## 1.3.1 Institution integrates crosscutting issues relevant to Gender, Environment and Sustainability, Human Values and Professional Ethics into the Curriculum

There are various courses in the curriculum which address cross cutting issues relevant to Gender, Environment and Sustainability, Human Values and Professional Ethics. List and brief information of these courses are given below:

| Sr. No. | Department | Class | Name of the Course | Issue Addressed | Description |
|---|---|---|---|---|---|
| Academic Year: 2020-2021 | | | | | |
| 1 | First Year Engineering | F.Y. B. Tech. | Universal Human Values | Human Values and Professional Ethics | To help the students appreciate the essential complementarily between 'VALUES' and 'SKILLS' to ensure sustained happiness and prosperity which are the core aspirations of all human beings. To facilitate the development of a Holistic perspective among students towards life and profession as well as towards happiness and prosperity based on a correctunderstanding of the Human reality and the rest of existence. Such a holisticperspective forms the basis of Universal Human Values and movement towardsvalue-based living in a natural way. |
| 2 | | | Communication Skills | Professional Ethics | The objective of this course is to enhance student's reading, professional writing, comprehension, speaking skills which are required for day to day communications. The curriculum includes English Grammar, Vocabulary, Speaking skills, Reading Comprehension, Fundamental Writing skills |
| 3 | | | Professional Communication | Professional Ethics | This course nurtures student's effective presentations skills and equip them with skills required for effective group discussion and personal interview. It inculcates soft skills in students for personal and professional success as well as higher level Writing Skills. |
| 4 | | | Creativity & Design Thinking | Human Values and Professional Ethics | The Creativity and Design Thinking Program will help you build a lifelong practice of creativity and innovation. Each design thinking course, combined with daily application exercises and habit-forming routines, will help you overcome creative blocks and continuously produce innovative ideas. |

## 1.3.1 Institution integrates crosscutting issues relevant to Gender, Environment and Sustainability, Human Values and Professional Ethics into the Curriculum

There are various courses in the curriculum which address cross cutting issues relevant to Gender, Environment and Sustainability, Human Values and Professional Ethics. List and brief information of these courses are given below:

| Sr. No. | Department | Class | Name of the Course | Issue Addressed | Description |
|---|---|---|---|---|---|
| Academic Year: 2020-2021 | | | | | |
| 5 | | | Democracy, Elections and Good Governance | Human Values | The rationale of the study is to make the pupils aware of the importance of democracy. What constitute democracy, what is its importance from the point of view of the role of individual and what exactly can a individual get if he performs his role well in the society. This module also aims to make the individual understand the different aspects of democracy and its implications in the overall development of the state. The syllabus is introduced from the point of view that all students upon entering into the college, enroll themselves as voters and encourage and enthuse other members of the society to participate not only in election process but also electoral and political process in general. |
| 6 | | S.Y.B.Tech. | Environmental Science | Environment and Sustainability | Students of all branches from second year engineering study this course which deals with the various environmental issues and gives insight for solving these issues. It includes various aspects of environment like Natural resources, Biodiversity and its conservation, Pollution, Social problems, Multidisciplinary nature of environmental studies and Environment and its protection. Here students can learn how to minimize the problem related to environment by using current technology that they study in various branches of engineering. |
| 7 | | | Economics | Human Values and Professional Ethics | The course deals with introduction to Theories of Economics, Macroeconomics, Banking & Inflation and International Influences on Economics. |

## 1.3.1 Institution integrates crosscutting issues relevant to Gender, Environment and Sustainability, Human Values and Professional Ethics into the Curriculum

There are various courses in the curriculum which address cross cutting issues relevant to Gender, Environment and Sustainability, Human Values and Professional Ethics. List and brief information of these courses are given below:

| Sr. No. | Department | Class | Name of the Course | Issue Addressed | Description |
|---|---|---|---|---|---|
| Academic Year: 2020-2021 | | | | | |
| 8 | All Departments | T.Y. B.Tech. | Intellectual Property Rights for Technology Development and Management | Human Values and Professional Ethics | This course deals with the Dynamics of Knowledge evolution, Creation of ownership domains in the knowledge space using various instruments of IPR, Confidentiality, information security and transfer integrating Intellectual Property in project planning, execution & commercialization. It also throws light on the shifting paradigms of R&D and their linkage to IPR, Comparison the Indian IPR system with international IPR frameworks especially in the context of WTO. |
| 9 | | | Introduction to Sociology | Human Values and Professional Ethics | This course deals with Social structure, Social stratification, Status, role, norms and Social values. It elaborates Socialization, Culture and change. It also describes Trends of Urbanization in the developing countries and the world. Major social institutions - Family and marriage, caste and tribe and organizations are elaborated in this course. Social movements are studied with reference to their forms like protest movements, reformist movement and radical movements in India. |
| 10 | | | Stress and Coping | Human Values and Professional Ethics | Concept of stress and individual stress response to stress is studied in this course. Common sources of stress viz. biological, personality and environmental are discussed. Stress Coping styles and individual behaviors are elaborated. The role of social support in stress mitigation, Stress management techniques like relaxation, meditation, cognitive restructuring, self-control, bio-feedback and time management are also elaborated in this subject. |

## 1.3.1 Institution integrates crosscutting issues relevant to Gender, Environment and Sustainability, Human Values and Professional Ethics into the Curriculum

There are various courses in the curriculum which address cross cutting issues relevant to Gender, Environment and Sustainability, Human Values and Professional Ethics. List and brief information of these courses are given below:

| Sr. No. | Department | Class | Name of the Course | Issue Addressed | Description |
|---|---|---|---|---|---|
| Academic Year: 2020-2021 | | | | | |
| 11 | | | Professional Ethics & Human Values | Human Values and Professional Ethics | The course deals with Human Values Morals, Values and Ethics, with special reference to Engineering Ethics. It addresses Variety of Moral Issues viz. Types of inquiry, Moral Dilemmas and Moral Safety. Responsibilities and Rights, Collegiality and Loyalty, Respect for Authority. Collective Bargaining and Confidentiality are also discussed. Special aspect of Multinational Corporations with reference Environmental issues, Computer Ethics and Weapons are given due considerations. |
| 12 | Mechanical Engineering | T.Y B.Tech | Industrial and Quality Management | Human Values and Professional Ethics | This subject deals with introduction to general management principles and apply them in practice. The curriculum also covers importance of planning, decision making, Social responsibility and ethics, etc. in management. |
| 13 | | B.E. | Entrepreneurship Development | Professional Ethics | This course will focus on key attributes of Entrepreneurship: Qualities required to become a successful entrepreneur, Entrepreneurship Development Programmes, Ideation Techniques, Business Plan Formulation and its Appraisal, Problems faced by Entrepreneurs and ways to get through, Different Government Agencies and Policies, Taxation, Marketing, Export-Import and so on. To sum up, the course will make students to have an understanding of the complete entrepreneurial ecosystem. |
| 14 | Electronics & Telecommunication Engineering | T.Y B.Tech | Open Elective I- Business Ethics | Professional Ethics | This Course gives idea about business ethics and corporate governance. |

## 1.3.1 Institution integrates crosscutting issues relevant to Gender, Environment and Sustainability, Human Values and Professional Ethics into the Curriculum

There are various courses in the curriculum which address cross cutting issues relevant to Gender, Environment and Sustainability, Human Values and Professional Ethics. List and brief information of these courses are given below:

| Sr. No. | Department | Class | Name of the Course | Issue Addressed | Description |
|---|---|---|---|---|---|
| Academic Year: 2020-2021 | | | | | |
| 15 | Computer Science & Engineering | B.E. | Information and Cyber Security | Professional Ethics | This course deals with Applying security technologies and policies to protect digital information, Identifying & evaluating Information security threats &vulnerabilities in information system and applying security measures to real time scenario, Demonstrating the use of standards and cyber laws to enhance information security in the development process and infrastructure protection. |
| 16 | Electrical Engineering | T.Y.B. Tech | Managerial Economics | Professional Ethics | This course deals with concept of Mangerial Economics with Microeconomics & Macroeconomics . It also deals with the study of Demand, supply & marrket equillibrium with market analysis, market structure, tools for demand forecasting & cost analysis. |
| 17 | | S.Y.B.Tech. | Building Construction & Drawing | Environment and Sustainability | This course deals with Building constructions. This course helps to construct the eco friendly or environment friendly buildings by applying various prinicples of Civil Engg. |
| 18 | | | Energy Science & Engineering | Environment and Sustainability | This course deals with examining conventional energy sources and systems, including fossil fuels and nuclear energy, and then focus on environment friendly alternatives, renewable energy sources such as solar, biomass (conversions), wind power, waves and tidal, geothermal, ocean thermal, Hydro Power |
| 19 | | | Building Planning & Design | Environment and Sustainability | This course deals with Building plnning and design. This course helps to construct the eco friendly or environment friendly buildings by applying various prinicples of Civil Engg. |
| 20 | | | WASTE WATER ENGINEERING & AIR POLLUTION | Environment and Sustainability | This course deals with stream pollution due to waste disposal and suitable centralized/decentralized wastewater Treatment system, Learning solid waste and hazardous waste management systems for urban areas, Understanding various sources of air pollution, its measurement and control. |

## 1.3.1 Institution integrates crosscutting issues relevant to Gender, Environment and Sustainability, Human Values and Professional Ethics into the Curriculum

There are various courses in the curriculum which address cross cutting issues relevant to Gender, Environment and Sustainability, Human Values and Professional Ethics. List and brief information of these courses are given below:

| Sr. No. | Department | Class | Name of the Course | Issue Addressed | Description |
|---|---|---|---|---|---|
| Academic Year: 2020-2021 | | | | | |
| 21 | Civil Engineering | T.Y.B. Tech | Hydrology and Water Resources Engineering | Environment and Sustainability | This course deals with rainfall, runoff, Irrigation. This course contains the topic on micro irrigation like Drip Irrigation and Sprinkler Irrigation which helps for sustainable development and the environment. |
| 22 | | | Professional Elective-I (L) Solid and Hazardous Waste Management | Environment and Sustainability | This course deals with development of solid waste management systems, Selection and adoption of the appropriate methods for solid waste collection, transportation, and disposal, Implemention of legal, political and administrative considerations in design and operation of solid and hazardous waste management |
| 23 | | | Principles of Management and Quantitative Techniques | Human Values | This course deals with decision making and communication as a member of a team as well as Lead a team for effective management of construction projects. |
| 24 | | B.E. | Elective-II: Air Pollution & Control | Environment and Sustainability | This course deals with Sources, Causes & effects of Air Pollution. It elaborates the relation between Meteorology and Air Pollution. Students learn methods used for controlling air pollution. The legislation regarding Air pollution Prevention is also discussed in the course. |
| 25 | | | Elective-II: Entrepreneurship | Gender Equality | This course deals with Women Entrepreneurship:- Meaning, Characteristic features, Problems of Women Entrepreneurship in India, Developing Women Entrepreneurship in India, reasons for the slow growth of women entrepreneurship, remedies to solve the problems of women entrepreneurs. Measures taken for the development of women. |
| 26 | | | Elective-III: Solid and Hazardous Waste Management | Environment and Sustainability | In this course, students study the sources and generation of solid &hazardous wastes. The course imparts basic knowledge of collection, transportation, treatment and disposal of solid waste. It also elaborates the methods for handling and storing solid and hazardous wastes. |

## 1.3.1 Institution integrates crosscutting issues relevant to Gender, Environment and Sustainability, Human Values and Professional Ethics into the Curriculum

There are various courses in the curriculum which address cross cutting issues relevant to Gender, Environment and Sustainability, Human Values and Professional Ethics. List and brief information of these courses are given below:

| Sr. No. | Department | Class | Name of the Course | Issue Addressed | Description |
|---|---|---|---|---|---|
| Academic Year: 2020-2021 | | | | | |
| 27 | | | Elective-III: Environmental Management | Environment and Sustainability | This course deals with Fundamentals of environmental management system, Environmental management acts related to environmental protection, Electronic waste management, Biomedical waste management, Air pollution control, Environmental Impact Assessment |
| 28 | Master of Business Administration (MBA) | MBA-II | Strategic Management | Professional Ethics | The Strategic Management course is designed to explore an organisation's vision, mission, examine principles, techniques and models of organisational and environmental analysis, discuss the theory and practice of strategy formulation and implementation such as corporate governance and business ethics for the development of effective strategic leadership. |
| 29 | | | Entrepreneurship Development | Professional Ethics | This course make students know about the supportive environment for Entrepreneurship |
| 30 | | | International Marketing | Professional Ethics | This Subject covers International Marketing Communication, Ethics in International Marketing, Social responsibility in international marketing. |
| 31 | | MBA-I | Principles of Management | Professional Ethics | This course explains the knowledge about Ethics, Social responsibility, Corporate Social responsibility. |
| 32 | | | Enhancing Business Communication Skills | Professional Ethics | Effective and positive communication can be infectious, and when a company promotes good communication amongst its teams, that good habit often translates to successful interactions with customers. Customers appreciate open and transparent communication between the two parties, which only helps build consumer trust. |
| 33 | | | Event Management | Environment and Sustainability, Human Values | Be aware of event management as a profession,gain basic knowledge about establishing and managing an event,<br>understand and develop soft skills that would help in event management |

## 1.3.1 Institution integrates crosscutting issues relevant to Gender, Environment and Sustainability, Human Values and Professional Ethics into the Curriculum

There are various courses in the curriculum which address cross cutting issues relevant to Gender, Environment and Sustainability, Human Values and Professional Ethics. List and brief information of these courses are given below:

| Sr. No. | Department | Class | Name of the Course | Issue Addressed | Description |
|---|---|---|---|---|---|
| Academic Year: 2020-2021 | | | | | |
| 34 | | | Human Resource Management | Human Values & Professional Ethics | This course deals with importance and process of Human Resource Planning, Sources and Methods of Recruitment, Systematic Approach to Training, Training Methods, Executive Development, Methods and Development of Management Development, Types of Welfare Facilities and Statutory Provisions, industrial relations. |


# PUNYASHLOK AHILYADEVI HOLKAR SOLAPUR UNIVERSITY, SOLAPUR

# FACULTY OF

# ENGINEERING& TECHNOLOGY

# ALL BRANCHES

## CBCS Syllabus for
## First Year B. Tech. (All Branches)
## w.e.f.
## Academic Year 2020-21

**PUNYASHLOK AHILYADEVI HOLKAR**

**SOLAPUR UNIVERSITY, SOLAPUR**

**FACULTY OF ENGINEERING & TECHNOLOGY**

**CBCS Curriculum for First Year B.Tech. (All Branches)**

**W.E.F. 2020-21**

- Semester I : Theory Courses

| ***Course Code*** | ***Name of the Course*** | ***Engagement Hours*** | | | ***Credits*** | ***FA*** | ***SA*** | | ***Total*** |
|---|---|---|---|---|---|---|---|---|---|
| | | ***L*** | ***T*** | ***P*** | | ***ESE*** | ***ISE*** | ***ICA*** | |
| C011/ C012 | Engineering Physics / Engineering Chemistry $ | 3 | | | 3 | 70 | 30 | | 100 |
| C112 | Engineering Mathematics-I | 3 | | | 3 | 70 | 30 | | 100 |
| C113 | Basics of Civil and Mechanical Engineering | 4 | | | 4 | 70 | 30 | | 100 |
| C114 | Engineering Mechanics | 3 | | | 3 | 70 | 30 | | 100 |
| C115 | Universal Human Values | 2 | | | 2 | 50 | | | 50 |
| C116 | Communication Skills | 1 | | | 1 | | 25 | | 25 |
| | **Total** | **16** | | | **16** | **330** | **145** | | **475** |

- Semester I : Laboratory / Tutorial Courses

| ***Course Code*** | ***Name of the Course*** | ***Engagement Hours*** | | | ***Credits*** | ***FA*** | ***SA*** | | ***Total*** |
|---|---|---|---|---|---|---|---|---|---|
| | | ***L*** | ***T*** | ***P*** | | ***ESE*** | ***ISE*** | ***ICA*** | |
| C011/ C012 | Engineering Physics / Engineering Chemistry $ | | | 2 | 1 | | | 25 | 25 |
| C112 | Engineering Mathematics-I | | 1 | | 1 | | | 25 | 25 |
| C113 | Basics of Civil and Mechanical Engineering @ | | | 2 | 1 | | | 25 | 25 |
| C114 | Engineering Mechanics | | | 2 | 1 | | | 25 | 25 |
| C116 | Communication Skills | | | 2 | 1 | | | 25 | 25 |
| C117 | Creativity & Design Thinking | | | 2 | 1 | | | 50 | 50 |
| C118 | Workshop Practice | | | 2 | 1 | | | 50 | 50 |
| | **Total** | | | **12** | **7** | | | **225** | **225** |
| | **Grand Total** | **16** | **1** | **12** | **23** | **330** | **145** | **225** | **700** |
| C119 | Induction Program | *** Please see note below* | | | | | | | |

- Semester II : Theory Courses

| ***Course Code*** | ***Name of the Course*** | ***Engagement Hours*** | | | ***Credits*** | ***FA*** | ***SA*** | | ***Total*** |
|---|---|---|---|---|---|---|---|---|---|
| | | ***L*** | ***T*** | ***P*** | | ***ESE*** | ***ISE*** | ***ICA*** | |
| C011/ C012 | Engineering Physics / Engineering Chemistry $ | 3 | | | 3 | 70 | 30 | | 100 |
| C122 | Engineering Mathematics - II | 3 | | | 3 | 70 | 30 | | 100 |
| C123 | Basic Electrical & Electronics Engineering | 3 | | | 3 | 70 | 30 | | 100 |
| C124 | Programming for problem solving | 2 | | | 2 | | 25 | | 25 |
| C125 | Engineering Graphics and CAD | 2 | | | 2 | 70 | 30 | | 100 |
| C126 | Professional Communication | 1 | | | 1 | | 25 | | 25 |
| | | | | | | | | | |
| **Total** | | **14** | | | **14** | **280** | **170** | | **450** |

Semester II: Laboratory / Tutorial Courses

| ***Course Code*** | ***Name of the Course*** | ***Engagement Hours*** | | | ***Credits*** | ***FA*** | ***SA*** | | ***Total*** |
|---|---|---|---|---|---|---|---|---|---|
| | | ***L*** | ***T*** | ***P*** | | ***ESE (POE)*** | ***ISE*** | ***ICA*** | |
| C011/ C012 | Engineering Physics / Engineering Chemistry$ | | | 2 | 1 | | | 25 | 25 |
| C122 | Engineering Mathematics- II | | 1 | | 1 | | | 25 | 25 |
| C123 | Basic Electrical & Electronics Engineering | | | 2 | 1 | | | 25 | 25 |
| C124 | Programming for problem solving | | | 4 | 2 | 50# | | 50 | 100 |
| C125 | Engineering Graphics and CAD | | | 4 | 2 | | | 50 | 50 |
| C126 | Professional Communication | | | 2 | 1 | | | 25 | 25 |
| | **Total** | | | **14** | **8** | **50** | | **200** | **250** |
| **Grand Total** | | **14** | **1** | **14** | **22** | **330** | **170** | **200** | **700** |
| C127 | Democracy, Elections and Good Governance * | | | | | **50** | | | **50** |

- Legends used–

| | | | |
|---|---|---|---|
| L | Lecture | FA | Formative Assessment |
| T | Tutorial | SA | Summative Assessment |
| P | Lab Session | ESE | End Semester Examination |
| | | ISE | In Semester Evaluation |
| | | ICA | Internal Continuous Assessment |

- **Notes-**

1. $ - Indicates approximately half of the total students at F. Y. will enroll under Group A and remaining will enroll under Group B.

   Group A will take up course of Engineering Physics (theory & laboratory) in Semester I and will take up course of Engineering Chemistry (theory & laboratory) in semester II.

   Group B will take up course of Engineering Chemistry (theory & laboratory) in Semester I and will take up course of Engineering Physics (theory & laboratory) in semester II.

2. # - Indicates the subject 'Programming for Problem Solving' shall have a University 'Practical and Oral Examination' at the end of the semester assessing student's programming skills.

3. @ - For the Course (C113) Basics of Civil and Mechanical Engineering, Practicals of Basics of Civil Engineering and Basics of Mechanical Engineering will be conducted in alternate weeks.

4. In Semester Evaluation (ISE) marks shall be based upon student's performance in minimum two tests & mid-term written test conducted & evaluated at institute level.

   Internal Continuous Assessment Marks (ICA) are calculated based upon student's performance during laboratory sessions / tutorial sessions.

5. *- Democracy, Elections & Good Governance is mandatory course. The marks earned by student with this course shall not be considered for calculation of SGPA/CGPA. However, student must complete End Semester Examination (ESE) of 50 marks (as prescribed by university) for fulfillment of this course. This course is not considered as a passing head for counting passing heads for ATKT. However, student must pass this subject for award of the degree.

6. Student must complete induction program of minimum five days before commencement of the regular academic schedule at the first semester.

## ** GUIDELINES FOR INDUCTION PROGRAM (C119)

New entrants into an Engineering program come with diverse thoughts, mind set and different social, economic, regional and cultural backgrounds. It is important to help them adjust to the new environment and inculcate in them the ethos of the institution with a sense of larger purpose.

An induction program for the new UG entrant students is proposed at the commencement of the first semester. It is expected to complete this induction program before commencement of the regular academic schedule.

Its purpose is to make new entrants comfortable in their new environment, open them up, set a healthy daily routine for them, create bonding amongst the peers as well as between faculty and students, develop awareness, sensitivity and understanding of the self, people around them, society at large, and nature.

The Induction Program shall encompass (but not limited to) below activity –

1. Physical Activities
2. Creative Arts
3. Exposure to Universal Human Values
4. Literary Activities
5. Proficiency Modules
6. Lectures by Experts / Eminent Persons
7. Visit to Local Establishments like Hospital /Orphanage
8. Familiarization to Department

Induction Program Course do not have any marks or credits however performance of students for Induction Program is assessed at institute level using below mandatory criteria –

1. Attendance and active participation
2. Report writing

# P. A. H. Solapur University, Solapur

## First Year B.Tech (All Branches) Semester-I

## C115 UNIVERSAL HUMAN VALUES

**Teaching Scheme**
**Theory– 2**Hr /Week,2Credit

**Examination Scheme**
**Theory ESE –** 50Marks

- **CourseOutcomes:**

Upon completion of this course, students will be able to,

| | |
|---|---|
| C115.1 | Appreciate the essential complementarily between 'VALUES' and 'SKILLS' to ensure sustained happiness and prosperity, which are the core aspirations of all human beings. |
| C115.2 | Develop holistic perspective towards life and profession as well as towards happiness and prosperity based on a correct understanding of the Human reality and the rest of Existence. |
| C115.3 | Appreciate the Universal Human Values and movement towards value-based living in a natural way. |
| C115.4 | Highlight ethical human conduct, trustful and mutually fulfilling human behavior and mutually enriching interaction with Nature. |

- **Course Curriculum:**

**UNIT 1: Course Introduction - Need, Basic Guidelines, Content and Process for Value Education (7)**

1. Understanding the need, basic guidelines, content and process for Value Education
2. Self-Exploration–what is it? - its content and process; 'Natural Acceptance' and Experiential Validation- as the mechanism for self-exploration
3. Continuous Happiness and Prosperity- A look at basic Human Aspirations.
4. Right understanding, Relationship and Physical Facilities- the basic requirements for fulfillment of aspirations of every human being with their correct priority.
5. Understanding Happiness and Prosperity correctly- A critical appraisal of the current scenario
6. Method to fulfill the above human aspirations understanding and living in **harmony**

at various levels.

**UNIT 2: Understanding Harmony in the Human Being - Harmony in Myself!** (7)

1. Understanding human being as a co-existence of the sentient 'I' and the material 'Body'
2. Understanding the needs of Self ('I') and 'Body' –*Sukh*and*Suvidha*
3. Understanding the Body as an instrument of 'I' (I being the doer, seer andenjoyer)
4. Understanding the characteristics and activities of 'I' and harmony in'I'
5. Understanding the harmony of I with the Body: *Sanyam*and*Swasthya*; correct appraisal of Physical needs, meaning of Prosperity indetail.
6. Programs to ensure *Sanyam*and*Swasthya*

**UNIT 3: Understanding Harmony in the Family and Society- Harmony in Human- Human Relationship (8)**

1. Understanding Harmony in the family – the basic unit of human interaction
2. Understanding values in human-human relationship; meaning of Nyaya and program for its fulfillment to ensure Ubhay-tripti;Trust (Vishwas) and Respect (Samman) as the foundational values of relationship
3. Understanding the meaning of Vishwas; Difference between intention and competence
4. Understanding the meaning of Samman, Difference between respect and differentiation; the other salient values in relationship
5. Understandingtheharmonyinthesociety(societybeinganextensionoffamily): Samadhan, Samridhi, Abhay, Sah-astitva as comprehensive Human Goals
6. Visualizing a universal harmonious order in society- Undivided Society (AkhandSamaj), Universal Order (SarvabhaumVyawastha )- from family to world family!

**UNIT 4: Understanding Harmony in the Nature and Existence - Whole existence as Co-existence (8)**

1. Understanding the harmony in theNature
2. Interconnectedness and mutual fulfillment among the four orders of nature- recyclability and self-regulation innature
3. Understanding Existence as Co-existence (Sah-astitva) of mutually interacting units in all-pervasive space
4. Holistic perception of harmony at all levels of existence

- **Text Books**

1. R.R Gaur, R Sangal, G P Bagaria, A foundation course in Human Values and professional Ethics, Excel books, New Delhi, 2010, ISBN 978-8-174-46781-2
2. The teacher'smanual: R.R Gaur, R Sangal, G P Bagaria, A foundation course in Human Values and professional Ethics – Teachers Manual, Excel books, New Delhi, 2010

- **Reference Books**


1. B L Bajpai, 2004, *Indian Ethos and Modern Management*, New Royal Book Co., Lucknow. Reprinted2008.
2. PL Dhar, RR Gaur, 1990, *Science and Humanism*, CommonwealthPurblishers.
3. Sussan George, 1976, *How the Other Half Dies*, Penguin Press. Reprinted 1986, 1991
4. Ivan Illich, 1974, *Energy & Equity*, The Trinity Press, Worcester, and HarperCollins, USA
5. Donella H. Meadows, Dennis L. Meadows, Jorgen Randers, William W. Behrens III, 1972, limits to Growth, Club of Rome's Report, UniverseBooks.
6. SubhasPalekar, 2000, *How to practice Natural Farming*, Pracheen(Vaidik) KrishiTantraShodh,Amravati.
7. A Nagraj, 1998, *JeevanVidyaekParichay*, Divya Path Sansthan,Amarkantak.
8. E.F. Schumacher, 1973, *Small is Beautiful: a study of economics as if people mattered*, Blond &

Briggs,Britain.
9. A.N. Tripathy, 2003, *Human Values*, New Age InternationalPublishers.

- **Relevant websites, movies and documentaries**

1. Value Education websites,http://uhv.ac.in,http://www.uptu.ac.in
2. Story of Stuff,http://www.storyofstuff.com
3. Al Gore, An Inconvenient Truth, Paramount Classics,USA
4. Charlie Chaplin, Modern Times, United Artists,USA
5. IIT Delhi, Modern Technology – the UntoldStory
6. Gandhi A., Right Here Right Now, CyclewalaProductions
7. AICTE On-line Workshop on Universal Human Values Refresher Course-I Handouts
    - UHV-I handouts

https://drive.google.com/drive/folders/16eOka8AoBpLGlCDajRvk4MXgfXQWzFCB?usp=sharing

    - UHV-II handouts

https://drive.google.com/drive/folders/15eHkMVguzRBDrb65GFi7jMN6UEP5JEk1?usp=sharing

# P. A. H. Solapur University, Solapur

## First Year B.Tech (All Branches) Semester-I

## C116 COMMUNICATION SKILLS

**Teaching Scheme**
**Theory–** 1 Hr /Week,1Credit
**Laboratory–** 2 Hrs. /Week,1Credit

**Examination Scheme**
**ISE –** 25Marks
**ICA–** 25Marks

- **Course Objectives:**

| | |
|---|---|
| C116.O1 | To make students understand English Grammar and its application in Communication |
| C116.O2 | To develop writing skills amongst students |
| C116.O3 | To develop and enhance oral communication skills of students |
| C116.O4 | To nurture reading and comprehension skills of the students |
| C116.O5 | To prepare students for professional written communication |
| C116.O6 | To prepare students for competitive exams with focus on verbal ability |

- **Course Outcomes:**

At the end of this course, students will be able to

| | |
|---|---|
| C116.1 | Frame grammatically correct sentences for day to day Communication. |
| C116.2 | Use numerous appropriate words and sentences in written communication. |
| C116.3 | Demonstrate effective oral communication skills in various situations. |
| C116.4 | Read, comprehend and answer the questions based on a passage. |
| C116.5 | Draft letters, emails, write paragraphs and essays with appropriate content and context. |
| C116.6 | Solve verbal ability questions in competitive exams |

- **Course Curriculum**

| **Unit No. 01: English Grammar** | | **Hours : 06** | | |
|---|---|---|---|---|
| *Sr.No.* | *Subunit* | *Hours* | *Assessment* | *Bloom's Level* |
| 1.1 | Articles, nouns, pronouns, verbs, modal verbs, auxiliary verbs & tenses | 03 | Sentence formation, corrections / error finding | Remembering, understanding, applying, creating |
| 1.2 | Adjectives, adverbs, prepositions,conjunctions | 02 | Sentence formation, corrections / error finding | Remembering ,understanding, applying, creating |
| 1.3 | i. Idioms& phrases<br>ii.Clichés<br>iii. Redundancies | 01 | Identifying Meaning of the idioms, phrases and Clichés and using them appropriately. Sentence Correction/ error finding | Remembering Understanding Applying,creating |
| **Unit No. 02: Vocabulary** | | **Hours : 02** | | |
| *Sr.No.* | *Subunit* | *Hours* | *Assessment* | *Bloom's Level* |
| 2.1 | Synonyms & antonyms | 01 | Synonym / antonym of the given word | Remembering, understanding, applying |
| 2.2 | Prefixes & suffixes | 01 | Word formation. | Remembering, understanding,apply |
| **Unit No. 03: Oral Communication** | | **Hours : 02** | | |
| *Sr.No.* | *Subunit* | *Hours* | *Assessment* | *Bloom's Level* |
| 3.1 | Situational conversation | 01 | Role play based on formal or informal conversation, writing a conversation based on a situation | Applying, creating |
| 3.2 | Impromptu speaking –extempore | 01 | extempore speech | Applying, creating, evaluating |

| **Unit No. 04: Reading Comprehension** | | **Hours :02** | | |
|---|---|---|---|---|
| *Sr.No.* | *Subunit* | *Hours* | *Assessment* | *Bloom's Level* |
| 4.0 | Reading comprehension | 02 | Questions based on a passage | understanding, evaluating, applying, |
| **Unit No. 05: Writing Practices-1** | | **Hours :03** | | |
| *Sr.No.* | *Subunit* | *Hours* | *Assessment* | *Bloom's Level* |
| 5.1 | Writing business letters | 01 | Writing a professional / business letter | Understanding, applying, creating |
| 5.2 | E-mail communication | 01 | Writing a professional e-mail | Understanding, applying, creating |
| 5.3 | Paragraph writing & Essay writing | 01 | Writing a paragraph of about 120 words & an essay of about300 words | Understanding, applying, Creating |

- **In Semester Evaluation (ISE)–**

  ISE shall be based on three theory examination conducted at institute level covering above curriculum. Examinations shall include sufficient questions covering all topics / subtopics

- **Internal Continuous Assessment (ICA)-**

  ICA shall be based on performance of the student during the laboratory sessions in Language Lab covering minimum12 exercises out of blow-

1. Grammar Exercise –I based on articles, nouns and pronouns.
2. Grammar Exercise –II based on verbs, modal verbs, auxiliary verbs &tenses
3. Grammar Exercise –III based on adjectives, adverbs, prepositions, conjunctions
4. Grammar Exercise –IV based on idioms and phrases, clichés &redundancies
5. Vocabulary – Based on the synonym of the given word
6. Vocabulary – Find the antonym of the given word
7. Exercise on word formation (prefixes /suffixes)
8. Writing conversation based on a formal situation
9. Writing conversation based on a formal situation
10. Exercise based on reading comprehension
11. Professional / business letter writing
12. Professional / business E mail writing
13. Writing a paragraph of about 120 words / an essay of about 300 words on a given topic.
14. Extempore speech on a given topic

- **Text Books:**

1. English Grammar Just for You. RajeevanKaral. Oxford University Press
2. Technical English. Dr. M. Hemamalini. Wiley India Pvt.
3. English for Practical Purposes, Z. N. Patil, B.S. Valke, A.R. Thorat, Zeenath Merchant
4. Study Writing. Liz Hamp-Lyons and Ben Heasly. Cambridge UniversityPress.2006.
5. Exercises in Spoken English. Parts. I-III. CIEFL, Hyderabad. Oxford University Press.
6. Communication Skills, Sanjay Kumar and PushpaLata. Oxford University Press.2011

- **References Books:**

1. English Grammar & Composition , Wrenn& Martin, S.Chand
2. Practical English Usage . MichaelSwan.OUP.1995.
3. Remedial English Grammar. F.T Wood.Macmillan.2007.
4. On Writing Well. William Zinsser. Harper ResourceBook.2001.
5. Business Communication, ShaliniKalia, ShailjaAgarwal,Wiley
6. Communication Skills for Technical Students, T. M. Farhathullah, Orient Black Swan
7. Longman Dictionary of Contemporary English
8. Essential Activator, Longman
9. Word Power Made Easy, Norman Lewis

# P. A. H. Solapur University, Solapur

## First Year B. Tech. (All Branches) Semester-I

## C117 CREATIVITY AND DESIGN THINKING

**Teaching Scheme**
**Laboratory-** 02 Hrs/Week,1Credit

**Examination Scheme**
**ICA -**50 Marks

- **Course Outcomes:**

At the end of the course, students will be able to-

| | |
|---|---|
| C117.1 | Relate with and Compare the various learning styles and memory techniques and Apply them in their engineering education. |
| C117.2 | Analyze emotional experience and Experiment with emotional expressivity to better understand users while designing products. |
| C117.3 | Appreciate the importance creativity and design thinking, Develop new ways of thinking and Learn the innovation cycle for creating innovative products. |
| C117.4 | Understand individual differences and its impact on everyday decisions so as to demonstrate frameworks, strategies, techniques while creating innovative products. |
| C117.5 | Develop skills for evaluating, articulating, refining, and creating an innovative engineering product that solves customer problems(s). |

- **Course Curriculum:**

| Unit No. | Contents |
|---|---|
| 1 | **An Insight into Learning, Remembering & Emotions**<br>Understanding the Learning Process, Understanding the Memory process, Memory enhancement techniques. Understanding Emotions: Experience & Expression, Assessing Empathy, Application with Peers. |
| 2 | **Introduction to Creativity and Tools for creativity**<br>The creative person, Lateral & vertical Thinking concept, Creative style- adaptor & Innovator. Tools for creativity: Brain storming, Six hat technique, TRIZ, Divergent and Convergent, |
| 3 | **Basics of Design Thinking:**<br>Definition of Design Thinking, Need for Design Thinking, Objective of Design Thinking, Stages of Design Thinking Process (explain with examples) – Empathize, Define, Ideate, Prototype, Test |

| | |
|---|---|
| **4** | **Being Ingenious & Fixing Problem:**<br>Understanding Creative thinking process, Understanding Problem Solving, Testing Creative Problem Solving, Zoom in Zoom Out, TRIZ Contradiction matrix, Combined practices |
| **5** | **Process of Product Design, Prototyping & Testing**<br>Process of Engineering Product Design, Stages of Product Design, Examples of best product designs and functions, Prototyping- need & its types, Rapid Prototype Development process, Testing.<br>**Assignment: Engineering Product Design. Sample Example** |
| **6** | **Celebrating the Difference:**<br>Understanding Individual differences & Uniqueness, Group Discussion and Activities to encourage the understanding, acceptance and appreciation of Individual differences |
| **7** | **Design Thinking & Customer Centricity:**<br>Use of Design Thinking to Enhance Customer Experience, Parameters of Product experience, Alignment of Customer Expectations with Product Design |
| **8** | **Feedback, Re-Design & Re-Create:**<br>Feedback loop, Focus on User Experience, Address "ergonomic challenges, User focused design, rapid prototyping & testing, final product<br>**Final Presentation – *"Solving Practical Engineering Problem through Innovative Product Design & Creative Solution"*** |

- **Internal Continuous Assessment (ICA):**

*Activities are to be conducted using various tools of creative thinking and design thinking. Typical case studies shall be done to understand process of design thinking and product development.*
*Minimum 8 Experiments shall be carried out and students shall complete eight assignments based on the syllabus /experiments.*
*In addition to the above, the institute may prescribe additional modes of assessment such as Case study, Quiz, Presentation, Course seminar etc. for ensuring continuous assessment of the students.*

- **TEXT BOOKS:**


1. Thinking Design by S. Balaram (Author), Publisher : Sage India; ISBN-10 : 8132103149
2. The Creative thinker's Toolkit: Course Guidebook by Gerard Puccio, The great courses, 2014
3. Six Thinking Hat by Marcela Pandolfo,
4. Basic Design Thinking by Gavin Ambrose &Paul Harris, AVA Publishing
5. Design Thinking for Beginners: Innovation as a factor for entrepreneurial success,Publisher : Personal Growth Hackers (18 August 2019),ISBN-10 : 3967160629

- **REFERENCE BOOKS:**


1. HassoPlattner, Christoph Meinel and Larry Leifer (eds), "Design Thinking: Understand – Improve – Apply", Springer, 2011 (Unit I).
2. Idris Mootee, "Design Thinking for Strategic Innovation: What They Can't Teach You at Business or Design School", John Wiley & Sons 2013. (Unit III).
3. Design Thinking for Educators: Unleashing Imaginnovation Ideas Being Student Centric, D.M. ,ArvindMallik, Publisher : Notion Press; 1st edition (17 September 2019), ISBN-10 : 1646506928
4. Cracking the Creativity code: Zoom in Zoom out framework for creativity, fun and success by ArieRuttenberg and ShlimoMaital, Publisher- SAGE, 2014


- **WEB REFERENCES:**


1. https://dschool.**stanford**.edu/.../**design**resources/.../ModeGuideBOOTCAMP2010L.pdf
2. https://dschool.**stanford**.edu/use-our-methods/
3. https://www.interaction-design.org/literature/article/5-stages-in-the-design-thinking-process
4. http://www.creativityatwork.com/design-thinking-strategy-for-innovation/
5. https://www.nngroup.com/articles/design-thinking/
6. https://designthinkingforeducators.com/design-thinking/
7. www.**designthinking**formobility.org/wp-content/.../10/**NapkinPitch**_Worksheet.pdf

**P. A. H. Solapur University, Solapur**

**First Year B.Tech (All Branches) Semester-II**

**C126 PROFESSIONAL COMMUNICATION**

**Teaching Scheme**
**Theory–** 1 Hr /Week, 1Credit
**Laboratory–** 2 Hrs. /Week, 1Credit

**Examination Scheme**
**ISE –** 25 Marks
**ICA –** 25 Marks

---

- **Course Objectives:**

| | |
|---|---|
| C126.O1 | To nurture student's effective presentations skills |
| C126.O2 | To equip student with skills for participating effectively in group discussion |
| C126.O3 | To equip student with skills for performing effectively in personal interview |
| C126.O4 | To develop resume writing skills of students |
| C126.O5 | To develop and enhance the report writing skills of the students |
| C126.O6 | To inculcate soft skills in students for personal and professional success |

- **Course Outcomes:**

At the end of this course, student will able to

| | |
|---|---|
| C126.1 | Prepare good quality presentation and deliver it effectively. |
| C126.2 | Participate effectively in group discussion |
| C126.3 | Perform effectively in personal interview |
| C126.4 | Prepare effective resume for job interviews |
| C126.5 | Draft and write various reports professionally. |
| C126.6 | Demonstrate various soft skills like team skills, leadership, creativity, etc. in different situations. |

- **Course Curriculum**

| **Unit No 01: Presentation Skills** | | **Hours : 02** | | |
|---|---|---|---|---|
| *Sr.* | *Subunit* | *Hours* | *Assessment* | *Bloom's Level* |
| 1.1 | Pronunciation, Intonation, Stress and Rhythm | 01 | Making a Presentation | Understanding, applying, evaluating, creating |
| 1.2 | Presentation- effective planning, preparing &delivering | 01 | Preparing and delivering presentations | Understanding, applying, evaluating, creating |
| **Unit No 02: Group Discussion** | | **Hours : 02** | | |
| *Sr.* | *Subunit* | *Hours* | *Assessment* | *Bloom's Level* |
| 2.0 | Group Discussion- introduction, traits evaluated, types, tips for successful participation, individual Traits | 02 | Mock group discussion | Remembering, understanding, applying, evaluating, creating |
| **Unit No 03: Personal Interview** | | **Hours : 02** | | |
| *Sr.* | *Subunit* | *Hours* | *Assessment* | *Bloom's Level* |
| 3.0 | Introduction, types of interviews, preparatory steps for employment interviews, skill tips, frequently asked questions during interviews | 02 | Mock personal interview | Remembering, understanding, applying, evaluating, creating |
| **Unit No 04: Writing Practices -II** | | **Hours : 03** | | |
| *Sr.* | *Subunit* | *Hours* | *Assessment* | *Bloom's Level* |
| 4.1 | Resume Writing | 01 | Writing resume for campus placement | Remembering, understanding, applying, evaluating, creating |
| 4.2 | Technical report writing- types, structures, data collection, content, form | 01 | Write a report on event / industrial visit / project | Remembering, understanding, applying, evaluating, creating |
| 4.3 | Précis Writing | 01 | Précis Writing | Remembering, understanding, applying, evaluating, creating |

| **Unit No 05: Induction to Soft Skills** | | **Hours :06** | | |
|---|---|---|---|---|
| *Sr.* | *Subunit* | *Hours* | *Assessment* | *Bloom's Level* |
| 5.1 | Personal SWOC analysis | 06 | Assessment through presentation, exercise, case study, role play, skit and group activity | Remembering, understanding, applying, evaluating, creating |
| 5.2 | Goal setting | | | |
| 5.3 | Motivation | | | |
| 5.4 | Leadership and team working | | | |
| 5.5 | Ethical values | | | |
| 5.6 | Stress management | | | |
| 5.7 | Emotional intelligence | | | |
| 5.8 | Positive thinking and attitude | | | |
| 5.9 | Decision making | | | |
| 5.10 | Creativity | | | |

- **In Semester Evaluation (ISE)–**
  ISE shall be based on three theory examination conducted at institute level covering above curriculum. Examinations shall include sufficient questions covering all topics / subtopics

- **Internal Continuous Assessment (ICA)-**
  *ICA shall be based on performance of the student during the laboratory sessions in language Lab covering minimum12 exercises out of the following exercises:*

1. Power point presentation and a delivery
2. Writing views on a topic for group discussion in about 180words
3. Participation in a group discussion
4. Writing responses to the frequently asked questions in personal interview
5. Mock personal interview.
6. Resume writing for campus placement
7. Industrial visit report writing
8. Other technical report writing
9. Self SWOC analysis
10. Oral presentation on self-short term and long term goals
11. Writing self-short term and long term goals
12. Role play on leadership and teamworking
13. Exercise on Précis Writing
14. Case study on decision making, stress management, success stories, positive thinking, entrepreneurship, etc.

✓ *Note – Students shall be encouraged to use ICT tools for compilation, analysis, report writing and presentation.*

- **Text Books:**


1. Soft Skills: An Integrated Approach to Maximize Personality, Gajendra Singh Chauhan & Sangeeta Sharma, Willy Indian Pvt. Ltd.
2. On Writing Well. William Zinsser. Harper ResourceBook.2001.
3. Technical English. Dr. M. Hemamalini, Willy Indian Pvt. Ltd
4. Professional Speaking Skills. Aruna Koneru. Oxford University Press


- **References Books:**


1. Soft Skills. K. Alex., S. Chand Publications
2. Soft Skills – A Text book for Undergraduates. Ajay R Tengse, Orient Black Swan
3. Communication Skills Sanjay Kumar Pushpa Lata Oxford University Press
4. Managing Soft Skills for Personality Development, B N Ghosh- McGraw Hill Publication
5. Soft Skills for Everyone Jeff Butterfield, Cengage Learning
6. Soft Skills for Managers. Dr. T. Kalyana Chakravarthi & Dr. T. Latha Chakravarthi, Biztantra Publication.

# PUNYASHLOK AHILADEVI HOLKAR

# SOLAPUR UNIVERSITY, SOLAPUR

## FACULTY OF ENGINEERING & TECHNOLOGY

**Syllabus for**

**T.Y. B. Tech. Semester I Self Learning Module I – SLH31**
**Humanities and Social Sciences**

**Common for All Under Graduate Engineering Programs**
**w.e.f. Academic Year 2020-21**

**Choice Based Credit System**
**V0.1**

**Punyashlok Ahilyadevi Holkar Solapur University, Solapur**

**T.Y. B. Tech. Sem. I**

**Self Learning Module I (HSS)**

**SLH31.1 ECONOMICS**

**Teaching Scheme**

**Credits :-** 2 Credits

**Examination Scheme**

**ESE:** 50 Marks

---

- **Course Objectives:**

1. To explain to students various theories of economics such as demand supply, production and cost
2. To acquaint students with fundamentals of microeconomics
3. To introduce to students concept of inflation with their causes, consequence and remedies
4. To acquaint students with basics of international trade, foreign exchange

---

- **Course Outcomes:**

Upon completion of this course, student will be able to -

1. Identify the basic economic problems, resource constraints
2. Apply various theories of economics for explaining economic growth
3. Identify causes of inflation, consequence and can explain remedies
4. To assess the impact of international trade and foreign exchange on Indian economy

---

**Unit 1: Introduction**

History of Economic thought, Basic Economic problems, Resource Constraints and Welfare maximization,

Nature of Economics: Positive and Normative Economics, Micro and Macro Economics, Basic concepts in Economics, The role of State in economic activity, Market and Government failures, New economic Policy in India.

**Unit 2: Theories of Economics**

Theory of utility and consumer's choice, Theories of Demand, supply and market equilibrium, Theories of firm, production and costs, Market structures, Perfect and imperfect competitions, oligopoly, monopoly.

**Unit 3: Macroeconomics**

An overview of Macroeconomics, measurement and determination of national income, Consumption, saving and investment

**Unit 4: Banking & Inflation.**
Commercial and Central Banking, Relationship between money, output and prices, Inflation causes, consequences and remedies

**Unit 5: International Influences on Economics**
International Trade, foreign exchange and balance payments, stabilization policies, Monetary, Fiscal and exchange rate policies

---

- **Text Books**

1. Economics: P.A. Samuelson & W.D Nordhaus, McGraw Hill, New York, 1995
2. Modern Microeconomics : A. Koutsoyiannis, Macmillan,1975

---

- **Reference Books**

1. Microeconomics: R. Pindyck and D.L. Rubinfield, Macmillan New York, 1989
2. Microeconomics: Gordon, 4th edition, Little Brown & Co., Boston,1987
3. The Organization of Industry: William F. Shughart II, Richard D. Irwin, Illinois, 1990

---

**Punyashlok Ahilyadevi Holkar Solapur University, Solapur**

**T.Y. B. Tech. Sem. I**

**Self Learning Module I (HSS)**

# SLH31.2 INTELLECTUAL PROPERTY RIGHTS FOR TECHNOLOGY DEVELOPMENT AND MANAGEMENT

**Teaching Scheme**
**Credits :-** 2 Credits

**Examination Scheme**
**ESE:** 50 Marks

---

- **Course Objectives :**
  1. To introduce to student the legal and ethical importance of intellectual property rights associated with research and intellectual works
  2. To make student understand the overview of the process of acquiring the patents and copyrights for the innovative works.
  3. To make student aware of Indian IPR system and role of WTO in protecting Intellectual Property Rights
  4. To make student aware about the plagiarism in the thesis, research papers etc.

---

- **Course Outcomes:**

  Upon completion of this course, student will be able to -
  1. Explain importance of the intellectual property rights associated with research and intellectual works
  2. Explain the overview of process of acquiring the patents and copyrights for the innovative works.
  3. Elaborate the role of Indian IPR system and role of WTO in protecting Intellectual Property Rights
  4. Explain how to avoid the plagiarism in the thesis, research papers etc.

---

**Unit 1: Introduction to IPR**

Dynamics of Knowledge evolution, creation of ownership domains in the knowledge space using various instruments of IPR

**Unit 2: IPR for Engineers and Managers**

Outlines concepts of confidentiality and information security, explores their role in technology development and transfer integrating Intellectual Property in project planning, execution & commercialization,

**Unit 3: IPR and R&D**

Discussion on the shifting paradigms of R&D and their linkage to IPR, Introduction to concepts of Valuation of IP & Value Realization,

**Unit 4: IPR for India**

Comparison the Indian IPR system with international IPR frameworks especially in the context of WTO, followed by a few sessions on IPR litigations both for the enforcement of rights and business strategy

**Unit 5: IPR and Contemporary Issues**

Discussion on contentious issues of current interest such as Biotechnology and Intellectual Property, Protection of Traditional Knowledge, IPR and Electronic Commerce, TRIPS and Access to Medicines, Copyright issues in creative works, etc

---

- **Text Books**
  1. Prabuddha Ganguli: Intellectual Property Rights Unleashing the Knowledge Economy. Tata McGraw Hill, New Delhi, 2001
  2. Prabuddha Ganguli: Gearing Up for Patents The Indian Scenario. Universities Press India Ltd., Hyderabad, 1998
  3. P. Narayan: Patent Law. Eastern Law Co., Calcutta

---

- **Reference Books**
  1. Global Dimensions of Intellectual Property Rights in Science and Technology, Author: National Research Council , National Academies Press, 1993.
  2. Technology Transfer: Intellectual Property Rights, C Sri Krishna, ICFAI University press (2008)

---

**Punyashlok Ahilyadevi Holkar Solapur University, Solapur**

**T.Y. B. Tech. Sem. I**

**Self Learning Module I (HSS)**

**SLH31.3 INTRODUCTION TO SOCIOLOGY**

**Teaching Scheme**

**Credits :-** 2 Credits

**Examination Scheme**

**ESE:** 50 Marks

---

- **Course Objectives :**
  1. To introduce to student various social phenomena
  2. To make student aware of effect of urbanization on society
  3. To instill social intuition for better society among student
  4. To make student conscious about impact of modernization on society

---

- **Course Outcomes:**

Upon completion of this course, student will be able to-

1. Interpret the effect of various social phenomena on sociology
2. Elaborate the role of urbanization on the society
3. Evaluate the need of social intuition for better society
4. Evaluate the role of modernization, industrialization, environmental/ecological changes in the development of society.

---

**Unit 1: Introduction to Sociology**

What is sociology, some sociological concepts: social structure, status, role, norms, values etc., Socialization, and culture and change

Social stratification - various approaches and concept of social mobility

**Unit 2: Population and Sociology**

Population and society - Trends of demographic change in India and the world, Human Ecology, Trends of Urbanization in the developing countries and the world.

**Unit 3:Social Institutions**

Major social institutions - Family and marriage, caste and tribe and organizations:

i. Formal organization (bureaucracy)
ii. Informal Organization

**Unit 4: Social Changes**

Processes of social change- Modernization (including Sanskritization), industrialization, environmental/ecological changes and development

**Unit 5: Social Movements**

Social movements - protest movements, reformist movement and radical movements in India

---

- **Text Books:**

1. Sociology, L. Broom, P. Selznick and D. Dorrock, 11th Edn. 1990 (Harper International).
2. Sociology: Themes and Perspectives, M. Haralambos, Oxford University Press, 1980.
3. General Introduction to Sociology, Guy Rocher, A, MacMillan, 1982.

---

- **Reference Books:**

1. Social movements in India, vols. 1-2, 1984, M.S.A. Rao, Manohar Publications.
2. Society in India, David Mandelbaum, 1990, Popular Publications.
3. Social change in modern India, M.N. Srinivas, 1991, Orient Longman Publications.

---

**Punyashlok Ahilyadevi Holkar Solapur University, Solapur**

**T.Y. B. Tech. Sem. I**

**Self Learning Module I (HSS)**

**SLH31.4 STRESS AND COPING**

**Teaching Scheme**

**Credits :-** 2 Credits

**Examination Scheme**

**ESE:** 50 Marks

---

- **Course Objectives**
  1. To make student aware about nature of stress and its various sources
  2. To make student attentive to effect of various stress
  3. To introduce to student about various means to cope up with stress
  4. To introduce to students basic stress management techniques

---

- **Course Outcomes:**

Upon completion of this course, student will be able to -

1. Explain nature of stress and identify various sources of stress
2. Elaborate the effects of medical, psychological and behavioral stress
3. Explain how social support can mitigate the stress.
4. Explain various stress management techniques

---

**Unit 1: Introduction to Stress**

Concept of stress-current and historical status, the nature of the stress response

**Unit 2: Sources of Stress**

Common sources of stress biological, personality and environmental

**Unit 3: Coping with Stress**

Coping styles defensive behaviors and problem-solving. Consequences of stress - medical, psychological and behavioral

**Unit 4: Social Support**

The role of social support in mitigating stress

**Unit 5: Introduction to Stress Management**

Stress management techniques-relaxation, meditation, cognitive restructuring, self-control, bio-feedback and time management, Preparing stress profile of a student

---

- Text Books:


1. Walt, S. "Stress Management for Wellness". Harcourt Brace & Jovanovich, N.York, 1994.
2. D. Girdano and G. Everly., "Controlling Stress and Tension", Prentice-Hall, 1986.
3. Monat and R. Lazarus, "Stress and Coping: An Anthology", Columbia Univ. Press, 1985.


---

- **Reference Books:**


1. Weisman, "The Coping Capacity", Human Services Press, 1984.
2. Stress and Coping: The Indian Experience, D.M. Pestonjee, SAGE India; Second edition, 1998


---

**Punyashlok Ahilyadevi Holkar Solapur University, Solapur**

**T.Y. B. Tech. Sem. I**

**Self Learning Module I (HSS)**

**SLH31.5 PROFESSIONAL ETHICS & HUMAN VALUES**

**Teaching Scheme**

**Credits :- 2** Credits

**Examination Scheme**

**ESE:** 50 Marks

---

- **Course Objectives:**
  1. To emphasize importance of human values among student
  2. To introduce to student engineering ethics for professional practice
  3. To make student aware about safety, responsibility and professional rights in professional practice
  4. To make student attentive to code of ethics of global professional organizations such as ASME, ASCE, and IEEE

---

- **Course Outcomes:**

  Upon completion of this course, student will be able to-
  1. Explain importance of human values in modern society
  2. Explain how to integrate engineering ethics in their professional practice
  3. Explain about safety measures, responsibility and professional rights in professional practice
  4. Explain the code of ethics of Global organizations such as ASME, ASCE, and IEEE

---

**Unit 1: Human Values**

Morals, Values and Ethics, Integrity, Work Ethics, Service Learning, Civic Virtue, Respect for others, Living Peacefully, Caring, sharing, Honesty, Courage, Valuing Time, Cooperation, Commitment, Empathy, Self-Confidence, Character, spirituality

**Unit 2: Engineering Ethics**

Senses of engineering ethics, Variety of Moral Issues, Types of inquiry, Moral Dilemmas Moral Autonomy, Kohlberg's Theory, Gilligan's Theory, Consensus and Controversy, Models of Professional Roles, Theories about Right Action, Self Interest , Customs and Religion.

**Unit 3: Safety, Responsibilities and Rights**

Safety and Risk, Assessment of safety and Risk, Risk Benefit Analysis and Reducing Risk, The Three Mile Island and Chernobyl Case Studies.

Collegiality and Loyalty, Respect for Authority, Collective Bargaining, Confidentiality, Conflicts of Interest, Occupational Crime, Whistle Blowing, Professional Rights – Employee Rights, Intellectual Property Rights (IPR) – Discrimination

**Unit 4: Global Issues**

Multinational Corporations, Environmental Ethics, Computer Ethics, Weapons Development, Engineers as Managers, Consulting Engineers, Engineers as Expert Witnesses and Advisors, Sample Code of Ethics of ASME, ASCE, IEEE, Institution of Engineers (India), etc.

---

- **Text Books:**
  1. Bayles, M.D.: Professional Ethics, California: Wadsworth Publishing Company, 1981.
  2. Koehn, D.: The Ground of Professional Ethics, Routledge, 1995.
  3. R.S. Naagarazan, A Text Book of Professional Ethics & Human Values, New Age International, 2006

---

- **Reference Books:**
  1. Camenisch, P.F.: Grounding Professional Ethics in a Pluralistic Society, N.Y.: Haven Publications, 1983.
  2. Wuest, D.E.: Professional Ethics and Social Responsibility, Rowman & Littlefield, 1994

---

# Punyashlok Ahilyadevi Holkar Solapur University, Solapur
## Faculty of Science & Technology

*Credit System **MODIFIED** structure of T.Y. B. Tech. **Mechanical Engineering** W.E.F. 2020-21*

**Semester -V**

**Theory Courses**

| Course code | Name of Theory Course | Hrs./week | | | | Credits | Examination Scheme | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | L | T | P | D | | ISE | ESE | ICA | Total |
| ME311 | Machine Design –I | 3 | - | - | - | 3 | 30 | 70 | - | 100 |
| ME312 | CAD-CAM & CAE | 3 | - | - | - | 3 | 30 | 70 | | 100 |
| ME313 | Metallurgy | 3 | - | - | - | 3 | 30 | 70 | - | 100 |
| ME314 | Industrial Engineering and Operation Research | 3 | - | - | - | 3 | 30 | 70 | - | 100 |
| ME315 | Professional Elective –III | 3 | - | - | - | 3 | 30 | 70 | - | 100 |
| SLH | *Self Learning: HSS* | | | | | 2# | | 50 | | 50 |
| | **Sub Total** | **15** | **-** | **-** | - | **15** | **150** | **400** | - | **550** |

**Semester5 Laboratory / Tutorial Courses**

| *Course code* | *Name of Laboratory /Tutorial Course* | *Hrs./week* | | | | *Credits* | *Examination Scheme* | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | *L* | *T* | *P* | D | | *ISE* | *ESE* | | *ICA* | *Total* |
| | | | | | | | | *POE* | *OE* | | |
| ME311 | Machine Design –I | - | - | 2 | - | 1 | - | - | - | 25 | 25 |
| ME312 | CAD-CAM & CAE | - | - | 2 | - | 1 | | 25 | - | 25 | 50 |
| ME313 | Metallurgy | - | - | 2 | - | 1 | - | - | 25 | 25 | 50 |
| ME314 | Industrial Engineering and Operation Research | - | - | 2 | - | 1 | - | - | - | 25 | 25 |
| ME315 | Professional Elective –III | - | - | 2 | - | 1 | - | - | - | 25 | 25 |
| ME316 | Advanced ProgrammingConcepts | 1 | | 2 | | 2 | - | - | - | 50 | 50 |
| ME317 | Mechanical Workshop –II | - | - | 2 | - | 1 | - | - | - | 25 | 25 |
| | **Sub Total** | 01 | - | 14 | - | 08 | - | 50 | | 200 | 250 |
| | **Grand Total** | **16** | **-** | **14** | - | **23** | **150** | **450** | | **200** | **800** |

***Abbreviations: L-Lectures, T-Tutorials, P-Practicals, D-Drawing, ISE- In-Semester Exam, ESE- End Semester Exam, ICA- Internal Continuous Assessment***

***Professional Elective –III: A**. Gas turbines **B.** Industrial Hydraulics and Pneumatics **C.** Non Conventional Machining D. Tool Engineering*

*# indicates credits over and above.*

# Punyashlok Ahilyadevi Holkar Solapur University, Solapur

## Faculty of Science & Technology

*Credit System **MODIFIED** structure of T.Y. B. Tech. **Mechanical Engineering** W.E.F. 2020-21*

**Semester -VI**

**Theory Courses**

| Course code | Name of Theory Course | Hrs./week | | | | Credits | Examination Scheme | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | L | T | P | D | | ISE | ESE | ICA | Total |
| ME321 | Machine Design –II | 3 | - | - | - | 3 | 30 | 70 | - | 100 |
| ME322 | Instrumentation & Control | 3 | - | - | - | 3 | 30 | 70 | - | 100 |
| ME323 | Heat Transfer | 3 | - | - | - | 3 | 30 | 70 | - | 100 |
| ME324 | Industrial & Quality Management | 3 | - | - | - | 3 | 30 | 70 | - | 100 |
| ME325 | Professional Elective –IV | 3 | - | - | - | 3 | 30 | 70 | - | 100 |
| ME326 | Mini Project | - | - | - | - | - | - | - | - | - |
| ME327 | Metrology | - | - | - | - | - | - | - | - | - |
| SLH 32 | Self-Learning Technical | - | - | - | - | 2# | - | 50 | - | 50 |
| | **Sub Total** | **15** | **-** | **-** | **-** | **15** | **150** | **400** | **-** | **550** |

**Semester 6 Laboratory / Tutorial Courses**

| *Course code* | *Name of Laboratory / Tutorial Course* | *Hrs./week* | | | | *Credits* | *Examination Scheme* | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | *L* | *T* | *P* | D | | *ISE* | *ESE* | | *ICA* | *Total* |
| | | | | | | | | *POE* | *OE* | | |
| ME321 | Machine Design –II | - | - | 2 | - | 1 | - | - | -- | 25 | 25 |
| ME322 | Instrumentation & Control | - | - | 2 | - | 1 | - | - | | 25 | 25 |
| ME323 | Heat Transfer | - | - | 2 | - | 1 | - | 25 | - | 25 | 50 |
| ME324 | Industrial & Quality Management | - | 1 | - | - | 1 | - | - | - | 25 | 25 |
| ME325 | Professional Elective –IV | - | - | 2 | | 1 | - | - | - | 25 | 25 |
| ME326 | Mini Project | - | 1 | - | - | 1 | - | - | - | 25 | 25 |
| ME327 | Metrology | | | 2 | | 1 | | | 25 | 25 | 50 |
| ME328 | Mechanical Workshop –III | - | - | 2 | - | 1 | | | | 25 | 25 |
| | **Sub Total** | **-** | **02** | **12** | **-** | **08** | **-** | **50** | | **200** | **250** |
| | **Grand Total** | **15** | **02** | **12** | **-** | **23** | **150** | **450** | | **200** | **800** |

***Abbreviations: L-Lectures, T-Tutorials, P-Practical, D-Drawing, ISE- In-Semester Exam, ESE- End Semester Exam, ICA- Internal Continuous Assessment , Professional Elective –IV: A.** Project Management* **B.** Industrial Product Design ***C.** Plastic Engineering **D.** Mechanical Vibrations E. Railway Transportation.* ***# indicates credits over and above***

- **Note** –

1. Batch size for the practical /tutorial shall be of 15 students. On forming the batches, if the strength of remaining student exceeds 9, then a new batch shall be formed.
2. Industrial Training (evaluated at B. Tech Sem.-VII) of minimum 15 days shall be completed in any vacation after B.Tech Sem.-III, but before B. Tech. Sem.-VII & the report shall be submitted and evaluated in B.Tech. Sem.-VII
3. Students shall select one Self Learning Module at B.Tech. Sem-V and B.Tech. Sem. VI each from Humanities and Social Sciences and Technical Groups Respectively.
4. Curriculum for Humanities and Social Sciences Self Learning Modules is common for all under graduate programmes of faculty of Engineering and Technology.

**6. Self-Learning Subjects:**

**A. Semester-V (HSS):** Student can select a Self Learning Course from Solapur University, Solapur HSS Course List and appear for its examination as and when conducted by Solapur University, Solapur.

OR

Student can enroll for National Programme on Technology Enhanced Learning (NPTEL) course, complete its assignments and Appear for certificate examination as and when conducted by NPTEL.

**For more details about Self Learning Course (HSS) please refer to separate rule document available from Solapur University, Solapur. More details about NPTEL are available at http://nptel.ac.in**

B. **Semester-VI (Technical) :** Students can select any one of the following self-learning technical subjects ;

- **a.** Manufacturing of Composites
- **b.** Design Practices
- **c.** Joining Technology for Metals
- **d.** Steam Power Engineering

**7.** ICA assessment shall be a continuous process based on student's performance in class tests, assignments, homework, subject Seminars, quizzes, laboratory books and their interaction..

**Punyashlok Ahilyadevi Holkar Solapur University, Solapur**

**T.Y. B.Tech (Mechanical Engineering) Semester- VI w.e.f Year 2020-2021**

# ME324-INDUSTRIAL AND QUALITY MANAGEMENT

| *Teaching Scheme* | *Examination Scheme* |
|---|---|
| **Lectures– 3 Hours/week** | **ESE– 70 Marks** |
| **Tutorial – 1 Hour/week** | **ISE – 30 Marks** |
| | **ICA- 25 Marks** |

**Course Introduction:**

Industrial management includes studies structure and organization of industrial companies. The knowledge of Industrial management comprises those fields of business administration that are necessary for the success of companies within manufacturing sector and the encompassing services (primarily operations management, marketing and financial management). This subject having two sections, Section I about general functions of Management applicable to industrial & other organizations and Section II contains concept of quality, total quality management and Quality control tools and techniques applicable to understand quality issues in industry, manufacturing and service industry.

**Course Prerequisite:**

1. Knowledge of various manufacturing process.
2. Knowledge of industrial working environment through industrial training and Industrial visits.
3. Mathematics concepts, Probability Basics, Analytical Approach with exposure to industrial activities.

**Course Objectives:**

1. To give the students an overview of the general functions of Management applicable to industrial & other organizations
2. To give insight to the philosophy & techniques of quality management applicable to industry

**Course Outcomes:** At the end of this course, student will be able to

1. Demonstrate various management functions.
2. Predict various quality control/statistical tools for industrial / organizational problems.

## Section I
## Industrial Management

**Unit 1–Introduction to Management and Industrial Functions: No of lectures – 06**

Nature & purpose of Management. System approach to Management, Function of Managers, Social responsibility & Ethics in Managing.

Introduction to Industrial Organizations: Production /Operations Management, Marketing Management, Financial Management

**Unit 2–Planning, Organizing and Staffing No of lectures – 08**

Planning: Meaning, Types of plans, steps in planning, planning process, decision making.
Organizing: Nature & purpose of organizing, Organization structure, Span & levels,
Depart mentation, Authority delegation, decentralization.
Staffing: Definition, Human resource management & selection, Performance appraisal, Training &development.

**Unit 3–Leading and Controlling No of lectures – 06**

Leading: Human factors in managing, Motivation, 'Carrot & Stick', Maslow's theory,
Hierarchy of needs, leadership, styles, communication: process. Types- oral, written & nonverbal.
Controlling: Process of controlling, control techniques.

**Section II**

**Unit 4–Introduction to Quality No of lectures – 08**

Definition of Quality, Elements of quality, quality specifications. Factors affecting quality of design & quality of conformance, quality control, quality costs.
Benchmarking, Quality Management Systems, Environmental Management System,

**Unit 5–Total Quality Management: No of lectures – 06**

Quality Gurus, Customer satisfaction, continuous process improvement, employee involvement,
supplier partnership, Tools of quality control: Check sheets, graphs, Pareto analysis, cause & effect diagram, Scatter diagram, control charts, Six Sigma, etc.

**Unit 6–Statistical Process Control: No of lectures – 06**

Introduction to SPC, Control charts for variable & attributes, interpretation & applications of X, R, P& C charts, Process capability. Acceptance sampling, sampling plans- types single & double, Operating characteristic curve, Producer & consumer risks. (Numerical treatment only on P & C charts and on sampling plans)

- **ICA**
  Minimum 6 assignments based on each topic out of which 2 case studies related to industry /Establishments (1 case study may be from Good Quality Journal Papers.)

- **Text Books:**
  1. Essentials of Management – Koontz Weihrich By TMH
  2. Principles of Management & Administration – D. Chandra Bose. PHI
  3. Statistical Quality Control – M. Mahajan By Dhanpat Rai& Co.
  4. Total Quality Management – Besterfield& Others PHI
  **Reference Books:** Principles of Management – Tripathy, Reddy by TMH

**Punyashlok Ahilyadevi Holkar Solapur University, Solapur**


**NAAC Accredited-2015**
**'B' Grade (CGPA 2.62)**

# Name of the Faculty: Science & Technology

## CHOICE BASED CREDIT SYSTEM

# Syllabus: Mechanical Engineering

## Name of the Course: B.E. IV (Sem.–VII & VIII)

**(Syllabus to be implemented from w.e.f. June 2019)**

# Punyashlok Ahilyadevi Holkar Solapur University, Solapur

**B.E. (Mechanical Engineering) Semester-I**
**ME415 (C): Free Elective -I**
**Entrepreneurship Development**

| **Teaching Scheme** | **Examination Scheme** |
|---|---|
| **Lectures –** 03 Hours/week 3 Credits | **ESE–**70 Marks |
| **Practical** – 02 Hour/week, 1Credit | **ISE –**30Marks |
| | **ICA**- 25 Marks |

**Course Introduction:**

Entrepreneurship education in India has gained relevance in today's context. Education in the area of entrepreneurship helps students to develop skills and knowledge, which could benefit them for starting, organizing and managing their own enterprises. Entrepreneurship education encourages innovation, fosters job creation, and improves global competitiveness. This course will focus on key attributes of Entrepreneurship : Qualities required to become a successful entrepreneur, Entrepreneurship Development Programmes, Ideation Techniques, Business Plan Formulation and its Appraisal, Problems faced by Entrepreneurs and ways to get through, Different Government Agencies and Policies, Taxation, Accounting, Marketing, Export-Import and so on. To sum up, the course will make students to have an understanding of the complete entrepreneurial ecosystem.

**Course Prerequisite: Nil**

**Course Objectives:** During this course, learners are expected

1. To familiarize with entrepreneurship and its significance in national development
2. To develop skills required to establish and run a successful enterprise
3. To acquaint with the options available with new entrepreneurs
4. To formulate business plan/project report for a startup
5. To acquaint with Government policies and agencies associated with entrepreneurial development

**Course Outcomes:** At the end of this course, learners will be able to

1. Identify the qualities required to become a successful entrepreneur
2. Identify the business opportunities that fit the individual or the group
3. Explain factors influencing on entrepreneurial development
4. Analyze various options available for deciding entrepreneurial career
5. Explain various methods and sources for idea generation
6. Select financial institutions for establishing new enterprise
7. Develop a feasible project report suitable for individual or group.

**Course Curriculum:**

## Section I

**Unit 1 – Entrepreneurship** No of lectures – 10

- **Prerequisite:** Nil

- **Objectives:** During this unit, learners are expected -
  1. To get familiarized with entrepreneurship and its significance in national development
  2. To acquaint with entrepreneurial traits
  3. To study corporate entrepreneurship, social entrepreneurship, types of entrepreneurs

- **Outcomes :** After completing this unit, learners will be able to
  1. Describe role of entrepreneurship development in strengthening National economy
  2. Identify the qualities required to become a successful entrepreneur
  3. Classify entrepreneurs in various categories

- **Unit Content:**
  a) Concept, meaning and definitions of entrepreneur and entrepreneurship,
  b) Importance and significance of growth of entrepreneurial activity,
  c) History of entrepreneurship development in India,
  d) Corporate entrepreneurship (intrapreneurship),
  e) Social entrepreneurship,
  f) Characteristics and qualities of entrepreneurs,
  g) Factors influencing entrepreneurial development and motivation,
  h) Role of culture in entrepreneurial development,
  i) Classification and types of entrepreneurs.

- **Content Delivery Methods:** Chalk and talk, presentation, case studies

**Unit 2 – Entrepreneurship Development** No of lectures – 10

- **Prerequisite: Nil**

- **Objectives:** During this unit, learners are expected -

1.To acquaint with Entrepreneurship Development Programmes
2.To recognize problems faced by entrepreneurs
3.To study different options available with entrepreneurs

- **Outcomes:** After completing this unit, learners will be able to

1.Describe entrepreneurship development programmes
2.Analyze problems faced by entrepreneurs
3.Select a suitable form of entrepreneurship for given set of entrepreneurial conditions

- **Unit Content:**
    a) Entrepreneurial development programmes (EDP): Introduction, Curriculum, Phases, Problems faced by EDPs.
    b) Managerial, marketing, financial & technological problems faced by new entrepreneurs and their probable solutions
    c) Options available to entrepreneurs - ancillarisation, franchising and outsourcing (characteristics, advantages, limitations, suitability of each option)

- **Content Delivery Methods:** Chalk and talk, presentation, case studies

## Section-II

**Unit 3 – Entrepreneurial Project Development** No of lectures – 10

- **Prerequisite:** Nil

- **Objectives:** During this unit, learners are expected -

1.To study various ideation techniques
2.To understand SWOT analysis
3.To study preparation of a project report/business plan and its appraisal

- **Outcomes:** After completing this unit, learners will be able to

1.Apply different ideation techniques to find a good business idea
2.Evaluate a business idea by performing SWOT analysis
3.Formulate a project report/business plan for a startup
4.Evaluate feasibility of a project report/business plan

- **Unit Content:**
    a) Idea generation – sources and methods
    b) Identification and classification of ideas.
    c) Environmental Scanning and SWOT analysis
    d) Business model formulation, lean canvas model
    e) Preparation of a project report/business plan including : market plan, financial plan, operational plan, HR plan, Working capital management, Break Even Analysis, etc
    f) Significance of project report
    g) Project appraisal (feasibility study) – Aspects and methods : Economic oriented appraisal, Financial appraisal, Market oriented appraisal, Technological appraisal, Managerial competency appraisal

- **Content Delivery Methods:** Chalk and talk, presentation, case studies

**Unit 4 – Small-Medium Enterprises and Support Systems** No of lectures – 10

- **Prerequisite:** Nil

- **Objectives:** During this unit, learners are expected -

1.To understand concept of micro, small, and medium scale enterprise
2.To understand government policies and support system for entrepreneurship development
3.To study taxation benefits available for SMEs

- **Outcomes:** After completing this unit, learners will be able to

1.Define micro, small, medium enterprises
2.Describe government policies for entrepreneurship development
3.List government agencies established for entrepreneurship development
4.Explore taxation benefits provided for SMEs

- **Unit Content:**

a) Meaning and definition (evolution) of micro, small & medium enterprises
b) Steps in setting up a small unit
c) Ownership patterns : sole proprietorship, partnership, private limited company
d) Policies governing SMEs
e) Funding options available : angel investors, venture capitalists, commercial banks, financial institutions
f) Support agencies: SIDBI, SISI, NABARD, DIC, MCED, EDII, NIESBUD, EPC etc. – Their role in the development of SMEs
g) Technology business incubation (TBI) centers
h) Export Potential of SMEs, Export procedure
i) Taxation benefits for SME sector
j) Prospects and Turnaround strategies for SMEs

- **Content Delivery Methods:**

Chalk and talk, presentation

---

**In Semester Evaluation (ISE):**

ISE shall be based upon student's performance in minimum two tests and mid-term
Written test conducted & evaluated at institute level.

---

**In Semester Continuous Assessment (ICA):**

Students of a batch should be divided into groups (consisting of maximum four members) to carry out the following tasks:

A] Case studies

1. Case study on male entrepreneur
2. Case study on female entrepreneur
3. Case study on social entrepreneur
4. Interview of a local entrepreneur
5. SWOT analysis of existing enterprises (minimum 2)

B] Preparation of project report/business plan for starting a small unit and presentation on the same (including details of business idea, market survey, business model, different plans, etc)

---

**Text Books**


1. Management of small scale industries - J.C. Saboo, Megha Biyani, Himalaya Publishing House
2. Small-Scale Enterprises and Entrepreneurship - Vasant Desai, Himalaya Publishing House
3. Entrepreneurial Development, S. S. Khanka, SChand Publications


**Reference Books**


1. Dynamics of Entrepreneurial Development and Management - Dr. Vasant Desai, Himalaya Publishing House
2. Entrepreneurship - Robert D Hisrich, Michael P Peters and Dean A. Shepherd, McGraw Hill Education
3. Social Entrepreneurship For The 21st Century: Innovation Across The Nonprofit, Private, And Public Sectors - Georgia Levenson Keohane, McGraw Hill Education
4. Corporate Entrepreneurship , Paul Burns, Macmillan International Higher Educati

**Punyashlok Ahilyadevi Holkar Solapur University, Solapur**


**NAAC Accredited-2015**
**'B' Grade (CGPA 2.62)**

# Name of the Faculty: Science & Technology

## CHOICE BASED CREDIT SYSTEM

## Syllabus: ELECTRONICS & TELECOMMUNICATION ENGINEERING

## Name of the Course: T.Y.B. Tech (Sem.– I & II)

**(Syllabus to be implemented from w.e.f. June 2020)**

**PUNYASHLOK AHILYADEVI HOLKAR**

**SOLAPUR UNIVERSITY, SOLAPUR**

## Faculty of Science & Technology

*Credit System structure of T.Y. B.Tech. Electronics & Telecommunication Engineering* ***W.E.F. 2020-21***

## *Semester I*

| ***Course Code*** | ***Theory Course Name*** | ***Hrs./week*** | | | ***Credits*** | ***Examination Scheme*** | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | ***L*** | ***T*** | ***P*** | | ***ISE*** | ***ESE*** | ***ICA*** | ***Total*** |
| ET311 | Electromagnetic Field Theory | 3 | 1 | -- | 4 | 30 | 70 | 25 | 125 |
| ET312 | Digital Design & HDL | 4 | -- | -- | 4 | 30 | 70 | 25 | 125 |
| ET313 | Digital Signal Processing | 4 | -- | -- | 4 | 30 | 70 | 25 | 125 |
| ET314 | Microcontrollers and Applications | 4 | -- | -- | 4 | 30 | 70 | 25 | 125 |
| ET315 | Open Elective-I | 3 | 1 | -- | 4 | 30 | 70 | 25 | 125 |
| SLH31 | Self Learning Module-I | -- | -- | -- | 2 | -- | 50 | -- | 50 |
| **Sub Total** | | 18 | 2 | -- | 22 | 150 | 400 | 125 | 675 |
| ***Course Code*** | ***Laboratory Course Name*** | | | | | | | | |
| | | | | | | | ***ESE*** | | |
| | | | | | | | ***POE*** | ***OE*** | |
| ET312 | Digital Design & HDL | -- | -- | 2 | 1 | -- | 50 | -- | -- | 50 |
| ET313 | Digital Signal Processing | -- | -- | 2 | 1 | -- | 50 | -- | -- | 50 |
| ET314 | Microcontrollers and Applications | -- | -- | 2 | 1 | -- | 50 | -- | -- | 50 |
| ET316 | Electronic Software Lab-III | -- | 1 | 2 | 2 | -- | -- | -- | 25 | 25 |
| **Sub Total** | | -- | 1 | 8 | 5 | -- | 150 | | 25 | 175 |
| **Grand Total** | | **18** | **3** | **8** | **27** | **150** | **550** | | **150** | **850** |

Abbreviations: L- Lectures, P –Practical, T- Tutorial, ISE- In Semester Exam, ESE - End Semester Exam, OE-Oral Examination, POE- Practical Oral Examination
ICA- Internal Continuous Assessment ESE - University Examination (Theory &/ POE &/Oral examination)

**PUNYASHLOK AHILYADEVI HOLKAR**

**SOLAPUR UNIVERSITY, SOLAPUR**

## Faculty of Science & Technology

*Credit System structure of T.Y. B.Tech. Electronics & Telecommunication Engineering* ***W.E.F. 2020-21***

## *Semester II*

| ***Course Code*** | ***Theory Course Name*** | ***Hrs./week*** | | | ***Credits*** | ***Examination Scheme*** | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | ***L*** | ***T*** | ***P*** | | ***ISE*** | ***ESE*** | ***ICA*** | ***Total*** |
| ET321 | Antenna & Wave Propagation | 4 | -- | -- | 4 | 30 | 70 | 25 | 125 |
| ET322 | Embedded System | 4 | -- | -- | 4 | 30 | 70 | 25 | 125 |
| ET323 | Electronic System Design | 4 | -- | -- | 4 | 30 | 70 | 25 | 125 |
| ET324 | Advanced Mobile Communication | 3 | 1 | -- | 4 | 30 | 70 | 25 | 125 |
| ET325 | Open Elective-II | 3 | -- | -- | 3 | 30 | 70 | 25 | 125 |
| SLH32 | Self Learning Module II | -- | -- | -- | 2 | -- | 50 | -- | 50 |
| **Sub Total** | | 18 | 1 | -- | 21 | 150 | 400 | 125 | 675 |
| ***Course Code*** | ***Laboratory Course Name*** | | | | | | | | |
| | | | | | | | ***ESE*** | | |
| | | | | | | | ***POE*** | ***OE*** | |
| ET321 | Antenna & Wave Propagation | -- | -- | 2 | 1 | -- | -- | 25 | -- | 25 |
| ET322 | Embedded System | -- | -- | 2 | 1 | -- | 50 | -- | -- | 50 |
| ET323 | Electronic System Design | -- | -- | 2 | 1 | -- | #50 | -- | -- | 50 |
| ET325 | Open Elective-II | -- | -- | 2 | 1 | -- | -- | -- | -- | -- |
| ET326 | Mini Hardware Project | -- | -- | 2 | 1 | -- | -- | -- | 50 | 50 |
| **Sub Total** | | -- | -- | 10 | 5 | -- | 125 | | 50 | 175 |
| **Grand Total** | | **18** | **1** | **10** | **26** | **150** | **525** | | **175** | **850** |

Abbreviations: L- Lectures, P –Practical, T- Tutorial, ISE- In Semester Exam, ESE - End Semester Exam, OE-Oral Examination, POE- Practical Oral Examination

ICA- Internal Continuous Assessment ESE - University Examination (Theory &/ POE &/Oral examination)

***Note*** - # Practical and Oral Examination of Electronics System Design is combined with Mini Hardware Project.

7. ICA assessment shall be a continuous process based on student's performance in – class tests, assignments, homework, subject seminars, quizzes, and laboratory books and their interaction and attendance for theory and lab sessions as applicable.
8. Open Elective I & II shall be common and open for the students of the branches – Electronics Engineering, Electronics & Telecommunication Engineering and Electrical Engineering. Students of these branches can take any of these Open Electives. Syllabus and university examination question paper will be same for all these branches.

**List of Open Electives -**

| Sr. | Branch Offering Elective | Open Elective I | Open Elective II |
|---|---|---|---|
| 1. | Electronics &Telecommunication Engineering | 1. Business Ethics<br>2. Managerial Economics | 1. Optical Communication<br>2. Sensors & Applications |
| 2. | Electronics Engineering | Information Technology & Management | Operating Systems |
| 3. | Electrical Engineering | Hybrid Electric Vehicle Design | Advanced Control System |

**Self Learning Module II courses -**

1. Computer Organization
2. Renewable Energy Systems
3. Soft Computing
4. NPTEL Courses

# Punyashlok Ahilyadevi Holkar Solapur University, Solapur

**T. Y. B.Tech (Electronics& Telecommunication Engineering)**

**Semester-I**

**ET315.1: OPEN ELECETIVE-I**

**BUSINESS ETHICS**

**Teaching Scheme:**
**Lectures– 3Hours/week, 3 Credits**
**Tutorial – 1 Hour/week, 1 Credit**

**Examination Scheme:**
**ESE – 70 Marks**
**ISE –30Marks**
**ICA-25 Marks**

---

This course introduces basics of business ethics and its related. The course also introduces theoretical aspects of ethical issues related to stakeholders

---

**Course Prerequisite:**
Student shall have knowledge basic management principles.

---

**Course Objectives:**

1. To make students aware of basics of business ethics and related theories
2. To understand different tools for decision making and management in business ethics
3. To get acquainted with corporate and ethical issues related with it
4. To understand different ethical issues related to various stakeholders

**Course Outcomes:**
At the end of this course, Students will be able to,

1. Elaborate concepts of ethics and related theories
2. Describe and apply tools for decision making and management in business ethics
3. Understand and form the ethical issues in corporation
4. Understand and identify the ethical issues from various stakeholders' point of context

---

## Section-I

**Unit 1: Introduction** (06)

Business Ethics: An overview, importance of Business Ethics, Key context- Globalization, sustainability, Normative ethical theories and descriptive ethical theories and contemporary ethical theories

**Unit 2: Decisions and management of business ethics** (06)

Models of ethical decision making, Individual and situational influences on decision making, business ethics management, Setting standards of ethical behavior, Managing stakeholder relations, Assessing ethical performance, Organizing for Business Ethics management

**Unit 3: Framing business Ethics** (06)

Framing Business Ethics- CSR, stakeholders and Citizenship, Corporation- key features, CSR, Stakeholder theory of firm, Corporate accountability, Corporate citizenship, understanding corporate governance and ethical issues

## Section-II

**Unit 4: Employees, consumers and business ethics** (07)
Models of organization, Employees as stakeholders, Ethical issues in the firm-employee relation, Ethical challenges of globalization, corporate citizen and employee relations towards sustainable employment. Consumers as stakeholders, Ethical issues, marketing and the consumer, Globalization and consumers, Consumers and corporate citizenship, Sustainable consumption

**Unit 5: Civil Society and Environment** (07)
Civil society organizations as stakeholders, Ethical issues and CSOs, Globalization and CSOs, Corporate Citizenship and civil society, Civil society, business and sustainability, Business Ethics and Environmental values, The dimensions of pollution and resource depletion, Ethics of pollution control, Ethics of conserving depletable resources

**Unit 6: IT and Government** (07)
Information technology and its moral significance to business, IT code of conduct, Data identity and security, Crime and punishment, Government as stakeholder, Ethical issues in the relation between business and government, Globalization and business- government relations, Corporate Citizenship and regulation, Governments, business and sustainability

---

- **Internal Continuous Assessment (ICA):**

ICA consists of minimum eight tutorials based upon above curriculum. Tutorial shall include case studies related to context like employee, civil citizens, environment, consumer etc. It will be motivated to have seminars and role plays for various case studies related to ethical issues. Visits to various organizations and reports based on that can be considered.

- **Text Books:**

1. Business Ethics by Andrew Crane, Dirk Matten, Oxford University press

- **Reference Books:**

1. Business Ethics: Ethical Decision Making and Cases, O. C. Ferrell, John Fraedrich, Linda Ferrell, Cengage Publication
2. Business Ethics Methods and Application, Christian U. Becker, Taylor and Francis
3. Business & Society: Ethics and Stakeholder Management, Archie B. Carroll, Ann K. Buchholtz, Cengage Publication 7th Edition

**Punyashlok Ahilyadevi Holkar Solapur University, Solapur**


**NAAC Accredited-2015**
**'B' Grade (CGPA 2.62)**

# Name of the Faculty: Science & Technology

## CHOICE BASED CREDIT SYSTEM

# Syllabus : Electrical Engineering

## Name of the Course: T.Y. B. Tech. (Sem.–I&II)

## (Syllabus to be implemented w.e.f. June 2020)

# Punyashlok Ahilyadevi Holkar Solapur University, Solapur
## Faculty of Science & Technology
## T. Y. B.Tech. (Electrical Engineering)

Choice Based Credit System Syllabus Structure of T. Y .B.Tech. Electrical Engineering

W.E.F. 2020-21 ***Semester I***

| ***Course code*** | ***Theory Course Name*** | ***Hrs./week*** | | | ***Credits*** | ***Examination Scheme*** | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | ***L*** | ***T*** | ***P*** | | ***ISE*** | ***ESE*** | ***ICA*** | ***Total*** |
| EL 311 | Power System-III | 4 | - | - | 4 | 30 | 70 | - | 100 |
| EL 312 | Linear Control System | 4 | - | - | 4 | 30 | 70 | - | 100 |
| EL 313 | Microprocessor and Microcontroller | 3 | - | - | 3 | 30 | 70 | - | 100 |
| EL 314 | Electromagnetic Engineering | 4 | 1 | - | 5 | 30 | 70 | 25 | 125 |
| EL 315 | Open Elective-I | 3 | 1 | - | 4 | 30 | 70 | 25 | 125 |
| EL 316 | Self-Learning Module-I | | | - | 2 | | 50 | | 50 |
| **Sub Total** | | **18** | **2** | **-** | **22** | **150** | **400** | **50** | **600** |
| ***Laboratory Course Name*** | | | | | | | | | |
| | | | | | | | ESE | | |
| | | | | | | | POE | OE | |
| EL 311 | Power System III | - | - | 2 | 1 | - | - | 25 | 25 | 50 |
| EL 312 | Linear Control System | - | - | 2 | 1 | - | - | 25 | 25 | 50 |
| EL 313 | Microprocessor and Microcontroller | - | - | 2 | 1 | - | 50 | - | 25 | 75 |
| EL 317 | Electrical Workshop | - | - | 2 | 1 | - | - | - | 25 | 25 |
| **Sub Total** | | **-** | **-** | **8** | **4** | **-** | **100** | | **100** | **200** |
| **Grand Total** | | **18** | **2** | **8** | **26** | **150** | **500** | | **150** | **800** |

- *Abbreviations: L- Lectures, P –Practical, T- Tutorial, ISE- In semester Exam, ESE - End Semester Exam, ICA- Internal Continuous Assessment, ESE - University Examination (Theory &/ POE &/Oral examination)*

# Punyashlok Ahilyadevi Holkar Solapur University, Solapur
## Faculty of Science & Technology
## T. Y. B.Tech. (Electrical Engineering)

Choice Based Credit System Structure of T.Y.B .Tech. Electrical Engineering W.E.F. 2020-21

***Semester II***

| ***Course Code*** | ***Theory Course Name*** | ***Hrs./week*** | | | ***Credits*** | ***Examination Scheme*** | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | ***L*** | ***T*** | ***P*** | | ***ISE*** | ***ESE*** | ***ICA*** | ***Total*** |
| EL 321 | Electrical Machine Design | 4 | - | - | 4 | 30 | 70 | - | 100 |
| EL 322 | Electrical Utilisation | 3 | 1 | - | 4 | 30 | 70 | 25 | 125 |
| EL 323 | Power Electronics | 4 | - | - | 4 | 30 | 70 | - | 100 |
| EL 324 | Signals & Systems | 4 | 1 | - | 5 | 30 | 70 | 25 | 125 |
| EL 325 | Open Elective-II | 3 | - | - | 3 | 30 | 70 | - | 100 |
| EL 326 | Self-Learning Module-II | - | - | - | 2 | -- | 50 | - | 50 |
| **Sub Total** | | **18** | **2** | **-** | **22** | **150** | **400** | **50** | **600** |
| ***Laboratory Course Name*** | | | | | | | | | |
| | | | | | | | ESE | | |
| | | | | | | | POE | OE | | |
| EL 321 | Electrical Machine Design | - | - | 2 | 1 | - | | 25 | 25 | 50 |
| EL 323 | Power Electronics | - | - | 2 | 1 | - | 50 | - | 25 | 75 |
| EL 325 | Open Elective-II | - | - | 2 | 1 | | | | 25 | 25 |
| EL 327 | Mini Hardware Project | - | - | 2 | 1 | - | - | 25 | 25 | 50 |
| **Sub Total** | | **-** | **-** | **8** | **4** | **-** | **100** | | **100** | **200** |
| **Grand Total** | | **18** | **2** | **8** | **26** | **150** | **500** | | **150** | **800** |

Abbreviations: L- Lectures, P –Practical, T- Tutorial, ISE- In Semester Exam, ESE - End Semester Exam, ICA- Internal Continuous Assessment, ESE - University Examination (Theory &/ POE &/Oral examination)

**Self-Learning Module-II:**

1. Special Purpose Machines
2. Electrical Safety
3. Solar Photovoltaic System Design & Installation
4. NPTEL Courses

**Note –**

- Batch size for the TE practical /tutorial shall be of 15 students. On forming the batches, if the strength of remaining student exceeds7, then a new batch shall be formed.
- Vocational Training (evaluated at B.E. Part-I) of minimum 15 days shall be completed in any vacation after S.E. Part-II but before B.E. Part-I & and evaluated on the basis of presentation as well as training report.
- Student shall select one Self Learning Module at T.E. Part I and T.E. Part II each from Technical and Humanities and Social.
- Sciences Group with at least one Self Learning Module from the Humanities and Social Sciences Group.
- Curriculum for Humanities and Social Sciences Self Learning Modules is common for all under graduate programs of faculty of Engineering and Technology.
- Minimum four assignments for Self-Learning Modules at T.E. Part I and T.E. Part II shall be submitted by the students which shall be evaluated by a Module Coordinator assigned by institute / department.
- Project group for T.E (Electrical) Part II Mini Project shall not be of more than three student.
- ICA shall be a continuous process based on student's performance in – class tests, assignments, homework, subject seminars, quizzes, and laboratory books and their interaction and attendance for theory and lab sessions as applicable.

**List of Open Electives**

| Sr. No. | Open Elective I | Open Elective II |
|---|---|---|
| 1 | Information Technology & Management | Operating Systems |
| 2 | Hybrid Electric Vehicle Design | Advanced control System |
| 3 | Business Ethics | Optical Communication |
| 4 | Managerial Economics | Sensors & Applications |

# Punyashlok Ahilyadevi Holkar Solapur University, Solapur
# T. Y. B.Tech (Electrical Engineering)
# Semester-I
## OPEN ELECETIVE-I
# MANAGERIAL ECONOMICS

**Teaching Scheme:**
**Lectures- 3 Hours / week, 3 Credits**
**Tutorial – 1 Hour / week , 1 Credit**

**Examination Scheme**
**ESE- 70 Marks**
**ISE - 30 Marks**
**ICA- 25 Marks**

---

This course introduces basics of economics and concepts related to economics. The course also introduces theoretical and practical aspects of decision making for managers.

---

**Course Prerequisite:**
Student shall have knowledge basic management principles.

---

**Course Objectives:**

1. To make students aware to concepts of managerial economics
2. To introduce students to concepts of demand, supply and market
3. To introduce different tools for demand analysis and forecasting
4. To make students aware about production and cost functions
5. To make students aware about correlation of pricing with market, demand and supply

**Course Outcomes:**
At the end course student will be able to

1. Elaborate the concepts of managerial economics
2. Analyze the issues related to demand, supply and market
3. Use different tools for demand analysis and forecasting
4. Analyze the production and cost functions
5. Decide price on the basis of market, demand and supply

---

## SECTION-I

**Unit 1: Introduction: (07)**
Introduction to Economics, Introduction to Managerial Economics, Economics contribution to managerial decision, Scope of Managerial Economics – Microeconomics and Macroeconomics, Basics of Mathematical Tools – Statistics and Operational Research

**Unit 2: Demands, Supply and Market Equilibrium (08)**
Demand, Supply, Market Equilibrium, Measuring value of market exchange, changes in market equilibrium, Price ceilings and Price floors, Meaning of demand, Demand utility, Approaches to consumer demand analysis, Analysis of consumer behavior – Cardinal behavior and ordinal approach

**Unit 3: Demand and Market Analysis** **(06)**

Price Elasticity of Demand, Price Elasticity, Total Revenue and Marginal Revenue, Factors Affecting Price Elasticity, Cross Price Elasticity, Income Elasticity of Demand, Other Elasticities, Elasticities for Nonlinear Demand Functions, Elasticity of Supply

**SECTION -II**

**Unit 4: Tools for Demand Forecasting** **(08)**

Survey Methods – Consumer survey and Opinion Poll, Statistical Method – Trend Projection Barometric Method, Econometric Method, Simultaneous equation, Linear Regression Model, Multiple Regression, Non-linear Regression, Basic concepts used in Linear Programming, Application of Linear Programming Techniques

**Unit 5: Production and Cost Analysis** **(06)**

Introduction to Production, Production Function, Theory of cost concepts, Cost of Production, Breakeven analysis- Linear, Non-linear, Profit Margin of Safety

**Unit 6: Market Structure and Pricing Decision** **(07)**

Concept of Market, Demand side of market, Supply side of Market, Market Structure and Degree of Competition, Pricing Decision and Monopoly Power

---

- **Internal Continuous Assessment (ICA):**

  ICA consists of minimum eight tutorials based upon above curriculum. Tutorial shall include case studies related to above curriculum.

- **Text Books:**

1. Managerial Economics by D. N. Dwivedi – 8th Edition- Vikas Publications
2. Managerial Economics Foundations of Business Analysis and Strategy- C. R. Thomas & Maurice – 8th Edition- McGraw Hill

- **Reference Books:**

1. Managerial Economics Concepts and Applications - C. R. Thomas & Maurice – 8th Edition- MCGraw

**PUNYASHLOK AHILYADEVI HOLKARSOLAPUR UNIVERSITY, SOLAPUR**
**Faculty of Science & Technology**
**Credit System structure of S. Y. B. Tech. Civil Engg., Semester- III, (W.E.F. 2019-2020)**

| Course Code | Theory Course Name | Hrs./week | | | | Credits | Examination Scheme | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | L | T | P | D | | ISE | ESE | | ICA | Total |
| CV211 | Concrete Technology, Material Testing & Evaluation | 3 | - | - | - | 3 | 30 | 70 | | - | 100 |
| CV212 | Surveying & Geomatics | 3 | - | - | - | 3 | 30 | 70 | | - | 100 |
| CV213 | Building Construction & Drawing | 2 | - | - | - | 2 | 30 | 70 | | - | 100 |
| CV214 | Introduction to Fluid mechanics | 3 | - | - | - | 3 | 30 | 70 | | - | 100 |
| CV215 | Engineering Geology | **2** | - | - | - | 2 | 30 | 70 | | - | 100 |
| CV216 | Introduction to Solid Mechanics | 3 | 1 | - | - | 4 | 30 | 70 | | - | 100 |
| CV217 | Energy Science & Engineering | 1 | - | - | - | 1 | 25 | - | | - | 25 |
| | **Total** | **17** | **1** | **_** | - | **18** | **205** | **420** | | **-** | **625** |
| | **Laboratory/Drawings** | | | | | | | **POE** | **OE** | | |
| CV211 | Concrete Technology, Material Testing & Evaluation | - | - | 2 | - | 1 | - | - | - | 25 | 25 |
| CV212 | Surveying & Geomatics | - | - | 2 | - | 1 | - | 25 | - | 25 | 50 |
| CV213 | Building Construction & Drawing | - | - | - | 2 | 1 | - | - | - | 25 | 25 |
| CV214 | Introduction to Fluid mechanics | - | - | 2 | - | 1 | - | 25 | - | 25 | 50 |
| CV215 | Engineering Geology | - | - | 2 | - | 1 | - | 25 | - | 25 | 50 |
| CV218 | Lab practice | - | - | 2 | - | 1 | - | - | - | 25 | 25 |
| | **Total** | **-** | **-** | **10** | **-** | **6** | **-** | **75** | | **150** | **225** |
| | **Grand Total** | **17** | **1** | **10** | **2** | **24** | **205** | **495** | | **150** | **850** |
| | Environmental Science | **1** | – | – | - | – | – | – | | – | – |

**Abbreviations:** L- Lectures, P –Practical, T- Tutorial, D- Drawing, ISE -Internal Tests, ESE - University Examination (Theory &/ POE &/Oral examination), ICA- Internal Continuous Assessment.

**PUNYASHLOK AHILYADEVI HOLKAR**
**SOLAPUR UNIVERSITY, SOLAPUR**
**S. Y. B. Tech. (Civil Engineering) Semester- III**
**CV217: ENERGY SCIENCE & ENGINEERING**

| **Teaching Scheme** | **Examination Scheme** |
|---|---|
| **Lectures –** 1 Hrs/Week, 1 Credit | **ISE** - 25 Marks |

---

**Course Objectives:**

To provide an introduction to energy systems and renewable energy resources, with a scientific examination of the energy field and an emphasis on alternative energy sources and their technology and application.

1) To explore society's present needs and future energy demands, examine conventional energy sources and systems, including fossil fuels and nuclear energy, and then focus on alternatives, renewable energy sources such as solar, biomass (conversions), wind power, waves and tidal, geothermal, ocean thermal, hydro and nuclear.
2) To emphasize energy conservation methods from Civil Engineering perspective.
3) To lays a good foundation for design of various civil engineering systems/ projects dealing with these energy generation paradigms in an efficient manner.

**Course Outcomes:**

Upon successful completion of the course, the students will be able to:

1) List and explain the main sources of energy and their primary applications nationally and internationally
2) Understand effect of using different energy sources on the environment and climate
3) Describe the challenges and problems associated with the use of various energy sources, including fossil fuels, with regard to future supply and the impact on the environment.
4) List and describe the primary renewable energy resources and technologies.
5) Understand the Engineering involved in projects utilising these energy sources

**Syllabus:**

**Unit 1**: **Introduction to Energy Science:** **(2 Hrs)**

Scientific principles and historical interpretation to place energy use in the context of pressing societal, environmental and climate issues; Introduction to energy systems and resources; Introduction to Energy, sustainability & the environment

**Unit 2: Energy Sources:** **(3 Hrs)**

Overview of energy systems, sources, transformations, efficiency, and storage. Fossil fuels (coal, oil, oil-bearing shale and sands, coal gasification) - past, present & future, Remedies & alternatives for fossil fuels - biomass, wind, solar, nuclear, wave, tidal and hydrogen; Sustainability and environmental trade-offs of different energy systems; possibilities for energy storage or regeneration e.g. Pumped storage hydro power projects.

**Unit 3: Energy & Environment:** **(3 Hrs)**

Energy efficiency and conservation; introduction to clean energy technologies and its importance in sustainable development; Carbon footprint, energy consumption and sustainability, How future energy use can be influenced by economic, environmental, trade, and research policy.

**Unit 4: Civil Engineering Projects connected with the Energy Sources**: **(3 Hrs)**

Coal mining technologies, Oil exploration offshore platforms, Underground and under-sea oil pipelines, solar chimney project, wave energy caissons, coastal installations for tidal power, wind mill towers; hydro power stations above-ground and underground along with associated dams, tunnels, penstocks, etc.; Nuclear reactor containment buildings and associated buildings.

**Unit 5: Engineering for Energy conservation:** **(3 Hrs)**

Concept of Green Building and Green Architecture; Green building concepts , LEED ratings; Identification of energy related enterprises that represent the breath of the industry and prioritizing these as candidates; Embodied energy analysis and use as a tool for measuring sustainability. Energy Audit of Facilities and optimization of energy consumption.

**Text/Reference Books:**


1. Boyle, Godfrey (2004), Renewable Energy (2nd edition). Oxford University Press
2. Boyle, Godfrey, Bob Everett, and Janet Ramage (Eds.) (2004), Energy Systems and Sustainability: Power for a Sustainable Future. Oxford University Press
3. Schaeffer, John (2007), Real Goods Solar Living Sourcebook: The Complete Guide to Renewable Energy Technologies and Sustainable Living, Gaiam
4. Jean-Philippe; Zaccour, Georges (Eds.), (2005), Energy and Environment Set: Mathematics of Decision Making, Loulou, Richard; Waaub, XVIII,
5. Ristinen, Robert A. Kraushaar, Jack J. AKraushaar, Jack P. Ristinen, Robert A. (2006) Energy and the Environment, 2nd Edition, John Wiley
6. UNDP (2000), Energy and the Challenge of Sustainability, World Energy assessment
7. E H Thorndike (1976), Energy & Environment: A Primer for Scientists and Engineers, Addison-Wesley Publishing Company
8. Energy Technology, O.P. Gupta, Khanna Book Publishing Co. (P) Ltd., Delhi
9. Energy Engineering & Management, Chakrabarti A., PHI Publications.
10. Related papers published in international journals

# SOLAPUR UNIVERSITY, SOLAPUR


NAAC Accredited-2015
'B' Grade (CGPA 2.62)

## For All Faculty

## Syllabus of

## Environmental Studies

### For All UG Second year Semester IV

### With effect from June - 2017

# Structure for Environmental Studies

| | Name and type of the paper | | L/P | Credits | Total Marks | UA | | CA | |
|---|---|---|---|---|---|---|---|---|---|
| | Type | Name | | | | | | | |
| **Class** | **For All UG Semester IV (Second year)** | | | | | | | | |
| | **Ability Enhancement Course (AECC)** | **Environmental Studies** | **50** | **4** | **100** | **70** | **28** | **30** | **12** |

1. The credit earned by student with this course shall not be considered for calculation of SGPA/CGPA
2. This course is not considered as a passing head for counting passing heads for ATKT
3. Student must pass this subject for award of the degree

# Environment Studies (AECC)

**[Credits: Theory-(4)]**

**Total Theory Lectures-(45)**

**Unit 1 : Introduction to environmental studies (**2 lectures)

- Multidisciplinary nature of environmental studies;
- Scope and importance; Concept of sustainability and sustainable development.

**Unit 2 : Ecosystems** (6 lectures)

- What is an ecosystem? Structure and function of ecosystem; Energy flow in an ecosystem: food chains, food webs 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 3 : Natural Resources : Renewable and Non-renewable Resources** (8 lectures)

- Land resources and landuse 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).
- Energy resources : Renewable and non renewable energy sources, use of alternate energy sources, growing energy needs, case studies.

**Unit 4 : Biodiversity and Conservation** (8 lectures)

- Levels of biological diversity : genetic, species and ecosystem diversity; Biogeographic 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.

**Unit 5 : Environmental Pollution (**8 lectures)

- Environmental pollution : types, causes, effects and controls; Air, water, soil and noise pollution
- Nuclear hazards and human health risks
- Solid waste management : Control measures of urban and industrial waste.
- Pollution case studies.

**Unit 6 : Environmental Policies & Practices** (7 lectures)

- Climate change, global warming, ozone layer depletion, acid rain and impacts on human communities and 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 Convention on Biological Diversity (CBD).
- Nature reserves, tribal populations and rights, and human wildlife conflicts in Indian context.

**Unit 7 : Human Communities and the Environment** (6 lectures)

- Human population growth: Impacts on environment, human health and welfare.
- Resettlement and rehabilitation of project affected persons; case studies.
- Disaster management : floods, earthquake, cyclones and landslides.
- Environmental movements : Chipko, Silent valley, Bishnois 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 8 : Field work** ( Equal to 5 lectures)

- 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. *Principles 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. McNeill, John R. 2000. Something New Under the Sun: An Environmental History of the Twentieth Century.
9. Odum, E.P., Odum, H.T. & Andrews, J. 1971. *Fundamentals of Ecology*. Philadelphia: Saunders.
10. Pepper, I.L., Gerba, C.P. & Brusseau, M.L. 2011. Environmental and Pollution Science. Academic Press.
11. Rao, M.N. & Datta, A.K. 1987. *Waste Water Treatment*. Oxford and IBH Publishing Co. Pvt. Ltd.
12. Raven, P.H., Hassenzahl, D.M. & Berg, L.R. 2012. *Environment*. 8th edition. John Wiley & Sons.
13. Rosencranz, A., Divan, S., & Noble, M. L. 2001. *Environmental law and policy in India*. *Tripathi 1992*.
14. Sengupta, R. 2003. *Ecology and economics*: An approach to sustainable development. OUP.
15. Singh, J.S., Singh, S.P. and Gupta, S.R. 2014. *Ecology, Environmental Science and Conservation*. S. Chand Publishing, New Delhi.
16. Sodhi, N.S., Gibson, L. & Raven, P.H. (eds). 2013. *Conservation Biology: Voices from the Tropics*. John Wiley & Sons.
17. Thapar, V. 1998. *Land of the Tiger: A Natural History of the Indian Subcontinent*.
18. Warren, C. E. 1971. *Biology and Water Pollution Control*. WB Saunders.
19. Wilson, E. O. 2006. *The Creation: An appeal to save life on earth*. New York: Norton.
20. World Commission on Environment and Development. 1987. *Our Common Future*. Oxford University Press.

# Equivalent Subject for Old Syllabus

| Sr. No. | Name of the Old Paper | Name of the New Paper |
|---|---|---|
| 1) | **Environment Studies** | **Environment Studies** |

Nature of Question Paper :-

Time : - 2 ½ hrs. Total Marks: - 70

**Q. 1** Multiple choice questions (One Marks each) 14

1)
2)
3)
4)
5)
6)
7)
8)
9)
10)
11)
12)
13)
14)

**Q. 2** Answer the followings. (Short Note/Short Problem/Short Answer) 14

a) 07

b) 07

**Q. 3** Attempt the followings. (Short Note/Short Problem/Short Answer) 14

a) 07

b) 07

**Q.4** Attempt **<u>any one</u>** of the followings. (Long Answer/Problem) 14

a)

**OR**

b)

**Q.5** Attempt **<u>any one</u>** of the followings. (Long Answer/Problem) 14

a)

**OR**

b)

**Punyashlok Ahilyadevi Holkar Solapur University, Solapur**


**Name of the Faculty: Science & Technology**

**CHOICE BASED CREDIT SYSTEM**

**Syllabus**

**T.Y. B. Tech (Civil Engineering)**

**w. e. f. Academic Year 2020-21**

# PUNYASHLOK AHILYADEVI HOLKAR
# SOLAPUR UNIVERSITY, SOLAPUR
### FACULTY OF SCIENCE & TECHNOLOGY
## B. Tech. Civil Engineering

## Program Educational Objectives (PEOs)
## B. Tech. Civil Engineering

The Program Educational Objectives for B. Tech. Civil Engineering program are designed to produce competent civil engineers who are ready to contribute effectively to the advancement of civil engineering and to fulfill the needs of the community. These objectives are as follows:

**PEO1**: Practice civil engineering in construction industry, public sector undertaking or as an entrepreneur for successful professional career.

**PEO2:** Pursue higher education for professional development.

**PEO3**: Exhibit leadership qualities with demonstrable attributes in lifelong learning to contribute to the societal needs.

# Program Outcomes (POs)
# B. Tech. Civil Engineering

The program outcomes of B. Tech. Civil Engineering Program are as following:

i) **Engineering Knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

ii) **Problem Analysis:** Identify, formulate, review research literature, and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences.

iii) **Design/Development of Solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

iv) **Conduct Investigations of Complex Problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions for complex problems:

v) **Modern Tool Usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.

vi) **The Engineer and Society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

vii) **Environment and Sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

viii) **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

ix) **Individual and Team Work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

x) **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

xi) **Project Management and Finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

xii) **Life-long Learning:** Recognize the need for, and have the preparation and ability to engage in independent and lifelong learning in the broadest context of technological change.

**PROGRAM SPECIFIC OUTCOMES (PSOs)**

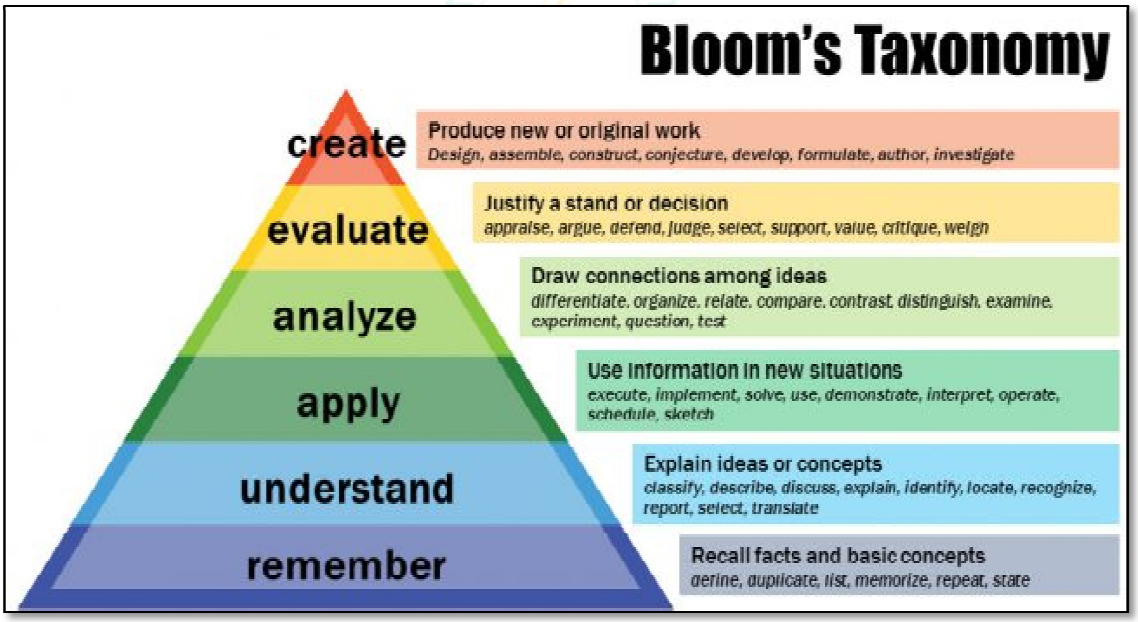
**B. Tech. Civil Engineering**

1) Graduates will be able to survey, conduct geo-technical investigations, plan, analyze, design, estimate and construct residences, public buildings, industrial buildings, townships and infrastructural projects by adopting appropriate construction methods.

2) Graduates will analyze and design the water resources systems, municipal and industrial waste treatment plants with due consideration to pollution free environment.

3) Graduates will use appropriate application software, develop skills necessary for professional practice as a Civil Engineer and prepare themselves for competitive examinations for higher education & for public service commissions.

## BLOOM'S TAXONOMY



## PUNYASHLOK AHILYADEVI HOLKAR SOLAPUR UNIVERSITY, SOLAPUR

### Faculty of SCIENCE & TECHNOLOGY

### Credit System structure of T. Y. B. Tech. Civil Engineering, Semester- I, (W.E.F. 2020-2021)

| Course Code | Theory Course Name | Hrs./week | | | | Credits | Examination Scheme | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | L | T | P | D | | ISE | ESE | | ICA | Total |
| CV311 | Design of Steel Structures | 3 | 1 | - | - | 4 | 30 | 70 | | 25 | 125 |
| CV312 | Geotechnical Engineering | 4 | - | - | - | 4 | 30 | 70 | | - | 100 |
| CV313 | Waste water Engineering & Air Pollution | 3 | - | - | - | 3 | 30 | 70 | | - | 100 |
| CV314 | Highway & Tunnel Engineering | 4 | - | - | - | 4 | 30 | 70 | | - | 100 |
| CV315 | Hydrology and Water Resources Engineering | 3 | 1 | - | - | 4 | 30 | 70 | | 25 | **125** |
| SL31 | Self Learning Module-I (H. S. S.) | - | - | - | - | 2 | - | 50 | | - | 50 |
| | **Total** | **17** | **2** | | | **21** | **150** | **400** | | **50** | **600** |
| | **Laboratory/Drawings** | | | | | | | **POE** | **OE** | | |
| CV312 | Geotechnical Engineering | - | - | 2 | - | 1 | - | 25 | - | 25 | 50 |
| CV313 | Waste water Engg. & Air Pollution | - | - | 2 | - | 1 | - | - | 25 | 25 | 50 |
| CV314 | Highway & Tunnel Engineering | - | - | 2 | - | 1 | - | | - | 25 | 25 |
| CV317 | Planning & Design of Public Buildings | **1** | - | - | 2 | 2 | - | 50 | **-** | 25 | 75 |
| CV318 | Mini Project * | - | - | 2 | - | 1 | - | - | - | 50 | 50 |
| | **Total** | **1** | **-** | **8** | **2** | **6** | **-** | **100** | | **150** | **250** |
| | **Grand Total** | **18** | **2** | **8** | **2** | **27** | **150** | **500** | | **200** | **850** |

**Abbreviations:** L- Lectures, P -Practical, T- Tutorial, D-Drawing., ISE -Internal Tests, ESE– University Examination (Theory&/ POE &/Oral examination), ICA- Internal Continuous Assessment.

*The students shall carry out 'Mini Project' using suitable application software /Carry out suitable Experimental work/ Carry out variety of Civil Engineering Surveys and present a report. The Mini project shall be assessed by the respective guide for ICA.

**Note:**

1) The batch size for the practical/tutorial is of 15 students. On forming the batches, if the number of remaining students exceeds 7 students, then a new batch be formed.
2) Internal Continuous Assessment (ICA) shall be a continuous process based on the performance of the student in assignments, class tests, quizzes, attendance and interaction during theory and lab sessions, syllabus, report presentation etc., as applicable.
3) Students shall undergo a field training of 15 days in the winter vacation after T.Y. B. Tech. Civil - Semester- I and submit the field training report, which shall be assessed by faculty associated with 'Principles of Management and Quantitative Techniques' , in T.Y.B. Tech Civil Semester-II.

**4) Self-Learning Module- I at T.Y. B. Tech. Civil Engineering, Semester – I:**

Curriculum for Humanities and Social Sciences, 'Self Learning Module – I' is common for all under graduate engineering programs.

**(A)** Student can select & enroll a 'Self Learning Module- I' (HSS) Course from P.A.H Solapur University, Solapur HSS Course List **SL31-(A)** and appear for University examination.

**SL31-(A): Self Learning Module – I (HSS)**

**P. A. H. Solapur University, Solapur: HSS Course List**

| No | Course title |
|---|---|
| 1 | Economics |
| 2 | Intellectual Property Rights for Technology Development and Management |
| 3 | Introduction to Sociology |
| 4 | Stress and Coping |
| 5 | Professional Ethics & Human Value |

## OR

**(B)** Student can select and enroll for University approved minimum eight weeks NPTEL HSS course **SL31-(B)**, complete its assignments, and appear for certificate examination conducted by NPTEL. The list of courses as shown in Table SL31-(B) will be updated from time to time by University authorities. Latest updated list will be valid for selection of self learning Module-I (HSS) courses.

More details about NPTEL are available at http://nptel.ac.in

### SL31-(B): Self Learning Module-I (HSS)

### University approved NPTEL- HSS course List (SL31-B)

| No | Course title | No | Course title |
|---|---|---|---|
| 1 | Soft skills | 15 | Management of Inventory Systems |
| 2 | Introduction to Modern India Political Thought | 16 | Economic Growth and Development |
| 3 | Intellectual Property | 17 | Ethic in Engineering Practice |
| 4 | Technical English for Engineers | 18 | Corporate Social Responsibility |
| 5 | Developing Soft Skills and Personality | 19 | Marketing Management –I |
| 6 | Educational Leadership | 20 | Marketing Research and Analysis |
| 7 | Microeconomics: Theory & Applications | 21 | Selected Topics in Decision Modeling |
| 8 | Engineering Economics | 22 | Innovation, Business Models and Entrepreneurship |
| 9 | Human Resource Development | 23 | Simulation of Business Systems: An Applied Approach |
| 10 | Project Management for managers | 24 | Sustainability through Green Manufacturing Systems: An Applied Approach |
| 11 | Data Analysis and Decision Making - I | 25 | Total Quality Management - I |
| 12 | E-Business | 26 | Introduction to Operations Research |
| 13 | Working Capital Management | 27 | Knowledge Management |
| 14 | Industrial Safety Engineering | | |

**PUNYASHLOK AHILYADEVI HOLKAR SOLAPUR UNIVERSITY, SOLAPUR**

**Faculty of SCIENCE & TECHNOLOGY**

**Credit System structure of T. Y. B. Tech. Civil Engineering, Semester – II, (W. E.F. 2020-2021)**

| Course Code | Theory Course Name | Hrs./week | | | | Credits | Examination Scheme | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | L | T | P | D | | ISE | ESE | ICA | Total |
| CV321 | Foundation Engineering | 4 | - | - | - | 4 | 30 | 70 | - | 100 |
| CV322 | Hydraulic Structures & Water Power Engg. | 3 | - | - | - | 3 | 30 | 70 | - | 100 |
| CV323 | Professional Elective-I | 3 | - | - | - | 3 | 30 | 70 | - | 100 |
| CV324 | Design of Concrete Structures-I | 4 | - | - | - | 4 | 30 | 70 | - | 100 |
| CV325 | Principles of Management and Quantitative Techniques | 3 | 1 | - | - | 4 | 30 | 70 | 25 | 125 |
| CV326 (SL32) | Self Learning Module-II (Technical) | - | - | - | - | 2 | - | 50 | - | 50 |
| | **Total** | **17** | **1** | **-** | **-** | **20** | **150** | **400** | **25** | **575** |
| | **Laboratory/Drawings:** | | | | | | - | **POE** / **OE** | | |
| CV321 | Foundation Engineering | - | - | 2 | - | 1 | - | - / - | 25 | **25** |
| CV322 | Hydraulic Structures & Water Power Engg. | - | - | 2 | - | 1 | - | - / 25 | 25 | 50 |
| CV323 | Professional Elective Course-I | - | - | 2 | - | 1 | - | - / - | 25 | **25** |
| CV324 | Design of Concrete Structures-I | - | - | 2 | | 1 | - | - / - | 25 | **25** |
| CV327 | Project on Steel Structures | - | - | - | 4 | 2 | - | - / 50 | 50 | **100** |
| CV328 | Assessment of field training report | - | - | - | - | 1 | - | - / - | 25 | **25** |
| | **Total** | **-** | **-** | **8** | **4** | **7** | | **75** | **150** | **225** |
| | **Grand Total** | **17** | **1** | **8** | **4** | **27** | **150** | **475** | **200** | **825** |

**Abbreviations:** L- Lectures, P -Practical, T- Tutorial, D-Drawing., ISE -Internal Tests, ESE– University Examination (Theory&/ POE&/Oral examination), ICA- Internal Continuous Assessment.

.**Note:**

1) The batch size for the practical/tutorial is of 15 students. On forming the batches, if the number of remaining students exceeds 7 students, then a new batch be formed.
2) Internal Continuous Assessment (ICA) shall be a continuous process based on the performance of the student in assignments, class tests, quizzes, attendance and interaction during theory and lab sessions, syllabus, report presentation etc., as applicable.
3) Students shall undergo a field training of 15 days in the summer vacation after T.Y.B. Tech Civil Semester-II. The training report shall be assessed in Final Tear B. Tech Civil Semester-I by the concerned project guides.

**4) Self-Learning Module II at T.Y. B. Tech. Civil Engineering, Semester- II**

**(A)** Student can select a 'Self Learning Module II' (Technical Course) from Course List **SL32-(A)** and appear for university examination.

**P. A. H. Solapur University, Solapur: Technical Course List Course List**

**SL32- (A): Self Learning Module – II (Technical Courses)**

| No | Course title |
|---|---|
| 1 | Geosynthetics and Reinforced Soil Structures |
| 2 | Rural Roads |
| 3 | Planning for Sustainable Development |
| 4 | TQM and MIS in Civil Engineering |
| 5 | Earthquake Resistant Non Engineered Construction |

**OR**

**(B)** Student can select & enroll for university approved minimum eight week technical course from various NPTEL technical courses, complete its assignments and appear for certificate examination conducted by NPTEL.

BOS Chairman / Coordinator will announce the list of approved NPTEL online courses of minimum eight weeks duration for 'Self Learning Module-II (Technical)' on commencement of the Semester-II of respective academic year from the available NPTEL courses through university system and will make available to student through University / institute website.

## Professional Elective Courses: Student shall choose any one course of the following

| Elective No | Semester | (I) Structural Engineering | (II) Geotechnical Engineering & Transportation Engg | (III) Construction Engineering & Management | (IV) Environmental Engineering &Hydraulics, Hydrology & Water Resources Engineering |
|---|---|---|---|---|---|
| | | | | | |
| **Professional Elective-I** | **T.Y.B.Tech Civil Semester-II** | (A) Masonry Structures | (D) Structural Geology | (H) Construction Engineering Materials | (K) Ecological Engineering |
| | | (B) Structural Analysis by Matrix Methods | (E) Urban Transportation Planning. | (I) Systems Engineering & Economics | (L) Solid and Hazardous Waste Management |
| | | (C)Structural Dynamics | (F) Pavement Design | (J) Infrastructure Planning and Management | (M) Physico-Chemical Processes for Water and Wastewater Treatment |
| | | | (G) Metro Systems and Engineering | | (N)Hydraulic modelling |
| | | | | | (O)Urban Hydrology and Hydraulics |
| | | | | | (P) Instrumentation & Sensor Technologies for Civil Engg. Applications |
| | | | | | (Q) Open Channel flow & River Hydraulics |

**Punyashlok Ahilyadevi Holkar Solapur University, Solapur**

**T.Y. B. Tech Civil – Part I**

**CV- 315 HYDROLOGY AND WATER RESOURCES ENGINEERING**

.

| **Teaching Scheme** | **Examination Scheme** |
|---|---|
| **Lectures :-** 3Hrs/Week, 3 Credits | **ISE:** 30 Marks |
| **Tutorial :-** 1 Hr/Week, 1 Credit | **ESE:** 70 Marks |
| | **ICA:** 25 Marks |

**Course Outcomes:**

**At the end of this course, the students will be able to**

1. Estimate runoff, based on rainfall data and watershed characteristics.
2. Estimate design flood for a civil engineering project.
3. Calculate yield of open well and tube well for various types of aquifers using knowledge of ground water hydrology.
4. Elaborate National and State Water Policies.
5. Select appropriate water application technique of irrigation, depending upon type of crop, soil moisture and water availability.
6. Select suitable soil & water conservation techniques for particular watershed.

**SECTION-I**

**Unit- 1: Introduction to Hydrology (7)**

Definition, History and importance of hydrology, The hydrological cycle, Weather and its precipitation potential. Precipitation :Forms and types of precipitation, Different methods of measurement, Factors affecting precipitation at a location, Correcting precipitation data, Estimating missing data, Estimation of extreme values, Rain gauge network, Determination of average precipitation over the catchments, Analysis of precipitation data, Mass rainfall curves, Intensity-duration curves, Concept of depth-area- duration analysis, Frequency analysis.

Evaporation and Evapo-transpiration: Factor affecting evaporation, Measurement and control of evaporation upon reservoirs. Evapo-transpiration - definition and measurement

Infiltration: Process of Infiltration, Factor affecting infiltration, Infiltration indices, Effect of infiltration of on runoff and ground water recharge.

**Unit 2: Rainfall – runoff Relationship** **(6)**

Factors affecting runoff, Catchment yield calculations, Rainfall-runoff relationship Hydrograph: Base flow, Separation of base flow, Unit hydrograph – theory, assumptions and limitations, Derivation and use of unit hydrograph, S-curve hydrograph.

**Unit 3: Stream gauging** **(5)**

Selection of a site, various methods of discharge measurements, Area velocity method, Slope Area method, S.W.F. and other modern methods.

Floods: Definition, Factors affecting, Estimation of peak flow, Rational and other methods, Design flood, hydrograph components, Recurrence period.

**Unit 4: Ground-water Hydrology** **(5)**

Occurrence and distribution of ground water, Specific yield of aquifers, Movements of ground water, Darcy's law, Permeability, Safe yield of basin, Hydraulics of well under steady flow condition in confined and unconfined aquifers, Specific capacity of a well, Well irrigation: tube wells, open wells, their design and construction.

**SECTION-II**

**Unit 5: Water Resources Development in India and Maharashtra** **(6)**

Water Resources Development in India & Maharashtra: National water policy of India, Water Policy of Maharashtra State, Development of irrigation potential through five year plans, Water resources potential of India, Water Resources development in India, Problems in water resources developments in country and Maharashtra state.

Inter basin transfer of water: Concept of inter basin transfer of water, Proposed inter basin transfer of water from surplus regions of India to deficit regions of India, National perspective plan of India-Himalayan rivers component and peninsular rivers component.

**Unit 6: Irrigation** **(6)**

a. Irrigation: Definition and necessity of Irrigation, Different systems of irrigation-Flow, Lift, Inundation, Storage.
b. Sources of water-river, well, tanks. Water Application Methods: Methods of lifting water and application of water to soils, Sprinkler, Drip, Basin, Furrow. Layout of Drip Irrigation System.
c. Lift Irrigation: Necessity, General Layout, Main Components of a lift irrigation scheme, Elementary design of Lift Irrigation Scheme.
d. Minor Irrigation System: Necessity and general layout of percolation tanks, Bandhara irrigation, Kolhapur type weirs.

**Unit 7: Soil and Crop Water requirements** **(5)**

Soils: Types of Soils, Suitability of soils for different crops, Soil moisture, Wilting coefficient, Texture and physical structure, Harmful components in soil, Preparation of soil for irrigation.

Crop Water requirements: Cash crops and food crops, Water requirement of different crops, Duty and Delta, Factors affecting duty and delta, Crop Seasons in Maharashtra and India, Command Area- Gross, Culturable, Irrigable, Calculation of water required.

**Unit 8: Water Management** **(5)**

a. Watershed Management: Need of Watershed management, Importance of soil and water conservation measures, Reservoir sedimentation. Techniques for Rainwater harvesting and ground water harvesting.
b. Water Management: Application of water, Water management and distribution, cooperative water users' organizations, Warabandi, Rotational applications, Assessment of canal revenue-Various methods.
c. Applications of Remote Sensing and Geographic Information Systems in Water Resources Engineering

**INTERNAL CONTINUOUS ASSESSMENT (ICA)**

Internal Continuous Assessment (ICA) shall consist of minimum six assignments based on the entire curriculum.

## TEXT BOOKS


1. Irrigation Engineering and Hydraulic Structures-S. K. Garg, Khanna Publishers, Delhi.
2. Irrigation and Water Power Engineering- Dr. Punmia, Dr. Pande, Laxmi Publications.
3. Engineering hydrology- K. Subramanya ,Tata McGraw- Hill Publishers.
4. Efficient Use of Irrigation Water-G. H. Sankara Reddi, Kalyani Publishers, Noida.
5. Water Management in India-J. V. S. Murthy.
6. Water Management, Conservation, Harvesting and Artificial Recharge- Dr. A. S. Patel, Dr. D. L. Shah, New Age International Publishers.
7. Hydrology and Water Resources-R. K. Sharma, Dhanpat Rai & Sons.
8. Fundamentals of Irrigation Engineering-Bharat Sing, Nem Chand & Bros, Roorkee.
9. Applied Hydrology, K.N. Muthreja, McGraw Hill Publications
10. Water Resources Engineering, PN Modi, Standard Publishers


## REFERENCE BOOKS


1. Irrigation theory & Practice – Michael, Vikas Publishing House.
2. Irrigation Structures- Milos Holy-CBIP
3. Water Management-Jaspal Singh, M. S. Acharya , Arun Sharma .Pub- Himanshu Publication
4. Design of Minor Irrigation and Canal Structure- Satyanarayan and R. Murthy


## WEBSITES

1. Ministry of Jal Shakti, Department of Water Resources, River Development and Ganga Rejuvenation: http://mowr.gov.in/policies-guideline/policies/national-water-policy
2. Maharashtra water resources regulatory authority: https://mwrra.org/
3. National Remote Sensing Center: https://www.nrsc.gov.in/
4. National Water Development Agency: http://nwda.gov.in

**Punyashlok Ahilyadevi Holkar Solapur University, Solapur**

**T.Y. B. Tech. Civil – Part I**

**SL-31 SELF LEARNING- H.S.S. COURSE**

**SL-31-A(3) INTRODUCTION TO SOCIOLOGY**

.

| **Teaching Scheme** | **Examination Scheme** |
|---|---|
| **Credits :-** 2 Credits | **ESE:** 50 Marks |

**Course Outcomes:**

Upon completion of this course, students will be able to,

1. Interpret the effect of various social phenomena on sociology
2. Elaborate the role of urbanization on the society
3. Appreciate the need of social institutions for better society.
4. Assess the role of modernization, industrialization, environmental/ecological changes in the development of society.

**Unit 1:**

What is sociology, some sociological concepts: social structure, status, role, norms, values etc., Socialization, and culture and change.

Social stratification - various approaches and concept of social mobility.

**Unit 2:**

Population and society - Trends of demographic change in India and the world, Human Ecology, Trends of Urbanization in the developing countries and the world.

**Unit 3:**

Major social institutions - Family and marriage, caste and tribe and organizations:

i. Formal organization (bureaucracy)

ii. Informal Organization

**Unit 4:**

Processes of social change- Modernization (including Sanskritization), industrialization, environmental/ecological changes and development.

**Unit 5:**

Social movements - protest movements, reformist movement and radical movements in India.

## ASSIGNMENTS

Students shall complete five assignments, based on the syllabus (One assignment for every unit of the syllabus). In addition to the above, the institute may prescribe additional modes of assessment such as Unit test, Quiz, Presentation, Course seminar etc. for ensuring continuous assessment of the students.

## TEXT BOOKS


1. Sociology, L. Broom, P. Selznick and D. Dorrock, 11th Edn. 1990 (Harper International).
2. Sociology: Themes and Perspectives, M. Haralambos, Oxford University Press, 1980.
3. General Introduction to Sociology, Guy Rocher, A. , MacMillan, 1982.


## REFERENCE BOOKS


1. Social movements in India, vols. 1-2, 1984, M.S.A. Rao, Manohar Publications.
2. Society in India, David Mandelbaum, 1990, Popular Publications.
3. Social change in modern India, M.N. Srinivas, 1991, Orient Longman Publications.

**Punyashlok Ahilyadevi Holkar Solapur University, Solapur**
**T.Y. B. Tech Civil – Part II**

**CV- 322 HYDRAULIC STRUCTURES AND WATER POWER ENGINEERING**

.

| **Teaching Scheme** | **Examination Scheme** |
|---|---|
| **Lectures :-** 3Hrs/Week, 3 Credits | **ISE:** 30 Marks |
| **Practical :-** 2 Hrs/Week, 1 Credit | **ESE:** 70 Marks |
| | **OE:** 25 Marks |
| | **ICA:** 25 Marks |

**Course Outcomes:**

After studying this subject the students will be able to

1. Plan and design the reservoirs depending upon the water resources potential.
2. Analyze and design Gravity dams and Earth dams (Simple Designs).
3. Elaborate the design principles of Arch dams.
4. Carry out Hydraulic Design of spillways
5. Select appropriate method of river training depending upon river characteristics
6. Estimate water power potential at a site.

**SECTION – I**

**Unit 1:Dams and Reservoir Planning** **(5)**

Dams – Necessity, types of dams, selection of site for dams, selection of type of dam, Introduction to dam instrumentation

Planning of Reservoirs: Storage calculations, Control levels, silting of reservoirs, reservoir sedimentation surveys, reservoir losses. Use of remote sensing for reservoir sedimentation surveys.

**Unit 2:Gravity and Arch Dams** **(8)**

Gravity Dams - Forces acting on dam, design criteria, theoretical and practical profile, high and low dam, stability calculations, materials and methods of Construction, Galleries, joints, Dam Instrumentation, Computer Application for Design of Dam. Decommissioning of dams

Arch Dams – Types, Layout of Constant angle and Constant radius arch dam, Forces acting on arch dams.

**Unit 3:Earth Dams** **(5)**

Earth Dams: Components and their functions, Design Criterions; Seepage through and below earth dam, Application of Slip circle method, Inverted Filters, Downstream Drainage, relief wells, Construction of earth dam.

**Unit 4: Spillways and Outlets through Dams** **(5)**

Spillways: Necessity and different types , factors affecting choice and type of spillway, elementary hydraulic design, jump height and tail water rating curve, energy dissipation below spillway, gates for spillway. Spillway operations for different discharge values.

Outlets through Dams: types and energy dissipation in outlets transition

**SECTION – II**

**Unit 5: Weirs on Permeable Foundations:** **(6)**

Weirs on Permeable Foundations: Theories of seepage, Bligh's creep theory, Khosla's theory exit gradient, Piping and undercutting, Concept of flow net etc. Kolhapur type weirs- working principles, suitability and construction.

**Unit 6: Canals and Canal Structures** **(6)**

Canals: Types, Alignment, Design – Kennedy's and Lacey's Silt theories, Canal losses, Typical canal sections, canal lining – Necessity and types, Economics of canal lining.

Canal Structures (Introduction): Cross drainage works and canal regulatory works - Aqueduct, Culvert, Super passage, Level Crossing, Cross and Head regulator, Canal Siphon, Canal Escape, canal fall, canal outlets.

**Unit 7: River Training Works ad Water logging** **(5)**

River and River Training Works: Types of rivers, Meandering phenomenon, Types of river training works, river navigation.

Water Logging and Drainage: Causes, effects, preventive and curative measures, alkaline soils, soil efflorescence, drainage arrangements.

**Unit 8: Hydropower Engineering (5)**

Elements of Hydropower Engineering: Power crisis and competing uses of water, need of harnessing solar energy. Types of water power plants, small hydropower plants, layout and components of each type, Intakes, Conveyance system, Surge tanks, Power house types, components and layout, tail race. Managing power demand using various sources of power.

## INTERNAL CONTINUOUS ASSESSMENT (ICA)

A) Minimum seven assignments from the following:

1. Determination of height of dam: Reservoir capacity calculations based on demand and Supply, fixing control levels of dam for completed project or ongoing project.
2. Design of gravity dam: Elementary and practical profile with stability calculations
3. Earth dam
    a. Design- Determination of section – slip circle calculations.
    b. Filters and Drainage arrangements.
4. Spillway: Geometrical section, Design of spillway; Energy dissipation arrangements and gates.
5. Arch dam layout of constant angle and constant radius
6. Drawing sheet: Outlets through earth dam. Masonry dam, layout.
7. Drawing sheet: Typical plan and section of Kolhapur type barrage.
8. A typical layout of Hydropower plant and its functioning. Calculating reservoir capacity for hydropower plant
9. Design of any one Canal Structure / Cross Drainage Works

B) Report based on Field visits to Irrigation and Water Power Engineering Projects

## END SEMESTER EXAMINATION - ORAL EXAMINATION

Oral Examination will be based on the ICA.

## TEXT BOOKS:


1. Irrigation Engineering – S. K. Garg , Khanna Pub. Delhi
2. Irrigation and Water Power Engineering - Priyani , Charoter pub. House, Anand
3. Irrigation and Water Power Engineering – Punmia, B. C.
4. Irrigation – Bharat Singh, NEW CHAND & bros. Roorkee
5. Irrigation Engineering Vol. I – Varshhey and Gupta
6. Engineering Hydrology - K. Subramanya
7. Design of Canals – Circular of Government of Maharashtra, 18 February 1995
8. Irrigation Water Power & Water Resource Engineering, Arora, Standard Publishers


## REFERENCE BOOKS:


1. Design of Small Dam – U. S. B. R., OXFORD & IBH pub.co.
2. Engineering for Dam Vol. I, II, III – Justinn, Creager and Hinds
3. Design of Hydraulic Structures Vol. I & II – Leliavsky
4. River Behaviour, Management and Training - CBIP Publication

**Punyashlok Ahilyadevi Holkar Solapur University, Solapur**
**T.Y. B. Tech Civil – Part II**

**CV- 323 PROFESSIONAL ELECTIVE-I**

**323 (L) SOLID AND HAZARDOUS WASTE MANAGEMENT**

.

| **Teaching Scheme** | **Examination Scheme** |
|---|---|
| **Lectures :-** 3Hrs/Week, 3 Credits | **ISE:** 30 Marks |
| **Practical :-** 2 Hrs/Week, 1 Credit | **ESE:** 70 Marks |
| | **ICA:** 25 Marks |

**Course Outcomes:**

Upon successful completion of course, the students will be able to:

1. Develop solid waste management systems with respect to its physical properties, and associated critical considerations in view of emerging technologies.
2. Select and adopt the appropriate methods for solid waste collection, transportation, redistribution and disposal.
3. Identify the types of hazards and describe methods of disposal of hazardous solid waste.
4. Implement legal, political and administrative considerations in design and operation of solid and hazardous waste management.

**SECTION-I**

**Solid Waste Management**

**Unit 1:** **(06)**

Solid Waste management: Functional outlines of refuse, storage, transportation of refuse, analysis, composition and quantity of refuse, Economic aspects of refuse collection and transport, Solid waste in industries, common types of solid waste, classification, collection and transportation. Concept of biomedical & Hazardous waste management, Introduction to integrated solid waste management.

**Unit 2:** **(05)**

Solid waste handling and Processing methods, Segregation and salvage recovery of bye-products, Use of solid waste as raw material in industries, Recycling of solid waste.

**Unit 3:** **(04)**

Composting: Theory of composting, types of composting, factors governing composting, processing before composting, mechanical composting plant, and recovery of biogas energy from organic solid waste.

**Unit 4:** **(06)**

Incineration: Theory and types of incinerators, location, planning aspects, effects of feed, composition, rate and temperature, air supply, design of incineration plant, pyrolysis and its by-products, energy recovery. Solid waste management rules, status of solid waste management in India.

## SECTION-II

## Hazardous Waste Management

**Unit 5:** **(06)**

Definition of Hazardous waste, Characteristics and nature of hazards, natural and man- made hazards, classification of hazards.

**Unit 6:** **(04)**

Qualitative estimation of damages, risk assessment and management.

**Unit 7:** **(06)**

Types of hazardous waste, characteristics, Site assessment waste minimization resource recovery. Strategy for minimization of damage due to natural and manmade hazards.

**Unit 8:** **(06)**

Storage and handling of hazardous waste, Site Selection, Transportation of hazardous wastes. Case Studies of hazards, episodes. Sanitary landfill site selection, types of land filling, maintenance and precaution, leachate and its control, control of contamination of ground water.

## INTERNAL CONTINUOUS ASSESSMENT (ICA)

The ICA shall consist of:

1. Analysis of solid waste
2. Project on Design of Refuse collection & Disposal System for medium size town or a part of city.
3. Case study of Hazards and Episodes (Any Two).
4. Assignments (One Assignment on each unit)

## TEXT BOOKS


1. Solid Waste Management – Dr. A.D. Bhide
2. Hazardous Waste Management – C. A., Wentz McGraw Hill International Edition
3. Management of Municipal Solid Waste- T. V. Ramchandra, Capital Publishing company, New Delhi
4. Solid and Hazardous Waste Management- M. N. Rao and Razia Sultana, B. S. Publication
5. Elements of Land/Soil Pollution, O.P. Gupta, Khanna Publishing House
6. Air Pollution Control Engineering, Keshav Kant, Khanna Publishing House




## REFERENCE BOOKS


1. Solid Waste Management – George Tchobanoglous, McGraw Publication
2. Manual on Municipal Solid Waste management by ministry of Urban Development of Govt. of India.
3. Solid Waste Management- I. H. Khan, and Naved Ahsan, CBS Publishers and Distributors, New Delhi.

## PUNYASHLOK AHILYADEVI HOLKAR SOLAPUR UNIVERSITY, SOLAPUR

### Faculty of Science & Technology

### Choice Based Credit System structure of B. E. Civil –I; Semester – VII, W. E.F. 2019-2020

| Theory Course Name | Hrs./week | | | | Credits | Examination Scheme | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | L | T | P | D | | ISE | ESE | | ICA | Total |
| Design of Concrete Structures-I | 3 | 1 | - | - | 4 | 30 | 70 | | 25 | **125** |
| Quantity Surveying & Valuation | 3 | - | - | - | 3 | 30 | 70 | | - | **100** |
| Earthquake Engg. | 3 | - | - | - | 3 | 30 | 70 | | - | **100** |
| Engineering Management- II | 3 | - | - | - | 3 | 30 | 70 | | - | **100** |
| Elective - II | 3 | - | - | - | 3 | 30 | 70 | | - | **100** |
| **Total** | **15** | **1** | **-** | **-** | **16** | **150** | **350** | | **25** | **525** |
| **Laboratory/Drawings:** | | | | | | | **POE** | **OE** | | |
| Quantity Surveying & Valuation | - | - | 4 | - | 2 | - | 50 | - | 50 | **100** |
| Earthquake Engg. | - | - | 2 | - | 1 | - | - | - | 50 | **50** |
| Engineering Management- II | - | - | 2 | - | 1 | - | - | 25 | - | **25** |
| Elective - II | - | - | 2 | - | 1 | - | - | 25 | 25 | **50** |
| Seminar | - | - | 2 | - | 1 | - | - | - | 50 | **50** |
| a) Project work<br>b) Assessment of report on field training-II | -<br>- | -<br>- | 2<br>- | -<br>- | 1<br>1 | -<br>- | -<br>- | -<br>- | 25<br>25 | **25**<br>**25** |
| **Total** | **-** | **-** | **14** | **-** | **8** | **-** | **100** | | **225** | **325** |
| **Grand Total** | **15** | **1** | **14** | **-** | **24** | **150** | **450** | | **250** | **850** |

Abbreviations: L- Lectures, P –Practical, T- Tutorial, D- Drawing, ISE -Internal Tests, ESE - University Examination (Theory &/ POE &/Oral examination), ICA- Internal Continuous Assessment.

*w. e. f. Academic Year 2019-20*

**PUNYASHLOK AHILYADEVI HOLKAR SOLAPUR UNIVERSITY, SOLAPUR**

**Faculty of Science & Technology**

**Choice Based Credit System structure of B. E. Civil –II, Semester – VIII, W. E.F. 2019-2020**

| Theory Course Name | Hrs./week | | | | Credits | Examination Scheme | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | L | T | P | D | | ISE | ESE | | ICA | Total |
| Design of Concrete Structures-II | 4 | - | - | - | 4 | 30 | 70 | | - | **100** |
| Construction Practices and Town Planning | 4 | - | - | - | 4 | 30 | 70 | | 25 | **125** |
| Transportation Engineering-II | 4 | - | - | - | 4 | 30 | 70 | | 25 | **125** |
| Elective - III | 4 | - | - | - | 4 | 30 | 70 | | - | **100** |
| **Total** | **16** | **-** | **-** | **-** | **16** | **120** | **280** | | **50** | **450** |
| **Laboratory/Drawings** | | | | | | | **POE** | **OE** | | |
| Design of Concrete Structures-II | - | - | 2 | - | 1 | - | - | - | 50 | **50** |
| Elective - III | - | - | 2 | - | 1 | - | - | 25 | 25 | **50** |
| Project on R. C. C. Structures | - | - | - | 4 | 2 | - | - | 50 | 50 | **100** |
| Project work | - | - | 6 | - | 3 | - | - | 100 | 100 | **200** |
| **Total** | **-** | **-** | **10** | **4** | **7** | **-** | **175** | | **225** | **400** |
| **Grand Total** | **16** | **-** | **10** | **4** | **23** | **120** | **455** | | **275** | **850** |

Abbreviations: L- Lectures, P –Practical, T- Tutorial, D- Drawing, ISE -Internal Tests, ESE - University Examination (Theory &/ POE &/Oral examination), ICA- Internal Continuous Assessment.

.**Note:**

(1) Project group be of @ 7 students.
(2) Elective subject can be offered from the following list, if minimum 15 students opt for that subject.
(3) Term work assessment: Term Work assessment shall be a continuous process based on the performance of the student in assignments, class tests, quizzes, attendance and interaction during theory and lab sessions, journal writing, report presentation etc., as applicable.

*w. e. f. Academic Year 2019-20*

# LIST OF ELECTIVE SUBJECTS

| B. E. Civil Part-I | | B. E. Civil Part-II | |
|---|---|---|---|
| ELECTIVE II | | ELECTIVE III | |
| 1 | Open Channel & River Hydraulics | 1 | Advanced Engg. Geology |
| 2 | Air Pollution & Control | 2 | Ground improvement Techniques |
| 3 | Design of Foundations | 3 | Traffic Engg. & Control |
| 4 | Advanced Design of Concrete Structures | 4 | Infrastructural Engineering |
| 5 | Managerial Techniques | 5 | Project Appraisal |
| 6 | Computer Applications in Civil Engg. | 6 | Solid and Hazardous & Waste Management |
| 7 | Advanced structures | 7 | Dynamics of Structures |
| 8 | Entrepreneurship | 8 | Environmental Management |
| 9 | Remote Sensing and GIS Applications | 9 | Design of Bridges |

*w. e. f. Academic Year 2019-20*

**PUNYASHLOK AHILYADEVI HOLKAR SOLAPUR UNIVERSITY, SOLAPUR**

**B.E. (CIVIL) PART – I (CBCS)**

**5. ELECTIVE- II**

# 5.2 AIR POLLUTION AND CONTROL

| **Teaching Scheme:** | **Examination Scheme:** |
|---|---|
| **Lectures –** 3 Hrs/Week, 3 Credits | **ISE –** 30 Marks |
| **Practical –** 2 Hrs/Week, 1 Credits | **ESE –**70 Marks |
| | **ICA –**25 Marks |
| | **ESE ( OE)** – 25 Marks |

**Course Objectives:**

1. To study Sources, Causes & effects of Air Pollution.
2. To study the relation between Meteorology and Air Pollution.
3. To learn methods used for controlling air pollution.
4. To study Air pollution Prevention and legislation.

**Course Outcomes:**

On successful completion of this course the students will be able to

1. Identify the sources of air pollutants and their effect on human, plants and materials.
2. Apply knowledge of meteorology for controlling air pollution
3. Design air pollution controlling equipments.
4. Apply knowledge of legislation for prevention and control of air pollution.

## SECTION –I

**Unit 1: Introduction (3)**

The Structure of the atmosphere, Composition of dry ambient air and properties of air. BIS Definition and scope of Air Pollution, Scales of air pollution, Types of exposures.

**Unit 2: Air pollution sources (5)**

Air Pollutants, Classifications, Natural and Artificial, Primary and Secondary, point and Non-Point, Line and Area Sources of air pollution. Stationary and mobile sources. composition of particulate & gaseous pollutant, units of measurement.

**Unit 3: Effects of Air pollutants (6)**

Effect of different air pollutants on man, animals, vegetation, property, aesthetic value and visibility, air pollution episodes. Global effects of air pollution- global warming,

ozonedepletion, acid rain and heat island effect.

**Unit 4: Meteorology and Air pollution (8)**

Solar radiation, wind circulation, factors affecting dispersion of pollutants, Lapse rate, stability conditions, wind velocity profile, Maximum mixing depth (MMD), visibility, Wind rose diagram, General characteristics of stack plume (Plume behaviour). Gaussion diffusion model for finding ground level concentration. Plume rise. Formulae for stack height and determination of minimum stack height.

**SECTION –II**

**Unit 5: Air sampling and analysis (5)**

Air pollution survey, basis and statistical considerations of sampling sites. Devices and methods used for sampling gases and particulates. Stack emission monitoring, isokinetic sampling. Analysis of air samples chemical and instrumental methods. Ambient air quality monitoring.

**Unit 6: Photochemical smog, Odour pollution and Indoor pollution (6)**

Chemistry of air pollution, Chain reactions of hydrocarbons, nitrogen oxide, Sulphuric oxides and intermediates, photochemical smog formation, air pollution indices -aerosols, fog, smog index.

Odour pollution: Theory, sources, measurement and methods of control of odour pollution. Indoor air pollution: Causes of air pollution, sources and effects of indoor air pollutants, changes in indoor air quality, control of indoor air pollutants and air cleaning systems.

**Unit 7: Control of air pollution (8)**

By process modification, change of raw materials, fuels, process equipment and process operation by use of air pollution control equipment for particulate and gaseous pollutants. Design of control equipment as Settling chamber, cyclone, fabric filter, Electro static precipitator and Wet scrubber.

**Unit 8: Control of gaseous pollutants and Legislation (4)**

Principles of removal of gaseous pollutants, design of incineration, absorption adsorption

systems. Control of air pollution from automobiles. Vehicular pollution, composition, quantity and control.

Air (Prevention and Control) Pollution Act, 1981.Emission standards for stationary and mobile sources. National Ambient air quality standards, 2009 (NAAQS).

## INTERNAL CONTINIUOS ASSESSMENT (ICA)

The ICA shall consist:

1. Assignments / problems on Air pollution.
2. Sampling and analysis of Ambient Air
3. Sampling and analysis of Automobile exhaust
4. Demonstration of stack gas monitoring

Viva/Oral examination will be based on above theory syllabus and term work

**TEXT BOOKS**:

i. Air pollution – Wark and Warner
ii. Air Pollution – Rao and Rao, TMH
iii. Environmental Engineering – by Peavy and Rowe, TMH.
iv. Air Pollution and Control- Murali Krishna, Jain Brothers

**REFERENCE BOOKS:**

i. Air pollution – Martin Crawford
ii. Air Pollution and Control Technologies- Y. Anjaneyulu, Allied Publishers
iii. Fundamentals of Air Pollution- Raju BSN, IBH Publisher
iv. An Introduction to Air Pollution- R. K. Trivedi and Goyal, BS Publications.

*w. e. f. Academic Year 2019-20*

**PUNYASHLOK AHILYADEVI HOLKAR SOLAPUR UNIVERSITY, SOLAPUR**

**B.E. Civil (Part-I) (CBCS)**

**5. ELECTIVE – II**

**5.8 ENTREPRENEURSHIP**

| **Teaching Scheme:** | **Examination Scheme:** |
|---|---|
| **Lectures –** 3 Hrs/Week, 3 Credits | **ISE –** 30 Marks |
| **Practical –** 2 Hrs/Week, 1 Credits | **ESE –**70 Marks |
| | **ICA –**25 Marks |
| | **ESE ( OE)** – 25 Marks |

**Course Objectives:**

1. To familiarize the students with the concept of Entrepreneurship, Entrepreneur and Women Entrepreneur opportunities in the country.
2. To acquaint the student's innovative business ideas in emerging industrial scenario with 'small scale industries' policy resolutions.
3. To introduce the student's with finance and accounting aspects, Industrial and commercial tax laws
4. To acquaint the students to marketing management of entrepreneurship.

**Course outcomes:**

By the end of the course the students will be able to

1) Exhibit skills necessary to craft strategies and initiatives which can enable growth and sustainability in an entrepreneurial venture.
2) Prepare preliminary and final project report
3) Exhibit higher-level critical thinking skills, evidenced by analysis, evaluation, and synthesis.
4) Demonstrate skills to establish and manage the accounting process, to employ break even and cost-volume-profit tools.

**SECTION – I**

**Unit 1:** **(08)**

Meaning, Definition and concept of Enterprise, Entrepreneurship and Entrepreneurship Development, Evolution of Entrepreneurship, risks involved with entrepreneurship, barriers to Entrepreneurship, Factors affecting entrepreneurial growth.

*w. e. f. Academic Year 2019-20*

Entrepreneur, qualities of a successful entrepreneur, types of entrepreneurs (on basis of business, motivation, stages of development, entrepreneurial activity), functions of an entrepreneur, entrepreneurial competencies, types of entrepreneurial competencies. Concepts of Intrapreneurship, Entrepreneur v/s Intrapreneur, Entrepreneur Vs. Entrepreneurship, Entrepreneur Vs. Manager, Role of Entrepreneurship in Economic Development, Factors affecting Entrepreneurship, Problems of Entrepreneurship. Creativity and Innovation, Innovation and Entrepreneurship.

**Unit 2: (06)**

Women Entrepreneurship:- Meaning, Characteristic features, Problems of Women Entrepreneurship in India, Developing Women Entrepreneurship in India, reasons for the slow growth of women entrepreneurship, remedies to solve the problems of women entrepreneurs. Measures taken for the development of women.

Entrepreneurship In India:- Training of Rural Youth For Self Employment, BANKS, NABARD, Industrial Policy, FICCI Ladies Organization (FLO), National Alliance of Young Entrepreneurs (NAYE).

**Unit 3: (08)**

Role of Government in promoting Entrepreneurship, MSME policy in India, Agencies for Policy Formulation and Implementation: District Industries Centres (DIC), Small Industries Service Institute (SISI),Entrepreneurship Development Institute of India (EDII), National Institute of Entrepreneurship & Small Business Development (NIESBUD), National Entrepreneurship Development Board (NEDB).

Financial Support System: Forms of Financial support, Long term and Short term financial support, Sources of Financial support, Development Financial Institutions, Investment Institutions. Finance, Institutional finance to Entrepreneurs, Preparation of Business Plans, Commercial Banks, Other financial institutions like IDBI,IFCI, ICICI, IRBI, LIC, UTI, SFCs, SIDCs, SIDBI, EXIM.

Bank Institution Support to Entrepreneurs: Need for Institutional support - Small Entrepreneurs: NSIC, SIDO, SSIB, SSICS, SISI, DICs, Industrial Estates Specialized Institutions.

*w. e. f. Academic Year 2019-20*

**SECTION – II**

**Unit 4:** **(08)**

Finance Analysis and accountancy: Estimation of cost of project and means of financing, working capital requirement and its financing, estimates of working results working capital and fixed capital assessment incentives from financial institutions and government, financial ratios, their significance, break even analysis cash flow charts financial statements.

**Unit 5:** **(07)**

Project Report: Preliminary and final project report preparation, financial technical commercial and economic viability project implementation process project profiles.

**Unit 6:** **(08)**

Introduction to Marking, Market study, Goal sitting, Sale and Sales Promotion. Industrial and commercial tax laws (major features only), Risk and Risk analysis, goal setting and decision making, Communication skills development and barriers.

**Note:** The subject may be taught with respect to suitable case studies and industrial visits. Audio video films shall be used on the above topics.

## INTERNAL CONTINIUOS ASSESSMENT (ICA)

The ICA shall consist :

1. Preparation of preliminary and final project report of anyone small scale industry from civil Engineering field.
2. Report based on two industrial visits.

**TEXT BOOKS:**


1) Patterns of Entrepreneurship, Jack M. Kaplan Wiley Publications.
2) Planning and Industrial Unit, Jay Narayan Vyas, GranthVitran Shreyas, Opp. Jain Temple Near Navrangpura Bus Stop, Navrangpura


*w. e. f. Academic Year 2019-20*

3) Financing an Industrial Unit, Jay Narayan Vyas and Dilip Patel,Granthvitaran Ahmedabad .
4) Entrepreneurship Development Vol. I, II & III, Vasant Desai, Himalaya Publishing house.

**REFERENCE BOOKS:**

1) Entrepreneurship for the Nineties, Gordon B. Baty, Prentice Hall Inc. College Technical Reference by Granthvitaran.
2) Small Scale Industry Handbook, Jay Narayan Vyas, Granth Vitaran Ahmedabad
3) The Practice of Entrepreneurship, Geoffery G. Meredith R.E. Nelson and P. A. Neck, Published by International Labour Office, CH 1211, Geneva 22, Switzerland
4) Entrepreneurship Theory at Cross Road, Mathew J. Manimala, Biztantra publications.
5) Entrepreneurship and small business, WEBER, LEWIS, VOLERY, SCHAPER, Wiley publications.

*w. e. f. Academic Year 2019-20*

**PUNYASHLOK AHILYADEVI HOLKAR SOLAPUR UNIVERSITY, SOLAPUR**

**B.E. (CIVIL) – I (CBCS)**

**5. ELECTIVE – II**

# 5.9 REMOTE SENSING AND GEOGRAPHICAL INFORMATION SYSTEM APPLICATIONS

| **Teaching Scheme:** | **Examination Scheme:** |
|---|---|
| **Lectures –** 3 Hrs/Week, 3 Credits | **ISE –** 30 Marks |
| **Practical –** 2 Hrs/Week, 1 Credits | **ESE –**70 Marks |
| | **ICA –**25 Marks |
| | **ESE ( OE)** – 25 Marks |

**Course Objectives:**

1) To gain understanding of the physics of remote sensing and an introduction to the major remote sensing systems that are in operation today.
2) To provide introductory understanding and working knowledge of Geographic Information Systems (GIS)
3) To gain applied experience in using GIS through a number of case study exercises.
4) An understanding of current research, technology and policy developments in the GIS/RS area and their potential applications to environmental and sustainability issues.

**Course Outcomes:**

By the end of the course students should be able to

1) Demonstrate the principles of remote sensing and digital image processing;
2) Exhibit knowledge of geographic information systems (GIS);
3) Apply remote sensing and GIS to solve problems in Civil Engineering
4) Use image processing and GIS application software.

## SECTION-I

**Unit No. 1** **(6)**

Introduction to Remote Sensing system: data acquisition and processing, Applications, Multi concept in remote sensing.

*w. e. f. Academic Year 2019-20*

**PUNYASHLOK AHILYADEVI HOLKAR SOLAPUR UNIVERSITY, SOLAPUR**

**B.E. (CIVIL) PART –II (CBCS)**

**4. ELECTIVE III**

## 4.6 SOLID AND HAZARDOUS WASTE MANAGEMENT

| **Teaching Scheme:** | **Examination Scheme:** |
|---|---|
| **Lectures –** 3 Hrs/Week, 3 Credits | **ISE –** 30 Marks |
| **Practical –** 2 Hrs/Week, 1 Credits | **ESE –**70 Marks |
| | **ICA –**25 Marks |
| | **ESE ( OE)** – 25 Marks |

**Course Objectives:**

1) To study the types, sources, generation of solid &hazardous waste.
2) To impart basic knowledge of collection, transportation, treatment and disposal of solid waste
3) To study handling and storage of solid and hazardous waste.

**Course Outcomes:**

Upon successful completion of course, the students will be able to:

1) Implement waste reduction and resource recovery methods
2) Select and adopt the appropriate waste disposal methods for the prevailing situation.
3) Identify the types of hazards and implement the precautionary methods.
4) Implement legal, political and administrative considerations in design and operation. of solid and hazardous waste management.

### SECTION I

### Solid Waste Management

**Unit 1:** **(06)**

Solid Waste management: Functional outlines of refuse, storage, transportation of refuse, analysis, composition and quantity of refuse, Economic aspects of refuse collection and transport.

Solid waste in industries, common types of solid waste, classification, collection and transportation. Concept of biomedical & Hazardous waste management.

**Unit 2:** **(05)**

Solid waste handling and Processing methods, Segregation and salvage recovery of

bye-products, use of solid waste as raw material in industries. Recycling of solid waste.

**Unit 3:** **(06)**

Composting: Theory of composting, types of composting, factors governing composting, processing before composting, mechanical composting plant, and recovery of Bio –gas energy from organic solid waste.

**Unit 4:** **(06)**

Incineration: Theory and types of incinerators, location, planning aspects, effects of feed, composition, rate and temperature, air supply, design of incineration plant, pyrolysis and its by-products, energy recovery.

Solid waste management rules, status of solid waste management in India.

## SECTION –II

## Hazardous Waste Management

**Unit 5:** **(06)**

Definition of Hazardous waste, Characteristics and nature of hazards, natural and man- made hazards, classification of hazards.

**Unit 6 :** **(04)**

Qualitative estimation of damages, risk assessment and management.

**Unit 7:** **(06)**

Types of hazardous waste, characteristics, Site assessment waste minimization resource recovery. Strategy for minimization of damage due to natural and manmade hazards.

**Unit 8:** **(06)**

Storage and handling of hazardous waste, Site Selection, Transportation of hazardous wastes. Case Studies of hazards, episodes. Sanitary landfill site selection, types of land filling, maintenance and precaution, leachate and its control, control of contamination of ground water.

## INTERNAL CONTINIUOS ASSESSMENT (ICA)

The ICA shall consist:

1. Analysis of solid waste
2. Project on Design of Refuse collection & Disposal System for medium size town or a part of city.
3. Case study of Hazards and Episodes (Any Two).
4. Assignments (One Assignment on each unit)

**TEXT BOOKS:**

i) Solid Waste Management – Dr. A.D. Bhide

ii) Hazardous Waste Management – C. A. Wentz McGraw Hill International Edition

iii) Management of Municipal Solid Waste- T. V. Ramchandra, Capital Publishing company, New Delhi

iv) Solid and Hazardous Waste Management- M. N. Rao and Razia Sultana BS Publication

**REFERENCE BOOKS:**

i) Solid Waste Management – George Tchobanoglous, Mc Graw Publication

ii) Manual on Municipal Solid Waste management by ministry of Urban Development of Govt. of India.

iii) Solid Waste Management- I. H. Khan, and Naved Ahsan, CBS Publishers and Distributors, New Delhi.

*w. e. f. Academic Year 2019-20*

**PUNYASHLOK AHILYADEVI HOLKAR SOLAPUR UNIVERSITY, SOLAPUR**

**B.E. (CIVIL) PART –II (CBCS)**

**4. ELECTIVE III**

## 4.8 ENVIRONMENTAL MANAGEMENT

| **Teaching Scheme:** | **Examination Scheme:** |
|---|---|
| **Lectures –** 3 Hrs/Week, 3 Credits | **ISE –** 30 Marks |
| **Practical –** 2 Hrs/Week, 1 Credits | **ESE –**70 Marks |
| | **ICA –**25 Marks |
| | **ESE ( OE)** – 25 Marks |

**Course Objectives:**

1) To study principles of Environmental Management System.
2) To acquaint students with different Environmental pollution control acts.
3) To study the electronic, biomedical and industrial waste properties and waste management systems
4) To inculcate idea of Environmental Impact Assessment.

**Course outcomes:**

Upon successful completion of course the students will be able to:

1) Demonstrate basic principles of Environmental Management System.
2) Exercise different Environmental pollution control acts.
3) Select and apply appropriate technology for management of electronic, biomedical and industrial waste
4) Perform Environmental Impact Assessment of small project

### SECTION-I

**Unit 1:** **(6)**

**Fundamentals of environmental management system (EMS) and ISO 14000 series:** History Background and development of ISO 14000, TC-207, ISO 14000 series. Environmental management Plans- Principles and elements. The ISO 14001-Environmental management systems standard, Definitions, Eco labeling, Auditing

**Unit 2:** **(6)**

**Environmental management acts related to environmental protection:** Air, Water, Soil and Hazardous Waste. Detailed study of following acts - Water act 1974(Prevention and control of pollution), Air act 1981 (Air pollution prevention and control of pollution), Hazardous waste management handling rules -1989. Municipal solid waste rules- 2000, Noise pollution regulation and control rules 2000 **(7)**

**Unit 3 :** **(5)**

**Electronic waste management**: Objectives, Classification of E-waste, guidelines for environmentally sound management of E-waste, environmentally sound treatment technology for E-waste, guidelines for environmentally sound integrated E-waste recycling and treatment policy International scenario, hazardous substances that can occur in E-waste.

**Unit 4:** **(5)**

**Biomedical waste management:** Introduction, Classification, Types, segregation, packaging and transportation and storage, possible hazards, Effects, Detailed study of Biomedical waste management and handling rules 1998.

**SECTION –II**

**Unit 5:** **(4)**

**Air pollution control:**, Air quality standards, Air pollution control technologies for oxides of sulphur: Reducing SOx levels through dilution by increasing stack height, use of alternative fuels. Extraction of sulphur from fuels. Reduction of sulphur in combustion process, fuel gas desulfurization.

Air pollution control technologies for oxides of Nitrogen: Emission of nitrogen oxides. Control technologies for oxides of nitrogen emissions. Air pollution control technologies for volatile organics, Hydrocarbons and hydrogen sulphide.

**Unit 6:** **(5)**

**Advanced waste water treatment:** Carbon adsorption, Ion exchange, sodium and hydrogen cycle. Membrane process. Electro dialysis process, pressure membrane process and

membrane performance characterization. Nutrients removal such as nitrogen and phosphorus removal. Land treatment systems: Irrigation, rapid infiltration and overland flow systems. Wetland flow Systems.

**Unit 7:** **(7)**

**Environmental Impact Management (EIA)**

I) Definition, Objectives of EIA .EIA procedure in detail, Role of different actors in EIA, components of EIA, Areas of human concern (Impact categories), Contents of EIA, Categories of projects under EIA, Introduction to Impact assessment methods such as Leopold matrix Legal provision for public participation in India,

Role of general public in Environmental clearance. Limitations of EIA

II) The environmental rules 1999, sitting for industrial process, methodology for preparing environmental impact assessment, role of regulatory agencies and control boards in obtaining Environmental clearance for project.

III) **Case studies:-**Positive and negative environmental impacts of Dams, Express highways, Major industries, Power plants

**Unit 8:** **(7)**

**Miscellaneous Topics**

I) **Removal of Chromium:** General, control methods, reduction precipitation, Ion Exchange, RO, Lime coagulation and adsorption

II) **Removal of Mercury:** General, measurement of mercury, mercury losses in Chlor-Alkali industries, removal of mercury from gaseous streams, removal of Mercury through liquid streams.

III) **Treatment of phenolic effluents:** Introduction, sources of phenols, Treatment and removal.

## INTERNAL CONTINIUOS ASSESSMENT (ICA)

The ICA shall consist assignments on all above units and one industrial visit report.

*w. e. f. Academic Year 2019-20*

**TEXT BOOKS:**

1. Environmental engineering and management- Dhameja, Katson publications, Delhi
2. Air Pollution and control, K.V.S.G. Murli Krishna, Jain Brothers, Delhi
3. Water Management, K.V.S.G. Murli Krishna, Environmental Protection Soc., Kakinada

**REFERENCE BOOKS:**

1. Indian standards BIS
   - -IS/ISO 14001
   - IS/ISO 14004
   - IS/ISO 14011
   - IS/ISO 14010
   - IS/ISO 14012
2. Wastewater treatment and reuse- Metcalf and Eddy, TMG, Delhi
3. Pollution control in process industries- S. P. Mahajan, TMG, Delhi
4. Environmental science and engineering- Henry and Henke, PHI, New Delhi
5. For all environmental acts and updates - **http://www.envfor.nic.in**

*w. e. f. Academic Year 2019-20*

Punyashlok Ahilyadevi Holkar Solapur University, Solapur

पुण्यश्लोक अहिल्यादेवी होळकर
सोलापूर विद्यापीठ
।। विद्यया संपन्नता ।।
NAAC Accredited-2015
'B' Grade (CGPA 2.62)

# Name of the Faculty: Commerce & Management

## Choice Based Credit System

# Syllabus: Master of Business Administration (MBA)

## (w. e. f. June 2020)

1. **MBA Course Structure:**

**MBA COURSE STRUCTURE FOR COLLEGE & UNIVERSITY CAMPUS**
**Choice Based Credit System w.e.f. 2020-21**

**First Semester**

| Paper Code | Title of the Paper | Semester Exam | | | No. of weekly lectures | Credits |
|---|---|---|---|---|---|---|
| | | UP | IA | Total | | |
| **Hard Core** | | | | | | |
| 101 | Principles of Management | 80 | 20 | 100 | 4 | 4 |
| 102 | Financial Accounting | 80 | 20 | 100 | 4 | 4 |
| 103 | Managerial Economics | 80 | 20 | 100 | 4 | 4 |
| 104 | Organizational Behaviour | 80 | 20 | 100 | 4 | 4 |
| 105 | Business Statistics | 80 | 20 | 100 | 4 | 4 |
| **Soft Core (Select Any Two Subjects)** | | | | | | |
| 106 | Computer Operations And Management | 80 | 20 | 100 | 4 | 4 |
| 107 | Business Law. | 80 | 20 | 100 | 4 | 4 |
| 108 | Disaster Management | 80 | 20 | 100 | 4 | 4 |
| 109 | Banking Operations & Services | 80 | 20 | 100 | 4 | 4 |
| **Skill Core** | | | | | | |
| 110 | Enhancing Business Communication Skills | 80 | 20 | 100 | 4 | 4 |

Hard Core and Skill core subjects are compulsory subjects while students can choose **Any Two** subjects **From Soft Core**.

# Semester – I

| Semester : I | Hard Core | Semester Exam | | | L | Credits |
|---|---|---|---|---|---|---|
| Code: 101 | Principles & Practices of Management | Theory | I A | Total | | |
| Subject Title | | 80 | 20 | 100 | 4 | 4 |
| Course Objectives | 1. To introduce the functions of management in the workplace.<br>2. To develop holistic approach to management.<br>3. To makes students as effective manager. | | | | | |
| Course Outcomes | • Better understanding of management and link them to organizational contexts<br>• Developing students regarding skills of management<br>• Better decision making ability | | | | | |
| Module 1 | **Introduction** | | | | | |
| Concept, definitions and levels, basic managerial roles, skills and functions, Evolution of management thought- F.W. Taylor & Henry Fayol contribution, modern management- Bottom of Pyramid- Prof. C.K. Pralahad, Characteristics of 21st century executives, Social responsibility of managers. | | | | | | |
| Module 2 | **Business Environment and Planning** | | | | | |
| Concept of environment, factors of environment and changing Indian business environment, meaning, definition importance and nature of planning, steps and levels in planning process; kinds of organizational plans- strategic, tactical and operational. Objectives – management by objectives (MBO) method. Decision making-types, decision making conditions and steps in decision making | | | | | | |
| Module 3 | **Organizing and Staffing** | | | | | |
| Definition, basic elements of organizing and types of organizations, Departmentalization, basis for departmentalization, reporting relationships and authority distribution. Forms of organization structure -functional, flat, project & matrix etc. work from home, outsourcing, virtual organizations, and boundary less organizations, Concept, elements, functions of staffing, advantages of proper staffing, Concept, elements, functions of staffing, advantages of proper staffing.<br>**Staffing:** - Meaning, Principles in Staffing, Staffing Functions | | | | | | |

| Module 4 | Directing |
|---|---|
| Concept and importance, concept of motivation, Theories of motivation –Maslow theory of human needs, Herzberg's theory of motivation, Stacy Adam's Equity theory, McGregor's theory X & theory Y, William Ouchi- Theory Z and Edwin A. Locke | |
| **Module 5** | **Leadership, Creativity and Innovation** |
| Leadership-traits, styles, behavior – Likert's four systems, Managerial Grid, Hersey-Blanchard's Situational Model, Leadership styles in Indian organizations, Transactional and transformational theory Creativity, creative thinking, characteristics of creative people, stimulating innovation in organizations. | |
| **Module 6** | **Controlling** |
| Concept, importance of controlling, controlling process, types of control, factors influencing control effectiveness. | |
| **Recommended Books** | 1. Management Text and Cases - V S P Rao, Excel Books (ISBN : 978-81-7446-317-3)<br>2. Principles of Management - P C Tripathi and P N Reddy, Himalaya Publishing House (ISBN-10: 978-00-7133-333-9; ISBN-13: 978-00-7133-333-7) 978-93-5260-535-4<br>3. Principles and Practice of Management - L M Prasad, S. Chand and Sons (ISBN : 978-93-5161-050-2)<br>4. Principles of Management - T. Ramaswamy, McGraw Hill Education - (ISBN-10: 818-48-8871-6, ISBN-13:978-81-8488-87-1)<br>5. Principles of Management - Knootz & O'Donell, Tata McGraw Hill (ISBN-10:0070581924, ISBN-13:978-00-7058-192-)0<br>6. Principles of Management - Meena Sharma, Himalaya Publishing House (ISBN-10: 93-5202-192-4, ISBN-13: 978-93-5202-192-5) |

| Semester : I | Skill Core | Semester Exam | | | L | Credits |
|---|---|---|---|---|---|---|
| Code: 110 | Enhancing Business Communication Skills | Theory | I A | Total | | |
| Subject Title | | 80 | 20 | 100 | 4 | 4 |
| Course Objectives | 1. To enlighten the students about the fundamentals of Business Communication and enhance their skills necessary for day-today communication<br>2. To give practical knowledge in order to prepare for effective presentation, business writing, reporting, presenting during job interviews, etc.<br>3. To focus on competence and project them positive in terms of overall personality and grooming. | | | | | |
| Course Outcomes: | • This course will help students to learn the effective techniques of business communication.<br>• The course will help students learn to communicate professionally both in writing as well as ora'.<br>• The course will help gain more competence than existing and enhance the personality. | | | | | |
| Module 1 | **Business Communication** | | | | | |
| Meaning; Process of communication; Channels of Communication - Concept, Medias; Barriers to communication; Guidelines to overcome communication barriers. | | | | | | |
| Module 2 | **Basics of Communication** | | | | | |
| a) **Effective Listening:** Process of listening; Types of listening; Listening Comprehension; Listening to structured Talks; Guidelines for effective listening.<br>b) **Effective Conversation:** Concept, Social Conversation; Conversation Control; Transactional Analysis (TA); Applications of Conversational Control<br>c) **Non Verbal Communication:** Concept; Use of Non-verbal communication; Sign Language; Body language; Paralanguage (Concept and its components) | | | | | | |
| Module 3 | **Employment Communication** | | | | | |
| Presentation: Process of making a business presentation- Planning the presentation; Preparing the Presentation; Organizing the Presentation; Rehearsing the presentation; Improving delivery of presentation. | | | | | | |

| Module 4 | Managerial Writing |
|---|---|
| Principles of Effective Writing; Parts & Style of Business Letters; Business Letters:- Enquiry letter, Quotation; Letters placing Orders, Complaint Letter, Adjustment Letters, Sales letter, Collection letters; Reports: Concept - Types of reports , Parts of Reports; Report Drafting. | |
| **Module 5** | **CVs, Personal Interviews and Group Discussions** |
| Writing CV/ Resume, Guidelines for preparing good CV; Interviews- Types of Interview, areas of assessment in Job Interview, Focus of Job Interviews, Group Discussion- Participation in a Group Discussion | |
| **Module 6** | **Communication Technology** |
| Email (Mailing List & News Groups), Teleconference & Videoconferencing (Like Skype, etc); Fax; Social Media; Chat Rooms & Forums; Web (Concept, Features, Advantages and Disadvantages) | |
| **Recommended Books** | 1. Effective Technical Communication - M Ashraf Rizvi, Tata McGraw Hill (ISBN:1259082512, 978-12-5908-251-1)<br>2. Managerial Communication – Urmila Rai and S. M.Rai, Himalaya Publishing House (ISBN-10: 9350247992, ISBN-13: 978-93-5024-799-0)<br>3. Business Communication : Skills, Concepts and Applications – P. D. Chaturvedi, Mukesh Chaturvedi, Pearson Education (ISBN: 978-81-3171-872-8, 8131718727)<br>4. Communication – C. S. Rayudu, Himalaya Publishing House (ISBN Number : 978-93-5051-953-0) |

| Semester : II | Soft Core | Semester Exam | | | L | Credits |
|---|---|---|---|---|---|---|
| Code: 116 | Event Management | Theory | I A | Total | | |
| Subject Title | | 80 | 20 | 100 | 4 | 4 |
| Course Objectives | 1. To understand different types of events and scope.<br>2. To know various procedures, licenses and permissions required for events<br>3. To familiarize students with various opportunities in Event Management industry. | | | | | |
| Course Outcomes: | • At the end of the course, students shall understand and get overview of Event Management, thereby take interest and can find employment and business opportunities in this attractive industry. | | | | | |
| Module 1 | **Introduction to Event Management** | | | | | |
| Event – Meaning – Why Event Management? – Analysis of Event, Scope of Event, Decision Makers – Event Manager, Technical Staff – Establishing of Policies and Procedure – Developing Record Keeping Systems. | | | | | | |
| Module 2 | **Event Management Procedure** | | | | | |
| Factors for successful conduct, General Details, Permissions – Policies, Government and Local Authorities – Phonographic Performance, License, Utilities – Fire Brigade, Ambulance, Catering, Electricity, Water, Taxes. | | | | | | |
| Module 3 | **Conduct of an Event** | | | | | |
| Preparing a Planning Schedule, Organizing and Staffing, Assigning Responsibility, Communication and Budget of Event – Checklist, Computer Aided Event Management, Roles and Responsibilities of Event Managers for Different Events. | | | | | | |
| Module 4 | **Public Relations** | | | | | |
| Introduction to Public Relations – Concept – Nature – Importance – Limitations – Media – Types of Media – Media Management, Public Relation Strategy and Planning. Brainstorming Sessions – Writings for Public Relations. | | | | | | |
| Module 5 | **Corporate Events** | | | | | |
| Planning of Corporate Event, Job Responsibility of Corporate Events Organizer, Arrangements, Budgeting, Safety of Guests and Participants, Creating Blueprint, Need for Entertainment in Corporate Events. | | | | | | |

| Module 6 | Career Opportunities in Event Management |
|---|---|
| Job Opportunities, Various Roles and Responsibilities. | |
| Students are supposed to carry out activities like –<br>a) Preparation of Event Plan for Wedding, Annual General Body Meeting of an MNC.<br>b) Preparation of Budget for Conduct of National Level Intercollegiate Sports Events.<br>c) Preparation of Event Plan for College Day Celebrations.<br>d) Preparation of Budget for Conducting Intercollegiate Commerce Fest<br>e) Event Plan for small events like Birthdays, Get together, Family function etc. | |
| **Recommended Books** | 1. Principles of Event Management – Annie Stephen & Hariharan, Himalaya Publishing House<br>2. Event Management – Annie Stephen & Hariharan, Himalaya Publishing House<br>3. Event Marketing and Management – Sanja Singh Gaur & Sanjay V. Saggere, Vikas Publications<br>4. Event Management – Lynn Van Der Wagen & Brenda R. Carlos, Pearson Higher Education<br>5. Event Management- Principles & Practice – Razaq Raj, Paul Walters, Tahir Rashid, SAGE Publications Ltd |

| Semester : II | Hard Core | Semester Exam | | | L | Credits |
|---|---|---|---|---|---|---|
| Code: 113 | Human Resource Management | Theory | I A | Total | | |
| Subject Title | | 80 | 20 | 100 | 4 | 4 |
| Course Objectives | 1. To prepare a student for a career in industry and services.<br>2. To facilitate learning in modern concepts, techniques and practices in the management of human resources.<br>3. To expose the student to different functional areas of Human Resource Management to enhance the effectiveness. | | | | | |
| Course Outcomes: | • Understand the concept, objectives and changing role of HRM<br>• Understand procurement process that includes; HRP, factors affecting Recruitment sources, selection process and placement<br>• Differentiate training and development and understand methods of training<br>• Analyze the need and problems of performance appraisal | | | | | |
| Module 1 | **Introduction to HRM** | | | | | |
| Introduction to Human Resource Management - Definition, Objectives, Importance, Functions of HRM- Managerial & operative. Personnel Management Vs. Human Resource Management, HRM and HRD, Human Resource Development: Concept, Objectives, Significance, Benefits, Subsystems, HRD Process. | | | | | | |
| Module 2 | **Job analysis & Human Resource Planning** | | | | | |
| Job Analysis: Meaning, process of Job Analysis, methods of collecting job analysis data, Job Description and Job Specification.<br>Human Resources Planning-Objectives, Importance, HRP Process. | | | | | | |
| Module 3 | **Recruitment and Selection** | | | | | |
| Recruitment-Sources of Recruitment-Selection Process-Placement and Induction-Retention of Employees.<br>Selection: Definition and Selection Procedure. Placement: Meaning, Induction/Orientation. | | | | | | |
| Module 4 | **Training and Development** | | | | | |
| Training and Development- Objectives and Needs-Training Process-Methods of Training –Tools and Aids. Difference between training and Development, Evaluation of Training Programs. | | | | | | |

| Module 5 | Performance appraisal and Career Planning |
|---|---|
| • Performance Appraisal: Meaning, Need, Problems of Performance Appraisal, Process of Performance Appraisal, Methods to performance appraisal – Traditional and Modern methods.<br>• Career Planning: - Meaning, use of career planning, Mobility of employees: - Internal and External, Succession Planning. | |
| **Module 6** | **New Trends in HR.** |
| HR in Virtual organisation, HR Accounting and Auditing, HRIS, Flexi time, Dual career, Glass ceiling of employees. Moonlighting of employees, International HRM and Cross Culture. Emerging concepts like Employee Engagement & Employer Branding. Green HRM, HR Capital, Talent Management, HR Metrics, HR Balance Scorecard, Competency Mapping. | |
| **Recommended Books** | 1. Human Resource Management - Gary Dessler., Prentice Hall India.<br>2. Human Resource Management- Text and Cases. K. Aswathappa, (HPH)<br>3. Human Resource Management. P.Subba Rao Himalaya Publishing House (HPH).<br>4. Personnel Management – C.B Mamoria.<br>5. Human Resource Management: Text and Cases - VSP Rao.<br>6. Personnel/ Human Resource Management by David DeCenzo, Stephen Robbins, Prentice Hall of India. |

| Module 5 | Performance appraisal and Career Planning |
|---|---|
| • Performance Appraisal: Meaning, Need, Problems of Performance Appraisal, Process of Performance Appraisal, Methods to performance appraisal – Traditional and Modern methods.<br>• Career Planning: - Meaning, use of career planning, Mobility of employees: - Internal and External, Succession Planning. | |
| **Module 6** | **New Trends in HR.** |
| HR in Virtual organisation, HR Accounting and Auditing, HRIS, Flexi time, Dual career, Glass ceiling of employees. Moonlighting of employees, International HRM and Cross Culture. Emerging concepts like Employee Engagement & Employer Branding. Green HRM, HR Capital, Talent Management, HR Metrics, HR Balance Scorecard, Competency Mapping. | |
| **Recommended Books** | 1. Human Resource Management - Gary Dessler., Prentice Hall India.<br>2. Human Resource Management- Text and Cases. K. Aswathappa, (HPH)<br>3. Human Resource Management. P.Subba Rao Himalaya Publishing House (HPH).<br>4. Personnel Management – C.B Mamoria.<br>5. Human Resource Management: Text and Cases - VSP Rao.<br>6. Personnel/ Human Resource Management by David DeCenzo, Stephen Robbins, Prentice Hall of India. |