HAD. KASHIRAO UYADKAR |
| TE A 30 | CHHICAR. REVANSHI A. NANDEY |
| TE A 31 | CHHICAR. SAM. PR. SURESH |
| TE A 33 | GUNJAL SHI. VRA. BHAMBHARD |
| TE A 34 | HAWALDAR SANJEEV BALKRISHNA |
| TE A 35 | JA. DRAJESH. S. LASHKORKAR |
| TE A 36 | IT. SAI. S. UJJWAL DILLI |
| TE A 37 | ADHAY NIKHIL SHIVAJI |
| TE A 38 | ADHAY PRADIK KANUKUMAR |
| TE A 39 | ADHAY. VAIBHAV PRACASH |
| TE A 40 | JAGDISH. BH. DEKAR. ANISH |
| TE A 41 | JAG. AP. SACHIN RAJYENDRA |
| TE A 44 | KADAM. AKASH. S. KANASA-BHU |
| TE A 45 | KADAM. ANANT. HIR. SAHUB |
| TE A 45 | KADAM. ANTES. MAHADEY |
| TE A 47 | KATE. R. S. RUKHS. S. JYOTI-SHUB |
| TE A 48 | KAL. A. S. SHIKHARVINASH |
| TE A 49 | KAMBLE. PRASHANT. B. AP. TRIBH. SHAN |
| TE A 53 | K. AR. KAMINASH MINAKAR |
| TE A 54 | K. G. RA. S. ANIL. A. R. M. |
| TE A 55 | K. K. K. J. M. AR. DATTAY. RAY |
| TE A 57 | KSHIRAGALV. V. VAYAL. BHAWAN |
| TE A 58 | LAKSH. S. DHANSHU SANJAY |
| TE A 60 | M. N. K. R. P. R. D. DATTATRY |
| TE A 62 | MUKESH. P. HE. DATT |
| TE A 64 | NIKHIL. V. K. S. MAN. S. |
| TE A 67 | NIRHUL SHAMPI |
| TE A 75 | RAHIL. HEMAR |
| TE B 5 | S. MAHAR. MAD. AYNA |
| TE B 17 | S. D. SHIR. AWAR. V. T. HAN. S. H. S. (KAMMA. BAI) |
| TE B 19 | SHILPA. E. SHIN. SHI. KAR. SHI. CH. H. M. RA. |
| TE B 20 | SHAN. Y. K. KAR. GAURAV. RAM. NI. |
| TE B 21 | SHY. DIL. G. M. P. R. AS. SHIK |
| TE B 22 | SHIRWAD. A. K. SHAR. S. R. RESHI |
| TE B 24 | SURESH. P. R. T. R. K. V. SHY |
| TE B 25 | SURESH. ABHIS. T. S. N. ANKAR |
| TE B 26 | PHARANT. PRAJAD. CA. NESH |
| TE B 42 | RA. HIL. VISH. VA. L. T. N. C. PR. H. S. H. S. |
| TE B 43 | RANDEVI. SHAR. D. AR. CHIK. L. |
| TE B 44 | RANDEVI. DIVYA. G. V. MANDEY |
| TE B 45 | KA. V. S. D. AR. BH. S. SANJAY |
| TE B 46 | PA. L. T. J. AN. SHI. AS. TIK |
| TE B 48 | SAN. G. L. KAR. DE. V. H. C. P. AD. D. L. E. |
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| TE B 52 | SA. IRADH. W. CH. AK. P. AD. A. S. |
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| TE B 54 | SH. N. D. E. Y. K. S. SH. V. AS. |
| TE B 57 | SH. N. D. E. Y. K. S. SH. D. D. L. E. |
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| TE B 64 | SH. RA. T. S. E. V. ASH. I. SAM. H. I. T. |
| TE B 69 | SH. AN. M. A. N. E. A. S. H. I. Y. D. A. S. P. A. R. A. H. I. |

Subscribed

1 CD

Prof. S. S. Shetyekar

Approved

Page No.



ANNA UNIVERSITY
Department of Civil Engineering
HoP/CE/16

Class: CE 303 Date: 05/02/2022

| Roll No. | Name of Student |
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| 17A01 | S. S. GOVINDARAJAN |
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Signature



Savitribai Phule Pune University, Pune
TE Civil (2019 Pattern) w. c. f. June 2021

301011 a: Audit Course I: Professional Ethics and Etiquettes

| Teaching scheme | Credit | Examination scheme |
|-------------------------|---------------|---------------------------|
| Tutorial: 01 Hours/week | -- | Grade |

Professional ethics is the underlying concept behind the successful accomplishment of any act of a professional towards achieving the individual and societal goals. These goals should ultimately result in morally, legally, ethically and even culturally acceptable good things for all. Engineers being special group of professionals need to be more conscious of their acts since their duties, rights and responsibilities permeate into the society and the surroundings. To practice professional ethics, understanding of values and concepts are essential.

Course objectives

- 01 To create awareness on professional ethics and human values.
- 02 To provide basic familiarity about Engineers as responsible experimenters, research ethics, codes of ethics, industrial standards.
- 03 To inculcate knowledge and exposure on safety and risk.
- 04 To expose students to right attitudinal and behavioral aspects.

Course outcomes

On successful completion of this course, the learner will be able to:

- 01 Understand the basic perception of profession, professional ethics, various moral issues and uses of ethical theories
- 02 Understand various social issues, industrial standards, code of ethics and role of professional ethics in engineering field.
- 03 Follow ethics as an engineering professional and adopt good standards and norms of engineering practice.
- 04 Apply ethical principles to resolve situations that arise in their professional lives

Course Contents

Unit I: Human Values and Engineering Ethics

Morals, values and ethics, integrity, work ethic, civic virtue, valuing time, cooperation, commitment, empathy, self-confidence, stress management, senses of engineering ethics, Kohlberg's theory, Gilligan's theory, models of professional roles, uses of ethical theories.

Unit II: Research Ethics and Codes of Ethics

Industrial standardization, ethical code and its importance, ethical accountability, law in engineering and engineering as social experimentation.

Unit III: Safety, Responsibilities and Rights

Safety and risk, assessment of safety and risk, risk benefit analysis and reducing risk collegiality, collective bargaining, confidentiality, conflicts of interest, professional rights, employee rights, intellectual property rights(IPR), discrimination and utilitarianism.

Unit IV: Professional Etiquette

Etiquette at meetings, public relations office (PRO)s etiquettes, technology etiquette phone etiquette, email etiquette, social media etiquette, video conferencing etiquette, interview

Teaching Scheme:

Lectures: 3 Hrs/week

Practical: 2 Hrs/week

Examination Scheme:

Paper In-sem. 30 Marks (1 hr),

Paper End-sem : 70 Marks (2.5 hrs)

TW : 50 Marks

Unit I

(6 hrs)

Meteorological aspects: Zones of atmosphere, Scales of meteorology, Meteorological parameters, Temperature lapse rate, Plume behaviour. Gaussian diffusion model for finding ground level concentration, Plume rise, Types & quality of fuels, Formulae for effective stack height and determination of minimum stack height as per CPCB norms.

Unit II

(6 hrs)

Ambient Air sampling and analysis: Air pollution survey, basis and statistical considerations of sampling sites, devices and methods used for sampling of gases and particulates. Stack emission monitoring for particulate and gaseous matter, isokinetic sampling. Analysis of air samples chemical and instrumental methods. Emission inventory and source apportionment studies. Ambient air quality monitoring as per the procedure laid down by CPCB. National Ambient Air Quality Standards (NAAQS) 2009.

Unit III

(6 hrs)

Indoor air pollution: Causes of air pollution, sources and effects of indoor air pollutants, factors affecting exposure to indoor air pollution, sick building syndrome. Investigation of indoor air quality problems, changes in indoor air quality, control of indoor air pollutants and air cleaning systems. Use of various plants to control indoor air pollution. Radon and its decay products in indoor air.

Odour pollution: Theory, sources, measurement and methods of control of odour pollution.

Unit IV

(6 hrs)

Control of air pollution: By process modification, change of raw materials, fuels, process equipment and process operation. Control of particulate matters. Working principle and design of control equipment as Settling chamber, Cyclone, Fabric filter and Electro Static Precipitator. Control of gaseous pollutants. Combustion chemistry & control of air pollution from automobiles.

Unit V

(6 hrs)

Land use planning: As a method of control. Economics of air pollution control: Cost/benefit ratio and optimization. Legislation and regulation: Air (Prevention and Control) Pollution Act, 1981. The Environment (Protection) Act 1986. Emission standards for stationary and mobile sources.

Unit VI

(6 hrs)

Environmental impact assessment and management: Methodology for preparing environmental impact assessment (Identifying the sources of air pollution, calculating the incremental values, prediction of impacts and mitigation measures). Role of regulatory agencies and control boards in obtaining environmental clearance for project. Public hearing. Environmental impacts of thermal power plants, sugar and cement industry. Environmental management plan. The environmental rules 1999 (siting of industries).

Term Work:

Term work shall consist of

- A. One assignment on each unit.
- B. Detailed industrial visit report on Sugar/Cement/Steel/Thermal/Rubber/Dairy industry with reference to air pollution Control device(s).

Reference Books:

1. Air Pollution – H. V. N. Rao and M. N. Rao. TMH, Pub.
2. Air pollution – KVSG Murali Krishna.
3. Air Pollution – Perkins.
4. Environmental Engineering - Davis, McGraw Hill- Pub.
5. Environmental Engineering - Peavy H.S and Rowe D.R. McGraw Hill- Pub.
6. Air Pollution - Steen.
7. Air Pollution Control – Martin Crawford.
8. Air Pollution Control: its origin and control, K. Wark, C.F. Warner & W.T. Davis.
9. Fundamentals of Air Pollution-Richard W. and Donald L. Academic Press.

IS. Codes:

1. IS. 5182 (all parts), and
2. IS. 15442 (2004)

Savitribai Phule Pune University
Second Year of Computer Engineering (2019 Course)- 70% effect from Academic Year 2020-21

Semester-III

| Course Code | Course Name | Teaching Scheme (Hours/Week) | | | | | Examination Scheme and Marks | | | | Credit | | | |
|---------------------|--------------------------------------|------------------------------|-----------|-----------|------------|------------|------------------------------|------------|----------|------------|-----------|-----------|-----------|-----------|
| | | Theory | Practical | Tutorial | Mid-Sem | End-Sem | TW | PT | OT | Total | TH | PI | TUT | Total |
| 210241 | Discrete Mathematics | 03 | - | 01 | 30 | 70 | - | - | - | 100 | 03 | - | 01 | 04 |
| 210242 | Fundamentals of Data Structures | 03 | - | - | 30 | 70 | - | - | - | 100 | 03 | - | - | 03 |
| 210243 | Object Oriented Programming | 03 | - | - | 30 | 70 | - | - | - | 100 | 03 | - | - | 03 |
| 210244 | Computer Graphics | 03 | - | - | 30 | 70 | - | - | - | 100 | 03 | - | - | 03 |
| 210245 | Digital Electronics and Logic Design | 03 | - | - | 30 | 70 | - | - | - | 100 | 03 | - | - | 03 |
| 210246 | Humanity and Social Science | - | - | 01 | - | - | - | - | - | - | - | - | - | - |
| 210247 | Data Structures Lab | - | 04 | - | - | - | 25 | 50 | - | 75 | - | 02 | - | 02 |
| 210248 | OOP and Computer Graphics Lab | - | 04 | - | - | - | 25 | 50 | - | 75 | - | 02 | - | 02 |
| 210249 | Digital Electronics Lab | - | 02 | - | - | - | 25 | - | - | 25 | - | 01 | - | 01 |
| 210250 | Business Communication Skills Lab | - | 02 | - | - | - | 25 | - | - | 25 | - | 01 | - | 01 |
| 210251 | Open Course-3 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Total Credit | | | | | | | | | | | 15 | 06 | 03 | 22 |
| Total | | 15 | 12 | 02 | 150 | 350 | 100 | 100 | - | 700 | - | - | - | - |

Semester-IV

| Course Code | Course Name | Teaching Scheme (Hours/Week) | | | | | Examination Scheme and Marks | | | | Credit | | | |
|---------------------|-------------------------------------|------------------------------|-----------|-----------|------------|------------|------------------------------|------------|----------|------------|-----------|-----------|-----------|-----------|
| | | Theory | Practical | Tutorial | Mid-Sem | End-Sem | TW | PT | OT | Total | TH | PI | TUT | Total |
| 210252 | Mathematics-III | 03 | - | 01 | 30 | 70 | - | - | - | 100 | 03 | - | 01 | 04 |
| 210253 | Data Structures and Algorithms | 03 | - | - | 30 | 70 | - | - | - | 100 | 03 | - | - | 03 |
| 210254 | Software Engineering | 03 | - | - | 30 | 70 | - | - | - | 100 | 03 | - | - | 03 |
| 210255 | Microprocessor | 03 | - | - | 30 | 70 | - | - | - | 100 | 03 | - | - | 03 |
| 210256 | Principles of Programming Languages | 03 | - | - | 30 | 70 | - | - | - | 100 | 03 | - | - | 03 |
| 210257 | Data Structures and Algorithms Lab | - | 04 | - | - | - | 25 | 50 | - | 75 | - | 02 | - | 02 |
| 210258 | Microprocessor Lab | - | 04 | - | - | - | 25 | 50 | - | 75 | - | 02 | - | 02 |
| 210259 | Code of Conduct | - | - | 01 | - | - | - | - | - | - | - | - | - | - |
| 210260 | Project Based Learning | - | 04 | - | - | - | 50 | - | - | 50 | - | 02 | - | 02 |
| 210261 | Open Course-4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Total Credit | | | | | | | | | | | 15 | 06 | 03 | 22 |
| Total | | 15 | 12 | 02 | 150 | 350 | 100 | 100 | - | 700 | - | - | - | - |



Savitribai Phule Pune University
Second Year of Engineering (2019 Course)
2102551 Audit Course 3

In addition to credits, it is recommended that there should be audit course in preferably in each semester from second year. Student will be awarded the bachelor's degree if he/she earns 100 credits and clears all the audit courses specified in the syllabus. The student will be awarded grade as AP on successful completion of audit course.

The student may opt for one of the audit courses per semester, starting in second year first semester. Though not mandatory, such a selection of the audit courses helps the learner to explore the subject of interest in greater detail resulting in achieving the very objective of audit course's inclusion.

List of options offered is provided. Each student has to choose one audit course from the list per semester. Evaluation of audit course will be done at institute level level. Method of conduction and method of assessment for audit courses are suggested.

Criteria:

The student registered for audit course shall be awarded the grade AP and shall be included with AP grade in the Semester grade report for that course, provided student has the minimum attendance as prescribed by the Savitribai Phule Pune University and satisfactory in-semester performance and secured a passing grade in that audit course. No grade points are associated with this 'AP' grade and performance in these courses is not accounted in the calculation of the performance indices SGPA and CGPA. Evaluation of audit course will be done at institute level level.

Guidelines for Conduction and Assessment (Any one or more of following but not limited to):

- Lectures/ Guest Lectures
- Visits (Social/Field) and reports
- Demonstrations
- Surveys
- Mini Project
- Hands on experience on specific focused topic

Course Guidelines for Assessment (Any one or more of following but not limited to):

- Written Test
- Demonstrations/ Practical Test
- Presentations
- IPR/Publication
- Report

Audit Course 3 Options

| Audit Course Code | Audit Course Title |
|-------------------|---|
| ACB-I | Green Construction & Design |
| ACB-II | Social Awareness and Governance Program |
| ACB-III | Environmental Studies |
| ACB-IV | Start-Up Clinic |
| ACB-V | Foreign Language (one of Japanese/Spanish/French/German). Course contents for Japanese(Module 1) are provided. For other languages institute may design suitably |

PRINCIPAL

Savitribai Phule Pune University
 College of Engineering
 Pune - 411 005

Head of Department
 ACB-III/2019-20

Savitribai Phule Pune University
 College of Engineering
 Pune - 411 005



Savitribai Phule Pune University
Second Year of Engineering (2019 Course)
210251: Audit Course 4

In addition to credits, it is recommended that there should be audit course in preferably in each semester from second year. Student will be awarded the bachelor's degree if he/she earns 150 credits and clears all the audit courses specified in the syllabus. The student will be awarded grade as AP on successful completion of audit course.

The student may opt for one of the audit courses per semester, starting in second year first semester. Though not mandatory, such a selection of the audit courses helps the learner to explore the subject of interest in greater detail resulting in achieving the very objective of audit course's inclusion.

List of options offered is provided. Each student has to choose one audit course from the list per semester. Evaluation of audit course will be done at institute level itself. Method of construction and method of assessment for audit courses are suggested.

Criteria:

The student registered for audit course shall be awarded the grade AP (Audit Course Pass) and shall be included such AP grade in the Semester grade report for that course, provided student has the minimum attendance as prescribed by the Savitribai Phule Pune University and satisfactory in-semester performance and secured a passing grade in their audit course. No grade points are associated with this 'AP' grade and performance in these courses is not accounted in the calculation of the performance indices SGPA and CGPA. Evaluation of audit course will be done at institute level itself.

Guidelines for Conduction and Assessment (Any one or more of following but not limited to):

- Lectures/ Guest Lectures
- Visits (Social/Field) and reports
- Demonstrations
- Surveys
- Mini Project
- Hands on experience on specific focused topic

Course Guidelines for Assessment (Any one or more of following but not limited to):

- Written Test
- Demonstrations/ Practical Test
- Presentations
- IPB/Publication
- Report

Audit Course 4 Options

| Audit Course Code | Audit Course Title |
|-------------------|---|
| ACA-I | Water Management |
| ACA-II | Intellectual Property Rights and Patents |
| ACA-III | The Science of Happiness |
| ACA-IV | Classical Indian Music: Veena and Mridangam |
| ACA-V | Foreign Language (one of Japanese/Spanish/French/German) Course contents for Japanese(Module 2) are provided. For other languages Institute may design suitably. |


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 Savitribai Phule Pune - 411 008

PROFESSOR
 DEPARTMENT OF
 ENGINEERING
 Ganga Sagarrao More College of Engg
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| Bahauddin Zakariya University Third Year of Computer Engineering (2019 Course) (With effect from Academic Year 2021-22) | | | | | | | | | | | | | | | | | |
|---|---|--------------------------------|-----------|----------|---|------------|-------------|-----------|-----------|------------|---------------------|-----------|----------|-----------|-----------|----------|-----------|
| Semester V | | | | | | | | | | | | | | | | | |
| Course Code | Course Name | Teaching Scheme (Theory/Pract) | | | Examination Scheme and Marks | | | | | | Credit Scheme | | | | | | |
| | | Lecture | Tutorial | Labwork | Mid-Term | End-Term | Thesis work | Practical | Comm | Total | Theory | Practical | Thermal | Total | | | |
| 310241 | Databases Management Systems | 01 | - | - | 30 | 70 | - | - | - | 100 | 03 | - | - | 03 | | | |
| 310242 | Theory of Computation | 01 | - | - | 30 | 70 | - | - | - | 100 | 03 | - | - | 03 | | | |
| 310243 | Systems Programming and Operating System | 01 | - | - | 30 | 70 | - | - | - | 100 | 03 | - | - | 03 | | | |
| 310244 | Computer Networks and Security | 01 | - | - | 30 | 70 | - | - | - | 100 | 03 | - | - | 03 | | | |
| 310245 | Electrical I | 01 | - | - | 30 | 70 | - | - | - | 100 | 03 | - | - | 03 | | | |
| 310246 | Databases Management Systems Laboratory | - | 04 | - | - | - | 25 | 25 | - | 50 | - | 02 | - | 02 | | | |
| 310247 | Computer Networks and Security Laboratory | - | 02 | - | - | - | 25 | - | 25 | 50 | - | 01 | - | 01 | | | |
| 310248 | Laboratory Practical I | - | 04 | - | - | - | 25 | 25 | - | 50 | - | 02 | - | 02 | | | |
| 310249 | Seminar and Technical Communication | - | 01 | - | - | - | 30 | - | - | 30 | - | 01 | - | 01 | | | |
| Total | | 15 | 11 | - | 180 | 350 | 125 | 50 | 25 | 790 | 08 | 04 | - | 12 | | | |
| | | | | | | | | | | | Grade | | | | | | |
| 310250 | Audit Course I | | | | | | | | | | Total Credit | | | 15 | 04 | - | 19 |
| Elective I | | | | | Audit Course B | | | | | | | | | | | | |
| <ul style="list-style-type: none"> Internet of Things and Embedded Systems Advanced Computer Architecture Distributed Systems Software Project Management | | | | | <ul style="list-style-type: none"> Cyber Security Professional Ethics and Integrity MOC- Learn New Skills Engineering Economics Foreign Language | | | | | | | | | | | | |
| Laboratory Practical I | | | | | | | | | | | | | | | | | |
| Assignments from Systems Programming and Operating System and Elective I | | | | | | | | | | | | | | | | | |

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|---|--|------------------------------|-----------|---------|-------------------------------|--------|---|------|----|-------|---------------|-----------|----------|-----------|
| Third Year of Computer Engineering (2015 Course) | | | | | | | | | | | | | | |
| (With effect from Academic Year 2023-24) | | | | | | | | | | | | | | |
| Semester VI | | | | | | | | | | | | | | |
| Course Code | Course Name | Teaching Scheme (Hours/Week) | | | Distribution Scheme and Marks | | | | | | Credit Scheme | | | |
| | | Lecture | Practical | Project | MCQ/SA | Theory | Practical | Exam | QA | Total | Lecture | Practical | Project | Total |
| 310031 | Data Science and Big Data Analytics | 03 | - | - | 20 | 70 | - | - | - | 100 | 03 | - | - | 03 |
| 310032 | Web Technology | 03 | - | - | 20 | 70 | - | - | - | 100 | 03 | - | - | 03 |
| 310033 | Artificial Intelligence | 03 | - | - | 20 | 70 | - | - | - | 100 | 03 | - | - | 03 |
| 310034 | Elective II | 03 | - | - | 20 | 70 | - | - | - | 100 | 03 | - | - | 03 |
| 310035 | Internship** | - | 04 | - | - | - | 100 | - | - | 100 | - | 04 | - | 04 |
| 310036 | Data Science and Big Data Analytics Laboratory | - | 02 | - | - | - | 20 | 25 | - | 75 | - | 02 | - | 02 |
| 310037 | Web Technology Laboratory | - | 02 | - | - | - | 25 | - | 25 | 75 | - | 02 | - | 02 |
| 310038 | Laboratory Practice II | - | 04 | - | - | - | 50 | 25 | - | 75 | - | 04 | - | 04 |
| Total | | | | | | | | | | | 12 | 09 | - | 21 |
| Total | | | | | | | | | | | 12 | 10 | - | 22 |
| 310039 | Audit Course A | | | | | | | | | | | | Grade | |
| Elective II <ul style="list-style-type: none"> Information Security Augmented and Virtual Reality Cloud Computing Software Modeling and Architecture | | | | | | | Audit Course A <ul style="list-style-type: none"> Digital and Social Media Marketing Sustainable Energy Systems Leadership and Personality Development Foreign Language MOOC- Learn New Skills | | | | | | | |
| Laboratory Practice II: Assignments from Artificial Intelligence and Elective II. | | | | | | | | | | | | | | |
| ** Internship: Internship guidelines are provided in course curriculum sheet. | | | | | | | | | | | | | | |

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Suez Canal University
Fourth Year of Computer Engineering (2015 Course)
(with effect from 2018-19)

Semester I

| Course Code | Course | Teaching Scheme Hours / Week | | Examination Scheme and Marks | | | | | | | Credits | | |
|----------------------|--------------------------------------|------------------------------|-----------|------------------------------|---|------------|------------|------------|------------|-----|-----------|-----------|--|
| | | Theory | Practical | Ex-Exam | Lab-Exam | TH | PR | OS | Total | TH | PR | | |
| 410043 | Math-Probability Computing | 04 | - | 50 | 70 | - | - | - | - | 100 | 04 | - | |
| 410043 | Math-Probability Computational | 02 | - | 70 | - | - | - | - | - | 100 | 02 | - | |
| 410040 | Math-Analysis | 02 | - | 70 | 70 | - | - | - | - | 100 | 03 | - | |
| 410044 | Math-Discrete | 02 | - | 70 | 70 | - | - | - | - | 100 | 03 | - | |
| 410045 | Math-Discrete II | 02 | - | 70 | 70 | - | - | - | - | 100 | 03 | - | |
| 410046 | Laboratory | - | 04 | - | - | 50 | 50 | - | - | 100 | - | 02 | |
| 410047 | Laboratory | - | 04 | - | - | 50 | 50 | - | - | 100 | - | 02 | |
| 410048 | Practical | - | 04 | - | - | 50 | 50 | - | - | 100 | - | 02 | |
| 410049 | Practical | - | 04 | - | - | 50 | 50 | - | - | 100 | - | 02 | |
| 410049 | Practical | - | 02 | - | - | - | - | 50 | 50 | 100 | - | 01 | |
| Total | | 16 | 16 | 350 | 350 | 100 | 100 | 100 | 700 | | 16 | 08 | |
| Total Credits | | | | | | | | | | | | 22 | |
| Elective I | | | | Elective II | | | | | | | | | |
| 410049 (A) | Discrete Signal Processing | | | 410049 (A) | Mathematical Systems | | | | | | | | |
| 410049 (B) | Software Architecture and Design | | | 410049 (B) | Software, Control and Quality Assurance | | | | | | | | |
| 410049 (C) | Operational and Managerial Computing | | | 410049 (C) | Operations Research | | | | | | | | |
| 410049 (D) | Data Mining and Warehousing | | | 410049 (D) | Mobile Communications | | | | | | | | |

410049-Grade Credit Status Summary:

ACR-1 **Elective Course**

ACR-2 **Elective Course**

ACR-3E **Elective**

Alternative:

TH: Theory

SP: Seminar

PR: Project

OS: OS

PR: Practical

ACR-4: **Mathematical Systems and Discrete-time Communication**

ACR-5: **Discrete-time Systems**

ACR-7E: **Mobile Systems, Security**

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PRINCIPAL

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 Dean, Faculty of Engineering
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PRINCIPAL

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Suez Canal University
Fourth Year of Computer Engineering (2015 Course)
(with effect from 2018-19)

Semester II

| Course Code | Course Name | Teaching Scheme | | Examination Scheme and Marks | | | | | | | Credits | |
|----------------------|--|-----------------|-----------|------------------------------|----------------------------|------------|------------|-----------|------------|------------|-----------|-----------|
| | | Theory | Practical | Th-Exam | Th-Quiz | Th-TR | TR | OR-Exam | Total Exam | TH | TR | |
| 412121 | Micro-Processors | 03 | - | 30 | 30 | - | - | - | 100 | 60 | - | - |
| 412123 | Microprocessors & Cache | 03 | - | 30 | 30 | - | - | - | 100 | 60 | - | - |
| 412125 | Security | 03 | - | 30 | 30 | - | - | - | 100 | 60 | - | - |
| 412126 | Database III | 03 | - | 30 | 30 | - | - | - | 100 | 60 | - | - |
| 412128 | Network IV | 03 | - | 30 | 30 | - | - | - | 100 | 60 | - | - |
| 412129 | Lab: Operating System III | - | 06 | - | - | 30 | 30 | - | 30 | 100 | - | 60 |
| 412130 | Lab: Operating System IV | - | 06 | - | - | 30 | 30 | - | 30 | 100 | - | 60 |
| 412131 | Project Work (Small) | - | 06 | - | - | - | - | - | 30 | 150 | - | 60 |
| Total | | 12 | 14 | 120 | 120 | 300 | 300 | 60 | 600 | 780 | 12 | 60 |
| Total Credits | | 12 60 | | | | | | | | | | |
| Practical III | | | | | | | | | | | | |
| 412132 (A) | Advanced Digital Signal Processing | | | 412132 (A) | Lab: Signal Processing | | | | | | | Credits |
| 412133 (B) | Computer | | | 412133 (B) | Lab: Computer Architecture | | | | | | | Credits |
| 412134 (C) | Embedded and Real Time Operating System | | | 412134 (C) | Lab: Embedded System | | | | | | | Credits |
| 412135 (D) | Small Computer and Distribution Algorithms | | | 412135 (D) | Open Director | | | | | | | Credits |

Approved Course AIAACU Online

ACT-11 **Approved Course**
 ACT-12 **Approved Course**
 ACT-13 **Approved Course**

ACT-14 **Lab: Embedded**
 ACT-15 **Computer Architecture**
 ACT-16 **Open Director**

Abbreviations:

TR: Theory TH: Theory OR: Oral PR: Practical
 Exam: Exam PA: Project Work/Project Presentation

APV
PRINCIPAL

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 6013, Suez Canal, Port - EL-DOKKI

Application Board, Faculty of Engineering

BP

Head of Department
 Faculty of Engineering

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Fourth Year of Computer Engineering (2015 Course)
(with effect from 2018-19)

Semester II

| Course Code | Course | Teaching Scheme | | Examination Scheme and Marks | | | | | | Credit | | |
|---|--------------------------------|-----------------|-----------|------------------------------|------------|--------------------------------------|-----------|------------|------------|-----------|--------------|--|
| | | Hours / Week | | In-Sem | End-Sem | TW | PR | OR | Total | TH | PR | |
| 410250 | Machine Learning | 03 | — | 30 | 70 | — | — | — | 100 | 03 | — | |
| 410251 | Information and Cyber Security | 03 | — | 30 | 70 | — | — | — | 100 | 03 | — | |
| 410252 | Elective III | 03 | — | 30 | 70 | — | — | — | 100 | 03 | — | |
| 410253 | Elective IV | 03 | — | 30 | 70 | — | — | — | 100 | 03 | — | |
| 410254 | Laboratory Practice III | — | 04 | — | — | 20 | 20 | — | 100 | — | 02 | |
| 410255 | Laboratory Practice IV | — | 04 | — | — | 20 | — | *20 | 100 | — | 02 | |
| 410256 | Project Work Stage II | — | 06 | — | — | 100 | — | *50 | 150 | — | 06 | |
| Total Credit | | | | | | | | | | 13 | 19 | |
| Total | | 12 | 14 | 120 | 280 | 200 | 20 | 100 | 750 | 22 | | |
| 410257 | Audit Course 6 | | | | | | | | | | Grade | |
| Elective III | | | | | | Elective IV | | | | | | |
| 410252 (A) Advanced Digital Signal Processing | | | | | | 410253 (A) Software Defined Networks | | | | | | |
| 410252 (B) Compiler | | | | | | 410253 (B) Human Computer Interface | | | | | | |
| 410252 (C) Embedded and Real Time Operating System | | | | | | 410253 (C) Cloud Computing | | | | | | |
| 410252 (D) Soft Computing and Optimization Algorithms | | | | | | 410253 (D) Open Elective | | | | | | |

410257-Audit Course 6 (AC6) Options:

AC6-I: **Business Intelligence**AC6-II: **Quantization**AC6-III: **Quantum Computing**AC6-IV: **Usability Engineering**AC6-V: **Generational Interfaces**AC6-VI: **MOOC: Learn New Skills**

Abbreviations:

TW: Term Work

TH: Theory

OR: Oral

PR: Practical

Sem: Semester

PRE: Project/Mini-Project Presentation

PRINCIPAL
 Ganesh Sureshwar Munde College of Engg
 2010, Balwanthi, Pune - 411 008

syllabus for Fourth Year of Computer Engineering.

Head of Department
 COMPUTER ENGINEERING

Ganesh Sureshwar Munde College of Engg
 Balwanthi, Pune - 411 008

Savitribai Phule Pune University
Final Year E&TC Engineering (2015 Course)
 (With effect from Academic Year 2018-19)

| Semester I | | | | | | | | | | | | |
|---|---------------------------------------|-------------------------------|---|-------|--------------------------------------|---------|-----|--|-----|-------|-----------|-------|
| Course Code | Course | Teaching Scheme: Hours / Week | | | Semester Examination Scheme of Marks | | | | | | Credits | |
| | | Thurs | Tue | Pract | In-Sem | End-Sem | TH | PM | OR | Total | TH/TW | PM/OR |
| 404181 | VLSI Design Technology | 3 | — | — | 30 | 70 | — | — | — | 100 | 3 | — |
| 404182 | Computer Networks & Security | 4 | — | — | 30 | 70 | — | — | — | 100 | 4 | — |
| 404183 | Radiation & Microwave Techniques | 3 | — | — | 30 | 70 | — | — | — | 100 | 3 | — |
| 404184 | Elective I | 3 | — | — | 30 | 70 | — | — | — | 100 | 3 | — |
| 404185 | Elective II | 3 | — | — | 30 | 70 | — | — | — | 100 | 3 | — |
| 404186 | Lab Practice - I (CNS- RMT) | — | — | 4 | — | — | 30 | — | 30 | 100 | — | 2 |
| 404187 | Lab Practice - II (VLSI - Elective I) | — | — | 4 | — | — | 30 | — | 30 | 100 | — | 2 |
| 404188 | Project Stage I | — | 2 | — | — | — | — | — | 30 | 30 | — | 2 |
| | Audit Course 2 | — | — | — | — | — | — | — | — | — | — | — |
| | Total | 16 | 2 | 8 | 150 | 350 | 100 | 30 | 100 | 750 | 16 | 8 |
| Total Credits | | | | | | | | | | | 22 | |
| Elective I 1. Digital Image and Video Processing 2. Industrial Drives and Control 3. Embedded Systems & RTOS 4. Internet of Things | | | Elective II 1. Wireless 2. Electronics Product Design 3. Optimization Techniques 4. Artificial Intelligence 5. Electronics in agriculture | | | | | Audit Course 2 1. Green Energy 2. Human Reliability | | | | |

Final Year E&TC Engineering (2015 Course)

(With effect from Academic Year: 2019-20)

Semester II

| Course Code | Course | Teaching Scheme | | | Semester Examination Scheme of Marks | | | | | | Credits | |
|---|---------------------------------|-----------------|-----|---|--------------------------------------|---------|-----|---|-----|-------|-----------|-------|
| | | Hours / Week | | | Total | | | | | | TH/TS | PW-GR |
| | | Theory | Tut | Pract | Th | End-Sem | TS | PE | OR | Total | | |
| 404109 | Mobile Communication | 3 | — | — | 30 | 70 | — | — | — | 100 | 3 | — |
| 404108 | Household Communication Systems | 4 | — | — | 30 | 70 | — | — | — | 100 | 4 | — |
| 404101 | Elective III | 3 | — | — | 30 | 70 | — | — | — | 100 | 3 | — |
| 404102 | Elective IV | 1 | — | — | 30 | 70 | — | — | — | 100 | 1 | — |
| 404103 | Lab Practice –III (MC-BCN) | — | — | 4 | — | — | 30 | 70 | — | 100 | — | 2 |
| 404104 | Lab Practice –IV (Elective III) | — | — | 2 | — | — | — | — | 50 | 50 | — | 1 |
| 404105 | Project Stage II | — | 6 | — | — | — | 100 | — | 30 | 200 | — | 6 |
| | Audit Course 6 | — | — | — | — | — | — | — | — | — | — | — |
| Total | | 21 | 6 | 6 | 120 | 280 | 200 | 30 | 100 | 750 | 13 | 9 |
| Total Credits | | | | | | | | | | | 22 | |
| Elective III | | | | Elective IV | | | | Audit Course 6 | | | | |
| 1. Machine Learning 2. PLC's and Automation 3. Audio and Speech Processing 4. Software Defined Radio 5. Audio Video Engineering | | | | 1. Robotics 2. Biomedical Electronics 3. Wireless Sensor Networks 4. Renewable Energy Systems 5. Open Elective* | | | | 1. Team Building, Leadership and Ethics 2. Environmental Issues and Disaster Management | | | | |

*Any one course from the list of Elective IV of computer/Electrical/Instrumentation or Institute can offer elective IV based on any industry need with prior approval from Dept/Electronics & Telecommunication). Repetition of course or topics should be avoided.


Head of Department
Department of Telecommunication Engg
SRM Institute of Science and Technology
 Chennai, Tamil Nadu - 601 315

| Savitribai Phule Pune University | | |
|--|--------|---------------------|
| Second Year of Electronics / E. & Te Engineering (2019 Course) | | |
| 204199: Mandatory Audit Course - 3 | | |
| Teaching Scheme: | Credit | Examination Scheme: |
| | | |
| | | |

List of Courses to be opted (Any one) under Mandatory Audit Course 3

- **Technical English For Engineers**
- Ecology and Environment
- Ecology and Society
- German I
- Science, Technology and Society
- Introduction to Japanese Language and Culture

GUIDELINES FOR CONDUCTION OF AUDIT COURSE

In addition to credits courses, it is mandatory that there should be audit course (non-credit course) from second year of Engineering. The student will be awarded grade as AP on successful completion of audit course. The student may opt for two of the audit courses (One in each semester). Such audit courses can help the student to get awareness of different courses which make impact on human lives and enhance their skill sets to improve their employability. List of audit courses offered in the semester is provided in the curriculum. Student can choose one of the audit course from list of courses mentioned. Evaluation of audit course will be done at Institute level.

The student registered for audit course shall be awarded the grade AP and shall be included such grade in the Semester grade report for that course, provided student has the minimum attendance as prescribed by the Savitribai Phule Pune University and satisfactory performance and secured a passing grade in that audit course. No grade points are associated with this 'AP' grade and performance in these courses is not accounted in the calculation of the performance indices SGPA and CGPA. Evaluation of audit course will be done at Institute level itself.



(Signature)
 Head, Department of Electronics & Telecommunication Engineering
 Savitribai Phule Pune University
 Pune - 411 004

Selecting an Audit Course:

Using NPTEL Platform:

NPTEL is an initiative by MHRD to enhance learning effectiveness in the field of technical education by developing curriculum based video courses and web based e-courses.

The details of NPTEL courses are available on its official website www.nptel.ac.in

- Student can select any one of the courses mentioned above and has to register for the corresponding online course available on the NPTEL platform as an Audit course.
- Once the course is completed the student can appear for the examination as per the guidelines on the NPTEL portal.
- After clearing the examination successfully, student will be awarded with certificate.

Assessment of an Audit Course:

- The assessment of the course will be done at the institute level. The institute has to maintain the record of the various audit courses opted by the students. The audit courses opted by the students could be interdisciplinary.
- During the course students will be submitting the online assignments. A copy of same students can submit as a part of term work for the corresponding Audit course.
- On the satisfactory submission of assignments, the institute can mark as "Present" and the student will be awarded the grade AP on the marksheet.



List of Courses to be opted (Any one) under Mandatory Audit Course 4

- Enhancing Soft Skills and Personality
- Language & Mind
- Emotional Intelligence
- German II
- **Human Behaviour**
- Speaking Effectively

GUIDELINES FOR CONDUCTION OF AUDIT COURSE

In addition to credit courses, it is mandatory that there should be audit course (non-credit course) from second year of Engineering. The student will be awarded grade as AP on successful completion of audit course. The student may opt for two of the audit courses (One in each semester). Such audit courses can help the student to get awareness of different areas which make impact on human lives and enhance their skill set to improve their employability. List of audit courses offered in the semester is provided in the curriculum. Student can choose one of the audit course from list of courses mentioned. Evaluation of audit course will be done at institute level.

The student registered for audit course shall be awarded the grade AP and shall be included such grade in the Semester grade report for that course, provided student has the minimum attendance as prescribed by the Savitribai Phule Pune University and satisfactory in-semester performance and secured a passing grade in that audit course. No grade points are associated with this 'AP' grade and performance in these courses is not included in the calculation of the performance indices SGPA and CGPA. Evaluation of audit course will be done at institute level itself.

Selecting an Audit Course:

Using NPTEL Platform:

NPTEL is an initiative by MHRD to enhance learning effectiveness in the field of technical education by developing curriculum based video courses and web based e-courses. The details of NPTEL courses are available on its official website www.nptel.ac.in

- Student can select any one of the courses mentioned above and has to register for the corresponding online course available on the NPTEL platform as an Audit course.
- Once the course is completed, student has to appear for the examination as per



Panel at the Department
Secretary, Information and Engg.
Savitribai Phule Pune University, College of Engg.
Pune-411 004

the guidelines on the NPTEL portal.

- After clearing the examination successfully, students will be awarded with certificate.

Assessment of an Audit Course:

- The assessment of the course will be done at the institute level. The institute has to maintain the record of the various audit courses opted by the students. The audit courses opted by the students could be interdisciplinary.
- During the course students will be submitting the related assignments. A copy of same students can submit as a part of their work for the corresponding Audit course.
- On the satisfactory submission of assignments, the institute can mark as "Present" and the student will be awarded the grade AP on the marksheet.



| Savitribai Phule Pune University | | |
|--|--------|---------------------|
| Third Year of E & Te Engineering (2019 Course) | | |
| 304191 (A): Mandatory Audit Course - 5 | | |
| Teaching Scheme: | Credit | Examination Scheme: |
| - | - | - |

List of Courses to be opted (Any one) under Mandatory Audit Course 5

- **Developing Soft Skills and Personality** ✓
- Entrepreneurship and IP Strategy
- Literatures and Environment
- Environmental & Business Economics
- Environment and Development
- Globalization and Culture

GUIDELINES FOR CONDUCTING OF AUDIT COURSE

In addition to regular courses, it is mandatory that there should be audit courses (non-credit courses) from second year of Engineering. The student will be awarded grade or AP on successful completion of audit course. The student may opt for two of the audit courses (One in each semester). Such audit courses can help the student to get awareness of different issues which make impact on human lives and enhance their skill sets to improve their employability. List of audit courses offered in the semester is provided in the curriculum. Student can choose one of the audit course from list of courses mentioned. Evaluation of audit course will be done at Institute level.

The student registered for audit course shall be awarded the grade AP and shall be included such grade in the semester grade report for that course, provided student has the minimum attendance as provided by the Savitribai Phule Pune University and satisfactory in-semester performance and secured a passing grade in that audit course. No grade points are associated with this AP grade and performance in these courses is not accounted in the calculation of the performance index (GPA). Evaluation of audit course will be done at Institute level.



Evaluation of audit course will be done at Institute level.
 Student's Name: _____
 Roll No: _____
 Branch: _____
 Sem: _____
 Date: _____
 Signature: _____
 Head, Institute
 Savitribai Phule Pune University
 PUNE-45

Selecting an Audit Course:

Using NPTEL Platform:

NPTEL is an initiative by MHRD to enhance learning effectiveness in the field of technical education by developing curriculum based video courses and web based courses. The details of NPTEL courses are available on its official website www.nptel.ac.in.

- Student can select any one of the courses mentioned above and has to register for the corresponding online course available on the NPTEL platform as an Audit course.
- Once the course is completed the student can appear for the examination as per the guidelines on the NPTEL portal.
- After clearing the examination successfully, student will be awarded with certificate.

Assessment of an Audit Course:

- The assessment of the course will be done at the institute level. The institute has to maintain the record of the various audit courses opted by the students. The audit course opted by the students could be interdisciplinary.
- During the course students will be submitting the online assignments. A copy of same students can submit as a part of term work for the corresponding Audit course.
- On the satisfactory submission of assignments, the institute can mark as "Present" and the student will be awarded the grade AP on the marksheet.



| Savitribai Phule Pune University | | |
|---|--------|---------------------|
| Third Year of E. & Te Engineering (2019 Course) | | |
| 304191 (B): Mandatory Audit Course - B | | |
| Teaching Scheme: | Credit | Examination Scheme: |
| - | - | - |

List of Courses to be opted (Any one) under Mandatory Audit Course B

- Patent Law for Engineers and Scientists
- English language for competitive exams
- Energy Resources, Economics and Environment
- Principles of Human Resource Management
- **Big Signal** ✓
- Non-Conventional Energy Resources

GUIDELINES FOR CONDUCTION OF AUDIT COURSE

In addition to credit courses, it is mandatory that there should be audit course (non-credit course) from second year of Engineering. The student will be awarded grade as AP on successful completion of audit course. The student may opt for two of the audit courses (One in each semester). Such audit courses can help the student to get awareness of different issues which make impact on human lives and enhance their skill sets to improve their employability. List of audit courses offered in the semester is provided in the notification. Student has to choose one of the audit course from list of courses mentioned. Evaluation of audit course will be done at institute level.

The student registered for audit course shall be awarded the grade AP and shall be included with grade in the semester grade report for that course, provided student has the minimum attendance as prescribed by the faculty. The grade points are awarded with the AP grade and performance in the audit course. No grade points are awarded with the AP grade and performance in the audit course.



Signature of the Controller of Examinations
 Savitribai Phule Pune University
 PUNE-45

calculation of the performance indices, GPA and CGPA. Evaluation of audit course will be done at institute level itself.

Selecting an Audit Course:

Using NPTEL Platform:

NPTEL is an initiative by AICTE to enhance learning effectiveness in the field of technical education by developing curriculum based video courses and web-based exercises.

The details of NPTEL courses are available on its official website www.nptel.ac.in

- Student can select any one of the courses mentioned above and has to register for the corresponding online course available on the NPTEL platform as an Audit course.
- Once the course is completed the student can appear for the examination as per the guidelines on the NPTEL portal.
- After clearing the examination successfully, student will be awarded with certificate.

Assessment of an Audit Course:

- The assessment of the course will be done at the institute level. The institute has to maintain the record of the various audit courses opted by the students. The audit course opted by the students could be interdisciplinary.
- During the course students will be submitting the online assignments. A copy of same students can submit as a part of term work for the corresponding Audit course.
- On the satisfactory submission of assignments, the institute can mark as "Pass" and the student will be awarded the grade AP as per guidelines.



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Roll Call List - Ith. A

Roll Call List - Ith. A

| Sr. No. | Roll No. | Candidate Name | Sr. No. | Roll No. | Candidate Name |
|---------|----------|----------------------------|---------|----------|---------------------------|
| 1 | 41 | Ashya Deepak Sawant | 17 | 47 | Lakshya Yash Agre |
| 2 | 42 | Abhinav Mahesh Bhambhani | 18 | 48 | Manasi Gayatri Kulkarni |
| 3 | 43 | Jyotishma Balaji Jaisankar | 19 | 49 | Hemant Yashraj Sawant |
| 4 | 44 | Rohan Anil Mhatre | 20 | 50 | Abhinav Anil Patil |
| 5 | 45 | Ashya Deepak Sawant | 21 | 51 | Rohankumar Yashraj Mhatre |
| 6 | 46 | Abhinav Mahesh Bhambhani | 22 | 52 | Shrawan Pratik Shinde |
| 7 | 47 | Jyotishma Balaji Jaisankar | 23 | 53 | Aditya Yashraj Chaudhary |
| 8 | 48 | Rohan Anil Mhatre | 24 | 54 | Jaithar Ashya Anil |
| 9 | 49 | Abhinav Mahesh Bhambhani | 25 | 55 | Shrawan Pratik Shinde |
| 10 | 50 | Rohan Anil Mhatre | 26 | 56 | Chaitanya Aniket Lokhande |
| 11 | 51 | Ashya Deepak Sawant | 27 | 57 | Manish Pratik Sawant |
| 12 | 52 | Abhinav Mahesh Bhambhani | 28 | 58 | Shrawan Pratik Shinde |
| 13 | 53 | Jyotishma Balaji Jaisankar | 29 | 59 | Sudhanshu Anil Shinde |
| 14 | 54 | Rohan Anil Mhatre | 30 | 60 | Chaitanya Aniket Lokhande |
| 15 | 55 | Abhinav Mahesh Bhambhani | 31 | 61 | Sayana Pratik Sawant |
| 16 | 56 | Jyotishma Balaji Jaisankar | 32 | 62 | Aditya Anil Sawant |
| 17 | 57 | Rohan Anil Mhatre | 33 | 63 | Chaitanya Aniket Lokhande |
| 18 | 58 | Abhinav Mahesh Bhambhani | 34 | 64 | Kalash Anil Shinde |
| 19 | 59 | Jyotishma Balaji Jaisankar | 35 | 65 | Kalash Anil Shinde |
| 20 | 60 | Rohan Anil Mhatre | 36 | 66 | Kalash Anil Shinde |
| 21 | 61 | Abhinav Mahesh Bhambhani | 37 | 67 | Kalash Anil Shinde |
| 22 | 62 | Jyotishma Balaji Jaisankar | 38 | 68 | Kalash Anil Shinde |
| 23 | 63 | Rohan Anil Mhatre | 39 | 69 | Kalash Anil Shinde |
| 24 | 64 | Abhinav Mahesh Bhambhani | 40 | 70 | Kalash Anil Shinde |
| 25 | 65 | Jyotishma Balaji Jaisankar | 41 | 71 | Kalash Anil Shinde |
| 26 | 66 | Rohan Anil Mhatre | 42 | 72 | Kalash Anil Shinde |
| 27 | 67 | Abhinav Mahesh Bhambhani | 43 | 73 | Kalash Anil Shinde |
| 28 | 68 | Jyotishma Balaji Jaisankar | 44 | 74 | Kalash Anil Shinde |
| 29 | 69 | Rohan Anil Mhatre | 45 | 75 | Kalash Anil Shinde |
| 30 | 70 | Abhinav Mahesh Bhambhani | 46 | 76 | Kalash Anil Shinde |
| 31 | 71 | Jyotishma Balaji Jaisankar | 47 | 77 | Kalash Anil Shinde |
| 32 | 72 | Rohan Anil Mhatre | 48 | 78 | Kalash Anil Shinde |
| 33 | 73 | Abhinav Mahesh Bhambhani | 49 | 79 | Kalash Anil Shinde |
| 34 | 74 | Jyotishma Balaji Jaisankar | 50 | 80 | Kalash Anil Shinde |
| 35 | 75 | Rohan Anil Mhatre | 51 | 81 | Kalash Anil Shinde |
| 36 | 76 | Abhinav Mahesh Bhambhani | 52 | 82 | Kalash Anil Shinde |
| 37 | 77 | Jyotishma Balaji Jaisankar | 53 | 83 | Kalash Anil Shinde |
| 38 | 78 | Rohan Anil Mhatre | 54 | 84 | Kalash Anil Shinde |
| 39 | 79 | Abhinav Mahesh Bhambhani | 55 | 85 | Kalash Anil Shinde |
| 40 | 80 | Jyotishma Balaji Jaisankar | 56 | 86 | Kalash Anil Shinde |
| 41 | 81 | Rohan Anil Mhatre | 57 | 87 | Kalash Anil Shinde |
| 42 | 82 | Abhinav Mahesh Bhambhani | 58 | 88 | Kalash Anil Shinde |
| 43 | 83 | Jyotishma Balaji Jaisankar | 59 | 89 | Kalash Anil Shinde |
| 44 | 84 | Rohan Anil Mhatre | 60 | 90 | Kalash Anil Shinde |
| 45 | 85 | Abhinav Mahesh Bhambhani | 61 | 91 | Kalash Anil Shinde |
| 46 | 86 | Jyotishma Balaji Jaisankar | 62 | 92 | Kalash Anil Shinde |

H. LAB TEACHER



Principal's Signature
PRINCIPAL



Committed for Thinking, Learning and Improving
GATEWAY TO KNOWLEDGE
GATEWAY TO KNOWLEDGE
GATEWAY TO KNOWLEDGE
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Committed for Thinking, Learning and Improving
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GATEWAY TO KNOWLEDGE
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Roll Call List - Bk. B

Roll Call List - Bk. B

| No. No. | Roll No. | Candidate Name | No. No. | Roll No. | Candidate Name |
|---------|----------|------------------------|---------|----------|----------------------|
| 1 | 01 | Pallavi Lata Bhat | 11 | 011 | Ujjwal Prasad Prasad |
| 2 | 02 | Shreya Anjali Bhat | 12 | 012 | Ujjwal Prasad Prasad |
| 3 | 03 | Mangalika Subhash Bhat | 13 | 013 | Ujjwal Prasad Prasad |
| 4 | 04 | Adarsh Prasad Bhat | 14 | 014 | Ujjwal Prasad Prasad |
| 5 | 05 | Shreya Anjali Bhat | 15 | 015 | Ujjwal Prasad Prasad |
| 6 | 06 | Ujjwal Prasad Prasad | 16 | 016 | Ujjwal Prasad Prasad |
| 7 | 07 | Ujjwal Prasad Prasad | 17 | 017 | Ujjwal Prasad Prasad |
| 8 | 08 | Ujjwal Prasad Prasad | 18 | 018 | Ujjwal Prasad Prasad |
| 9 | 09 | Ujjwal Prasad Prasad | 19 | 019 | Ujjwal Prasad Prasad |
| 10 | 010 | Ujjwal Prasad Prasad | 20 | 020 | Ujjwal Prasad Prasad |
| 11 | 011 | Ujjwal Prasad Prasad | 21 | 021 | Ujjwal Prasad Prasad |
| 12 | 012 | Ujjwal Prasad Prasad | 22 | 022 | Ujjwal Prasad Prasad |
| 13 | 013 | Ujjwal Prasad Prasad | 23 | 023 | Ujjwal Prasad Prasad |
| 14 | 014 | Ujjwal Prasad Prasad | 24 | 024 | Ujjwal Prasad Prasad |
| 15 | 015 | Ujjwal Prasad Prasad | 25 | 025 | Ujjwal Prasad Prasad |
| 16 | 016 | Ujjwal Prasad Prasad | 26 | 026 | Ujjwal Prasad Prasad |
| 17 | 017 | Ujjwal Prasad Prasad | 27 | 027 | Ujjwal Prasad Prasad |
| 18 | 018 | Ujjwal Prasad Prasad | 28 | 028 | Ujjwal Prasad Prasad |
| 19 | 019 | Ujjwal Prasad Prasad | 29 | 029 | Ujjwal Prasad Prasad |
| 20 | 020 | Ujjwal Prasad Prasad | 30 | 030 | Ujjwal Prasad Prasad |
| 21 | 021 | Ujjwal Prasad Prasad | 31 | 031 | Ujjwal Prasad Prasad |
| 22 | 022 | Ujjwal Prasad Prasad | 32 | 032 | Ujjwal Prasad Prasad |
| 23 | 023 | Ujjwal Prasad Prasad | 33 | 033 | Ujjwal Prasad Prasad |
| 24 | 024 | Ujjwal Prasad Prasad | 34 | 034 | Ujjwal Prasad Prasad |
| 25 | 025 | Ujjwal Prasad Prasad | 35 | 035 | Ujjwal Prasad Prasad |
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| 30 | 030 | Ujjwal Prasad Prasad | 40 | 040 | Ujjwal Prasad Prasad |

Ujjwal Prasad Prasad



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PRINCIPAL

GATEWAY TO KNOWLEDGE
GATEWAY TO KNOWLEDGE
GATEWAY TO KNOWLEDGE



Commitment for Thinking, Learning and Implementing
Ganta Sagarrao More Trust's
Ganta Sagarrao More College of Engineering
Balewadi, Pune - 411004
First Year Engineering Department
Academic Year 2024-25, Sem - 4



Commitment for Thinking, Learning and Implementing
Ganta Sagarrao More Trust's
Ganta Sagarrao More College of Engineering
Balewadi, Pune - 411004
First Year Engineering Department
Academic Year 2024-25, Sem - 4

Roll Call List - Roll. 4

Roll Call List - Roll. 5

| Sl. No. | Roll No. | Candidate Name | Sl. No. | Roll No. | Candidate Name |
|---------|----------|-----------------------|---------|----------|---------------------|
| 1 | 2.1 | ADITHYAN SURESH KUMAR | 31 | 2.31 | CHANDRA ABHIRAM |
| 2 | 2.2 | ADITHYAN SURESH KUMAR | 32 | 2.32 | DR. RAJESH K. KADAM |
| 3 | 2.3 | ADITHYAN SURESH KUMAR | 33 | 2.33 | PUNJAB SURESH KUMAR |
| 4 | 2.4 | ADITHYAN SURESH KUMAR | 34 | 2.34 | RAJESH K. KADAM |
| 5 | 2.5 | ADITHYAN SURESH KUMAR | 35 | 2.35 | RAJESH K. KADAM |
| 6 | 2.6 | ADITHYAN SURESH KUMAR | 36 | 2.36 | RAJESH K. KADAM |
| 7 | 2.7 | ADITHYAN SURESH KUMAR | 37 | 2.37 | RAJESH K. KADAM |
| 8 | 2.8 | ADITHYAN SURESH KUMAR | 38 | 2.38 | RAJESH K. KADAM |
| 9 | 2.9 | ADITHYAN SURESH KUMAR | 39 | 2.39 | RAJESH K. KADAM |
| 10 | 2.10 | ADITHYAN SURESH KUMAR | 40 | 2.40 | RAJESH K. KADAM |
| 11 | 2.11 | ADITHYAN SURESH KUMAR | 41 | 2.41 | RAJESH K. KADAM |
| 12 | 2.12 | ADITHYAN SURESH KUMAR | 42 | 2.42 | RAJESH K. KADAM |
| 13 | 2.13 | ADITHYAN SURESH KUMAR | 43 | 2.43 | RAJESH K. KADAM |
| 14 | 2.14 | ADITHYAN SURESH KUMAR | 44 | 2.44 | RAJESH K. KADAM |
| 15 | 2.15 | ADITHYAN SURESH KUMAR | 45 | 2.45 | RAJESH K. KADAM |
| 16 | 2.16 | ADITHYAN SURESH KUMAR | 46 | 2.46 | RAJESH K. KADAM |
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| 19 | 2.19 | ADITHYAN SURESH KUMAR | 49 | 2.49 | RAJESH K. KADAM |
| 20 | 2.20 | ADITHYAN SURESH KUMAR | 50 | 2.50 | RAJESH K. KADAM |
| 21 | 2.21 | ADITHYAN SURESH KUMAR | 51 | 2.51 | RAJESH K. KADAM |
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| 31 | 2.31 | ADITHYAN SURESH KUMAR | 61 | 2.61 | RAJESH K. KADAM |
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| 36 | 2.36 | ADITHYAN SURESH KUMAR | 66 | 2.66 | RAJESH K. KADAM |
| 37 | 2.37 | ADITHYAN SURESH KUMAR | 67 | 2.67 | RAJESH K. KADAM |
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| 40 | 2.40 | ADITHYAN SURESH KUMAR | 70 | 2.70 | RAJESH K. KADAM |
| 41 | 2.41 | ADITHYAN SURESH KUMAR | 71 | 2.71 | RAJESH K. KADAM |
| 42 | 2.42 | ADITHYAN SURESH KUMAR | 72 | 2.72 | RAJESH K. KADAM |
| 43 | 2.43 | ADITHYAN SURESH KUMAR | 73 | 2.73 | RAJESH K. KADAM |
| 44 | 2.44 | ADITHYAN SURESH KUMAR | 74 | 2.74 | RAJESH K. KADAM |
| 45 | 2.45 | ADITHYAN SURESH KUMAR | 75 | 2.75 | RAJESH K. KADAM |
| 46 | 2.46 | ADITHYAN SURESH KUMAR | 76 | 2.76 | RAJESH K. KADAM |
| 47 | 2.47 | ADITHYAN SURESH KUMAR | 77 | 2.77 | RAJESH K. KADAM |
| 48 | 2.48 | ADITHYAN SURESH KUMAR | 78 | 2.78 | RAJESH K. KADAM |
| 49 | 2.49 | ADITHYAN SURESH KUMAR | 79 | 2.79 | RAJESH K. KADAM |
| 50 | 2.50 | ADITHYAN SURESH KUMAR | 80 | 2.80 | RAJESH K. KADAM |

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DEAN

PRINCIPAL
Ganta Sagarrao More College of Engg
25/73, Balewadi, Pune - 411 045



Committed for Teaching, Learning and Implementing
Geeta Sagar Mahavidyalaya
Geeta Sagar Mahavidyalaya College of Engineering
Salawas, Pune - 411 005
First Year Engineering Department
Academic Year 2011-12, Sem - II



Committed for Teaching, Learning and Implementing
Geeta Sagar Mahavidyalaya
Geeta Sagar Mahavidyalaya College of Engineering
Salawas, Pune - 411 005
First Year Engineering Department
Academic Year 2011-12, Sem - II

Roll Call List - (Gr. II)

Roll Call List - (Gr. II)

| Sl. No. | Roll No. | Candidate Name | Sl. No. | Roll No. | Candidate Name |
|---------|----------|-------------------|---------|----------|-----------------------|
| 1 | 001 | Adarsh Patil | 25 | 025 | Shantanu Mangesh More |
| 2 | 002 | Amit Dhanraj More | 26 | 026 | Anagha Pratik Patil |
| 3 | 003 | Amit Dhanraj More | 27 | 027 | Arvind Dhanraj More |
| 4 | 004 | Amit Dhanraj More | 28 | 028 | Ashish Anil Patil |
| 5 | 005 | Amit Dhanraj More | 29 | 029 | Ashish Anil Patil |
| 6 | 006 | Amit Dhanraj More | 30 | 030 | Ashish Anil Patil |
| 7 | 007 | Amit Dhanraj More | 31 | 031 | Ashish Anil Patil |
| 8 | 008 | Amit Dhanraj More | 32 | 032 | Ashish Anil Patil |
| 9 | 009 | Amit Dhanraj More | 33 | 033 | Ashish Anil Patil |
| 10 | 010 | Amit Dhanraj More | 34 | 034 | Ashish Anil Patil |
| 11 | 011 | Amit Dhanraj More | 35 | 035 | Ashish Anil Patil |
| 12 | 012 | Amit Dhanraj More | 36 | 036 | Ashish Anil Patil |
| 13 | 013 | Amit Dhanraj More | 37 | 037 | Ashish Anil Patil |
| 14 | 014 | Amit Dhanraj More | 38 | 038 | Ashish Anil Patil |
| 15 | 015 | Amit Dhanraj More | 39 | 039 | Ashish Anil Patil |
| 16 | 016 | Amit Dhanraj More | 40 | 040 | Ashish Anil Patil |
| 17 | 017 | Amit Dhanraj More | 41 | 041 | Ashish Anil Patil |
| 18 | 018 | Amit Dhanraj More | 42 | 042 | Ashish Anil Patil |
| 19 | 019 | Amit Dhanraj More | 43 | 043 | Ashish Anil Patil |
| 20 | 020 | Amit Dhanraj More | 44 | 044 | Ashish Anil Patil |
| 21 | 021 | Amit Dhanraj More | 45 | 045 | Ashish Anil Patil |
| 22 | 022 | Amit Dhanraj More | 46 | 046 | Ashish Anil Patil |
| 23 | 023 | Amit Dhanraj More | 47 | 047 | Ashish Anil Patil |
| 24 | 024 | Amit Dhanraj More | 48 | 048 | Ashish Anil Patil |
| 25 | 025 | Amit Dhanraj More | 49 | 049 | Ashish Anil Patil |
| 26 | 026 | Amit Dhanraj More | 50 | 050 | Ashish Anil Patil |
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| 32 | 032 | Amit Dhanraj More | 56 | 056 | Ashish Anil Patil |
| 33 | 033 | Amit Dhanraj More | 57 | 057 | Ashish Anil Patil |
| 34 | 034 | Amit Dhanraj More | 58 | 058 | Ashish Anil Patil |
| 35 | 035 | Amit Dhanraj More | 59 | 059 | Ashish Anil Patil |
| 36 | 036 | Amit Dhanraj More | 60 | 060 | Ashish Anil Patil |
| 37 | 037 | Amit Dhanraj More | 61 | 061 | Ashish Anil Patil |
| 38 | 038 | Amit Dhanraj More | 62 | 062 | Ashish Anil Patil |
| 39 | 039 | Amit Dhanraj More | 63 | 063 | Ashish Anil Patil |
| 40 | 040 | Amit Dhanraj More | 64 | 064 | Ashish Anil Patil |
| 41 | 041 | Amit Dhanraj More | 65 | 065 | Ashish Anil Patil |
| 42 | 042 | Amit Dhanraj More | 66 | 066 | Ashish Anil Patil |
| 43 | 043 | Amit Dhanraj More | 67 | 067 | Ashish Anil Patil |
| 44 | 044 | Amit Dhanraj More | 68 | 068 | Ashish Anil Patil |
| 45 | 045 | Amit Dhanraj More | 69 | 069 | Ashish Anil Patil |
| 46 | 046 | Amit Dhanraj More | 70 | 070 | Ashish Anil Patil |
| 47 | 047 | Amit Dhanraj More | 71 | 071 | Ashish Anil Patil |
| 48 | 048 | Amit Dhanraj More | 72 | 072 | Ashish Anil Patil |
| 49 | 049 | Amit Dhanraj More | 73 | 073 | Ashish Anil Patil |
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| 51 | 051 | Amit Dhanraj More | 75 | 075 | Ashish Anil Patil |
| 52 | 052 | Amit Dhanraj More | 76 | 076 | Ashish Anil Patil |
| 53 | 053 | Amit Dhanraj More | 77 | 077 | Ashish Anil Patil |
| 54 | 054 | Amit Dhanraj More | 78 | 078 | Ashish Anil Patil |
| 55 | 055 | Amit Dhanraj More | 79 | 079 | Ashish Anil Patil |
| 56 | 056 | Amit Dhanraj More | 80 | 080 | Ashish Anil Patil |
| 57 | 057 | Amit Dhanraj More | 81 | 081 | Ashish Anil Patil |
| 58 | 058 | Amit Dhanraj More | 82 | 082 | Ashish Anil Patil |
| 59 | 059 | Amit Dhanraj More | 83 | 083 | Ashish Anil Patil |
| 60 | 060 | Amit Dhanraj More | 84 | 084 | Ashish Anil Patil |
| 61 | 061 | Amit Dhanraj More | 85 | 085 | Ashish Anil Patil |
| 62 | 062 | Amit Dhanraj More | 86 | 086 | Ashish Anil Patil |
| 63 | 063 | Amit Dhanraj More | 87 | 087 | Ashish Anil Patil |
| 64 | 064 | Amit Dhanraj More | 88 | 088 | Ashish Anil Patil |
| 65 | 065 | Amit Dhanraj More | 89 | 089 | Ashish Anil Patil |
| 66 | 066 | Amit Dhanraj More | 90 | 090 | Ashish Anil Patil |
| 67 | 067 | Amit Dhanraj More | 91 | 091 | Ashish Anil Patil |
| 68 | 068 | Amit Dhanraj More | 92 | 092 | Ashish Anil Patil |
| 69 | 069 | Amit Dhanraj More | 93 | 093 | Ashish Anil Patil |
| 70 | 070 | Amit Dhanraj More | 94 | 094 | Ashish Anil Patil |
| 71 | 071 | Amit Dhanraj More | 95 | 095 | Ashish Anil Patil |
| 72 | 072 | Amit Dhanraj More | 96 | 096 | Ashish Anil Patil |
| 73 | 073 | Amit Dhanraj More | 97 | 097 | Ashish Anil Patil |
| 74 | 074 | Amit Dhanraj More | 98 | 098 | Ashish Anil Patil |
| 75 | 075 | Amit Dhanraj More | 99 | 099 | Ashish Anil Patil |
| 76 | 076 | Amit Dhanraj More | 100 | 100 | Ashish Anil Patil |



(Signature)
Date: _____

PRINCIPAL

Geeta Sagar Mahavidyalaya College of Engg
28/12, Salawas, Pune - 411 005

TABLE -1 First Engineering _Structure for Semester-I

| Course Code | Course Name | Teaching Scheme (Hours/Week) | | | Examination Scheme and Marks | | | | | | Credits | | | |
|--------------------|--|------------------------------|-------------------------|----------|------------------------------|-----|----|-----|----|-------|---------|----|-----|-------|
| | | Theory | Practical | Tutorial | ISE | ESE | TW | PR | OR | Total | TH | PR | TUT | Total |
| 107001 | Engineering Mathematics-I | 03 | -- | 01 | 30 | 70 | 25 | -- | -- | 125 | 03 | -- | 01 | 04 |
| 107002/ 107009 | Engineering Physics / Engineering Chemistry | 04 | 02 | -- | 30 | 70 | -- | 25 | -- | 125 | 04 | 01 | -- | 05 |
| 102003 | Systems in Mechanical Engineering | 03 | 02 | -- | 30 | 70 | -- | 25 | -- | 125 | 03 | 01 | -- | 04 |
| 103004 / 104010 | Basic Electrical Engineering / Basic Electronics Engineering | 03 | 02 | -- | 30 | 70 | -- | 25 | -- | 125 | 03 | 01 | -- | 04 |
| 110005/ 101011 | Programming and Problem Solving / Engineering Mechanics | 03 | 02 | -- | 30 | 70 | -- | 25 | -- | 125 | 03 | 01 | -- | 04 |
| 111006 | Workshop [@] | -- | 02 | -- | -- | -- | -- | 25 | -- | 25 | -- | 01 | -- | 01 |
| Total | | 16 | 10 | 01 | 150 | 350 | 25 | 125 | -- | 650 | 16 | 05 | 01 | 22 |
| 101007 | Audit Course 1 ^{&} | 02 | Environmental Studies-I | | | | | | | | | | | |

Induction Program : 2 weeks at the beginning of semester-I and 1 week at the beginning of semester-II

TABLE -2 First Engineering _Structure for Semester-II

| Course Code | Course Name | Teaching Scheme (Hours/Week) | | | Examination Scheme and Marks | | | | | | Credits | | | |
|--------------------|--|------------------------------|--|----------|------------------------------|-----|----|-----|----|-------|---------|----|-----|-------|
| | | Theory | Practical | Tutorial | ISE | ESE | TW | PR | OR | Total | TH | PR | TUT | Total |
| 107008 | Engineering Mathematics-II | 04 | -- | 01 | 30 | 70 | 25 | -- | -- | 125 | 04 | -- | 01 | 05 |
| 107002/ 107009 | Engineering Physics/ Engineering Chemistry | 04 | 02 | -- | 30 | 70 | -- | 25 | -- | 125 | 04 | 01 | -- | 05 |
| 103004 / 104010 | Basic Electrical Engineering / Basic Electronics Engineering | 03 | 02 | -- | 30 | 70 | -- | 25 | -- | 125 | 03 | 01 | -- | 04 |
| 110005/ 101011 | Programming and Problem Solving / Engineering Mechanics | 03 | 02 | -- | 30 | 70 | -- | 25 | -- | 125 | 03 | 01 | -- | 04 |
| 102012 | Engineering Graphics ^Ω | 01 | 02 | 01 | -- | 50 | 25 | -- | -- | 75 | 01 | 01 | -- | 02 |
| 110013 | Project Based Learning [§] | -- | 04 | -- | -- | -- | 25 | 50 | -- | 75 | -- | 02 | -- | 02 |
| Total | | 15 | 12 | 02 | 120 | 330 | 75 | 125 | -- | 650 | 15 | 05 | 02 | 22 |
| 101014 | Audit Course 2 ^{&} | 02 | Environmental Studies-II | | | | | | | | | | | |
| 107015 | | -- | Physical Education-Exercise and Field Activities | | | | | | | | | | | |

Evaluation and Continuous Assessment:

It is recommended that the all activities are to be record and regularly, regular assessment of work to be done and proper documents are to be maintained at college end by both students as well as mentor (you may call it PBL work book).

Continuous Assessment Sheet (CAS) is to be maintained by all mentors/department and institutes.

Recommended parameters for assessment, evaluation and weightage:

- Idea Inception (5%)
- Outcomes of PBL/ Problem Solving Skills/ Solution provided/ Final product (50%) (Individual assessment and team assessment)
- Documentation (Gathering requirements, design & modeling, implementation/execution, use of technology and final report, other documents) (25%)
- Demonstration (Presentation, User Interface, Usability etc) (10%)
- Contest Participation/ publication (5%)
- Awareness /Consideration of -Environment/ Social /Ethics/ Safety measures/Legal aspects (5%)

PBL workbook will serve the purpose and facilitate the job of students, mentor and project coordinator. This workbook will reflect accountability, punctuality, technical writing ability and work flow of the work undertaken.

References:

- Project-Based Learning, Edutopia, March 14, 2016.
- What is PBL? Buck Institute for Education.
- www.schoolology.com
- www.wikipedia.org
- www.howstuffworks.com

101014: Environmental Studies-II**TH: 02 Hr/week****Mandatory Non-Credit Course****Course Objectives:**

1. To provide a comprehensive overview of environmental pollution and the science and technology associated with the monitoring and control.
2. To understand the evolution of environmental policies and laws.
3. To explain the concepts behind the interrelations between environment and the development.
4. To examine a range of environmental issues in the field, and relate these to scientific theory.

Course Outcomes: On completion of the course, learner will be able to–

CO1: Have an understanding of environmental pollution and the science behind those problems and potential solutions.

CO2: Have knowledge of various acts and laws and will be able to identify the industries that are violating these rules.

CO3: Assess the impact of ever increasing human population on the biosphere: social, economic issues and role of humans in conservation of natural resources.

CO4: Learn skills required to research and analyze environmental issues scientifically and learn how to use those skills in applied situations such as careers that may involve environmental problems and/or issues.

Course Contents**Unit V****Environmental Pollution****(08 Hrs)**

Environmental pollution : types, causes, effects and controls; Air, water, soil, chemical and noise pollution

Nuclear hazards and human health risks

Solid waste management: Control measures of urban and industrial waste

Pollution case studies.

Unit VI Environmental Pollution (07 Hrs)

Climate change, global warming, ozone layer depletion, acid rain and impacts on human communities & agriculture. Environment Laws : Environment Protection Act; Air (Prevention & Control of Pollution) Act; Water (Prevention and control of Pollution) Act; Wildlife protection Act; Forest Conservation Act; International agreements; Montreal and Kyoto Protocols and conservation on Biological Diversity (CBD). The Chemical Weapons Convention (CWC). Nature reserves, tribal population and rights, and human, wildlife conflicts in Indian context

Unit VII Human Communities and the Environment (06 Hrs)

Human population and growth; Impacts on environment, human health and welfare. Carbon foot-print. Resettlement and rehabilitation of project affected persons; case studies. Disaster management: floods earthquakes, cyclones and landslides. Environmental movements: Chipko, Silent valley, Bishnios of Rajasthan. Environmental ethics: Role of Indian and other religions and cultures in environmental conservation.

Environmental communication and public awareness, case studies (e.g., CNG vehicles in Delhi).

Unit VIII Field work (05 Hrs)

- Visit to an area to document environmental assets; river/forest/flora/fauna, etc.
- Visit to a local polluted site – Urban/Rural/Industrial/Agricultural.
- Study of common plants, insects, birds and basic principles of identification.
- Study of simple ecosystems-pond, river Delhi Ridge, etc

Suggested Readings:

1. Carson, R. 2002. Silent spring. Houghton Mifflin Harcourt.
2. Gadgil, M., & Guha, R. 1993. This Fissured Land: An Ecological History of India. Univ. of California Press.
3. Gleeson, B. and Low, N. (eds.) 1999. Global Ethics and Environment, London, Routledge.
4. Gleick, P.H. 1993. Water in Crisis. Pacific Institute for Studies in Dev., Environment & Security. Stockholm Env. Institute, Oxford Univ. Press.
5. Groom, Martha J. Gary K. Meffe, and Carl Ronald carroll. Principals of Conservation Biology, Sunderland: Sinauer Associates, 2006
6. Grumbine, R. Edward, and Pandit, M.K. 2013. Threats from India's Himalaya dams. Science, 339:36-37.
7. McCully, P. 1996. Rivers no more: the environmental effects of dams (pp.29-64). Zed Books.
8. McNeil, John R. 2000. Something New Under the Sun: An Environmental History of the Twentieth Century.

| | |
|-----|--|
| 4. | Demonstration of Drilling machine Demonstration on construction of Radial drilling machine, Tool holding devices, Concept of speed, feed and depth of cut. |
| 5. | Demonstration on Milling machine Demonstration on construction, table movements, indexing and tooling of milling machine. |
| 6. | Demonstration of Shaper/Grinding machine (Any one) Shaper: Crank and slotted link mechanism, Work feed mechanism Grinding: Surface grinder/Cylindrical grinding machine, Mounting of grinding wheel |
| 7. | Term work includes one job of Carpentry Introduction to wood working, kinds of woods, hand tools & machines, Types of joints, wood turning. Pattern making, types of patterns and its allowances. |
| 8. | Term work to include one job involving fitting to size, male-female fitting with drilling and tapping operation on Mild Steel plate; Introduction to marking, cutting and sawing, sizing of metal, shearing, Concept of fits and interchangeability, selection of datum and measurements. |
| 9. | Term work to include one utility job preferably using sheet metal (e.g. Tray, Funnel etc.) with riveting/welding/brazing/soldering (at least one temporary and one Permanent joint either using resistance welding/Arc welding); Introduction to sheet metal operations: punching, blanking, bending, drawing. |
| 10. | Prepare a Layout of Workshop To prepare a work shop layout. |
| 11. | Collection of information about safety norms in any one of the following type of industry: Metalworking/Chemical/Cement/Pharmaceuticals/Defense/Atomic energy/Aerospace /Marine/Construction/Railway etc. |

Reference/Text Books

1. John, K. C., (2010), "Mechanical Workshop Practice, Prentice Hall Publication, New Delhi
2. Hazra and Chaudhary, Workshop Technology-I & II, Media promoters & Publisher Pvt. Ltd.

101007: Environmental Studies-I

TH:02 Hrs./week

(Mandatory Non-Credit Course)

Course Objectives:

1. To explain the concepts and strategies related to sustainable development and various components of environment.
2. To examine biotic and abiotic factors within an ecosystem, to identify food chains, webs, as well as energy flow and relationships.
3. To identify and analyze various conservation methods and their effectiveness in relation to renewable and nonrenewable natural resources.
4. To gain an understanding of the value of biodiversity and current efforts to conserve biodiversity on national and local scale.

Course Outcomes: On completion of the course, learner will be able to–

CO1: Demonstrate an integrative approach to environmental issues with a focus on sustainability.

CO2: Explain and identify the role of the organism in energy transfers in different ecosystems.

CO3: Distinguish between and provide examples of renewable and nonrenewable resources & analyze personal consumption of resources.

CO4: Identify key threats to biodiversity and develop appropriate policy options for conserving biodiversity in different settings.

Course Contents

| | | |
|--|---|--|
| Unit I | Introduction to environmental studies | (02 Hrs) |
| Multidisciplinary nature of environmental studies; components of environment – atmosphere, hydrosphere, lithosphere and biosphere. Scope and importance; Concept of sustainability and sustainable development. | | |
| Unit II | Ecosystems | (06 Hrs) |
| What is an ecosystem? Structure and function of ecosystem; Energy flow in an ecosystem: food chain, food web and ecological succession. Case studies of the following ecosystems: a) Forest ecosystem b) Grassland ecosystem c) Desert ecosystem d) Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries) | | |
| Unit III | Natural Resources: Renewable and Non-renewable Resources | (08 Hrs) |
| Land Resources and land use change; Land degradation, soil erosion and desertification. Deforestation: Causes and impacts due to mining, dam building on environment, forests, biodiversity and tribal populations. Water: Use and over-exploitation of surface and ground water, floods droughts, conflicts over water (international & inter-state). Heating of earth and circulation of air; air mass formation and precipitation. Energy resources: Renewable and non-renewable energy sources, use of alternate energy sources, growing energy needs, case studies. | | |
| Unit IV | Biodiversity and Conservation | (08 Hrs) |
| Levels of biological diversity: genetic, species and ecosystem diversity; Biogeography zones of India; Biodiversity patterns and global biodiversity hot spots. India as a mega-biodiversity nation; Endangered and endemic species of India. Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts, biological invasions; Conservation of biodiversity; In-situ and Ex-situ conservation of biodiversity. Ecosystem and biodiversity services: Ecological, economic, social, ethical, aesthetic and Informational value. | | |
| Suggested Readings: | | |
| <ol style="list-style-type: none"> 1. Carson, R. 2002. Silent spring. Houghton Mifflin Harcourt. 2. Gadgil, M., & Guha, R.1993. This Fissured Land: An Ecological History of India. Univ. of California Press. 3. Gleeson,B. and Low, N. (eds.) 1999. Global Ethics and Environment, London, Routledge. 4. Gleick, P.H. 1993. Water in Crisis. Pacific Institute for Studies in Dev., Environment & Security. Stockholm Env. Institute, Oxford Univ. Press. 5. Groom, Martha J. Gary K. Meffe, and Carl Ronald carroll. Principals of Conservation Biology. Sunderland: Sinauer Associates, 2006. 6. Grumbine, R. Edward, and Pandit, M.K. 2013. Threats from India’s Himalaya dams. Science, 339:36-37. 7. McCully, P.1996. Rivers no more: the environmental effects of dams (pp.29-64). Zed Books. 8. McNeil, John R. 2000. Something New Under the Sun: An Environmental History of the Twentieth Century. | | |
| 107008 – Engineering Mathematics – II | | |
| Teaching Scheme: TH : 4 Hrs./Week TUT : 1 Hr./Week | Credits 05 | Examination Scheme: In-Semester : 30 Marks End-Semester : 70 Marks TW : 25 Marks |
| Prerequisites: Integration, Differential Equation, Three-dimensional coordinate systems | | |



"EMPOWERMENT THROUGH TECHNOLOGICAL EXCELLENCE"
GENBA SOPANRAO MOZE COLLEGE OF ENGINEERING

E. No. 25/1/3, Rahewadi, Pune - 411 045

[Approved by AICTE and Govt. of Maharashtra, Affiliated to Savitribai Phule Pune University]

UET Code - EN0404 University Affiliation ID - PU/PUN/0404/18/1999

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

Founder President: Shri Ramchandra Moze

Date:02/06/2022

To,
The Branch Manager
Union Bank of India, Pune

Subject: Invitation for Yoga day celebration at GSNCOE

Respected Sir,

We introduce ourselves as G. S. Moze College of engineering Rahewadi is affiliated to University of Pune and approved by AICTE, New Delhi. The college runs five UG program.

We are celebrating 8th international yoga day on 21st june 2022 and taking this opportunity to invite you along with branch staff to join with us on same. We want to celebrate this yoga day in collaborative with bank as it will be good relation building step as well as this collaboration will help our faculty and staff to get more insights about banking domain.

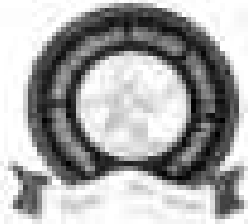
Looking forward for your positive consent in this regard.

Thanking you


Dr. Manoj Kumar
Faculty (Assistant)




Dr. Ramchandra Moze Moze
Principal, GSNCOE
Genba Sopanrao Moze College of Engg
EETC Rahewadi, Pune-411045



"EMPOWERMENT THROUGH TECHNOLOGICAL EXCELLENCE"
GENBA SOPANRAO MIZE COLLEGE OF ENGINEERING

E. No. 25/1/1, Rahmanli, Pune - 411 005

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

HEI Code - 176144 - University Affiliation ID - PU/PUNE/04/126788

Ph. 020-27990000 - Website: www.genbacoe.org - Email: genba@genbacoe.org

Founder President: Shri Ramchandra Mize

Date: 10/06/2022

NOTICE


All the students of GEMCOE are hereby informed that, College is celebrating International Yoga Day on 21 June 2022. All Students are asked to be present at 10 am sharp in college premises.

NOTE:

- STUDENTS MUST BE PRESENT IN COMFORTABLE CLOTHES FOR YOGA PRACTICE
- STUDENTS SHOULD CARRY WATER BOTTLE/CAP. BOTTLE
- ATTENDANCE IS COMPULSORY


Mr. Vinod Kumar Thombare
Faculty coordinator




Dr. Ratnashree Kulkarni Joshi
Principal GEMCOE
PRINCIPAL
Genba Sopanrao Mize College of Engg.
- 25/1/1, Rahmanli, PUNE-411 005 -



"Empowerment through Technological Excellence"

GENIA SOPANRAO MORE COLLEGE OF ENGINEERING

Report on International Yoga Day Celebration

International Yoga Day is observed every year on June 21 to raise awareness about this ancient practice and to celebrate the physical and spiritual progress that yoga has brought to the world. Yoga is a practice which plays an important role in relaxing the mind and body and boosting people's immune system.

On 21st June 2022, Genia Sopanrao More college of Engineering Pune in collaboration with Union Bank of India Pune celebrated 8th International Yoga Day. It was attended by many prominent Professors and Students from different department of the college with great enthusiasm.

The event began with a brief introduction on Yoga Day by Ms. Seema Shetyekar and by welcoming the guest of honor Ms. Usha Jalikhami. Then Lamp lighting ceremony was conducted.



Warm up exercises were taken and all the students practiced & performed sitting and standing asana, importance of these were explained simultaneously. The celebration concluded with the speech of our Hon'ble Principal Prof. (Dr.) Ramkrishnakumar Jadhav. He encouraged students to practice regular yoga to remain fit and improve concentration.

Ms. Usha Jadhav addressed the participants on the importance of yoga practice in our life.



All faculties, staff and students were taught the importance of Yoga in their life & how to maintain the harmony between body and mind. The students discussed the importance of yoga and also exhibited yoga postures and promised to introduce this activity in their daily lives.

After sessions of different Yoga asanas about online shopping was taken. At the end Yoga instructor and few guest members from Union bank was felicitated with saplings of beautiful rose plants.

International Yoga Day celebrations ended with a huge success under the supervision of the Head Cultural Committee, Professor Shilpa Malapat.

The function ended with a vote of thanks by Prof. Vishal Mane, Member Cultural Committee.


Ms. Nivetha Thore
Faculty coordinator




Dr. Ramesh Kumar Jadhav
Principal USMCE

PRINCIPAL

Dr. Ramesh Kumar Jadhav
Principal USMCE



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

S. No. 25/2/3, Salewadi, Pune - 411 005

[Approved by AICTE and Govt. of Maharashtra. Affiliated to Savitribai Phule Pune University]

IEE Code: EN144 University Affiliation ID: PU/PA/5420/2019

Ph: 020-27189100 Website: www.genbacoe.org Email: genba@yashwantrao.in

Founder President: Shri Ramdhan Moze

Date: 21/06/2022

To,
The Branch Manager
Union Bank of India, Pune

Letter of thanks

Respected Sir,

Genba Sopanrao Moze trust is an educational trust, a pioneer in imparting quality professional's education in field of Engineering. It has established two campuses in Pune at Wagholi & Salewadi.

Here we take this opportunity to sincerely thank you for collaboration and wonderful sessions to learn yoga and spiritual right through this international Yoga day celebration. We really appreciate the time spent with our students and information shared by you. We hope our students received precious knowledge which will definitely help them in their further life.

Thanking you,

Yours Regards,

Ms. Anshika Thakur

Faculty coordinator

Dr. Anand K. Desai

Principal, GEMCOE

(982014)

Genba Sopanrao Moze College of Engg.

25/2/3, Salewadi, PUNE-411 005.





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GENBA SOPANRAO MOSE COLLEGE OF
ENGINEERING

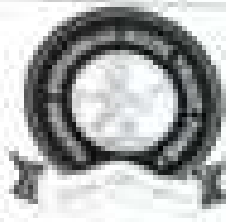
Academic Year 2021-22

Attendance of Students

“International Yoga Day Celebration”

Date of Event: 21/06/2022

| Sr.No. | Name of Student | Dept. | Sign |
|--------|----------------------|-------|-------------|
| 1 | Yash Vavani | Civil | [Signature] |
| 2 | Mandar Bhandari | Civil | [Signature] |
| 3 | Vishwamittra Rajput | Civil | [Signature] |
| 4 | Sandeep Chaudhari | Civil | [Signature] |
| 5 | Shrawan Yawale | Auto | [Signature] |
| 6 | Shyam Jilani | ITCE | [Signature] |
| 7 | Adinatha B. Madam | ENR | [Signature] |
| 8 | Aditya Dhanu Jadhav | ITCE | [Signature] |
| 9 | Yash Dhanu | ITCE | [Signature] |
| 10 | Arjun Khambhaty | ITCE | [Signature] |
| 11 | Palvesh Sagarwani | ITCE | [Signature] |
| 12 | Aakash A. Patil | ITCE | [Signature] |
| 13 | Saty A. Patil | ITCE | [Signature] |
| 14 | Ashish A. Patil | ITCE | [Signature] |
| 15 | Nishant D. Venkatesh | ITCE | [Signature] |
| 16 | Yash A. Patil | ITCE | [Signature] |
| 17 | Chirag Patil | ITCE | [Signature] |
| 18 | Tanuj Bhath | ITCE | [Signature] |
| 19 | Govind Hishol | Civil | [Signature] |
| 20 | Kamran Ravi | Civil | [Signature] |
| 21 | Nishant Patil | Civil | [Signature] |
| 22 | Yash Hishol | Civil | [Signature] |
| 23 | Yash Hishol | Civil | [Signature] |
| 24 | Yash Hishol | Civil | [Signature] |
| 25 | Yash Hishol | Civil | [Signature] |
| 26 | Yash Hishol | Civil | [Signature] |
| 27 | Yash Hishol | Civil | [Signature] |
| 28 | Yash Hishol | Civil | [Signature] |




"EMPOWERMENT THROUGH TECHNOLOGICAL EXCELLENCE"
**GENBA SOPANRAO MOZE COLLEGE OF
ENGINEERING**

Academic Year 2021-22

| Sl.No. | Name of Student | Dept. | Sign |
|--------|-----------------|-------|------|
| 29 | Kaam Jangale | | |
| 30 | Gayatri Jangale | | |
| 31 | Manasa Shinde | | |
| 32 | | | |
| 33 | | | |
| 34 | | | |
| 35 | | | |
| 36 | | | |
| 37 | | | |
| 38 | | | |
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| 50 | | | |


Ms. Snehalika Thakur
Coordinator


Dr. Sunil Kumar Sankh
Principal
GENBA
Genba Sopanrao Moze College of Engg
2021, Mumbai. Page 44 of 44



- EMPOWERMENT THROUGH TECHNOLOGICAL EXCELLENCE -
**GENRA SOPANRAO MOZE COLLEGE OF
 ENGINEERING**

Academic Year 2021-22

Attendance of Faculty

"International Yoga Day Celebration"

Date of Event: 21/06/2022

| Sr.No. | Name | Dept. | Sign |
|--------|---------------------------|-------|------|
| 1 | Dr. Rishu Raj Kumar Joshi | | |
| 2 | G. R. Sandanahar | Mech | |
| 3 | Yashraj Kulkarni | Elect | |
| 4 | Umesh Tuberkar | CIVIL | |
| 5 | Dr. Jayadev Rishi S | Mech | |
| 6 | Dr. P. S. Chaudhary | Comp | |
| 7 | Dr. Anurag S. Gore | Mech | |
| 8 | Pravin Patil | Comp | |
| 9 | Pravin Mandlik | Civil | |
| 10 | S. S. Suryekar | Civil | |
| 11 | M. S. Desai | Civil | |
| 12 | Rupali Kope | Civil | |
| 13 | Dr. Mahesh Jagtap | Mech | |
| 14 | S. V. Thakur | Mech | |
| 15 | Anshu Patil | Elect | |
| 16 | Rishu Joshi | Elect | |
| 17 | Sanjay S. | Civil | |
| 18 | Rama Patil | Elect | |
| 19 | Maya Bhatnagar | Elect | |
| 20 | Jayesh Tuberkar | Mech | |
| 21 | Umesh Joshi | Comp | |
| 22 | Jyoti Manjunath | Comp | |
| 23 | Prigna Kambhate | Comp | |
| 24 | Taruna Patil | Civil | |
| 25 | Harish Patil | Comp | |
| 26 | Sanjay Patil | Comp | |
| 27 | Pravin A. Patil | Elect | |
| 28 | Umesh Patil | Elect | |



"EMPOWERMENT THROUGH TECHNOLOGICAL EXCELLENCE"
**GENBA SOPANRAO MOZE COLLEGE OF
ENGINEERING**

Academic Year 2021-22

| Sl.No. | Name | Dept. | Sign |
|--------|-----------------|-------|------|
| 29 | Dipak Chaudhari | Mech | GS |
| 30 | | | |
| 31 | | | |
| 32 | | | |
| 33 | | | |
| 34 | | | |
| 35 | | | |
| 36 | | | |
| 37 | | | |
| 38 | | | |
| 39 | | | |
| 40 | | | |


Ms. Nivedita Tharal
Coordinator




Dr. Balraj Kumar Jadhav
Principal

PRINCIPAL

Genba Sopanrao Moze College of Engg
D.U.T. Road, Pune-411 008

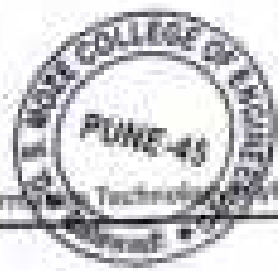
SEMESTER-I

| Subject Code | Subject | Teaching Scheme | | | Examination Scheme | | | | | Total Marks | Credits |
|-------------------------|------------------------------|-----------------|-----------|----------|--------------------|-----|----|-----|---------|-------------|---------|
| | | Lecture | Practical | Tutorial | In-Sem | TW | PR | OR | End-Sem | | |
| 414462 | Distributed Computing System | 3 | - | - | 30 | - | - | - | 70 | 100 | 3 |
| 414463 | Ubiquitous Computing | 3 | - | - | 30 | - | - | - | 70 | 100 | 3 |
| 414464 | Elective-III | 3 | 2 | - | 30 | 25 | - | 25 | 70 | 150 | 4 |
| 414465 | Elective-IV | 3 | - | - | 30 | - | - | - | 70 | 100 | 3 |
| 414466 | Computer Laboratory-IX | - | 4 | - | - | 50 | 50 | - | - | 100 | 2 |
| 414467 | Computer Laboratory-X | - | 2 | - | - | 25 | - | 25 | - | 50 | 1 |
| 414468 | Project Work | - | - | 6 | - | 50 | - | 100 | - | 150 | 6 |
| 414469 | <u>Audit Course-VI</u> | - | - | - | - | - | - | - | - | Grade | |
| Total | | 12 | 6 | 6 | 120 | 150 | 50 | 150 | 280 | 750 | 22 |
| Total of Part-II | | 26 | | | 750 | | | | | | |

Abbreviations: TW: Term Work TH: Theory OR: Oral PR: Practical Sem: Semester
 Computer Laboratory-IX (Distributed Computing System)
 Computer Laboratory-X (Ubiquitous Computing)

| Elective III | | Elective IV | |
|--------------|--------------------------------------|-------------|---|
| 414464A | 1. Internet of Things (IoT) | 414465A | 1. Rural Technologies and Community Development |
| 414464B | 2. Information storage and retrieval | 414465B | 2. Parallel Computing |
| 414464C | 3. Multimedia Technology | 414465C | 3. Computer Vision |
| 414464D | 4. Internet and Web Programming | 414465D | 4. Social Media Analytics |
| 414464E | 5. Computational Optimization | 414465E | 5. Open Elective |

| Audit Course-VI | |
|-----------------|---|
| 414469A | 1. IoT - Application in Engineering field |
| 414469B | 2. Entrepreneurship |
| 414469C | 3. Cognitive Computing |
| 414469D | 4. AI and Robotics |



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 G.D. Somaiya Institute of Technology & Science
 25/1/7, Borivli, Mumbai - 401 305.

Robotics is a branch of AI, which is composed of Electrical Engineering, Mechanical Engineering, and Computer Science for designing, construction, and application of robots. The robots have mechanical construction, form, or shape designed to accomplish a particular task. They have electrical components which power and control the machinery. They contain some level of computer program that determines what, when and how a robot does something.

Course Objectives:

1. To get the detailed robotics and rapid development.
2. To understand the robots functions.
3. To understand how mechanical devices converting into intelligent machines through a branch of computer science called artificial intelligence (AI).

Course Outcomes:

By the end of the course, students should be able to

1. The goal of this course is to familiarize the students with the basic concepts of robotics, artificial intelligence and intelligent machines.
2. It will help students to understand and apply principles, methodology and techniques of intelligent systems to robotics.

Unit I Intelligent Robotics

Automation and Robots, Robot Classification, Robot Specifications, Sensory perception, Robot control and Intelligence.

Unit II Direct Kinematics

Coordinate Frames, Rotations, Homogeneous Coordinates, The arm Equation, (DK analysis of - 2 Axis and 3 Axis Planar robot, Four axis SCARA Robot, Five axis Articulated robot).

Unit III Inverse Kinematics

General Properties of Solutions, Tool Configuration, (IK analysis of - 2 Axis and 3 Axis Planar robot, Four axis SCARA Robot, Five axis Articulated robot).

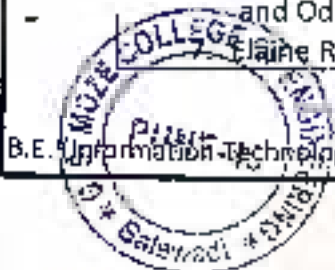
Unit IV Workspace Analysis and Trajectory Planning

Workspace analysis, Work envelope of 4-axis SCARA Robot, Work envelope of 5-axis articulated Robot, Workspace Fixtures, The pick-and-place operation, Continuous-Path Motion, Interpolated Motion, Straight Line Motion.

References:

1. Robotics and AI", Andrew Staugaard, PHI.
2. Fundamentals of Robotics- Analysis and Control", Robert Schilling, Pearson Education.
3. Introduction to Robotics", J. J. Craig, Pearson Education.
4. "Robotics", Fu, Gonzales and Lee, McGraw Hill.
5. "Artificial Intelligence: Structures and Strategies for Complex Problem Solving", George F. Luger, Pearson Education.
6. "Industrial Robotics- Technology, programming, and applications", Groover, Weiss, Nagel and Odrey, McGraw Hill
7. Elaine Rich and Kevin Knight, "Artificial Intelligence", TMH.

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 Savitribai Phule Pune University
 Main Building, Pune - 411 005



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 Savitribai Phule Pune University
 36/13, Salawadi, Pune - 411 005

B.E. (Information Technology) 2015 Course to be implemented from Academic Year 2018-19

SEMESTER-I:

| Subject Code | Subject | Teaching Scheme | | | Examination Scheme | | | | | Total Marks | Credits |
|-----------------|-----------------------------------|-----------------|-----------|----------|--------------------|-----|----|-----|---------|-------------|---------|
| | | Lecture | Practical | Tutorial | In-Sem | TW | PR | OR | End-Sem | | |
| 414453 | Information and Cyber Security | 3 | - | - | 30 | -- | -- | -- | 70 | 100 | 3 |
| 414454 | Machine Learning and Applications | 4 | -- | -- | 30 | -- | -- | -- | 70 | 100 | 4 |
| 414455 | Software Design and Modeling | 3 | -- | -- | 30 | -- | -- | -- | 70 | 100 | 3 |
| 414456 | Elective-I | 3 | -- | -- | 30 | -- | -- | -- | 70 | 100 | 3 |
| 414457 | Elective-II | 3 | -- | -- | 30 | -- | -- | -- | 70 | 100 | 3 |
| 414458 | Computer Laboratory-VII | -- | 4 | -- | -- | 50 | 50 | -- | -- | 100 | 2 |
| 414459 | Computer Laboratory-VIII | -- | 4 | -- | -- | 50 | -- | 50 | -- | 100 | 2 |
| 414460 | Project Phase-I | -- | -- | 2 | -- | -- | -- | 50 | -- | 50 | 2 |
| 414461 | Audit Course-V | -- | -- | -- | -- | -- | -- | -- | -- | Grade | |
| Total | | 16 | 8 | 2 | 150 | 100 | 50 | 100 | 350 | 750 | 22 |
| Total of Part-I | | 26 | | | 750 | | | | | | |

Abbreviations: TW: Term Work TH: Theory OR: Oral PR: Practical Sem: Semester

Computer Laboratory-VII (Information and Cyber Security+ Machine Learning and Application)

Computer Laboratory-VIII (Software Design and Modeling)

| Elective I | | | Elective II | | |
|------------|--|---------|---|--|--|
| 414456 A | 1. Wireless Communications | 414457A | 1. Software Defined Networks | | |
| 414456B | 2. Natural Language Processing | 414457B | 2. Soft Computing | | |
| 414456C | 3. Usability Engineering | 414457C | 3. Software Testing and Quality Assurance | | |
| 414456D | 4. Multicore and Concurrent Systems | 414457D | 4. Compiler Construction | | |
| 414456E | 5. Business Analytics and Intelligence | 414457E | 5. Gamification | | |

| Audit Course-V | |
|----------------|--|
| 414461A | 1. Emotional Intelligence |
| 414461B | 2. Green Computing |
| 414461C | 3. Critical Thinking |
| 414461D | 4. Statistical Learning model using R. |



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25/1/13, Balewadi, Pune-411 005

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25/1/13, Balewadi, Pune-411 005

Savitribai Phule Pune University
Fourth Year of Information Technology (2015 Course)
414461D: Audit Course-V

Statistical Learning Model using R

Statistical learning theory is a framework for machine learning drawing from the fields of statistics and functional analysis. Statistical learning theory deals with the problem of finding a predictive function based on data. Statistical learning theory has led to successful applications in fields such as computer vision, speech recognition, bioinformatics and baseball.

Course Objectives:

- 1) To get familiar with the explosion of "Big Data" problems, statistical learning / machine learning has become a very hot field.
- 2) To learn statistical learning and modeling skills which are in high demand also cover basic concepts of statistical learning / modeling methods that have widespread use in business and scientific research.
- 3) To get hands on the applications and the underlying statistical / mathematical concepts that are relevant to modeling techniques. The course are designed to familiarize students in implementing the statistical learning methods using the highly popular statistical software package R.

Course Outcomes:

By the end of the course, students should be able to,

- 1) Students will be familiar with concepts related to "data science", "analytics", "machine learning", etc. These are important topics, and will enable students to embark on highly rewarding careers.
- 2) Students will capable of learning "big data" concepts on their own.

| | |
|--|--|
| Unit I | Introduction to Statistical Learning |
| What is Statistical Learning, Various issues to consider while "modeling" | |
| Unit II | Getting started with R programming |
| Introduction to the R-Studio, user-interface, Basic commands, Data Structures in R, Graphics, Reading data into R. | |
| Unit III | Linear Regression models including Lab |
| Instructor should select a problem statement and design the assignment for Linear Regression. | |
| Unit IV | Classification models (Logistic Regression and LDA) with Lab |
| Instructor should select a problem statement and design the assignment for Logistic Regression and LDA. | |
| Unit V | Tree based methods (regression trees, classification tree) with Lab |
| Instructor should select a problem statement and design the assignment for Tree based methods (regression trees, classification tree) with lab. | |
| Reference Books | |
| 1) An Introduction to Statistical Learning with Applications in R. Gareth James, Daniela Witten, Trevor Hastie and Robert Tibshirani - 6th edition- Springer Publications. | |

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2015 Course



“Empowerment through Technological Excellence”

GENBA SOPANRAO MOZE COLLEGE OF ENGINEERING

25/1/3, Balewadi, Pune – 411045. Ph: 020-27390500

(Recognized by AICTE, New Delhi; Approved by Govt. of Maharashtra; Affiliated to Savitribai Phule Pune University)

Website: www.gsmozecoe.co.in Email: gsmoze@yahoo.co.in

Department of MBA

www.mca.gov.in
Ministry of Corporate Affairs (MCA) - Mumbai, India
2 Year, 4 Semester Full time Program
Credit Based Credit System (CBCS) and Grading System
Distance Based Education System
MBA-1 effective from AY 2018-19
MBA-2 effective from AY 2019-20

| Sl. No. | Semester I | Semester II | Semester III | Semester IV | Grade | CGPA | CGPA |
|--|------------|-------------|--------------|-------------|-------|------|------|
| COMMERCIAL (BBA) COURSE (SEMESTER I) - SUBJECT (CC) - Business, Intermediate Program (B) | | | | | | | |
| 1 | CC-1 | CC-2 | CC-3 | CC-4 | B | 1000 | 1000 |
| 2 | CC-5 | CC-6 | CC-7 | CC-8 | | | |
| 3 | CC-9 | CC-10 | CC-11 | CC-12 | | | |
| 4 | CC-13 | CC-14 | CC-15 | CC-16 | | | |
| 5 | CC-17 | CC-18 | CC-19 | CC-20 | | | |
| 6 | CC-21 | CC-22 | CC-23 | CC-24 | | | |
| 7 | CC-25 | CC-26 | CC-27 | CC-28 | | | |
| COMMERCIAL (BBA) COURSE (SEMESTER II) - SUBJECT (CC) - Business, Intermediate Program (B) | | | | | | | |
| 8 | CC-29 | CC-30 | CC-31 | CC-32 | B | 1000 | 1000 |
| 9 | CC-33 | CC-34 | CC-35 | CC-36 | | | |
| 10 | CC-37 | CC-38 | CC-39 | CC-40 | | | |
| COMMERCIAL (BBA) COURSE (SEMESTER III) - SUBJECT (CC) - Business, Intermediate Program (B) | | | | | | | |
| 11 | CC-41 | CC-42 | CC-43 | CC-44 | B | 1000 | 1000 |
| 12 | CC-45 | CC-46 | CC-47 | CC-48 | | | |
| 13 | CC-49 | CC-50 | CC-51 | CC-52 | | | |
| 14 | CC-53 | CC-54 | CC-55 | CC-56 | B | 1000 | 1000 |
| COMMERCIAL (BBA) COURSE (SEMESTER IV) | | | | | | | |
| 15 | CC-57 | CC-58 | CC-59 | CC-60 | B | 1000 | 1000 |
| 16 | CC-61 | CC-62 | CC-63 | CC-64 | | | |
| 17 | CC-65 | CC-66 | CC-67 | CC-68 | | | |
| 18 | CC-69 | CC-70 | CC-71 | CC-72 | B | 1000 | 1000 |

SEMESTER

| Sl. No. | Cr. - SEM Credits per course | Course Title | Credits | Course No. | Name |
|--|------------------------------|------------------------|-----------|------------|------------------------|
| 1 | 4 | General English I | 4 | GE1 | General English I |
| 2 | 4 | General English II | 4 | GE2 | General English II |
| 3 | 4 | General English III | 4 | GE3 | General English III |
| 4 | 4 | General English IV | 4 | GE4 | General English IV |
| 5 | 4 | General English V | 4 | GE5 | General English V |
| 6 | 4 | General English VI | 4 | GE6 | General English VI |
| 7 | 4 | General English VII | 4 | GE7 | General English VII |
| 8 | 4 | General English VIII | 4 | GE8 | General English VIII |
| 9 | 4 | General English IX | 4 | GE9 | General English IX |
| 10 | 4 | General English X | 4 | GE10 | General English X |
| TOTAL | | | 40 | 40 | |
| PREPARATORY COURSES FOR UG OF B.A. / B.COM ONLY | | | | | |
| 1 | 4 | Preparatory Course I | 4 | PC1 | Preparatory Course I |
| 2 | 4 | Preparatory Course II | 4 | PC2 | Preparatory Course II |
| 3 | 4 | Preparatory Course III | 4 | PC3 | Preparatory Course III |
| 4 | 4 | Preparatory Course IV | 4 | PC4 | Preparatory Course IV |
| TOTAL | | | 16 | 16 | |

UG Specializations offered: The following specializations shall be offered in B.A. / B.COM

1. Marketing Management (MM)
2. Financial Management (FM)
3. Human Resource Management (HRM)
4. Operations & Supply Chain Management (OSCM)
5. Business Analytics (BA)

The Following specializations shall be offered ONLY in B.A. / B.COM Specializations:

1. Public & Social Administration (PSA)
2. History & Cultural Studies (HCS)
3. Tourism & Hospitality Management (THM)
4. International Business Management (IBM)

19/03/2024
 Prof. Subramanian


APPENDIX I**GENERIC CORE (GC) COURSES – 1 Credit Each****33 Marks (13), 30 Marks (14)**

| Course No. | Course Code | Course | Semester |
|-------------------|--------------------|--|-----------------|
| 101 | GC - 01 | Managerial Accounting | 1 |
| 102 | GC - 02 | Organizational Behaviour | 1 |
| 103 | GC - 03 | Economic Analysis for Business Decisions | 1 |
| 104 | GC - 04 | Business Research Methods | 1 |
| 105 | GC - 05 | Basics of Marketing | 1 |
| 106 | GC - 06 | Digital Business | 1 |
| 107 | GC - 07 | Marketing Management | 2 |
| 108 | GC - 08 | Financial Management | 2 |
| 109 | GC - 09 | Human Resource Management | 2 |
| 110 | GC - 10 | Operations & Supply Chain Management | 2 |
| 111 | GC - 11 | Strategic Management | 2 |
| 112 | GC - 12 | Decision Science | 2 |
| 113 | GC - 13 | Summer Internship Project* | 2 |
| 114 | GC - 14 | Enterprise Performance Management | 2 |
| 115 | GC - 15 | Indian Ethics & Business Ethics | 2 |

| GENERAL EDUCATION COURSE LIST (SEM-III) – (A) COURSES – 2 CREDIT EACH | | | |
|---|-------------|--|---------|
| 30 Marks (10), 30 Marks (20) | | | |
| Course # | Course Code | Course | Credits |
| Any 2 courses to be selected from the following list in Semester III | | | |
| 101 | GE-101/102 | Management Fundamentals | 3 |
| 102 | GE-102/103 | Public Economy | 3 |
| 103 | GE-103/104 | Environmental Management | 3 |
| 104 | GE-104/105 | Government of Technology for Managers | 3 |
| 105 | GE-105/106 | Legal Aspects of Business | 3 |
| 106 | GE-106/107 | General Science & Technology | 3 |
| Any 3 courses to be selected from the following list in Semester III | | | |
| 107 | GE-107/108 | International Management in HR/Marketing | 3 |
| 108 | GE-108/109 | Accounting & Financial Statement Analysis | 3 |
| 109 | GE-109/110 | HRM (HR and HRD) Human Resource Management | 3 |
| 110 | GE-110/111 | Customer Service & Analytics | 3 |
| 111 | GE-111/112 | Business Governance & Ethics | 3 |
| 112 | GE-112/113 | Business Process Re-engineering | 3 |
| Any 3 courses to be selected from the following list in Semester III | | | |
| 113 | GE-113/114 | International Business Economics | 3 |
| 114 | GE-114/115 | International Business Environment | 3 |
| 115 | GE-115/116 | Project Management | 3 |
| 116 | GE-116/117 | Knowledge Management | 3 |
| 117 | GE-117/118 | Corporate Governance | 3 |
| 118 | GE-118/119 | Management of Small Scale Enterprises | 3 |
| Any 2 courses to be selected from the following list in Semester IV | | | |
| 119 | GE-119/120 | Global Strategic Management | 3 |
| 120 | GE-120/121 | Technology Governance and Strategy | 3 |
| 121 | GE-121/122 | Career Lives | 3 |
| 122 | GE-122/123 | Corporate Social Responsibility & Sustainability | 3 |

HOD MBA

Prof. Sandhya George



Student Strength**Academic Year 2021-22****Class: MBA**

| Batch Year | Student Name | Roll No. |
|-------------------|----------------------------|-----------------|
| 2021-2022 | AWATI DEEPASHREE SUNIL | MB1 |
| | BADGUJAR AJAY SURESH | MB2 |
| | BHARUDE MANISH MANGAL | MB3 |
| | CHAVAN PAYAL ULHAS | MB4 |
| | CHAVAN PRIYANKA UMESH | MB5 |
| | CHAVHAN AKSHAY NARAYAN | MB6 |
| | DADASAHEB MARUTRAO SHELKE | MB7 |
| | DHAKE LILESH LAXMIKANT | MB8 |
| | DOLAS DEEPIKA RAJU | MB9 |
| | GAIKWAD NIKITA SAMBHAJI | MB10 |
| | GAJANAN SURESH JADHAV | MB11 |
| | GAYKAR ASHWINI BALASAHEB | MB12 |
| | GORANE PRATHAMESH SUDHAKAR | MB13 |
| | JADHAV AARTI RAMESHI | MB14 |
| | JADHAV SAGAR SHESHERAO | MB15 |
| | JADHAV SHWETA SURESH | MB16 |
| | KADAM MRUNAL SURESH | MB17 |
| | KAKADE AISHWARYA NAVNATH | MB18 |
| | KAKADE VISHAL MAHADEV | MB19 |
| | KOLHE KAJAL TUKARAM | MB20 |
| | MAHADIK NIKHIL SHIVAJI | MB21 |
| | MULE ASHWINI BABAN | MB22 |
| | NAKADI GIRISH SURESH | MB23 |
| | NARALE POOJA DINKAR | MB24 |
| | NIGHOT SHIVANI BABAN | MB25 |
| | ONKAR SUDHIR BASATWAR | MB26 |

| | | |
|--|----------------------------|------|
| | PAKALE SHRAVANI ANIL | MB27 |
| | PATEL TANVIR IQBAL | MB28 |
| | PATIL BHUSHAN MURLIDHAR | MB29 |
| | PATIL RADHIKA | MB30 |
| | PATIL YAYATI PANDURANG | MB31 |
| | PAWALE SHUBHAM MOHANRAO | MB32 |
| | PRIYA GANESH INGALE | MB33 |
| | PURVA MIRAGRAJ RAHANGDALE | MB34 |
| | QUAZI SHOABI UDDIN | MB35 |
| | RAMESHWAR RAMESH DEVKULE | MB36 |
| | ROUNDAL VIJAY BABURAO | MB37 |
| | SACHIN ARUN RAJATE | MB38 |
| | SADNAPIRKAR ARTHI SURESH | MB39 |
| | SANTOSH SURESH SING JADHAO | MB40 |
| | SARPE SHEETAL SANJAY | MB41 |
| | SATPUTE RAHUL BHAUSAHEB | MB42 |
| | SAWALKAR SHITAL VAJINATH | MB43 |
| | SAWANT GANESH MADHUKAR | MB44 |
| | SHELKE RUTUJ POPAT | MB45 |
| | SHILPA DEEPAK BARATHE | MB46 |
| | SHINDE DILIP BHAGWAN | MB47 |
| | SHINDE RAJRATNA KAILAS | MB48 |
| | SUSHMA SINGH | MB49 |
| | TAMBEKAR ADITYA SANJAY | MB50 |
| | THORAVT ROHIT NANDJI | MB51 |
| | VHATKAR KARAM SANJAY | MB52 |

DR. S. S. S. S.

Prof. S. S. S. S.



Savitribai Phule Pune University
Board of Studies - Automobile and Mechanical Engineering
Undergraduate Program - Automobile Engineering & Mechanical Engineering (2019 pattern)

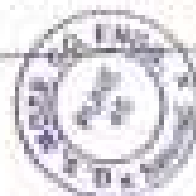
| Course Code | Course Name | Teaching Scheme (Hours/Week) | | | Examinative Scheme and Marks | | | | | | | Credit | | | |
|----------------------------------|--|------------------------------|----|-----|------------------------------|-----|-----|-----|----|-------|----|--------|-----|-------|--|
| | | TH | PR | TUT | ISE | ESE | TW | PR | OR | TOTAL | TH | PR | TUT | TOTAL | |
| Semester-III | | | | | | | | | | | | | | | |
| 202041 | Solid Mechanics | 4 | 2 | - | 30 | 70 | - | 30 | - | 150 | 4 | 1 | - | 5 | |
| 202042 | Solid Modeling and Drafting | 1 | 2 | - | 30 | 70 | - | 30 | - | 150 | 2 | 1 | - | 4 | |
| 202043 | Engineering Thermodynamics | 3 | 2 | - | 30 | 70 | - | - | 25 | 125 | 3 | 1 | - | 4 | |
| 202044 | Engineering Materials and Metallurgy | 3 | 2 | - | 30 | 70 | 25 | - | - | 125 | 3 | 1 | - | 4 | |
| 202045 | Electrical and Electronics Engineering | 3 | 2 | - | 30 | 70 | 25 | - | - | 125 | 3 | 1 | - | 4 | |
| 202046 | Dynamic Determining and Tutoring Lab | - | 2 | - | - | - | 25 | - | - | 25 | - | 1 | - | 1 | |
| 202046 Audit Course - III | | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| Total | | 16/12 | | | 150 | 350 | 75 | 100 | 25 | 700 | 16 | 6 | - | 22 | |
| Semester-IV | | | | | | | | | | | | | | | |
| 202047 | Engineering Mathematics - III | 1 | - | 1 | 30 | 70 | 25 | - | - | 125 | 2 | - | 1 | 4 | |
| 202047 | Kinematics of Machinery | 3 | 2 | - | 30 | 70 | - | - | 25 | 125 | 3 | 1 | - | 4 | |
| 202048 | Applied Thermodynamics | 3 | 2 | - | 30 | 70 | - | - | 25 | 125 | 3 | 1 | - | 4 | |
| 202048 | Fluid Mechanics | 3 | 2 | - | 30 | 70 | - | - | 25 | 125 | 3 | 1 | - | 4 | |
| 202050 | Manufacturing Processes | 3 | - | - | 30 | 70 | - | - | - | 100 | 3 | - | - | 3 | |
| 202051 | Machine Shop | - | 2 | - | - | - | 30 | - | - | 30 | - | 1 | - | 1 | |
| 202052 | Project Based Learning - II | - | 4 | - | - | - | 30 | - | - | 30 | - | 2 | - | 2 | |
| 202052 Audit Course - IV | | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| Total | | 18/12 | | | 150 | 350 | 125 | - | 75 | 700 | 15 | 6 | 1 | 22 | |

Abbreviations: TH: Theory, PR: Practical, TUT: Tutorial, ISE: In-Semester Exam, ESE: End-Semester Exam, TW: Term Work, OR: Oral

Note: Interested students of AE (Automobile Engineering and Mechanical Engineering) can opt for any one of the audit course from the list of audit courses prescribed by DoE (Automobile and Mechanical Engineering)

Instructions

- Practical/Tutorial must be conducted in three batches per division only.
- Minimum number of required Experiments/Assignments in PR/ Tutorial shall be carried out as mentioned in the syllabi of respective subjects.
- Assessment of tutorial work has to be carried out as a term-work examination. Term-work Examination at varied part of engineering course shall be internal continuous assessment only.
- Project based learning (PBL) requires continuous monitoring by faculty throughout the semester for successful completion of the tasks selected by the students per batch. While assigning the matching workload of 2 Hrs/work/batch needs to be considered for the faculty involved. The Batch needs to be divided into sub-groups of 5 to 6 students. Assignments / activities / modular projects etc. under project based learning is carried throughout semester and Credit for PBL has to be awarded on the basis of internal continuous assessment and evaluation at the end of semester.
- Audit course is mandatory but non-credit course. Examination has to be conducted at the end of Semesters for award of grade at institute level. Grade awarded for audit course shall not be calculated for grade point & CGPA.



202046 – Audit Course - III

| Teaching Scheme | Credits | Examination Scheme |
|-----------------|---------|--------------------|
|-----------------|---------|--------------------|

GUIDELINES FOR CONDUCTION OF AUDIT COURSE

Faculty member shall be allotted for individual courses and he/she shall monitor the progress for successful accomplishment of the course. Such monitoring is necessary for ensuring that the concept of self learning is being pursued by the students 'in true letter and spirit'.

- If any course through Swayam/ NPTEL/ virtual platform is selected the minimum duration shall be of 8 weeks.
- However if any of the course duration is less than the desired (8 weeks) the monitor shall ensure that other activities in form of assignments, quizzes, group discussion etc. (aligned with the course) for the balance duration should be undertaken.

In addition to credit courses, it is mandatory that there should be an audit course (non-credit course) from second year of Engineering. The student will be awarded grade as AP on successful completion of the audit course. The student may opt for any one of the audit courses in each semester. Such audit courses can help the student to get awareness of different issues which make an impact on human lives and enhance their skill sets to improve their employability. List of audit courses offered in the semester is provided in the curriculum. Students can choose one of the audit courses from the list of courses mentioned. Evaluation of the audit course will be done at institute level.

The student registered for audit course shall be awarded the grade AP and shall be included such grade in the Semester grade report for that course, provided student has the minimum attendance as prescribed by the Savitribai Phule Pune University and satisfactory in-semester performance and secured a passing grade in that audit course. No grade points are associated with this 'AP' grade and performance in these courses is not considered in the calculation of the performance indices SOPA and COPA. Evaluation of the audit course will be done at institute level itself.

Selecting an Audit Course

List of Courses to be opted (Any one) under Audit Course III

- Technical English for Engineers
- **Entrepreneurship Development**
- Developing soft skills and personality
- Design Thinking
- Foreign Language (preferably German/ Japanese)
- Science, Technology and Society

If the titles indicated above are subject to change in time to come and such an alteration (if any) should be brought to the notice of the BoS.

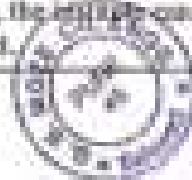
Using NPTEL Platform: (preferable)

NPTEL is an initiative by MHRD to enhance learning effectiveness in the field of technical education by developing curriculum based video courses and web based e-courses. The details of NPTEL courses are available on its official website www.nptel.ac.in

- Students can select any one of the courses mentioned above and has to register for the corresponding online course available on the NPTEL platform as an Audit course.
- Once the course is completed the student can appear for the examination as per the guidelines on the NPTEL portal.
- After clearing the examination successfully, student will be awarded with a certificate.

Assessment of an Audit Course

- The assessment of the course will be done at the institute level. The institute has to maintain the record of the various audit courses opted by the students. The audit course opted by the students could be interdisciplinary.
- During the course students will be submitting the online assignments. A copy of the same can be submitted as a part of term work for the corresponding Audit course.
- On the satisfactory submission of assignments, the institute can mark as "Passed" and the student will be awarded the grade AP on the marksheet.



20203 - Audit Course - IV

| Teaching Scheme | Credits | Examination Scheme |
|-----------------|---------|--------------------|
|-----------------|---------|--------------------|

GUIDELINES FOR CONDUCTION OF AUDIT COURSE

Faculty member shall be allotted for individual courses and he/she shall monitor the progress for successful accomplishment of the course. Such monitoring is necessary for ensuring that the concept of self-learning is being pursued by the students 'in true letter and spirit'.

- If any course through Swayam/ NPTEL/ virtual platform is selected the minimum duration shall be of 8 weeks.
- However if any of the course duration is less than the desired (8 weeks) the mentor shall ensure that other activities in form of assignments, quizzes, group discussion etc. (called with the course) for the balance duration should be undertaken.

In addition to credit courses, it is mandatory that there should be an audit course (non-credit course) from second year of Engineering. The student will be awarded grade as AP on successful completion of the audit course. The student may opt for any one of the audit courses in each semester. Such audit course can help the student to get awareness of different issues which make an impact on human lives and enhance their skill sets to improve their employability. List of audit courses offered in the semester is provided in the curriculum. Students can choose one of the audit courses from the list of courses mentioned. Evaluation of the audit course will be done at institute level.

The student registered for audit course shall be awarded the grade AP and shall be included such grade in the Semester grade report for that course, provided student has the minimum attendance as prescribed by the Savitribai Phule Pune University and satisfactory in-semester performance and secured a passing grade in that audit course. No grade points are associated with this 'AP' grade and performance in these courses is not considered in the calculation of the performance indices SGPA and CGPA. Evaluation of the audit course will be done at institute level itself.

Selecting an Audit Course

List of Courses to be opted (Any one) under Audit Course IV

- Language & Mind Emotional Intelligence
- Advanced Foreign Language (preferably German/ Japanese)
- Human Behaviour
- Speaking Effectively
- Business Ethics
- **Technical writing/ Research writing**

• The titles indicated above are subject to change in time to time and such an alteration (if any) should be brought to the notice of the SoS.

Using NPTEL Platform: (preferable)

NPTEL is an initiative by MHRD to enhance learning effectiveness in the field of technical education by developing curriculum based video courses and web based e-courses. The details of NPTEL courses are available on its official website www.nptel.ac.in

- Students can select any one of the courses mentioned above and has to register for the corresponding online course available on the NPTEL platform as an Audit course.
- Once the course is completed the student can appear for the examination as per the guidelines on the NPTEL portal.
- After clearing the examination successfully, student will be awarded with a certificate.

Assessment of an Audit Course

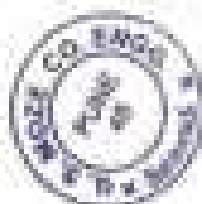
- The assessment of the course will be done at the institute level. The institute has to maintain the record of the various audit courses opted by the students. The audit course opted by the students could be interdisciplinary.
- During the course students will be submitting the online assignments. A copy of the same can be submitted as a part of term work for the corresponding Audit course.
- On the satisfactory submission of assignments, the faculty can mark as "Present" and the student will be awarded the grade AP on the mark sheet.





Enhance | Design, Development and Implementation
Build a Superior Manpower
GEMA SOEHARDO MOEZ COLLEGE OF ENGINEERING
 Jalindar, Pekanbaru - 411815
Mechanical Engineering Department
2022/2023 Academic Year

| Roll No. | Name Of The Student | Roll No. | Name Of The Student |
|----------|---------------------|----------|---------------------|
| 1 | ABDULHAKIM HUSAINI | 46 | ADRIANUS RIZKI |
| 2 | ADRIANUS RIZKI | 47 | ADRIANUS RIZKI |
| 3 | ADRIANUS RIZKI | 48 | ADRIANUS RIZKI |
| 4 | ADRIANUS RIZKI | 49 | ADRIANUS RIZKI |
| 5 | ADRIANUS RIZKI | 50 | ADRIANUS RIZKI |
| 6 | ADRIANUS RIZKI | 51 | ADRIANUS RIZKI |
| 7 | ADRIANUS RIZKI | 52 | ADRIANUS RIZKI |
| 8 | ADRIANUS RIZKI | 53 | ADRIANUS RIZKI |
| 9 | ADRIANUS RIZKI | 54 | ADRIANUS RIZKI |
| 10 | ADRIANUS RIZKI | 55 | ADRIANUS RIZKI |
| 11 | ADRIANUS RIZKI | 56 | ADRIANUS RIZKI |
| 12 | ADRIANUS RIZKI | 57 | ADRIANUS RIZKI |
| 13 | ADRIANUS RIZKI | 58 | ADRIANUS RIZKI |
| 14 | ADRIANUS RIZKI | 59 | ADRIANUS RIZKI |
| 15 | ADRIANUS RIZKI | 60 | ADRIANUS RIZKI |
| 16 | ADRIANUS RIZKI | 61 | ADRIANUS RIZKI |
| 17 | ADRIANUS RIZKI | 62 | ADRIANUS RIZKI |
| 18 | ADRIANUS RIZKI | 63 | ADRIANUS RIZKI |
| 19 | ADRIANUS RIZKI | 64 | ADRIANUS RIZKI |
| 20 | ADRIANUS RIZKI | 65 | ADRIANUS RIZKI |
| 21 | ADRIANUS RIZKI | 66 | ADRIANUS RIZKI |
| 22 | ADRIANUS RIZKI | 67 | ADRIANUS RIZKI |
| 23 | ADRIANUS RIZKI | 68 | ADRIANUS RIZKI |
| 24 | ADRIANUS RIZKI | 69 | ADRIANUS RIZKI |
| 25 | ADRIANUS RIZKI | 70 | ADRIANUS RIZKI |
| 26 | ADRIANUS RIZKI | 71 | ADRIANUS RIZKI |
| 27 | ADRIANUS RIZKI | 72 | ADRIANUS RIZKI |
| 28 | ADRIANUS RIZKI | 73 | ADRIANUS RIZKI |
| 29 | ADRIANUS RIZKI | 74 | ADRIANUS RIZKI |
| 30 | ADRIANUS RIZKI | 75 | ADRIANUS RIZKI |
| 31 | ADRIANUS RIZKI | 76 | ADRIANUS RIZKI |
| 32 | ADRIANUS RIZKI | 77 | ADRIANUS RIZKI |
| 33 | ADRIANUS RIZKI | 78 | ADRIANUS RIZKI |
| 34 | ADRIANUS RIZKI | 79 | ADRIANUS RIZKI |
| 35 | ADRIANUS RIZKI | 80 | ADRIANUS RIZKI |
| 36 | ADRIANUS RIZKI | 81 | ADRIANUS RIZKI |
| 37 | ADRIANUS RIZKI | 82 | ADRIANUS RIZKI |
| 38 | ADRIANUS RIZKI | 83 | ADRIANUS RIZKI |
| 39 | ADRIANUS RIZKI | 84 | ADRIANUS RIZKI |
| 40 | ADRIANUS RIZKI | 85 | ADRIANUS RIZKI |
| 41 | ADRIANUS RIZKI | 86 | ADRIANUS RIZKI |
| 42 | ADRIANUS RIZKI | 87 | ADRIANUS RIZKI |
| 43 | ADRIANUS RIZKI | 88 | ADRIANUS RIZKI |
| 44 | ADRIANUS RIZKI | 89 | ADRIANUS RIZKI |
| 45 | ADRIANUS RIZKI | 90 | ADRIANUS RIZKI |



Head of the Department
MECHANICAL ENGINEERING
 Gema Soehardjo Moez College of Engineering
 Jalindar, Pekanbaru - 411815

Savitribai Phule Pune University
Board of Studies - Automobile and Mechanical Engineering
Undergraduate Program - Mechanical Engineering (2019 pattern)

| Course Code | Course Name | Teaching Scheme (hrs/week) | | | Examination Scheme and Marks | | | | | Credit | | | | |
|--------------------|--|----------------------------|----|-----|------------------------------|-----|-----|----|-------|--------|----|-----|-------|----|
| | | TH | PR | TUT | TH | PR | TW | OR | Total | TH | PR | TUT | Total | |
| Semester-V | | | | | | | | | | | | | | |
| ME2041 | Numerical & Statistical Methods | 1 | - | 1 | 10 | 20 | 25 | - | 125 | 1 | - | 1 | 4 | |
| ME2042 | Heat & Mass Transfer | 1 | 1 | - | 20 | 10 | - | 50 | 150 | 1 | 1 | - | 4 | |
| ME2043 | Design of Machine Elements | 1 | 1 | - | 20 | 10 | - | 25 | 125 | 1 | 1 | - | 4 | |
| ME2044 | Mechatronics | 1 | - | - | 10 | 20 | - | - | 100 | 1 | - | - | 2 | |
| ME2045 | Elective I | - | 1 | - | - | - | 20 | - | 20 | - | 1 | - | 1 | |
| ME2046 | Digital Manufacturing Laboratory | - | 1 | - | - | - | 25 | - | 25 | - | 1 | - | 1 | |
| ME2047 | Audit Course | - | - | - | - | - | - | - | - | - | - | - | - | |
| ME2048 | Audit course - V | - | - | - | - | - | - | - | - | - | - | - | - | |
| | Total | 15 | 10 | 1 | 140 | 130 | 100 | 50 | 50 | 160 | 13 | 5 | 1 | 21 |
| Semester-VI | | | | | | | | | | | | | | |
| ME2049 | Artificial Intelligence & Machine Learning | 1 | 2 | - | 10 | 20 | - | 20 | 140 | 1 | 1 | - | 4 | |
| ME2050 | Computer Aided Engineering | 1 | 1 | - | 20 | 10 | - | 25 | 125 | 1 | 1 | - | 4 | |
| ME2051 | Design of Transmission Systems | 1 | - | - | 10 | 20 | - | - | 100 | 1 | - | - | 2 | |
| ME2052 | Elective II | - | 1 | - | - | - | 20 | - | 20 | - | 1 | - | 1 | |
| ME2053 | Measurement Laboratory | - | 1 | - | - | - | 20 | - | 20 | - | 1 | - | 1 | |
| ME2054 | Fluid Power & Control Laboratory | - | 1 | - | - | - | 100 | - | 100 | - | 1 | - | 1 | |
| ME2055 | Internship/Mini project * | - | - | - | - | - | - | - | - | - | - | - | - | |
| ME2056 | Audit course - VI | - | - | - | - | - | - | - | - | - | - | - | - | |
| | Total | 12 | 14 | - | 120 | 140 | 200 | 50 | 50 | 100 | 12 | 9 | - | 21 |
| | Elective-I | | | | | | | | | | | | | |
| ME2043-A | Advanced Forming & Joining Processes | | | | | | | | | | | | | |
| ME2043-B | Machining Science & Technology | | | | | | | | | | | | | |
| ME2052-A | Composite Materials | | | | | | | | | | | | | |
| ME2052-B | Surface Engineering | | | | | | | | | | | | | |

Abbreviations: TH: Theory, PR: Practical, TUT: Tutorial, IN: In-Semester Exam, ESE: End-Semester Exam, TW: Term Work, OR: Oral

Note: Interested students of TE (Automobile Engineering and Mechanical Engineering) can opt for any one of the audit course from the list of audit courses provided by BOS (Automobile and Mechanical Engineering)

- Instructions:**
- Practical/Tutorial must be conducted in FOUR batches per division only.
 - Minimum number of Experiments/Assignments in PR/Tutorial shall be carried out as mentioned in the syllabi of respective courses.
 - Assessment of tutorial work has to be carried out similar to term-work. The Credit can marks for Tutorial and Term-work shall be awarded on the basis of continuous evaluation.
 - *Audit course is mandatory but non-credit course. Examination has to be conducted at the end of Semesters for award of grade at Institute level. Grade awarded for audit course shall not be calculated for grade point & CGPA.



MIND Skill Disposition

| Teaching Scheme | | Credits | | Examination Scheme | |
|--|-------------|-----------|---|--------------------|----------|
| Practical | 2 Hrs./Week | Practical | 1 | TW | 25 Marks |
| <p>Prerequisites: Students should have knowledge of Construction and working of IC engine / compressor / gear box / centrifugal pump/tail stock. Working principles of any type of mechanism / power plants. Working of electric and hydraulic systems of 4 wheeler vehicles. Working of machine tools, engine and transmission of different automotive and home appliances. Advanced manufacturing processes. Solid mechanics and design of machine elements.</p> | | | | | |
| <p>Course Objectives:</p> <ol style="list-style-type: none"> 1. INTRODUCE the skills required in an industry such as design, development, assembly & disassembly. 2. DEVELOP the skills required for fault diagnosis of engine and transmission of different automotive and various home appliances. 3. ESTABLISH the skills required for maintenance of any machine tool. 4. CREATE awareness about industrial environment. | | | | | |
| <p>Course Outcomes: On completion of the course, learner will be able to</p> <p>CO1 APPLY & DEMONSTRATE procedure of assembly & disassembly of various machines.</p> <p>CO2 DESIGN & DEVELOP a working/model of machine parts or any new product.</p> <p>CO3 EVALUATE fault with diagnosis on the machines, machine tools and home appliances.</p> <p>CO4 IDENTIFY & DEMONSTRATE the various activities performed in an industry such as maintenance, design of components, material selection.</p> | | | | | |
| Course Contents | | | | | |
| <ol style="list-style-type: none"> 1. Assembly and Disassembly of any of the following mechanical systems/ subsystems: bicycle (guards), e-Bikes, e-Motor Cycles, Drums, Flying devices, gear box, IC engines, centrifugal pump etc. 2. Assembly- Disassembly/ Fault diagnosis of home appliances such as mixer, grinder, washing machine, fan, oven, gas geyser, chopping machine, kneading machine, exercise machines, etc. 3. Development and demonstration of working/animation model of any mechanism. 4. Design a circuit of electric and hydraulic system of 4 wheelers and its verification. <p style="text-align: center;">OR</p> <p>Circuit design /PCB design using software for control of BLDC electric motor used in e-Vehicles.</p> <ol style="list-style-type: none"> 5. Undertake total preventive maintenance for any machine tool or mechanical system. 6. Visit to an industry for awareness about preventive maintenance. 7. Use of ergonomic principles for the design of hand tools, control in automobile dashboards, human operated mobile devices. | | | | | |



8. Use of alternative materials in the construction of daily activity machine and tool components
9. Interpretation of Drawings: Exercises in identifying the type of production, extracting important functional dimensions, checking the number of parts in an assembly, Checking and listing missing dimensions.
10. Exercises in preparation of detailed production drawings as per BIS standard of single-machine parts having relevant notes and indications (limits/tolerances, surface finish, the process of production, relevant tools, materials, measuring instruments).

The documentation activity as a part of the Term work shall not be restricted to merely generation of 2D/3D CAD Drawings with dimensions (as applicable), Exploded View, Flowchart of Maintenance Work etc. but can be beyond.

Skill Development Documentation Diary must be maintained by every student.



| SS2148: Audit Course V | | |
|------------------------|------------|--------------------|
| Teaching Scheme | Credits | Examination Scheme |
| | Non-Credit | |

GUIDELINES FOR CONDUCTION OF AUDIT COURSE

Faculty member shall be selected for individual courses and he/she shall monitor the program for successful accomplishment of the course. Such monitoring is necessary for ensuring that the concept of self-learning is being pursued by the students 'in true letter and spirit'.

- If any course through Swayan/ NPTEL/ virtual platform is selected the minimum duration shall be of 8 weeks.
- However if any of the course duration is less than the desired (8 weeks) the running shall ensure that other activities in form of assignments, quizzes, group discussion etc. (allied with the course) for the balance duration should be undertaken.

In addition to credits courses, it is mandatory that there should be an audit course (non-credit course) from third year of Engineering. The student will be awarded grade as AP on successful completion of the audit course. The student may opt for any one of the audit courses in each semester. Such audit courses can help the student to get awareness of different issues which make an impact on human lives and enhance their skill sets to improve their employability. List of audit courses offered in the semester is provided in the curriculum. Students can choose one of the audit courses from the list of courses mentioned. Evaluation of the audit course will be done at institute level.

The student registered for audit course shall be awarded the grade AP and shall be included such grade in the Semester grade report for that course, provided student has the minimum attendance as prescribed by the Savitribai Phule Pune University and satisfactory in-semester performance and secured a passing grade in that audit course. No grade points are associated with this 'AP' grade and performance in these courses is not considered in the calculation of the performance indices SGPA and CGPA. Evaluation of the audit course will be done at institute level itself.

Selecting an Audit Course

List of Courses to be opted (Any one) under Audit Course V

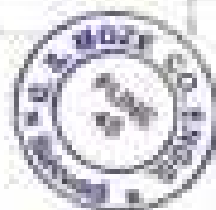
- **Entrepreneurship and IP strategy**
 - Engineering Economics
 - Management of Inventory Systems

† The titles indicated above are subject to change in time to come and such an alteration (if any) should be brought to the notice of the BOS.

Using NPTEL Platform (preferable)

NPTEL is an initiative by MHRD to enhance learning effectiveness in the field of technical education by developing curriculum based video courses and web based e-courses. The details of NPTEL courses are available on its official website www.nptel.ac.in

- Students can select any one of the courses mentioned above and has to register for the



corresponding online course available on the NPTEL platform as an Audit course.

- Once the course is completed the student can appear for the examination as per the guidelines on the NPTEL portal.
- After clearing the examination successfully, student will be awarded with a certificate.

Assessment of an Audit Course

- The assessment of the course will be done at the institute level. The institute has to maintain the record of the various audit courses opted by the students. The audit course opted by the students could be interdisciplinary.
- During the course students will be submitting the online assignments. A copy of the same can be submitted as a part of term work for the corresponding Audit course.
- On the satisfactory submission of assignments, the institute can mark as "Present" and the student will be awarded the grade AP on the mark-sheet.



| IITPA: Audit Course VI | | |
|------------------------|--------------|--------------------|
| Tracking Scheme | Credits | Examination Scheme |
| | Three Credit | |

GUIDELINES FOR CONDUCTING OF AUDIT COURSE

Faculty member shall be allowed for individual courses and he/she shall monitor the progress for successful accomplishment of the course. Such monitoring is necessary for ensuring that the concept of self-learning is being pursued by the students 'in true letter and spirit'.

- If any course through Inhouse/ NPTEL/ virtual platform is selected the minimum duration shall be of 3 weeks.
- However if any of the course duration is less than the desired (8 weeks) the faculty shall ensure that other activities in form of assignments, quizzes, group discussion etc. filled with the course for the balance duration should be undertaken.

In addition to credit courses, it is mandatory that there should be an audit course (non-credit course) from third year of Engineering. The student will be awarded grade as AP on successful completion of the audit course. The student may opt for any one of the audit courses in each semester. Such audit courses can help the student to get awareness of different issues which make an impact on human lives and enhance their skill sets to improve their employability. List of audit courses offered in the semester is provided in the curriculum. Students can choose one of the audit courses from the list of courses mentioned. Duration of the audit course will be done at institute level.

The student registered for audit course shall be awarded the grade AP and shall be included such grade in the Semester grade report for that course, provided student has the minimum attendance as prescribed by the Savitribai Phule Pune University and satisfactory in-semester performance and secured a passing grade in that audit course. No grade points are associated with this 'AP' grade and performance in these courses is not considered in the calculation of the performance indices SGPA and CGPA. Evaluation of the audit course will be done at institute level itself.

Selecting an Audit Course

List of Courses to be opted (Any one) under Audit Course VI.

• Business and Sustainable Development

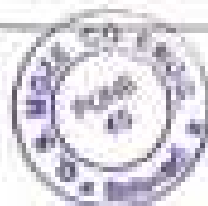
- Management Information System
- International Business

* The titles indicated above are subject to change in time to come and such an alteration (if any) should be brought to the notice of the DCN.

Using NPTEL Platform: (preferable)

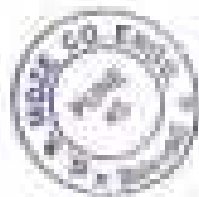
NPTEL is an initiative by MHRD to enhance learning effectiveness in the field of technical education by developing curriculum based video courses and web based e-courses. The details of NPTEL courses are available on its official website www.nptel.ac.in

- Students can select any one of the courses mentioned above and has to register for the corresponding online course available on the NPTEL platform as an Audit course.
- Once the course is completed the student can appear for the examination as per the guidelines on the NPTEL portal.
- After clearing the examination successfully, student will be awarded with a certificate.



Assessment of an Audit Course

- The assessment of the course will be done at the Institute level. The institute has to maintain the record of the various audit courses opted by the students. The audit course opted by the students could be interdisciplinary.
- During the course students will be submitting the online assignments. A copy of the same can be submitted as a part of term work for the corresponding Audit course.
- On the satisfactory submission of assignments, the institute can mark as "Present" and the student will be awarded the grade AP on the mark sheet.





**Examine : Design, Development and Implementation
Grade Success Move Year's
GENBA SOPANRAD MODE COLLEGE OF ENGINEERING
Belinang, Pace - 411043.**

SCHEMATIC LIST

| Roll No. | Name Of The Student | Roll No. | Name Of The Student |
|----------|----------------------------|----------|----------------------------------|
| A-1 | CHALISA ANJANIE DEBAPATIEN | A-46 | LARINDA VIVIANI SOPANRAD |
| A-2 | ARINCHER SARIN R. SARA | A-47 | SAIRAH ARINCHER MANJANAM |
| A-3 | ARAH GATTATRAY SUTAR | A-48 | SAJIND PERMANI SUDAN |
| A-4 | ANADY SURINI SATEWA | A-49 | GAONCAR BETHA CHAMBAJAY |
| A-5 | AMMO KAM SARI | A-50 | JARRO JUDARSHAN VINDANE |
| A-6 | ANILIN ANJAN SHAMBA | A-51 | DAINI MACHPRINAWATI LADHAW |
| A-7 | AFTI DINAR PRADI | A-52 | SALVI ROYDAS SONAJ |
| A-8 | ANURANTI ANAN SUTRA | A-53 | SHAYDI ANNET ANE |
| A-9 | ANITA SWANDE BACONKHA | A-54 | COHAY ANNET KALINDA |
| A-10 | NATI HIRSHKESH DATTABAYE | A-55 | SOTAY PRATHWISI PANDIP |
| A-11 | ANANT NARAYAN SUDAN | A-56 | SOTAY SURINDO GATTATRAY |
| A-12 | ANU DHARMA ANAND | A-57 | COLINDO ANANTHAKRISHNAN SANKUNAG |
| A-13 | ANAN ADITHYAN ANAND | A-58 | ELIANI ACHYKA SAKUMI |
| A-14 | ANANTHAKRISHNAN MOHAN | A-59 | ELIANA ANANTHAKRISHNAN |
| A-15 | ANUSKA PRATHWISI SUDAN | A-60 | HARSHAN ANANTHAKRISHNAN |
| A-16 | ANUS KUNAL KESHAV | A-61 | HARY TEJAS SAKIND |
| A-17 | ANURAG HARSHAN KESHAV | A-62 | LADHAW ANUS KANDESHAN |
| A-18 | ANUSKA SUDAN ANAND | A-63 | LADHAW ANUSKA SUDAN |
| A-19 | ANUSKA ANUS SUDAN | A-64 | LADHAW ANUSKA PRADIP |
| A-20 | ANUSKA SUDAN SUDAN | A-65 | LADHAW ANUSKA SUDAN |
| A-21 | ANUSKA SUDAN SUDAN | A-66 | LADHAW ANUSKA SUDAN |
| A-22 | ANUSKA SUDAN SUDAN | A-67 | LADHAW ANUSKA SUDAN |
| A-23 | ANUSKA SUDAN SUDAN | A-68 | LADHAW ANUSKA SUDAN |
| A-24 | ANUSKA SUDAN SUDAN | A-69 | LADHAW ANUSKA SUDAN |
| A-25 | ANUSKA SUDAN SUDAN | A-70 | LADHAW ANUSKA SUDAN |
| A-26 | ANUSKA SUDAN SUDAN | A-71 | LADHAW ANUSKA SUDAN |
| A-27 | ANUSKA SUDAN SUDAN | A-72 | LADHAW ANUSKA SUDAN |
| A-28 | ANUSKA SUDAN SUDAN | A-73 | LADHAW ANUSKA SUDAN |
| A-29 | ANUSKA SUDAN SUDAN | A-74 | LADHAW ANUSKA SUDAN |
| A-30 | ANUSKA SUDAN SUDAN | A-75 | LADHAW ANUSKA SUDAN |
| A-31 | ANUSKA SUDAN SUDAN | A-76 | LADHAW ANUSKA SUDAN |
| A-32 | ANUSKA SUDAN SUDAN | A-77 | LADHAW ANUSKA SUDAN |
| A-33 | ANUSKA SUDAN SUDAN | A-78 | LADHAW ANUSKA SUDAN |
| A-34 | ANUSKA SUDAN SUDAN | A-79 | LADHAW ANUSKA SUDAN |
| A-35 | ANUSKA SUDAN SUDAN | A-80 | LADHAW ANUSKA SUDAN |
| A-36 | ANUSKA SUDAN SUDAN | A-81 | LADHAW ANUSKA SUDAN |
| A-37 | ANUSKA SUDAN SUDAN | A-82 | LADHAW ANUSKA SUDAN |
| A-38 | ANUSKA SUDAN SUDAN | A-83 | LADHAW ANUSKA SUDAN |
| A-39 | ANUSKA SUDAN SUDAN | A-84 | LADHAW ANUSKA SUDAN |
| A-40 | ANUSKA SUDAN SUDAN | A-85 | LADHAW ANUSKA SUDAN |
| A-41 | ANUSKA SUDAN SUDAN | A-86 | LADHAW ANUSKA SUDAN |
| A-42 | ANUSKA SUDAN SUDAN | A-87 | LADHAW ANUSKA SUDAN |
| A-43 | ANUSKA SUDAN SUDAN | A-88 | LADHAW ANUSKA SUDAN |
| A-44 | ANUSKA SUDAN SUDAN | A-89 | LADHAW ANUSKA SUDAN |
| A-45 | ANUSKA SUDAN SUDAN | A-90 | LADHAW ANUSKA SUDAN |



Head of Institution
GENBA SOPANRAD MODE COLLEGE OF ENGINEERING
Belinang, Pace - 411043

Savitribai Phule Pune University, Pune
T.E. (Electronics & Telecommunication Engineering) 2019 Course
 (With effect from Academic Year 2021-22)

Semester-V

| Course Code | Course Name | Teaching Scheme (Hours/Week) | | | Examination Scheme and Marks | | | | | Credits | | | | |
|----------------------|------------------------------|------------------------------|-----------|-----------|------------------------------|------------|-----------|------------|-----------|------------|-----------|-----------|-----------|-----------|
| | | Theory | Practical | Tutorial | In-Sem | End-Sem | IV | III | II | Total | TH | PR | TOT | Total |
| 204181 | Digital Communication | 01 | - | - | 30 | 30 | - | - | - | 100 | 01 | - | - | 01 |
| 204182 | Electromagnetic Field Theory | 01 | - | 01 | 30 | 70 | 25 | - | - | 125 | 01 | - | 01 | 04 |
| 204183 | Database Management | 01 | - | - | 30 | 30 | - | - | - | 100 | 01 | - | - | 01 |
| 204184 | Microcontroller | 01 | - | - | 30 | 70 | - | - | - | 100 | 01 | - | - | 01 |
| 204185 | Elective - I | 01 | - | - | 30 | 70 | - | - | - | 100 | 01 | - | - | 01 |
| 204186 | Digital Communication Lab | - | 01 | - | - | - | - | 30 | - | 30 | - | 01 | - | 01 |
| 204187 | Database Management Lab | - | 01 | - | - | - | - | - | 25 | 25 | - | 01 | - | 01 |
| 204188 | Microcontroller Lab | - | 01 | - | - | - | - | 30 | - | 30 | - | 01 | - | 01 |
| 204189 | Elective I Lab | - | 01 | - | - | - | - | 25 | - | 25 | - | 01 | - | 01 |
| 204190 | Skill Development | - | 01 | - | - | - | - | 25 | - | 25 | - | 01 | - | 01 |
| 204191A | Mandatory Audit Course 1* | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Total | | 15 | 18 | 01 | 150 | 100 | 90 | 115 | 25 | 700 | | | | |
| Total Credits | | | | | | | | | | | 15 | 05 | 01 | 21 |

Elective-I

- 1) Digital Signal Processing
- 2) Electronic Measurements
- 3) Fundamentals of JAVA Programming
- 4) Computer Networks



Head of the Department
 Section 1, Telecommunication Engg
 Savitribai Phule College of Engg
 Pune-411 004

Savitribai Phule Pune University
Third Year of E & Te Engineering (2019 Course)
104190: Skill Development

| Teaching Scheme: | Credit | Examination Scheme: |
|---------------------------|--------|---------------------|
| Practical: 92 hrs. / week | 03 | Term work: 25 Marks |

Prerequisite Courses, if any:

1. Basics of Electronics Components
2. Working of Operational Amplifier
3. Basics of Electronic measurement Instruments and Tools

Component Course, if any: --

Course Objective:

- To build and upgrade practical knowledge after self-study.
- To make students Employable with required skill sets
- To promote youth work to sustain "Make in India" initiative
- To generate and build confidence among students on specific skill sets
- To cultivate Entrepreneur mindset after getting required experience.
- To improve professional skills such as communication, teamwork, communication skill building, learning etc.

Course Outcome: After successfully completing the course,

- CO1: Student should recognize the need to engage in independent and life long learning in required skill sets
- CO2: Student needs to experience the impact of industries on society by visiting different industries and understand the importance of industrial products for analog and digital circuits and systems.
- CO3: Student has to make use of the modern electronic and IT Engineering Tools and Technologies for solving electronic engineering problems.
- CO4: Student would be able to communicate effectively at different technical and administrative levels.
- CO5: Student will exhibit leadership skills both as an individual and as a member in a team in multidisciplinary environment.

List of Laboratory Experiments

Group A (Any Three)

Testing/Measurement/Calibration/Troubleshooting/Maintenance/Installation

| | |
|----|---|
| 1. | <p>Case studies on Study, Testing and maintenance of Sockets.</p> <p>A. Apply skill sets mentioned in #Group A Skills List only in extent as per availability of lab equipment's.</p> |
| OR | |

OR

| | |
|--|---|
| | <p>B. Apply Skill sets mentioned in #Group A Skills Jersey to covered by visiting any Automobile service centers/Factory maintenance service centers or related industry.</p> <p>Note: Batteries of a Vehicle & Technology involved (Lithium Batteries etc.)</p> |
| 1. | <p>Case study on Automotive Electronics. (Sensors, Chassis, Controls, Semiconductor's devices etc.)</p> <p>A. Apply Skill set mentioned in #Group A Skills /and Group A Skills 2 which is related to automotive electronics may be covered as per availability of lab or equipment's.</p> <p style="text-align: center;">OR</p> <p>B. Apply Skill sets mentioned in #Group B Skills Jersey to coverably visiting any Automobile service centers or related industry.</p> |
| 2. | <p>Case study on Biomedical Instrumentation</p> <p>A. Apply Skill set mentioned in #Group A Skills 2 which is related to automotive electronics may be covered as per availability of lab or equipment's.</p> <p style="text-align: center;">OR</p> <p>B. Visit Biomedical instrument maintenance service centers.</p> <p style="text-align: center;">OR</p> <p>C. Visit Hospitals or related industry.</p> <p>Note: Students are expected to know about sensors technology / interface / maintenance / calibration of electronic instrumentation of some of these equipment's.</p> |
| 4. | Troubleshooting and maintenance of PCB Boards & Controllers. |
| 5. | Troubleshooting and maintenance of Power supply. |
| <p>Group B (Any Two)</p> <p>Software / Hardware Design</p> | |
| 1. | <p>Design and Simulate dc-dc boost converter for battery-based application</p> <p>Design a conventional dc-dc boost converter to step-up the battery voltage of 1 V to 10 V. Draw the circuit diagram and find required value of duty ratio. Implement the circuit in open-source TINA software. Plot the graphs of output voltage and PWM signal with respect to time.</p> |

| | |
|----|--|
| 1. | <p>Design a web page(s)</p> <ul style="list-style-type: none"> A. Using different text formatting tags B. With links to different pages and allow navigation between pages C. With images, tables and frames D. Using style sheets to maintain uniform style for all web pages E. Using a form that uses all types of controls F. Validate all the controls placed on the form using Java Script. |
|----|--|



| | |
|---|--|
| | <p>Note: Use maximum above points while designing Web page.</p> |
| 3. | <p>SMPS Design</p> <p>A. Design and Simulate of SMPS of 24 V @ 1A. OR</p> <p>B. Design, simulate and implement buck converter using ICs like LM342 / LM 3024 and measure performance parameters like:</p> <ol style="list-style-type: none"> 1. Load regulation. 2. Line regulation. 3. Ripple rejection. 4. Output impedance and 5. Dropout voltage. 6. Note: Hardware board assignment. <p>Note: EDA tool (NI Multisim-ORC-AD/PSPICE / Altium Designer (etc etc.)</p> |
| 4. | <p>Design and Simulate dc-dc boost converter for battery-based application</p> <p>Design a conventional dc-dc boost converter to step up the battery voltage of 5 V to 10 V. Draw the circuit diagram and find required value of duty ratio. Implement the circuit in open-source TINA software. Plot the graphs of output voltage and PWM signal with respect to time.</p> |
| 5. | <p>Design and Simulate PID Controller based on OP-AMP</p> <p>Design an analog PID controller to track a reference voltage of 5 V in a circuit. Draw the circuit diagram of the controller and implement the circuit in open-source TINA software. Change the reference voltage to 10 V and show that the circuit can still track this changed reference voltage. Show the effect of 3 controller gains i.e. proportional gain, integral gain and derivative gain on the output response.</p> |
| <p>Group C (Compulsory)</p> <p>Industrial Visit (Practical Visit)</p> | |
| 1. | <p>Industrial visit to Maintenance/Calibration service department of Electronics Industry/Hospital/Service centers etc. Student should visit to related field and submit report in a predefined format.</p> |
| 2. | <p>Industrial visit to software industry to understand the different processes and skills required as a software professional engineer.</p> |



Group B (Compulsory)
Documentation Specification Manual

| | |
|---|---|
| 1. | Study of documentation specification Manual/CDP |
| <p align="center">Note: Based on group B assignment, student need to prepare user manual /SDP and make and effective presentation.</p> | |

Learning Resources

Reference Books:

1. Ron Leck, "Practical design of Power Supplies", John Wiley & Sons, 2007.
2. Abraham I. Prietras, "Switching Power Supply Design", McGraw-Hill, 2nd Edition, 2006.
3. Khurspur R.S., "Electrical Instrumentation", TMH, 2nd Edition.
4. W. Rudhart, "Printed Circuit Boards - Design & Technology", Tata McGraw Hill, 1st Edition.
5. D. Patrascu, "Principles of Industrial Instrumentation", TMH Publishing Co., 2nd Edition, 2008.
6. R.K. Jain, "Mechanical and Industrial Measurement", Khanna Publishers, New Delhi, 11th Edition, 1999.
7. L.D. Gottscho, "Maintenance of Instruments and systems - Practical guides for measurement and control", International Society for Automation, 2nd Edition, 1991.
8. Henry W. Ott, "Noise Reduction Techniques in Electronic Systems", John Wiley & Sons, USA, 2nd Edition.
9. Kim R. Foster, "Electronic Instrument Design", Oxford University Press, 1997, 1st Edition.
10. Jianhua Jiang, And Caoping Zhang, "Fundamentals and Applications of Lithium-Ion Batteries in Electric Drive Vehicles", Wiley Publications, 1st Edition.
11. Web Technologies: Black Book, 2018, Dreamtech Press (1 January 2018), ISBN-10: 9386022290, ISBN-13: 978-9386022294
12. Jennifer Robbins, "Learning Web Design: A Beginner's Guide to HTML, CSS, JavaScript, and Web Graphics", NoStarchPress, 3rd Edition.
13. Thomas Powell, "Web Design: The complete Reference", Tata McGraw Hill, 2nd Edition.



B.E. (Information Technology) 2015 Course to be implemented from Academic Year 2018-19

SEMESTER-I

| Subject Code | Subject | Teaching Scheme | | | Examination Scheme | | | | | Total Marks | Credits |
|------------------------|-----------------------------------|-----------------|-----------|----------|--------------------|------------|-----------|------------|------------|-------------|-----------|
| | | Lecture | Practical | Tutorial | In-Sem | TW | PR | OR | End-Sem | | |
| 414453 | Information and Cyber Security | 3 | - | - | 30 | - | - | - | 70 | 100 | 3 |
| 414454 | Machine Learning and Applications | 4 | - | - | 30 | - | - | - | 70 | 100 | 4 |
| 414455 | Software Design and Modeling | 3 | - | - | 30 | - | - | - | 70 | 100 | 3 |
| 414456 | Elective-I | 3 | - | - | 30 | - | - | - | 70 | 100 | 3 |
| 414457 | Elective-II | 3 | - | - | 30 | - | - | - | 70 | 100 | 3 |
| 414458 | Computer Laboratory-VII | - | 4 | - | - | 50 | 50 | - | - | 100 | 2 |
| 414459 | Computer Laboratory-VIII | - | 4 | - | - | 50 | - | 50 | - | 100 | 2 |
| 414460 | Project Phase-I | - | - | 2 | - | - | - | 50 | - | 50 | 2 |
| 414461 | Audit Course-V | - | - | - | - | - | - | - | - | Grade | |
| Total | | 16 | 8 | 2 | 150 | 100 | 50 | 100 | 350 | 750 | 12 |
| Total of Part-I | | 26 | | | 750 | | | | | | |

Abbreviations: TW: Term Work Th: Theory OR: Oral PR: Practical Sem: Semester
 Computer Laboratory-VII (Information and Cyber Security/ Machine Learning and Application)
 Computer Laboratory-VIII (Software Design and Modeling)

| Elective I | | Elective II | |
|------------|--|-------------|---|
| 414456A | 1. Wireless Communications | 414457A | 1. Software Defined Networks |
| 414456B | 2. Natural Language Processing | 414457B | 2. Soft Computing |
| 414456C | 3. Usability Engineering | 414457C | 3. Software Testing and Quality Assurance |
| 414456D | 4. Multicore and Concurrent Systems | 414457D | 4. Compiler Construction |
| 414456E | 5. Business Analytics and Intelligence | 414457E | 5. Gamification |

| Audit Course-V | |
|----------------|--|
| 414461A | 1. Emotional Intelligence |
| 414461B | 2. Green Computing |
| 414461C | 3. Critical Thinking |
| 414461D | 4. Statistical Learning model using R. |



2015 Course

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 25/21, Dhanu, Pune-411 004

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 25/21, Dhanu, Pune-411 004

Savitribai Phule Pune University
Fourth Year of Information Technology (2015 Course)
4144410: Audit Course-V

Statistical Learning Model using R

Statistical learning theory is a framework for machine learning drawing from the fields of statistics and functional analysis. Statistical learning theory deals with the problem of finding a predictive function based on data. Statistical learning theory has led to successful applications in fields such as computer vision, speech recognition, bioinformatics and baseball.

Course Objectives:

- 1) To get familiar with the explosion of "Big Data" problems, statistical learning / machine learning has become a very hot field.
- 2) To learn statistical learning and modeling skills which are in high demand also cover basic concepts of statistical learning / modelling methods that have widespread use in business and scientific research.
- 3) To get hands on the applications and the underlying statistical / mathematical concepts that are relevant to modeling techniques. The course are designed to familiarize students in implementing the statistical learning methods using the highly popular statistical software package R.

Course Outcomes:

By the end of the course, students should be able to,

- 1) Students will be familiar with concepts related to "data science", "analytics", "machine learning", etc. These are important topics, and will enable students to embark on highly rewarding careers.
- 2) Students will capable of learning "big data" concepts on their own

| | |
|--------|--------------------------------------|
| Unit I | Introduction to Statistical Learning |
|--------|--------------------------------------|

What is Statistical Learning, Various issues to consider while "modeling"

| | |
|---------|------------------------------------|
| Unit II | Getting started with R programming |
|---------|------------------------------------|

Introduction to the R-Studio, user-interface, Basic commands, Data Structures in R, Graphics, Reading data into R.

| | |
|----------|--|
| Unit III | Linear Regression models including Lab |
|----------|--|

Instructor should select a problem statement and design the assignment for Linear Regression.

| | |
|---------|--|
| Unit IV | Classification models (Logistic Regression and LDA) with Lab |
|---------|--|

Instructor should select a problem statement and design the assignment for Logistic Regression and LDA.

| | |
|---------|---|
| Unit VI | Tree based methods (regression trees, classification tree) with Lab |
|---------|---|

Instructor should select a problem statement and design the assignment for Tree based methods (regression trees, classification tree) with lab.

Reference Books

- 1) An Introduction to Statistical Learning with Applications in R. Gareth James, Daniela Witten, Trevor Hastie and Robert Tibshirani - 6th edition- Springer Publications.

Savitribai Phule Pune University
Second Year of Information Technology Engineering (2019 Course)
 (With effect from Academic Year 2020-21)

Semester-III

| Course Code | Course Name | Teaching Scheme (Hours/Week) | | | Examination Scheme and Marks | | | | | | | Credit | | | |
|--------------|--|------------------------------|-----------|-----------|------------------------------|------------|------------|-----------|----------|------------|------------|-----------|-----------|-----------|--|
| | | Theory | Practical | Tutorial | IN-Sem | End-Sem | TW | PR | OR | Total | TH | PR | TUT | Total | |
| 214441 | Discrete Mathematics | 03 | - | 01 | 30 | 70 | 25 | - | - | 125 | 03 | - | 01 | 04 | |
| 214442 | Logic Design and Computer Organization | 03 | - | - | 30 | 70 | - | - | - | 100 | 03 | - | - | 03 | |
| 214443 | Data Structures and Algorithms | 03 | - | - | 30 | 70 | - | - | - | 100 | 03 | - | - | 03 | |
| 214444 | Object Oriented Programming | 03 | - | - | 30 | 70 | - | - | - | 100 | 03 | - | - | 03 | |
| 214445 | Basics of Computer Network | 03 | - | - | 30 | 70 | - | - | - | 100 | 03 | - | - | 03 | |
| 214446 | Logic Design Computer Organization Lab | - | 02 | - | - | - | 25 | 25 | - | 50 | - | 01 | - | 01 | |
| 214447 | Data Structures and Algorithms Lab | - | 04 | - | - | - | 25 | 25 | - | 50 | - | 02 | - | 02 | |
| 214448 | Object Oriented Programming Lab | - | 04 | - | - | - | 25 | 25 | - | 50 | - | 02 | - | 02 | |
| 214449 | Computer Organization | - | 02 | - | - | - | 25 | - | - | 25 | - | 01 | - | 01 | |
| 214450 | Mandatory Audit Course 3 | - | - | - | - | - | - | - | - | - | Non Credit | | | - | |
| Total | | 15 | 12 | 01 | 150 | 350 | 125 | 75 | - | 700 | 15 | 06 | 01 | 22 | |

Abbreviations:

TH: Theory TW: Term Work PR: Practical
 OR: Oral TUT: Tutorial

Note: Students of S.E. (Information Technology) can opt any one of the audit course from the list of audit courses prescribed by BoS (Information Technology)

#Mandatory Audit Course 3:

214450A- Ethics and values in IT

214450B - Quantitative Aptitude and Logical Reasoning

214450C- Language Study- Japanese- Module

214450D-Cyber Security and Law



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 25/1/3, Balewadi, Pune - 411 004
 660 4049
 25/1/3, Balewadi, Pune - 411 004
PRINCIPAL

Savitribai Phule Pune University
Second Year Information Technology (2019 Course)
214449: Soft Skill Lab

| | | |
|----------------------------------|------------------------|----------------------------|
| Teaching Scheme: | Credit Scheme : | Examination Scheme: |
| Practical (PR) : 03 hrs/Week | 03 | TW : 25 Marks |
| Prerequisites , if any: — | | |

Course Objectives:

1. To facilitate a holistic development of students while focusing on enhancing soft skills.
2. To highlight the need to improve soft skills among engineering students so as to become good professionals.
3. To develop and nurture the soft skills of the students through individual and group activities.
4. To expose students to right attitudinal and behavioural aspects and assist in building the same through activities.

Course Outcomes:
 On completion of the course, students will be able to—

- CO1: Introspect about individual's goals, aspirations by evaluating one's SWOC and think creatively.
- CO2: Develop effective communication skills including Listening, Reading, Writing and Speaking.
- CO3: Constructively participate in group discussion, meetings and prepare and deliver Presentations.
- CO4: Write precise briefs or reports and technical documents.
- CO5: Practice professional etiquette, present oneself confidently and successfully handle personal interviews.
- CO6: Function effectively in multi-disciplinary and heterogeneous teams through the knowledge of team work, inter-personal relationships, conflict management and leadership quality.

COURSE CONTENTS

| | | |
|---|---|---------------|
| Unit I | Introspective & Self Development | 04 hrs |
| Introduction to soft skills, SWOC analysis, planning career, setting short-term & long-term goals, identifying difference between jobs & career, aligning aspirations with individual skills, understanding self-esteem, developing discipline and critically evaluating oneself | | |
| Mapping of Course Outcomes for Unit I | CO1, CO6 | |
| Unit II | Communication Skills | 04 hrs |
| Essentiality of good communication skills, importance of feedback, different types of communication, barriers in communication and how to overcome these barriers, significance of non-verbal messages as augmentation to verbal communication, group discussion, listening vs hearing, reading to comprehend, learning to skim and scan to extract relevant information, effective digital communication | | |
| Mapping of Course Outcomes for Unit II | CO2, CO3, CO5 | |



| | | |
|--|---|---------------|
| Unit III | Language and Writing Skills | 04 hrs |
| Fundamentals of english grammar, improve lexical resource, essential steps to improve spoken and written english, business vocabulary, writing – email, resume, formal letter, official communication, essays, presentation – planning, organizing, preparing and delivering professional presentation | | |
| Mapping of Course Outcomes for Unit III | CO2, CO4 | |
| Unit IV | Leadership Skills and Group Dynamics | 04 hrs |
| Understanding corporate culture and leadership skills, difference between a leader and a manager, importance of resilience in a professional surrounding, developing empathy and emotional intelligence, being assertive and confident, 4-0s of decision making, creative and solution-centric thinking, resolving conflicts, working cohesively as a team to achieve success, five qualities of an effective team – positivity, respect for others, trust, goal-focused, supportiveness | | |
| Mapping of Course Outcomes for Unit IV | CO1, CO5, CO6 | |
| Unit V | Ethics, Professional Etiquette | 04 hrs |
| Understanding ethics and morals, importance of professional ethics, hindrances due to absence of work ethics, professional etiquette – introductions, with colleagues, attire, events, dining, telephone, traveling, netiquette, social media, writing | | |
| Mapping of Course Outcomes for Unit V | CO5, CO6 | |
| Unit VI | Stress And Time Management | 04 hrs |
| Stress as integral part of life, identifying signs and sources of stress, steps to cope with stress – open communication, positive thinking, belief in oneself, ability to handle failure, retrospective thinking for future learning, organizing skills to enhance time management, focusing on goals, smart work vs hard work, prioritizing activities, perils of procrastination, daily evaluation of "to-do" list. | | |
| Mapping of Course Outcomes for Unit VI | CO1, CO3, CO6 | |
| Text Book : | | |
| 1. Gajendra Singh Chauhan, Sangeeta Sharma, "Soft Skills – An Integrated Approach to Maximize Personality", WILEY INDIA, ISBN-11-9788176556397 | | |
| Reference Books : | | |
| 1. Indrajit Bhattacharya, "An Approach to Communication Skills", Delhi, Charanpaul, 2008 | | |
| 2. Simon Sweeney, "English for Business Communication", Cambridge University Press, ISBN 13-978-0521754507 | | |
| 3. Sanjay Kumar and Pushpa Lata, "Communication Skills", Oxford University Press, ISBN 10-9780199437669 | | |
| 4. Atkinson and Hilgard, "Introduction to Psychology", 14th Edition, Geoffrey Loftus, ISBN-10-0155050699, 2003 | | |
| 5. Kenneth G. Moore, "Heads Up: How to Anticipate Business Surprises & Seize Opportunities" | | |

First", Harvard Business School Press, Boston, Massachusetts, 2004, ISBN 10:1591392993
 6. Krishnaswami, N. and Sriraman T., "Creative English for Communication", Macmillan

Guidelines for Student's Lab Journal and TW Assessment

Each student should have a Lab Workbook (sample workbook attached) which outlines each lab activity conducted. The student must respond by writing out their learning outcomes and elaborating the activities performed in the lab. Continuous assessment of laboratory work is to be done based on overall performance and lab assignments and performance of student. Each lab assignment assessment will be assigned grade/marks based on parameters with appropriate weightage. Suggested parameters for overall assessment as well as each lab assignment assessment include: timely completion, performance, punctuality, neatness, enthusiasm, participation and contribution in various activities-SWOC analysis, presentations, team activity, event management, group discussion, group exercises and interpersonal skills and similar other activities/assignments.

Guidelines for Conduction of Soft Skills Lab

The teacher may design specific assignments that can highlight the learning outcomes of each unit. Each activity conducted in the lab should begin with a brief introduction of the topic, purpose of the activity from a professional point of view and end with the learning outcomes as feedback from students. Most of the lab sessions can be designed to be inclusive; allowing students to learn skills experientially; which will benefit them in the professional environment. Every student must be given sufficient opportunity to participate in each activity and constructive feedback from the instructor / facilitator at the end of the activity should learn towards encouraging students to work on improving their skills. Activities should be designed to respect cultural, emotional and social standing of students. Some of the activities can be designed to cater to enhancement of multiple skills – For e.g. – Team Building Activity can highlight 'open communication', 'group discussion', 'respecting perspectives', 'leadership skills', 'focus on goals' which can help students improve their inherent interpersonal skills.

At least one session should be dedicated to an interactive session that will be delivered by an expert from the industry; giving the students an exposure to professional expectations.

Virtual Laboratory

- <https://ve-iitg.vlabs.ac.in/>

Recommended List of Lab Sessions

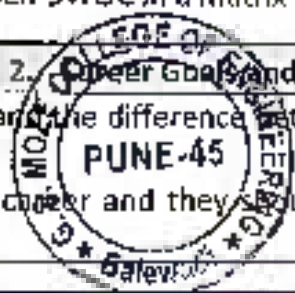
1. Introduction of Self / SWOC Analysis -- CO1, CO4

- Explain how to introduce oneself in a professional manner and presenting oneself positively (Name, Academic Profile, Achievements, Career Aspirations, Personal Information (hobbies, family, social)).
- Focus on introspection and become aware of one's Strengths, Weakness, Opportunities and Challenges.

Students can write down their SWOC in a matrix and the teacher can discuss the gist personally.

2. Career Goals and Planning -- CO1, CO4

- Make students understand the difference between a job and a career. Elaborate steps on how to plan a career.
 Students can choose a career and they should write down what skills, knowledge, steps are need



to be successful in that particular career and how they can get the right opportunity.

- b. Explain to students how to plan short term and long term goals. Think and write down their short-term goals and long terms goals. Teacher can read and discuss (provide basic counselling) about the choices written.

3. Public Speaking -- (Choose any 2) -- CO3, CO2

a. Prepared Speech

Topics will be shared with students and they will be given 10 minutes to prepare and 3 minutes to deliver followed by Q&A from audience. Teacher will evaluate each student based on content, communication skills, logical and cohesive presentation of topic, perspective of student, ability to handle questions and respond positively.

b. Extempore Speech

Various topics will be laid out in front of the audience and each student is to pick one topic and speak about the topic for 5 minutes followed by Q&A from audience. Teacher will evaluate each student based on ability to think on his/her feet, content, communication skills, logical and cohesive presentation of topic, perspective of student, ability to handle questions and respond positively.

c. Reviewing an Editorial article

Either using e-paper / printed copy, students have to select a recent editorial (that is non-controversial), read it and explain to the audience what the editor's perspective is and what the student's perspective is.

d. Book Review

Each student will orally present to the audience his/her review of a book that he/she has recently read.

4. Group Discussion – CO3, CO2

- a. The class will be divided into groups of 8 – 10 students in for a discussion lasting 10 minutes.
b. Topics should be topical and non-controversial. After each group finishes its discussion, the teacher will give critical feedback including areas of improvement. The teacher should act as a moderator / observer only

5. Listening and Reading Skills – CO2

- a. Listening Worksheets to be distributed among students
Each student will be given specifically designed worksheets that contain blanks / matching / MCQs that are designed to an audio (chosen by the faculty). Students have to listen to the audio (only once) and complete the worksheet as the audio plays. This will help reiterate active listening as well as deriving information (listening to information between the lines)
b. Reading Comprehension Worksheets to be distributed/displayed to students
Teacher will choose reading passages from non-technical domains, design worksheets with questions for students to answer. This will enhance student's reading skills by learning how to skim and scan for information.

6. Writing Skills (Choose any 2) -- CO2

a. Letter / Email Writing

After explaining to the students the highlights of effective writing, students can be asked to write (using digital platforms / paper based) letter to an organization with the following subject matter,

- i. Requesting opportunity to present his/her product.
ii. Complaining about a faulty product / service.

- iii. Apologizing on behalf of one's team for the error that occurred.
 - iv. Providing explanation for a false accusation by a client.
- b. Report Writing**
 After describing various formats to write report and explaining how to write a report, each student should be asked to write a report (digital/ paper-based) on any of the following topics.
- i. Industrial visit.
 - ii. Project participated in.
 - iii. Business / Research Proposal.
- c. Resume Writing**
 The teacher should conduct a brief session outlining the importance of a CV / Resume and students can write / type out their own resumes.
- i. Share various professional formats.
 - ii. Focus on highlighting individual strengths.
 - iii. Develop personalized professional goals / statement at the beginning of the resume.

7. Team Building Activities – CO3, CO4

The class will be divided into groups of 4-5 students in each group and an activity will be given to each group.
 The activities chosen for each team should be competitive and should involve every student in the team. The activities may be conducted indoors or outdoors depending on infrastructure. While selecting the team, ensure that each team has a mix of students who have varied skills. The teacher should give critical feedback including areas of improvement at the end of the activity.

8. Expert Lecture – CO4

Highlighting the need to manage stress and time, experts from the fields of health and fitness, counselling, training, medical or corporate HR may be invited to deliver a participatory session that focus on helping students to cope with parental, social, peer and career pressures.

9. Lateral and Creative Thinking – CO1, CO4

Every student needs to step out of the linear thinking and develop lateral and creative thinking. Teacher can develop creative activities in the classroom / lab that will help students enhance their creative thinking. Some of the suggested activities,

- i. Each group (3-4 students) can be given random unrelated items and they will be given sufficient time to come up with creative ideas on how the objects can be used for activities / purposes other than its intended one.
- ii. Each student is given a random line and he/she has to spin a fictional story and tell it to the class (3 minutes). Each story should have a beginning, middle and end.
- iii. Each group (3-4 students) can be given a fictional / hypothetical dangerous situation and they have to find a solution to that problem. They can present it to the other teams who will then get the opportunity to pick flaws in the ideas.

10. Mock Interviews – CO2, CO3

Student has to undergo interview session and the teacher should seek the assistance of another faculty member / TPO Officer/ Alumni to act as interview panel. Students will be informed beforehand about the job profile that they are appearing the interview for and they have to come prepared with a printed copy of their resume, formally dressed. Questions will include technical as well as HR. Interviewer can choose to give problems to solve using technical skills. Students will be graded on the basis of their technical knowledge, ability to answer questions well, presentation of self, body language and verbal skills.

11. Presentation Skills – CO2, CO3

Every student will have to choose a topic of his/her choice and make a 5-minute presentation using audio-video aids / PPT. The topic can either be technical or non-technical. Focus and evaluation of each presentation should be the depth of knowledge about the topic, originality of perspective on the topic, well-researched or not, verbal and non-verbal skills and ability to answer questions effectively. Plagiarism should be discredited and students should be instructed about it.

12. Corporate and Business Etiquette – CO4, CO1

The teacher can design an interactive session that allows students to be involved in understanding the requirements of a corporate environment. This can be done using innovative role-play / simulation in the classroom and the teacher explaining the concept / relevance of that particular aspect in the professional context. Alternatively, the teacher can invite professionals to conduct interactive sessions with students about various aspects of professional etiquette.



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