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

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

Sr. No.	Department	Class	Name of the Course	Issue Addressed	Description
Academic Year: 2023-2024					
1	First Year Engineering	F.Y. B. Tech.	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
2			Sports and Yoga or NSS / NCC / UBA (Liberal Learning Course-I)	Human Values and Professional Ethics	Participation in sports, yoga, and NSS/NCC/UBA fosters teamwork, discipline, leadership, and integrity, aligning with professional ethics by promoting responsibility, fairness, and respect. Yoga enhances mindfulness and self-awareness, while NSS/NCC/UBA encourages community service, empathy, and social responsibility, nurturing compassion, cooperation, and holistic personal development.

Sr. No.	Department	Class	Name of the Course	Issue Addressed	Description
3	First Year Engineering	F.Y. B. Tech.	Professional Personality Development (Liberal Learning Course-II)	Human Values and Professional Ethics	The course develops communication, leadership, and decision-making skills while fostering ethical behavior, integrity, and accountability. It also nurtures empathy, emotional intelligence, and interpersonal skills, promoting respect and cooperation for a values-driven professional personality.
4	First Year Engineering	F.Y. B. Tech.	Introduction to Indian Knowledge System	Human Values, Professional Ethics, Environment and Sustainability	The Introduction to Indian Knowledge System course addresses Human Values, Professional Ethics, and Environment & Sustainability by: Human Values: Drawing from Indian mathematics, astronomy, and linguistics, it promotes respect for cultural heritage and moral principles like compassion and integrity. Professional Ethics: Through ancient Indian engineering, such as irrigation and physical structures, it teaches ethical practices, duty (dharma), and responsibility. Environment & Sustainability: The course highlights traditional water management and sustainable agriculture, emphasizing ecological wisdom and harmony with nature. Overall, it fosters ethical, responsible, and sustainable approaches rooted in India's scientific and technological legacy.

Sr. No.	Department	Class	Name of the Course	Issue Addressed	Description
5	First Year Engineering	F.Y. B. Tech.	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.

Sr. No.	Department	Class	Name of the Course	Issue Addressed	Description
6	All UG Departments	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	All UG 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.

Sr. No.	Department	Class	Name of the Course	Issue Addressed	Description
8	All UG Departments	T.Y. B.Tech.	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.
9	All UG Departments	T.Y. B.Tech.	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.

Sr. No.	Department	Class	Name of the Course	Issue Addressed	Description
10	All UG Departments	T.Y. B.Tech.	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.

Sr. No.	Department	Class	Name of the Course	Issue Addressed	Description
11	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.
12		Final Year B.Tech.	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.
13	Electronics & Telecommunication Engineering	T.Y B.Tech.	Open Elective I- Project Management & Operation Research	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.

Sr. No.	Department	Class	Name of the Course	Issue Addressed	Description
14	Computer Science & Engineering	T.Y. B.Tech.	Open Elective: Engineering Economics and Management	Human Values and Professional Ethics	Engineering Economics and Management is a pivotal course that equips engineering professionals with essential skills to navigate the intersection of technical and business aspects within the field. This interdisciplinary course integrates economic principles and management strategies to provide engineers with a holistic understanding of decision-making processes in engineering projects. Students learn to evaluate the financial feasibility of projects, considering factors such as cost estimation, risk analysis, and return on investment.

Sr. No.	Department	Class	Name of the Course	Issue Addressed	Description
15	Electrical Engineering	T.Y.B. Tech.	Open Elective-I Managerial Economics	Human Values and 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.
16			Open Elective-I Business Ethics	Human Values and Professional Ethics	This Course deals with the concept of business ethics. It also deals with the decision and managemnt in the business ethics, framing business ethics.

Sr. No.	Department	Class	Name of the Course	Issue Addressed	Description
17	Civil Engineering	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			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.
19		T.Y.B. Tech.	Environmental Engineering-II	Environment and Sustainability	This course deals with design of aerobic and anaerobic wastewater treatment units and disposal of treated wastewater into the streams, novel decentralized wastewater treatment systems, s selection of appropriate methods of Solid waste Disposal and Management of hazardous waste based on their characteristics and analysis of air pollution and adopt various measures to control air pollution.

Sr. No.	Department	Class	Name of the Course	Issue Addressed	Description
20	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.
21			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
22			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.

Sr. No.	Department	Class	Name of the Course	Issue Addressed	Description
23	Civil Engineering	Final Year B.Tech.	Professional Elective Course- III Air & Noise Pollution and 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, Basic information about Noise and its control.
24			Professional Practice, Law & Ethics	Professional Ethics	This course deals with fundamental ethics governing the profession society as practitioners of the civil engineering profession.

Sr. No.	Department	Class	Name of the Course	Issue Addressed	Description
25	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.
26			Entrepreneurship Development	Professional Ethics	This course make students know about the supportive environment for Entrepreneurship
27			Business Ethics & Corporate Governance	Professional Ethics	the students aware about the importance of ethics in the business, practices of good governance to encourage moral imagination and heightening sensitivity towards the ethical dimension of managerial problems.
28			International Marketing	Professional Ethics	This Subject covers International Marketing Communication, Ethics in International Marketing, Social responsibility in international marketing.

Sr. No.	Department	Class	Name of the Course	Issue Addressed	Description
29	Master of Business Administration (MBA)	MBA-I	Principles of Management	Professional Ethics	This course explains the knowledge about Ethics, Social responsibility, Corporate Social responsibility.
30			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.
31			Event Management	Environment and Sustainability, Human Values	Be aware of event management as a profession,gain basic knowledge about establishing and managing an event, understand and develop soft skills that would help in event management
32			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

NAAC Accredited-2022
'B^{++}' Grade (CGPA 2.96)

Name of the Faculty: Science & Technology

New Education Policy 2020

Syllabus: First Year B. Tech. (All Branches)

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

(Syllabus to be implemented from June 2023)

PUNYASHLOK AHILYADEVI HOLKAR SOLAPUR UNIVERSITY, SOLAPUR

FACULTY OF SCIENCE & TECHNOLOGY

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

With effect from 2023-2024

Semester I:

Course Type	*Course Code*	*Name of the Course*	*Engagement Hours*		*Credits*	*FA*	*SA*		*Total*
			L	*P*		*ESE*	*ISE*	*ICA*	
BSC	BSC-01/ BSC-02	Engineering Physics / Engineering Chemistry $	3	2	4	70	30	25	125
	BSC-03	Engineering Mathematics-I	3	2	4	70	30	25	125
ESC	ESC-01/ ESC-02	Basics of Civil and Mechanical Engineering / Basic Electrical & Electronics Engineering #	3	2	4	70	30	25	125
	ESC-03	Engineering Mechanics	3	2	4	70	30	25	125
AEC	AEC-01	Communication Skills	1	2	2	-	25	25	50
CC	CC-01	Sports and Yoga or NSS / NCC / UBA (Liberal Learning Course-I)	1	2	2	-	-	25	25
SEC	SEC-01	Workshop Practices	-	2	1	-	-	25	25
Total			**14**	**14**	**21**	**280**	**145**	**175**	**600**
Student Induction Program**									

Semester II

Course Type	*Course Code*	*Name of the Course*	*Engagement Hours*		*Credits*	*FA*	*SA*		*Total*
			L	*P*		*ESE*	*ISE*	*ICA*	
BSC	BSC-01/ BSC-02	Engineering Physics / Engineering Chemistry $	3	2	4	70	30	25	125
	BSC-04	Engineering Mathematics - II	3	2	4	70	30	25	125
ESC	ESC-01/ ESC-02	Basics of Civil and Mechanical Engineering / Basic Electrical & Electronics Engineering #	3	2	4	70	30	25	125
	ESC-04	Engineering Graphics and CAD	-	4	2	-	25	50	75
SEC	SEC-02	Data Analysis and Programming Skills	1	2	2	-	25	25	50
CC	CC-02	Professional Personality Development (Liberal Learning Course-II)	1	2	2	-	25	25	50
IKS	IKS-01	Introduction to Indian Knowledge System	2	-	2	-	25	25*	50
Total			**13**	**14**	**20**	**210**	**190**	**200**	**600**
Democracy, Elections and Good Governance *			**1**			**50**			

***For IKS activity report should be submitted**

BSC- Basic Science Course **ESC-** Engineering Science Course, **PCC-** Programme Core Course ,

AEC- Ability Enhancement Course, **IKS-** Indian Knowledge System, **CC-** Co-curricular Courses ,

VSEC-Vocational and Skill Enhancement Course

- Notations used–

L : Lecture **P :** Lab Sessions

FA : Formative Assessment **SA :** Summative Assessment

ESE : End Semester Examination **ISE :** In Semester Evaluation

ICA : Internal Continuous Assessment

- **Notes-**

1. $ - Indicates student may choose Engineering Physics or Engineering Chemistry in either first or second semester. Those who have taken Engineering Physics in first semester will take Engineering Chemistry in second semester. Those who have taken Engineering Chemistry in first semester will take Engineering Physics in second semester.
2. # - Indicates student may choose Basics of Civil and Mechanical Engineering or Basic Electrical & Electronics Engineering in either first or second semester. Those who have taken Basics of Civil and Mechanical Engineering in first semester will take Basic Electrical & Electronics Engineering in second semester. Those who have taken Basic Electrical & Electronics Engineering in first semester will take Basics of Civil and Mechanical Engineering in second semester.
3. For the Course Basic Electrical & Electronics Engineering, practical of Basic Electrical Engineering and Basic Electronics Engineering will be conducted in alternate weeks.
4. For the Course Basics of Civil and Mechanical Engineering, practical of Basics of Civil Engineering and Basics of Mechanical Engineering will be conducted in alternate weeks.
5. In Semester Evaluation (ISE) marks shall be based upon student's performance in three tests conducted & evaluated at institute level.
6. Internal Continuous Assessment Marks (ICA) is calculated based upon student's performance during practical sessions.
7. *- 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.
8. Student must complete induction program of minimum five days before commencement of the regular academic schedule at the first semester.

**** GUIDELINES FOR STUDENT INDUCTION PROGRAM**

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,

P. A. H. Solapur University, Solapur

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

Ability Enhancement Course (AEC-01)

COMMUNICATION SKILLS

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

Examination Scheme
ISE – 25 Marks
ICA– 25 Marks

- **Course Objectives:**

AEC-01.O1	To make students understand English grammar and its application in communication
AEC-01.O2	To prepare students for competitive exams with focus on verbal ability
AEC-01.O3	To develop students' oral communication skills
AEC-01.O4	To enhance reading and comprehension skills of the students
AEC-01.O5	To prepare students for professional written communication
AEC-01.O6	To develop and enhance communication skills of students

- **Course Outcomes:**

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

AEC-01.1	Understand English grammar and apply it in communication.
AEC-01.2	Prepare for competitive exams with focus on verbal ability.
AEC-01.3	Develop oral communication skills.
AEC-01.4	Enhance reading and comprehension skills.
AEC-01.5	Prepare for professional written communication.
AEC-01.6	Develop and enhance communication skills.

- **Course Curriculum**

Unit No. 01: English Grammar			**Hours: 06**	
Sr. No.	*Subunit*	*Hours*	*Assessment*	*Bloom's Level*
1.1	Parts of Speech	01	Sentence formation, corrections/ error finding	Remembering, Understanding, Applying
1.2	Tenses	02	Sentence formation, corrections / error finding	Remembering, Understanding, Applying
1.3	Types of Sentences	01	Sentence formation & Conversion	Remembering, Understanding, Applying
1.4	Change the Voice	01	Sentence formation & Conversion	Remembering, Understanding, Applying
1.5	Articles	01	Sentence formation, corrections / error finding	Remembering, Understanding, Applying
Unit No. 02: Vocabulary Building			**Hours: 02**	
Sr. No.	*Subunit*	*Hours*	*Assessment*	*Bloom's Level*
2.1	Synonyms & Antonyms	01	Finding Synonym / Antonym of the given word	Remembering, Understanding, Applying
2.2	Idioms & Phrases	01	Identifying Meaning of the idioms and phrases	Remembering, Understanding, Applying
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 conversation based on a situation	Remembering, Understanding, Applying
3.2	Describing Objects, Narration of Events	01	Description of Objects and Narration of Events	Remembering, Understanding, Applying
Unit No. 04: Reading Comprehension			**Hours: 02**	
Sr. No.	*Subunit*	*Hours*	*Assessment*	*Bloom's Level*
4.0	Reading Comprehension	02	Questions based on Comprehension passage	Remembering, Understanding, Applying
Unit No. 05: Writing Practices			**Hours: 03**	
Sr. No.	*Subunit*	*Hours*	*Assessment*	*Bloom's Level*
5.1	Business Correspondence: Enquiry Letter, Order Letter, Complaint Letter, Adjustment Letter	01	Writing a professional / business letter	Remembering, Understanding, Applying
5.2	Office Drafting: Notice, Agenda & E-mail	01	Drafting Professional Notices, Agenda & e-mails	Remembering, Understanding, Applying
5.3	Job Application with Resume	01	Writing Job Application with Resume for various posts	Remembering, Understanding, Applying

In Semester Evaluation (ISE)–

ISE shall be based upon student's performance in three tests conducted & evaluated at institute level

- **Internal Continuous Assessment (ICA)-**
  ICA shall be based on the performance of the student during the practical sessions covering a minimum of 12 exercises out of below-

    1. Grammar Exercise –I based on Parts of Speech
    2. Grammar Exercise –II based on Tenses
    3. Grammar Exercise –III based on Types of Sentences
    4. Grammar Exercise –IV based on Change the Voice
    5. Grammar Exercise –IV based on articles
    6. Vocabulary – Based on the synonym and antonym of the given word
    7. Exercise on Idioms and Phrases
    8. Writing conversation based on formal situation
    9. Writing conversation based on informal situation
    10. Description of Objects/Narration of Events on a given topic/situation
    11. Exercise based on reading comprehension
    12. Business Letter Writing
    13. Professional Notice, Agenda and E mail writing
    14. Writing Job Application with Resume

Text Books:

1. English Grammar Just for You. Rajeevan Karal. 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 Pushpa Lata. Oxford University Press.2011

References Books:

1. English Grammar & Composition, Wrenn & Martin, S. Chand
2. Practical English Usage. Michael Swan. OUP.1995.
3. Remedial English Grammar. F.T Wood. Macmillan.2007.
4. On Writing Well. William Zinsser. Harper Resource Book.2001.
5. Business Communication, Shalini Kalia, Shailja Agarwal, 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

CC-01 SPORTS & YOGA / NCC / NSS/UBA
(Liberal Learning Course-I)

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

Examination Scheme
ICA-25Marks

- **Course Objectives:**

CC-01.O1	To introduce the learners to the concept of Physical Education and Sports its relevance in daily life.
CC-01.O2	To familiarize the learners with health -related Exercises, Sports and Yoga for overall growth & development.
CC-01.O3	To create a foundation for the professionals in Physical Education and Sports.
CC-01.O4	To Create Awareness about NSS/NCC for the Social Cause.
CC-01.O5	To create the interest of students in liberal arts.

- **Course Outcomes:**

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

CC-01.1	Understand the basic principles and practices of Physical Education & Sports.
CC-01.2	Understand and apply the concepts of Physical Education, Sports and Yoga with its various implications.
CC-01.3	Develop professionalism among students to conduct, organize & officiate, Physical Education and Sports events at schools, colleges and community.
CC-01.4	Understand and apply the knowledge of NSS/NCC in the social fabric system.
CC-01.5	Become free thinker, open communicator, knowledgeable citizens and respectable individuals.

- **Course Curriculum**

Unit No.01: Introduction to Physical Education and Sports.			**Hours: 06**	
Sr. No.	*Subunit*	*Hours*	*Assessment*	*Bloom's Level*
1.1	Meaning, Definition and Importance of Physical Education & Sports	01	Specific Warm-Up and Cool Down	Remembering, Understanding, Applying
1.2	Aims and Objective of Physical Education & Sports	02	Fundamental Techniques, Skills, Drills, Tactics, of the specific Game (Hockey, Kho –Kho , Kabaddi, etc.)	Remembering, Understanding, Applying
1.3	Career Opportunities in Physical Education and Sports	01	Specific Fitness for specific Sport/Game track events, field events.	Remembering, Understanding, Applying
1.4	Brief Introduction of One Major Game and One Indigenous ,Modern trends of Physical Education and Sports	01	Officiating of the Specific Game, Intramural and Extramural Competitions, weight training, circuit training, calisthenics	Remembering, Understanding, Applying
Unit No.02: Yoga			**Hours: 02**	
Sr. No.	*Subunit*	*Hours*	*Assessment*	*Bloom'sLevel*
2.1	Principles of Yogic practician's	01	Standing, Sitting, Supine, Proline and Balancing Asanas.	Remembering,Understanding, Applying
2.2	Ashtanga Yoga, Shitalikarna Vyayama, Suryanamaskara	01	Techniques of Pranayama ,Basic set of Meditation	Remembering,Understanding, Applying
Unit No.03: National Service Scheme (NSS)			**Hours: 02**	
Sr. No.	*Subunit*	*Hours*	*Assessment*	*Bloom'sLevel*
3.1	Importance and role of youth leadership and Youth development programmes	01	Meaning, types and traits of leadership, qualities of good leaders; importance and roles of youth leadership	Remembering,Understanding, Applying
3.2	Life competencies	01	Definition and importance of life competencies, problem-solving and decision-making, inter personal communication	Remembering,Understanding, Applying
3.3	Health, hygiene and sanitation		Definition needs and scope of health education; role of food, nutrition, safe drinking water, water born diseases and sanitation (Swachh Bharat Abhiyan) for health; national health programmes and reproductive health	Remembering, Understanding, Applying

Unit No.04: National Cadet Corps (NCC)		**Hours: 03**		
Sr.No.	*Subunit*	*Hours*	*Assessment*	*Bloom'sLevel*
4.1	Basic Information about National Cadet Corps	01	Arms Drill- Attention, stand at ease, stand easy. Getting on parade. Dismissing and falling out. Ground/take up arms, examine arms.	Remembering, Understanding, Applying
Unit No.05: Liberal And Arts		**Hours: 02**		
Sr.No.	*Subunit*	*Hours*	*Assessment*	*Bloom'sLevel*
5.1	Literary and Cultural Studies, Media Studies , Historical Studies and Material Culture, Psychology, International Relations and Political Science ,Economics	02	The students will also be required to take in participation in the creative expressions-based courses (Music/Theatre/Dance).	Remembering, Understanding, Applying

Note:

1) Uniform: Students are encouraged to wear uniform during practical sessions: Preferably White Tee Shirt, Track Pants, Shoes and Socks.

2) The games mentioned in the practical may be changed depending on the season and facilities.

Internal Continuous Assessment (ICA) –

ICA Shall be based on the performance of student during the practical sessions and covering performance on the field.

P. A. H. Solapur University, Solapur

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

CO-CURRICULAR COURSE (CC-02)

PROFESSIONAL PERSONALITY DEVELOPMENT

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

Examination Scheme
ISE – 25Marks
ICA– 25Marks

- **Course Objectives:**

01	To develop students' personality
02	To equip students with skills for effective participation in group discussion
03	To equip students with skills for performing effectively in personal interviews
04	To develop students' effective presentations skills
05	To inculcate soft skills among students for professional success
06	To develop students' approach for personal and professional success

- **Course Outcomes:**

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

CO-01	Understand the concept of personality development and do the SWOC analysis.
CO-02	Participate effectively in group discussion.
CO-03	Perform effectively in personal interview.
CO-04	Prepare good quality presentation and deliver it effectively.
CO-05	Inculcate soft skills for professional success.
CO-06	Develop right approach for personal and professional success.

- **Course Curriculum**

Unit No 01: Introduction to Personality Development			**Hours: 02**	
Sr. No.	*Subunit*	*Hours*	*Assessment*	*Bloom's Level*
1.1	Need and Importance of Personality Development Guidelines for Personality Development	01	Identification of Steps in Personality Development	Remembering, Understanding, Applying
1.2	Personal SWOC Analysis	01	SWOC analysis exercise	Remembering, Understanding, Applying
Unit No 02: Group Discussion			**Hours: 02**	
Sr. No.	*Subunit*	*Hours*	*Assessment*	*Bloom's Level*
2.0	Group Discussion- Introduction, Traits Evaluated, Types, Guidelines for Successful Participation	02	Mock Group Discussion	Remembering, Understanding, Applying
Unit No 03: Personal Interview			**Hours: 03**	
Sr. No.	*Subunit*	*Hours*	*Assessment*	*Bloom's Level*
3.0	Introduction, Types of Interviews, Preparatory Steps for Employment Interviews, Guidelines, FAQs During Interviews	03	Mock Personal Interview	Remembering, Understanding, Applying
Unit No 04: Presentation Skills			**Hours: 02**	
Sr. No.	*Subunit*	*Hours*	*Assessment*	*Bloom's Level*
4.1	Presentation- Introduction, 4 Ps of Presentation: Planning, Preparation, Practice and Performance	01	Preparing Presentations (4 Ps of Presentation)	Remembering, Understanding, Applying
4.2	Guidelines for Delivering Presentation	01	Presenting the given Topic	Remembering, Understanding, Applying
Unit No 05: Aspects of Personality Development			**Hours: 06**	
Sr. No.	*Subunit*	*Hours*	*Assessment*	*Bloom's Level*
5.1	Goal Setting	06	Assessment through presentation, exercise, case study, role play,skit and group activity	Remembering, Understanding, Applying
5.2	Motivation			
5.3	Leadership and Team Work			
5.4	Ethical Values			
5.5	Stress Management			
5.6	Emotional Intelligence			
5.7	Positive Thinking and Attitude			
5.8	Critical Thinking & Decision Making			
5.9	Time Management			

In Semester Evaluation (ISE)–

ISE shall be based upon student's performance in three tests conducted & evaluated at institute level

Internal Continuous Assessment (ICA)-

ICA shall be based on the performance of the student during the practical sessions covering a minimum of 12 exercises out of below-

1. Writing guidelines for personality development
2. Self SWOC analysis
3. Dos and Don'ts of a group discussion
4. Writing views on a topic for group discussion in about 180 words
5. Dos and Don'ts personal interview
6. Writing responses to the frequently asked questions in a personal interview
7. PowerPoint presentation preparation and delivery
8. Writing self-short term and long-term goals
9. Stephen Covey's four quadrants of Time Management
10. Steps in decision making
11. Case study on stress management
12. Case study on success stories, positive thinking
13. Types of Motivation
14. Writing qualities of a good leader

✓ *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. Professional Speaking Skills. Aruna Koneru. Oxford University Press
3. Hurlock, E.B (2006). Personality Development, 28th Reprint. New Delhi: Tata McGraw Hill.
4. Stephen P. Robbins and Timothy A. Judge (2014), Organizational Behavior 16th Edition: Prentice Hall.

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. Personality Development- Swami Vivekananda, Advaita Ashram, Kolkata
6. Soft Skills for Mangers. Dr. T. Kalyana Chakravarthi & Dr. T. Latha Chakravarthi Biztantra Publication

P. A. H. Solapur University, Solapur

First Year B. Tech (All Branches) Semester II

Indian Knowledge System (IKS)

IKS-01 Introduction to Indian Knowledge System

Teaching Scheme
Theory– 2 Hr /Week, 1Credit

Examination Scheme
ISE – 25 Marks
ICA – 25* Marks

- **Course Objectives:**

01	In this basic course, a special attention is given to the historical prospective of ideas occurrence in the ancient society, and implication to the concept of material world, and religious, social, and cultural beliefs.

- **Course Outcomes:**

At the end of this course, student will able to:

IKS-01.1	Creating awareness amongst the youths about the true history and rich culture of the country;
IKS-01.2	Understanding the scientific value of the traditional knowledge of Bhārata;
IKS-01.3	Promoting the youths to do research in the various fields of Bhāratīya knowledge system;
IKS-01.4	Converting the Bhāratīya wisdom into the applied aspect of the modern scientific paradigm;
IKS-01.5	Adding career, professional and business opportunities to the youths.

- **Course Curriculum**

Unit No 01: Number Systems and Units of Measurement		**Hours : 05**		
Sr.	*Subunit*	*Hours*	*Assessment*	*Bloom's Level*
1.1	1. Number systems in India - Historical evidence 2. Salient aspects of Indian Mathematics	01	Mock Group Discussion	Understanding, applying
1.2	1.Measurements for time, distance, and weight	01	Mock Group Discussion	Understanding, applying
Unit No 02: Introduction to Indian Mathematics		**Hours : 08**		
Sr.	*Subunit*	*Hours*	*Assessment*	*Bloom's Level*
2.0	1. Introduction to Indian Mathematics 2.Unique aspects of Indian Mathematics 3.Indian Mathematicians and their Contributions 4. Concepts of Zero and Pi, Number System, Pythagoras Theorem, 5. Vedic Mathematics. 6. Magic squares in India	02	Mock Group Discussion	Remembering, understanding, applying
Unit No 03: Indian astronomy		**Hours : 06**		
Sr.	*Subunit*	*Hours*	*Assessment*	*Bloom's Level*
3.0	1. Introduction to Indian astronomy 2. Indian contributions in astronomy 3. The celestial coordinate system 4. Elements of the Indian calendar 5. Notion of years and months 6. Pañcāṅga – The Indian calendar system	03	Mock Group Discussion	Remembering, understanding, applying
Unit No 04: Engineering and Technology: Important applications		**Hours : 07**		
Sr.	*Subunit*	*Hours*	*Assessment*	*Bloom's Level*
4.1	1. Irrigation systems and practices in South India 2. Literary sources for science and technology 3. Physical structures in India 4. Irrigation and water management	01	Mock Group Discussion	Remembering, understanding, applying
4.2	1. Town planning 2. Temples in India: marvelous stone architecture for eternity 3. Temple architecture in India	01	Mock Group Discussion	Remembering, understanding, applying

Unit No 05: Linguistics		**Hours :06**		
Sr.	*Subunit*	*Hours*	*Assessment*	*Bloom's Level*
	1. Introduction to Linguistics 2. Aṣṭādhyāyī 3. Phonetics 4. Word generation 5. Computational aspects 6. Mnemonics 7. Recursive operations 8. Rule based operations 9. Sentence formation 10. Verbs and prefixes 11. Role of Sanskrit in natural language processing	06	Mock Group Discussion	Remembering, understanding, applying

- **In Semester Evaluation (ISE)–**

In Semester Evaluation (ISE) marks shall be based upon student's performance in three tests conducted & evaluated at institute level.

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

**ICA shall be based on submission and evaluation of the activity report writing on Indian Knowledge System.*

- **Text Books:**

- Mahadevan, B., Bhat Vinayak Rajat, Nagendra Pavana R.N. (2022), "Introduction to Indian Knowledge System: Concepts and Applications", PHI Learning Private Ltd. Delhi.
- Textbook on The Knowledge System of Bhārata by Bhag Chand Chauhan,
- History of Science in India Volume-1, Part-I, Part-II, Volume VIII, by Sibaji Raha, et al. National Academy of Sciences, India and The Ramkrishan Mission Institute of Culture, Kolkata (2014).

- **References Books:**

- Pride of India: A Glimpse into India's Scientific Heritage, Samskrita Bharati, New Delhi.
- Sampad and Vijay (2011). "The Wonder that is Sanskrit", Sri Aurobindo Society, Puducherry.
- Bag, A.K. (1979). Mathematics in Ancient and Medieval India, Chaukhamba Orientalia, New Delhi.
- Datta, B. and Singh, A.N. (1962). History of Hindu Mathematics: Parts I and II, Asia Publishing House, Mumbai.
- Kak, S.C. (1987). "On Astronomy in Ancient India", Indian Journal of History of Science, 22(3), pp. 205–221.
- Subbarayappa, B.V. and Sarma, K.V. (1985). Indian Astronomy: A Source Book, Nehru Centre, Mumbai.
- Bag, A.K. (1997). History of Technology in India, Vol. I, Indian National Science Academy, New Delhi.
- Acarya, P.K. (1996). Indian Architecture, Munshiram Manoharlal Publishers, New Delhi.
- Banerjea, P. (1916). Public Administration in Ancient India, Macmillan, London.
- Kapoor Kapil, Singh Avadhesh (2021). "Indian Knowledge Systems Vol – I & II", Indian Institute of Advanced Study ,Shimla ,H.P.

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)

SLH31.2 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 and Technology

Credit System structure of T.Y. B. Tech. Mechanical Engineering W.E.F. 2022-2023 [Semester V]

Semester V: Theory Courses

Course code	Name of Theory Course	Hrs./week				Credits	Examination Scheme			
		L	T	P	D		ISE	ESE	ICA	Total
ME 311	Design of Machine Elements	3	-	-	-	3	30	70	-	100
ME 312	CAD-CAM-CAE	3	-	-	-	3	30	70	-	100
ME 313	Metallurgy	3	-	-	-	3	30	70	-	100
ME 314	Industrial Engineering	3	-	-	-	3	30	70	-	100
ME 315 P	Professional Elective -III	3	-	-	-	3	30	70	-	100
ME 316	Advanced Programming Concepts – I(Python)	1	-	-	-	1				
SLH31	Self Learning -HSS	-	-	-	-	#2	-	50	-	50
	Sub Total	16	-	-	-	16	150	400	-	550

Semester V: 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*		
ME 311	Design of Machine Elements	-	-	2	-	1	-	-	-	25	25
ME 312	CAD CAM CAE	-	-	2	-	1	-	-	-	25	25
ME 313	Metallurgy	-	-	2	-	1	-	-	25	25	50
ME 315 P	Professional Elective -III	-	-	2	-	1	-	-	-	25	25
ME 316	Advanced Programming Concepts - I(Python)	-	-	2	-	1	-	-	-	25	25
Me 317	Workshop Practice - II	-	-	2	-	1	-	-	-	50	50
ME 318	Metrology	-	-	2	-	1	-	25	-	25	50
	Sub Total	-	-	14	-	07	-	50		200	250
	Grand Total	**16**	-	14	-	23	150	450		200	800

Note:# Indicates credits over and above

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

Professional Elective –III: A. Gas Turbines, B. Tool Engineering, C. Industrial Hydraulics Pneumatics D. Mechanical Vibrations

Punyashlok Ahilyadevi Holkar Solapur University, Solapur

Faculty of Science and Technology

Credit System structure of T.Y. B. Tech. Mechanical Engineering W.E.F. 2022-2023 [Semester VI]

Semester VI : Theory Courses

Course code	*Name of Theory Course*	Hrs./week				Credits	Examination Scheme			
		L	T	P	D		ISE	ESE	ICA	Total
ME 321	Transmission System Design	3	-	-	-	3	30	70	-	100
ME 322	Instrumentation and Control Engineering	3	-	-	-	3	30	70	-	100
ME 323	Heat Transfer	3	-	-	-	3	30	70	-	100
ME 324	Industrial & Quality Management	3	-	-	-	3	30	70	-	100
ME 325 P	Professional Elective - IV	3	-	-	-	3	30	70	-	100
ME 327	Advanced Programming Concepts – II(Java)	1	-	-	-	1	-	-	-	-
	Sub Total	**16**	**-**	**-**	**-**	**16**	**150**	**350**	**-**	**500**

Semester VI : 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*		
ME 321	Transmission System Design	-	-	2	-	1	-	-	25	25	50
ME 322	Instrumentation and Control Engineering	-	-	2	-	1	-	-	-	25	25
ME 323	Heat Transfer	-	-	2	-	1	-	25	-	25	50
ME 324	Industrial & Quality Management	-	1	-	-	1	-	-	-	25	25
ME 325 P	Professional Elective - IV	-	-	2	-	1	-	-	-	25	25
ME 326	Workshop Practice - III	-	-	2	-	1	-	-	-	50	50
ME 327	Advanced Programming Concepts – II (Java)	-	-	2	-	1	-	-	-	25	25
ME 328	Mini Project	-	1	-	-	1	-	-	-	50	50
	Sub Total		02	12	-	08	-	50		250	300
	Grand Total	**16**	02	12	-	24	150	400		250	800

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

Professional Elective – IV: A. Project Management, B. Industrial Product Design C. Plastic Engineering, D. Railway Transportation System.

- **Note –**

1. Batch size for the practical /tutorial shall be of 15 students. On forming the batches, if the strength of remaining students exceeds 07, then a new batch shall be formed.
2. Industrial Training (evaluated at Final Year Sem.-I) of minimum 30 days shall be completed in any vacation after S.Y. Sem.-IV but before Final Year Sem.VII & the report shall be submitted and evaluated in Final Year Sem.-VII.
3. Students shall select one Self Learning Module at T.Y. Sem. V from Humanities and Social Sciences.
4. Curriculum for Humanities and Social Sciences Self Learning Modules is common for all under graduate programmes of faculty of Engineering and Technology.

5. **For T. Y. Sem. V**

   A. Student can select a Self Learning Course from PAH Solapur University, Solapur HSS Course List and appear for its examination as and when conducted by PAH Solapur University, Solapur

   OR

   B. 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 PAH Solapur University, Solapur (http://sus.ac.in/uploads/engineering/Eng%20Revised%20Semester%20Pattern/Self%20Learning-%20H.S.S.%20courses%20All%20Engg.Branches_2014-15.pdf). More details about NPTEL are available at http://nptel.ac.in

6. ICA assessment shall be a continuous process based on student's attendance and performance in class tests, assignments, homework, seminars, quizzes, case studies and journals, as applicable.

Punyashlok Ahilyadevi Holkar Solapur University, Solapur

Third Year B.Tech. (Mechanical Engineering)

Semester-VI

ME 324 : Industrial & Quality Management

Teaching Scheme	**Examination Scheme**
Lectures : 03 Hours/week, 03 Credits	**ESE : 70 Marks**
Practical : 01 Hours/week, 01 Credit	**ISE : 30 Marks**
	ICA : 25 Marks

Course Introduction:

Industrial management involves studying structure and organization of industrial organisations. The knowledge of Industrial management comprises of 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 is having two sections wherein, Section I is about general functions of Management applicable to industrial & other organizations whereas Section II contains concept of quality, total quality management and Quality control tools and techniques applicable to understand quality issues in 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:

The course aims to :

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
3. To make students aware about different motivational techniques and leadership styles
4. To give the students overview of working of various departments
5. To introduce various statistical process controls to students

Course Outcomes:

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

1. Understand basics of Industrial Management and their functions.
2. Discuss and demonstrate management functions to various organisations.
3. Explain and apply various quality control/statistical tools for industrial / organizational problems.
4. Understand working of various departments in industry
5. Understand various tools and techniques of total quality management used in industry

Section I

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

Nature, purpose & scope of Management. System's approach to Management, Functions 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, Departmentation, Authority & responsibility, centralised Vs decentralised organisation.

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' theory, Maslow's theory of 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.

Unit-6: Statistical Process Control **No. of lectures-06**

Introduction to SPC, Control charts for variable & attributes, interpretation & applications of X-bar, 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)

Internal Continuous Assessment (ICA):
List of Experiments/Assignments/Case Studies, etc.
Minimum 8 assignments based on above topic out of which 2 case studies related to industry /organisation.

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

FACULTY OF SCIENCE AND TECHNOLOGY

MECHANICAL ENGINEERING

Syllabus Structure for

FINAL YEAR B.TECH. MECHANICAL ENGINEERING

w.e.f.

ACADEMIC YEAR 2023-24

Choice Based Credit System

Punyashlok Ahilyadevi Holkar Solapur University, Solapur

Faculty of Science and Technology

Credit System structure of Final Year B. Tech. Mechanical Engineering W.E.F. 2023-2024 [Semester VII]

Semester VII - Theory Courses

Course code	*Name of Theory Course*	*Hrs./week*				*Credits*	*Examination Scheme*			
		L	*T*	*P*	*D*		*ISE*	*ESE*	*ICA*	*Total*
ME 411	Refrigeration and Air Conditioning	3	-	-	-	3	30	70	-	100
ME 412	Automobile Engineering	3	-	-	-	3	30	70	-	100
ME 413	Automation and Robotics	3	-	-	-	3	30	70	-	100
ME 414 P	Professional Elective-V	3	-	-	-	3	30	70	-	100
ME 415 O	Open Elective-I	3	-	-	-	3	30	70	-	100
	Sub Total	**15**	**-**	**-**	**-**	**15**	**150**	**350**	**-**	**500**

Semester VII - Laboratory / Tutorial Courses

Course code	*Name of Laboratory / Tutorial Course*	*Hrs./week*				*Credits*	*ISE*	*Examination Scheme*			
		L	*T*	*P*	D			*ESE*		*ICA*	*Total*
								POE	*OE*		
ME 411	Refrigeration and Air Conditioning	-	-	2	-	1	-	-	25	25	50
ME 412	Automobile Engineering	-	-	2	-	1	-	-	25	25	50
ME 413	Automation and Robotics	-	-	2	-	1	-	-	-	25	25
ME 414 P	Professional Elective-V	-	-	2	-	1	-	-	-	25	25
ME 415 O	Open Elective-I	-	-	2	-	1	-	-	-	25	25
ME 416	Industrial Training	-	1	-	-	1	-	-	25	50	75
ME 417	Project Phase – I	-	-	4	-	2	-	-	-	50	50
	Sub Total	**-**		**14**	**-**	**08**	**-**	**75**		**225**	**300**
	Grand Total	**15**	**1**	**14**	**-**	**23**	**150**	**425**		**225**	**800**

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

Professional Elective – V: *A. Production and Operations Management, B. Artificial Intelligence & Machine Learning, C. Railway Systems Management D. Analysis and Synthesis of Mechanisms E. Business Economics*

Open Elective – I: *A. Entrepreneurship Development, B. Operations Research, C. Research Methodology D. Supply Chain Management E. Finite Element Method*

Punyashlok Ahilyadevi Holkar Solapur University, Solapur

Faculty of Science and Technology

Credit System structure of Final Year B. Tech. Mechanical Engineering W.E.F. 2023-2024 [Semester VIII]

Semester VIII – Courses

Course code	*Name of Course*	*Hrs./week*				*Credits*	*ISE*	*Examination Scheme*			*ICA*	*Total*
		L	*T*	*P*	D			*ESE*				
								Theory	*POE*	*OE*		
ME 421	A. Self-Learning Technical (Swayam / NPTEL)	-	-	-	-	4	-	-	-	-	100*	100*
	B. Self-Learning Technical Course offered by institute	-	-	-	-		-	-	-	-		
	C. Apprenticeship/Internship	-	-	-	-		-	-	-	-		
ME 422	Project Phase – II (Progress Presentation - I)	-	-	2	-	1	-	-	-	-	50	50
ME 423	Project Phase – III (Progress Presentation - II)	-	-	2	-	1	-	-	-	-	50	50
ME 424	Project Phase – IV (Report Submission & Final Presentation)	-	-	4	-	2	-	-	50	-	50	100
	Grand Total			**08**		**08**			**50**		**250**	**300**

Abbreviations: *L_ Lectures, P –Practical, T_ Tutorial, ISE_ In Semester Examination, ESE _ End Semester Examination (University Examination for Theory & / POE & / Oral), ICA_ Internal Continuous Assessment.*

* Students shall opt for any one of the two courses (i.e. out of ME 421-A, ME 421-B), and obtain 4 credits of 100 marks.

ME 422, ME423 & ME424 are compulsory.

* Students are encouraged to undergo Apprenticeship/internship (ME 421-C) in any industry for obtaining 4 credits of 100 marks and should complete a project sponsored by the Industry/Organisation **as a part of ME422, ME423 & ME424.** However such students should submit Internship and project report separately.

❖ **M421A-Self Learning Technical Course (Swayam/NPTEL**):

- **ICA** 100 Marks, Credits: 4, Assessment of the student based on assignment during the course / quiz conducted on selected course and evaluated as part of ICA.
- Student should complete certified self-learning technical course before end of Semester-VIII.

❖ **M421B Self Learning Technical Course offered by institute:**

- **ICA** 100 Marks, Credits: 4, Course shall be designed by the Institute and Assessment of the student based on assignment during the course / quiz conducted on selected course and evaluated as part of ICA.

Note for M421A& M421B: Student may select any one course of minimum eight weeks **or** two self-learning technical Courses of four weeks based on content in the following areas:

- Electric Vehicles
- Advanced Manufacturing Processes
- Renewable energy
- Automation and Robotics
- Artificial Intelligence
- Machine Learning
- CAD/CAM/CAE
- Thermal Engineering
- Design Engineering
- Industrial Engineering

❖ **M421C Apprenticeship/Internship:**

- **ICA** 100 Marks, Credits: 4, Students may opt for semester long internship/apprenticeship (minimum 60 days).
- Apprenticeship/Internship may be of the following type:
  - Offered by industry at their premises.
  - Offered by industry at the institute campus.
  - Offered by institute jointly with the research funded agency/ industry.

Punyashlok Ahilyadevi Holkar Solapur University
Final Year B.TECH. (Mechanical Engineering)
Semester-VII
ME415 O: Entrepreneurship Development

***Teaching Scheme**

Lectures : 03 Hours/week, 03 Credits

Practical : 02Hours/week, 01 Credit

***Examination Scheme**

ESE : 70 Marks

ISE : 30 Marks

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 DevelopmentProgrammers, 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 Objectives:

During this course, student is expected to:

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, student 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 and Develop a feasible project report suitable for individual or group.

Section I

Unit-1: Entrepreneurship **No. of lectures-10**

Concept, meaning and definitions of entrepreneur and entrepreneurship, Importance and significance of growth of entrepreneurial activity, History of entrepreneurship development in India, Corporate entrepreneurship (intrapreneurship), Social entrepreneurship, Characteristics and qualities of entrepreneurs, Factors influencing entrepreneurial development and motivation, Role of culture in entrepreneurial development, Classification and types of entrepreneurs.

Unit-2: Entrepreneurship Development **No. of lectures- 10**

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

Section II

Unit-3: Entrepreneurial Project Development **No. of lectures- 10**

Idea generation – sources and methods, Identification and classification of ideas, Environmental Scanning, SWOT analysis and Tools for Exploring Change, Business model formulation, lean canvas model, Preparation of a project report/business plan including: market plan, financial plan, operational plan, HR plan, Working capital management, Break Even Analysis, etc, Significance of project report, Project appraisal (feasibility study) – Aspects and methods: Economic oriented appraisal, Financial appraisal, Market oriented appraisal, Technological appraisal, Managerial competency appraisal

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

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

Internal Continuous Assessment (ICA):

Students of a batch may 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 Product/Service and business model innovation
4. SWOT analysis of existing enterprises (minimum 2) and also used tools for exploring change and uncover the resulting commercial opportunities
5. Case Study on Managing risk in the entrepreneurial organization

B. Preparation of project report/business plan for starting a small unit and presentation on the same (includingdetails 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, HimalayaPublishing House
2. Entrepreneurship - Robert D Hisrich, Michael P Peters and Dean A. Shepherd, McGraw HillEducation
3. Social Entrepreneurship For The 21st Century: Innovation Across The Nonprofit, Private, AndPublic Sectors - Georgia Levenson Keohane, McGraw Hill Education
4. Corporate Entrepreneurship and Innovation 4th Edition, Paul Burns, Macmillan International Higher Education ISBN 978-1-352-00879-1

Punyashlok Ahilyadevi Holkar Solapur University, Solapur

Name of the Faculty: Science & Technology

CHOICE BASED CREDIT SYSTEM

Syllabus: ELECTRONICS & TELECOMMUNICATION ENGINEERING

Name of the Course: Third Year B. Tech (Sem. – I & II)

(Syllabus to be implemented from Academic Year 2022-23)

PUNYASHLOK AHILYADEVI HOLKAR SOLAPUR UNIVERSITY, SOLAPUR

FACULTY OF SCIENCE & TECHNOLOGY

Credit System structure of T.Y. B.Tech. Electronics & Telecommunication Engineering ***W.E.F. 2022-23***

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	Microcontrollers and Applications	3	--	--	3	30	70	25	125
ET313	Digital Signal Processing	3	-	--	3	30	70	25	125
ET314	Open Elective-I	3	1	--	4	30	70	25	125
SLM31	Self Learning Module–I (HSS Course)	--	--	--	2	--	50	--	50
Sub Total		12	2	--	16	120	330	100	550
Course Code	***Laboratory Course Name***								
							ESE		
							POE	***OE***	
ET312	Microcontrollers and Applications	--	--	2	1	--	50	--	--	50
ET313	Digital Signal Processing	--	--	2	1	--	50	--	--	50
ET315	Electronic Software Lab-III	1	--	4	3	--	50	--	50	100
Sub Total		--	--	8	5	--	150		50	200
Grand Total		**13**	**2**	**8**	**21**	**120**	**480**		**150**	**750**

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. 2022-23***

Semester II

Course Code	***Theory Course Name***	***Hrs./week***			***Credits***	***Examination Scheme***			
		L	***T***	***P***		***ISE***	***ESE***	***ICA***	***Total***
ET321	Antenna & Wave Propagation	3	1	--	4	30	70	25	125
ET322	Embedded System	3	--	--	3	30	70	25	125
ET323	Electronic System Design	3	--	--	3	30	70	25	125
ET324	Professional Elective-I	3	--	--	3	30	70	25	125
ET325	Open Elective-II	3	--	--	3	30	70	25	125
Sub Total		15	1	--	16	150	350	125	625
Course Code	***Laboratory Course Name***								
							ESE		
							POE	***OE***	
ET322	Embedded System	--	--	2	1	--	25	--	--	25
ET323	Electronic System Design	--	--	2	1	--	--	25	--	25
ET324	Professional Elective-I	--	--	2	1	--	--	--	--	--
ET325	Open Elective-II	--	--	2	1	--	--	--	--	--
ET327	Mini Project	--	--	2	1	--	50	--	25	75
Sub Total		--	--	10	5	--	100		25	125
Grand Total		**15**	**1**	**10**	**21**	**150**	**450**		**150**	**750**

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 –

1. Batch size for the practical /tutorial shall be of 16 students. On forming the batches, if the strength of remaining student exceeds 8, then a new batch shall be formed.

2. Vocational Training (evaluated at Final Year Part-I) of minimum 15 days shall be completed in any vacation after S.Y. Part-I but before Final Year Part-I & the report shall be submitted and evaluated in Final Year Part-I.

3. Self-Learning Module I at T.Y. B.Tech.– Semester-I

   - Student shall select & enroll a Self Learning Module-I Course from PAH Solapur University, Solapur HSS Course List (SLM31). Student must appear and pass university examination.
   - Curriculum for Humanities and Social Sciences (HSS), Self Learning Module-I is common for all undergraduate engineering programs.
   - Minimum four assignments for Self Learning Module (SLM31) shall be submitted by the students which shall be evaluated by a Module Coordinator assigned by institute/department.

   OR

   - Student shall select and enroll for university approved minimum eight weeks MOOC based HSS course (SLM31), and complete its assignments. Student must appear and pass certificate examination conducted through MOOC courses.

4. 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.

5. Student shall select Professional Elective-I from given course list. Student must appear and pass university examination.

6. Project group for T.Y. B.Tech. - Semester II – Mini Project shall not be of more than three students. This mini project may include simulation and/or Software and/or Hardware. Report of this work should be submitted at the end of semester.

8. 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.

- **List of Open Electives -**

Sr.	Branch Offering Elective	Open Elective I	Open Elective II
1.	Electronics &Telecommunication Engineering	1. Managerial Economics 2. Project Management and Operation Research	1. Sensors and Applications 2. Open Source Technologies
2.	Electronics Engineering	Information Technology & Management	Operating Systems
3.	Electrical Engineering	Business Ethics	Power System Planning

- **List of Professional Elective I–**
  1. Optical Fiber Communication
  2. Image and Video Processing
  3. Multimedia Communication Technology
- **List of Self Learning Modules (HSS Course) (SLM 31)–**
  1. MOOC/University Defined Courses

Punyashlok Ahilyadevi Holkar Solapur University, Solapur

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

Semester-I

ET314.2: OPEN ELECETIVE-I

Project Management and Operation Research

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

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

Course Prerequisite:

Software and its applications, management skills, Concept of projects.

Course Objectives:

1. To the successful development and implementation of all project's procedures.
2. To the achievement of the project's main goal within the given constraints.
3. To impart knowledge in concepts of Operations Research
4. To analyze models associated with Operations Research.

Course Outcomes:

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

1. To understand fundamental components of Project Management.
2. To understand different aspects of activity planning, Scheduling and risk Management techniques.
3. To know about Operations Research and LPP.
4. To understand different models used in Operations Research

---

Section – I

Unit 1: Project Management **(07)**

Concepts of project management, objectives and function of project management, categories of project, project evaluation, project planning, project failure, project life cycle concept and cost components.

Unit 2: Project Planning and Scheduling (08)

Work Breakdown structure (WBS) and linear responsibility chart, Interface Co-ordination and concurrent engineering, Project cost estimation and budgeting, Top down and bottoms up budgeting, Networking and Scheduling techniques (PERT, GANTT chart (no numerical)).

Unit 3: Risk Management (06)

Risk & its categories, risk management planning, risk identification and risk register, Qualitative and quantitative risk assessment, Risk response strategies for positive and negative risks.

Section – II

Unit 4: Introduction of Operation Research (07)

Definition of operations research, Characteristics of operations research and its other aspects, Models of operations research, Limitations of operations research.

Unit 5: Linear Programming Problem & Replacement Model (08)

Introduction to LPP, Applications of LPP, Advantages of LPP, Formulation of problem, Graphical Method, Simplex method. Replacement Model–Introduction**,** Need for replacement, failure mechanism, Categories of replacement problems.

Unit 6: Assignment Model, Location and Layouts of facilities (06)

Introduction, applications of assignment models, types of assignment problems, Methods to solve balanced and unbalanced assignment problems, facility location, General Procedure for making location decisions, factors affecting location decision.

- **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. Hamdy Taha, "Operations Research – An Introduction", 7th edition PHI (2003)
2. S. D. Sharma, "Operation Research", Kedarnath and Rannalt Pub.
3. Hira and Gupta, "Operation Research", S. Chand and Co.
4. K Nagrajan, "Project Management", New Age International Publication
5. Pawan Jhabak, "Project Management", Himalaya Publishing House.

- **Reference Books:**

1. Rechard Newton, "Project Management- Step by Step", PEARSON
2. P Rama Murthy, "Operations Research", 2nd edition New Age International Publication

Punyashlok Ahilyadevi Holkar Solapur University, Solapur

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

Name of the Faculty: Science and Technology

CHOICE BASED CREDIT SYSTEM

Structure & Syllabus

Name of the Course: B. Tech. (Computer Science & Engineering)

(Syllabus to be implemented from June 2022)

PUNYASHLOK AHILYADEVI HOLKAR SOLAPUR UNIVERSITY, SOLAPUR
FACULTY OF SCIENCE AND TECHNOLOGY
Structure of T.Y. B. Tech. (CSE) w.e.f. 2022-2023 Semester-I

Course Code	Theory Course Name	Engagement Hours			Credits	FA	SA		Total
		L	T	P		ESE	ISE	ICA	
CS311	Artificial Intelligence	3			3	70	30		100
CS312	Operating Systems	3			3	70	30		100
CS313	Database Engineering	3			3	70	30		100
CS314	Design and Analysis of Algorithm	3			3	70	30		100
CS315	Mobile Application Development	2			2		25		25
SL31	Self-Learning Module I (HSS)				1	50			50
	Sub Total	**14**			**15**	**330**	**145**		**475**
	Laboratory/Workshop					**ESE / POE**			
CS311	Artificial Intelligence			2	1			25	25
CS312	Operating Systems			2	1			25	25
CS313	Database Engineering			2	1	50		25	75
CS314	Design and Analysis of Algorithm			2	1	50		25	75
CS315	Mobile Application Development			2	1	50		25	75
	Sub Total			**10**	**5**	**150**		**125**	**275**
	Grand Total	**14**		**10**	**20**	**480**	**145**	**125**	**750**

Note :

1. Batch size for the practical/tutorial shall be of 15 students. On forming the batches, if the strength of remaining student exceeds 7, then a new batch shall be formed.
2. Vocational Training (evaluated at Final Year B. Tech. Semester VII) of minimum 15 days shall be completed in vacation/s after S.Y. B. Tech. Semester IV but before Final Year B.Tech. Semester VII & the report shall be submitted and evaluated in Final Year B.Tech. Semester VII
3. 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 and attendance for theory and lab sessions as applicable.

4. **Self-Learning Module I at T.Y. B.Tech. – 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 Course from PAH Solapur University, Solapur HSS Course List (SL31-A) and appear for university examination.

SL31-A: P. A. H. Solapur University, Solapur: HSS Course List

1. Economics	4. Stress and Coping
2. Intellectual Property Rights for Technology Development and Management	5. Professional Ethics & Human Value
3. Introduction to Sociology	

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: University approved NPTEL- HSS course List

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 AND TECHNOLOGY
Structure of T.Y. B. Tech. (CSE) w.e.f. 2022-2023Semester-II

Course Code	Theory Course Name	Engagement Hours			Credits	FA	SA		Total
		L	T	P		ESE	ISE	ICA	
CS321	System Programming	3			3	70	30		100
CS322	Internet of Things	3			3	70	30		100
CS323	Software Engineering	3	2		5	70	30	25	125
CS324	Professional Elective-I	3			3	70	30		100
CS325	Web UI and UX Technology	2			2		25		25
CSO326	Open Elective	2			2	50			50
	Sub Total	**16**	**2**		**18**	**330**	**145**	**25**	**500**
	Laboratory/Workshop					**ESE / POE**			
CS321	System Programming			2	1			25	25
CS322	Internet of Things			2	1			25	25
CS324	Professional Elective-I			2	1			25	25
CS325	Web UI and UX Technology			2	1	50		25	75
CS327	Mini Project			2	1	50		25	75
	Sub Total			**10**	**5**	**100**	**0**	**125**	**225**
	Grand Total	**16**	**2**	**10**	**23**	**430**	**145**	**150**	**725**

Professional Elective – I	**Open Elective**
Cloud Computing	Principles of Management: Practicing Ethics, Responsibility,Sustainability
Augmented Reality/Virtual Reality	Engineering Economics and Management
Network Security	Disaster Management

Note

1. Batch size for the practical /tutorial shall be of 15 students. On forming the batches, if the strength of remaining student exceeds 7, then a new batch shall be formed.
2. Vocational Training (evaluated at Final Year B. Tech. Semester VII) of minimum 15 days shall be completed in vacation/s after S.Y. B.Tech. Semester IV but before Final Year B.Tech. Semester VII & the report shall be submitted and evaluated in Final Year B.Tech. Semester VII
3. 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 and attendance for theory and lab sessions as applicable.
4. Mini Project shall consist of developing software, based on various tools & technologies.
5. Project groups shall not be of more than **five** students.

Teaching Scheme
Credits: 2 Credits

Examination Scheme
ESE : 50 Marks

Course Outcomes:

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

1. Inculcate the human values in their behavior.
2. Demonstrate the Engineering ethics in their professional practice.
3. Practice the safety and responsibility and professional rights in their professional practice.
4. Incorporate 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.

ASSIGNMENTS

Students shall complete five assignments, based on 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. 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

CSO326B: ENGINEERING ECONOMICS AND MANAGEMENT

Teaching Scheme
Lectures : 2 lectures/week, 2 Credits

Examination Scheme
ESE – 50 Marks

COURSE OUTCOME:

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

1. Demonstrate To basics of Economics and Management applied to engineering.
2. Apply concepts & principles of Economics with respect to a firm/organization Under different market conditions.
3. Apply concepts and principles of management to real world applications.

SECTION-I

Unit 1: **Introduction to Economics** **(04)**

Definitions, Nature, Scope, Difference between Microeconomics & Macroeconomics Theory of Demand & Supply; meaning, determinants, law of demand, law of supply, equilibrium between demand & supply Elasticity; elasticity of demand, price elasticity, income elasticity,cross elasticity

Unit 2: Theory of production **(04)**

Production function, meaning, factors of production (meaning & characteristics of Land, Labour, capital & entrepreneur), Law of variable proportions & law of returns to scale Cost; meaning, short run & long run cost, fixed cost, variable cost, total cost, average cost, marginal cost, opportunity cost. Break even analysis; meaning, explanation, numerical

Unit 3 : Markets and Money **(05)**

Types of markets & their characteristics (Perfect Competition, Monopoly, Monopolistic Completion, Oligopoly) National Income; stock and flow concept, NI at current price & constant price, GNP, GDP, NNP,NDP, Personal income, disposal income. Basic economic problems;
Monetary policy- meaning, objectives, tools, fiscal policy-meaning, objectives, tools Banking; meaning, types, functions, Central Bank- RBI; its functions, concepts; CRR, bank rate, repo rate, reverse repo rate, SLR

SECTION-II

Unit 4 : Introduction to Management **(06)**

Definitions, Nature, scope Management & administration, skill, types and roles of managers Management Principles; Scientific principles, Administrative principles, Maslow's Hierarchy of needs theory, Functions of Management; Planning, Organizing, Staffing, Directing, Controlling (meaning, nature and importance) Organizational Structures; meaning, principles of organization, types-formal and informal, line, line & staff, matrix, hybrid (explanation with merits and demerits), span of control, departmentalization

Unit 5: Introduction to Marketing Management **(05)**

Marketing Mix, concepts of marketing, demand forecasting and methods, market segmentation Introduction to Finance Management; meaning, scope, sources, functions

Unit 6: Introduction to Production Management **(06)**

Definitions, objectives, functions, plant layout-types & factors affecting it, plant location- factors affecting it. Introduction to Human Resource Management; definitions, objectives of manpower planning, process, sources of recruitment, process of selection, Corporate Social Responsibility; meaning, importance Business Ethics; meaning, importance.

Text Books :

1. Engineering Economics, R.Paneerselvam, PHI publication
2. Fundamentals of Management: Essential Concepts and Applications, Pearson Education, Robbins S.P. and Decenzo David A.
3. Economics: Principles of Economics, N Gregory Mankiw, Cengage Learning

---

Reference Books:

1. Principles and Practices of Management by L.M.Prasad
2. Principles of Management by Tripathy and Reddy
3. Modern Economic Theory, By Dr. K. K. Dewett & M. H. Navalur, S. Chand Publications

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 from w.e.f. June 2022)

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

Choice Based Credit System Syllabus Structure of T. Y. B.Tech. Electrical Engineering W.E.F. 2022-2023

Semester I

Course Code	***Theory Course Name***	***Hrs./week***			***Credits***	***Examination Scheme***			
		L	***T***	***P***		***ISE***	***ESE***	***ICA***	***Total***
EL 311	Power System III	3	-	-	3	30	70	-	100
EL 312	Linear Control System	3	-	-	3	30	70	-	100
EL 313	Advanced Microcontroller System	3	-	-	3	30	70	-	100
EL 314	Electromagnetic Engineering	3	1	-	4	30	70	25	125
EL 315	Open Elective-I	2	1	-	3	30	70	25	125
EL 316	Self-Learning Module-I			-	2		50		50
Sub Total		**14**	**2**	**-**	**18**	**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	Advanced Microcontroller System	-	-	2	1	-	50	-	25	75
EL 317	Electrical Workshop	-	-	2	1	-	-	-	25	25
Sub Total		**-**	**-**	**8**	**4**	**-**	**100**		**100**	**200**
Grand Total		**14**	**2**	**8**	**22**	**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 Engineering & Technology
T.Y. B.Tech. (Electrical Engineering)

Choice Based Credit System Syllabus Structure of T.Y.B. Tech. Electrical Engineering W.E.F. 2022-2023

Semester II

Course Code	***Theory Course Name***	***Hrs./week***			***Credits***	***Examination Scheme***			
		L	***T***	***P***		***ISE***	***ESE***	***ICA***	***Total***
EL 321	Electrical Machine Design	3	-	-	3	30	70	-	100
EL 322	Electrical Utilization	3	1	-	4	30	70	25	125
EL 323	Power Electronics & Industrial Drives	3	-	-	3	30	70	-	100
EL 324	Advanced Control Systems	3	-	-	3	30	70	-	100
EL 325	Open Elective-II	2	1	-	3	30	70	25	125
EL 326	Self-Learning Module-II	-	-	-	2	--	50	-	50
Sub Total		**14**	**2**	**-**	**18**	**150**	**400**	**50**	**600**
Laboratory Course Name							***ESE***		
							POE	***OE***	
EL 321	Electrical Machine Design	-	-	2	1	-	-	25	25	50
EL 323	Power Electronics & Industrial Drives	-	-	2	1	-	50	-	25	75
EL 324	Advanced Control Systems	-	-	2	1	-	-	-	25	25
EL 327	Mini Hardware Project	-	-	2	1	-	-	25	25	50
Sub Total		**-**	**-**	**8**	**4**	**-**	**100**		**100**	**200**
Grand Total		**14**	**2**	**8**	**22**	**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. Hybrid Electric Vehicle Design
2. Electrical Safety
3. Solar Photovoltaic System Design & Installation
4. NPTEL Course/MOOC/University Defined Courses

Note –

- Batch size for the TE practical /tutorial shall be of 15 students. On forming the batches, if the strength of remaining student exceeds 7, 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 based on presentation as well as training report.
- Student shall select one as 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 as Self Learning Module from the Humanities and Social Sciences Group
- Curriculum for Humanities and Social Sciences Self Learning Modules is common for all undergraduate programmes 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 students
- Project group for B.E.(Electrical) Part I and Part II shall not be of more than FOUR students.
- ICA shall be a continuous process based on student's performance in – class tests, assignments, homework, subject seminars, quizzes, laboratory books and their interaction and attendance for theory and lab sessions as applicable
- 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 will be same for all these branches.

List of Open Electives

Sr. No.	Open Elective I	Open Elective II
1	Information Technology & Management	Operating Systems
2	Advanced Electrical Machines	Renewable Energy Sources
3	Business Ethics	Fiber Optic Communication
4	Managerial Economics	Sensors and Applications

Punyashlok Ahilyadevi Holkar Solapur University, Solapur
T.Y. B.Tech. (Electrical) Semester-I
Open Elective-I
Business Ethics

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

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 course student 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 **No of lectures – 04**

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 **No of lectures – 05**

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 **No of lectures – 05**

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 **No of lectures – 05**

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 **No of lectures – 05**

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 **No of lectures – 04**

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
T.Y. B.Tech. (Electrical) Semester-I
Open Elective-I
Managerial Economics

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

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. Analyse the issues related to demand, supply and market
  3. Use different tools for demand analysis and forecasting
  4. Analyse the production and cost functions
  5. Decide price based on market, demand and supply

SECTION-I

Unit 1: Introduction: **No of lectures – 05**

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 **No of lectures – 05**

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 **No of lectures – 04**

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 **No of lectures – 06**

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 **No of lectures – 04**

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 **No of lectures – 04**

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 Holkar Solapur University, Solapur

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

Name of the Faculty: Science and Technology

CHOICE BASED CREDIT SYSTEM

Syllabus: Civil Engineering

Name of the Course: S. Y. B. Tech

(Syllabus to be implemented from w.e.f. June 2021)

PUNYASHLOK AHILYADEVI HOLKARSOLAPUR 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 tocontribute 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 complexproblems:

v) **Modern Tool Usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling 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

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

1) Students 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) Students will be able to analyze and design the water resources systems, municipal and industrial waste treatment plants with due consideration to pollution free environment.

3) Students will be able to use appropriate application software, develop skills necessary for professional practice as a Civil Engineer and prepare themselves for education & for Public service commissions

PUNYASHLOK AHILYADEVI HOLKAR SOLAPUR UNIVERSITY, SOLAPUR
Faculty of Science & Technology
Credit System structure of S. Y. B. Tech. Civil Engg. - I, Semester- III, (W.E.F. 2021-2022)

Course Code	Theory Course Name	Hrs./week				Credits	Examination Scheme				
		L	T	P	D		ISE	ESE		ICA	Total
CE 31 C	Surveying & Geomatics	3	-	-	-	3	30	70		-	100
CE32C	Fluid Mechanics and Fluid Machines	3	-	-	-	3	30	70		-	100
CE33C	Concrete Technology, Material Testing & Evaluation	2	-	-	-	2	30	70		-	100
CE34C	Building Construction & Drawing	2	-	-	-	2	30	70		-	100
CE35C	Structural Mechanics-I	3	-	-	-	3	30	70		-	100
	Total	**13**	**-**	**_**	**-**	**13**	**150**	**350**		**-**	**500**
	Laboratory/Drawings							**POE**	**OE**		
CE36L	Surveying & Geomatics	-	-	2	-	1	-	50	-	25	75
CE37L	Fluid Mechanics and Fluid Machines	-	-	2	-	1	-	25	-	25	50
CE38L	Concrete Technology, Material Testing & Evaluation	-	-	2	-	1	-	-	-	25	25
CE39L	Building Construction & Drawing	-	-	-	2	1	-	-	-	25	25
CE 410 L	Lab Practice	-	-	2	-	1	-	-	-	25	25
	Total	**-**	**-**	**8**	**-**	**5**	**-**	**75**		**125**	**200**
	Grand Total	**13**	**1**	**8**	**2**	**18**	**150**	**425**		**125**	**700**
	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.

Note:

(1) The number of students in a practical/Tutorial batch shall be 20. New batch shall be formed if the number of remaining students (after forming batches of 20) exceeds 9.

(2) Internal Continuous Assessment (ICA): 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, journal writing, report presentation etc., as applicable

(3) Student is required to study and pass Environmental Science subject in Second Year of B. Tech. Civil Engineering to become eligible for award of degree.

PUNYASHLOK AHILYADEVI HOLKAR SOLAPUR UNIVERSITY, SOLAPUR
Faculty of Science & Technology

Credit System structure of S. Y. B. Tech. Civil Engg.- II, Semester – IV, W. E.F. 2021-2022

Course Code	Theory Course Name	Hrs./week				Credits	Examination Scheme				
		L	T	P	D		ISE	ESE		ICA	Total
CE41C	Environmental Engineering-I	3	-	-	-	3	30	70		-	100
CE42C	Building Planning & Design	2	-	-	-	2	15	35		-	50
CE43C	Structural Mechanics-II	3	1	-	-	4	30	70		25	125
CE44B	Engineering Mathematics-III	3	1	-	-	4	30	70		25	125
CE45B	Engineering Geology	2	-	-	-	2	30	70		-	100
	Total	**13**	**2**	**-**	**-**	**15**	**135**	**315**		**50**	**500**
	Laboratory/Drawings:							**POE**	**OE**		
CE46L	Environmental Engineering-I	-	-	2	-	1	-	-	-	25	25
CE47L	Building Planning & Design	-	-	-	2	1	-	50	-	25	75
CE48L	Computer Programming & Numerical Methods	2	-	2	-	3	-	50	-	25	75
CE49L	Engineering Geology	-	-	2	-	1	-	25	-	25	50
	Total	**2**	**0**	**6**	**2**	**7**	**-**	**125**		**100**	**225**
	Grand Total	**15**	**2**	**6**	**2**	**22**	**135**	**440**		**150**	**725**
	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.

Note:

(1) The number of students in a Practical/Tutorial batch shall be 20. New batch shall be formed if the number of remaining students (after forming batches of 20) exceeds 9.

(2) Internal Continuous Assessment (ICA): 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, journal writing, report presentation etc., as applicable.

(3) Student is required to study and pass Environmental Science subject in Second Year of B. Tech. Civil Engineering to become eligible for award of degree

Punyashlok Ahilyadevi Holkar Solapur University, Solapur
S. Y. B. Tech. (Civil Engineering) – I, Semester- III
CE34: BUILDING CONSTRUCTION AND DRAWING

Teaching Scheme	**Examination Scheme**
Lectures – 2 Hrs/Week, 2 Credits	**ISE –** 30 Marks
Drawing – 2 Hr/Week, 1 Credit	**ESE –**70 Marks
	ICA – 25 Marks

Course Outcomes:

After successful completion of this course the students will be able to:

1. Elucidate functional requirements of buildings and types of foundation andits suitability.
2. Draw neat drawings of different building components such as doors,windows, stairs etc with the suitable scale using CADD software.
3. Design different types of staircases commonly used in residential and publicbuildings.
4. Draw neat perspective view drawings of an object and given small residentialbuilding.
5. Select appropriate ventilation systems and building finishes.

SECTION – I

Unit 1: Building functional Requirements, Building Type & Foundation (4 Hrs)

- Building functional Requirements - Strength, Stability, Comfort, Convenience, Safety, Damp Prevention, Water Proofing, Heat Insulation, Day Lighting, Ventilation, Termite Resistance.
- Building Types – Framed and Load Bearing and Composite structures, Comparison between all the three types. Building components (elements), Methods of transfer of building loads to foundation strata.
- Foundation: - Importance of foundation as load transferring building element. Shallow Foundations – Wall footing, Isolated footing, Combined Footing, Strap Footing, Continuous or Strip Footing, Cantilever Footing, Raft Foundation. (Reinforcement placement not expected)

Unit 2: Types of Masonry and Walls **(4 Hrs)**

- Introduction to Scale and various types of Scale.
- Introduction to Stone masonry walls, bonding and breaking of Joints.
- Brick masonry walls – Standard Brick size and Properties of good brick-work. Bonds-Stretcher, Header, Flemish & English bond (up to 1 ½ Brick thick)
- Concrete Block masonry – Hollow and Solid blocks, Construction method and bonds.
- Concept of Main Wall and Other wall, External wall and internal wall, Loadbearing wall and Partition wall. Glass Block wall and Curtain wall.
- Introduction to Autoclaved Aerated Concrete , Size, weight, etc.

Unit 3: Doors, Windows, Stairs and Arches **(4 Hrs)**

- Doors Types: - Paneled, Flush, Glazed. Door elements, Fixtures and Fastenings.
- Window: - Types: Steel Glazed, Wooden Paneled, Aluminum Glazed Sliding Ventilators and Fixed Glass windows.
- Staircase: - Functional requirements of stair, design of stair, types of stairs, technical terms.
- Arches: - Types of Arches based on shape, mechanism of load transfer.

Unit 4: Floors and Roofs **(3 Hrs)**

- Flooring and types of flooring, floor tiles, selection factors and fixing procedures offloorings.
- Roofing and types of roofs, Selection factors for Roofing materials

SECTION –II

Unit 5: Perspective Drawing **(5 Hrs)**

- Elements of Perspective drawings, parallel perspective (One Point) and angular perspective (Two Point) drawing.
- Perspective drawing of objects and perspective drawing of one G+1 Residential building(Readymade plan to be given to the students).

Unit 6: Lighting, Ventilation, Thermal Insulation, & Air Conditioning (5 Hrs)

- Lighting: - Definition and objective of lighting, Principles of Good lighting, Daylighting.
- Ventilation: - Definition and objective of ventilation, types of ventilation and its functional requirements, various systems and selection criteria.
- Thermal insulation: - General concept and Principles, Various methods and use of materials for thermal insulation, Computation of Heat loss and Heat gain in buildings.
- Air conditioning: - Purpose, classification, principles, systems and Components of the Air conditioning.

Unit 7: Building Finishes (5 Hrs)

- Plastering, Pointing and various techniques.
- Paints: - Different types and application methods.
- Varnishes and application methods.
- Tiles cladding, skirting, dado work with various materials.

INTERNAL CONTINUOUS ASSESSMENT (ICA)

➢ For drawing session

(A) Sketching in sketchbook consisting of the following 9 drawing exercises:

1. Lettering, Symbols and line work.
2. Building structures (Load bearing & Framed structures)
3. Foundations- Isolated footing, combined footing, Strap footing and Pile footing.
4. Brick bonds
5. Arches and Roofs.
6. Doors
7. Windows
8. Staircases
9. Perspective drawing of object and one G+1 Residential building (Ready plan).

(B) Drawing using CADD software to be done:

1. Double leaf paneled doors
2. Double leaf paneled window
3. Open well staircase

Prints of these CADD drawings will form a part of 'Term work'.

- Site Visit for learning construction details of a residential building. A visit report to bedrafted and submitted as a part of term work.

TEXT BOOKS

1. A text book of Building Construction- Arora & Bindra- Dhanpat Rai Publication, New Delhi.
2. Building Construction- Sushil Kumar- Standard Publishers, Delhi.
3. Building Construction – Arora & Gupta –Satya Prakashan, New Delhi.
4. Principles of Building Drawing- M.G. Shah and C.M. Kale.
5. A course in Civil Engineering Drawing- V.B. Sikka – S.K.Katariya & Sons, Delhi.
6. Civil Engineering Construction Materials, S.K. Sharma, KBP House
7. Engineering Drawing + AutoCAD , by K.Venugopal , New Age International Publishers
8. Mastering AutoCAD 2019 and AutoCAD LT 2019, George Omura and Brian C. Benton, SYBEX Publishers.

REFERENCE BOOKS

1. Building Technology- Ivor H. Seely.
2. Building Construction-Makay vol. I & II
3. National Building Code of India-SP7- Indian Standards Delhi.
4. Various IS Specifications for Drawings, Symbols, Conventional Signs as per IS 962-1967-Indian Standards Delhi.
5. Building Construction A to Z – Mantri.
6. Building Materials- TTTI, Chandigadh.
7. Building Construction- S.S. Bhavikatti- Vikas Publishing House Pvt. Ltd., Noida.
8. Building Materials- S.S. Bhavikatti- Vikas Publishing House Pvt. Ltd., Noida.

Punyashlok Ahilyadevi Holkar Solapur University, Solapur
S. Y. B. Tech. (Civil Engineering) – II, Semester- IV
CE42: BUILDING PLANNING & DESIGN

Teaching Scheme	**Examination Scheme**
Lectures – 2 Hrs/Week, 2 Credits	**ISE –** 15 Marks
Drawing – 2 Hr/Week, 1 Credit	**ESE –**35 Marks
	POE – 50 Marks
	ICA – 25 Marks

Course Outcomes:

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

1) Plan residential and public buildings, according to the prevalent building byelaws
2) Prepare 'Municipal building permission drawings' of residential buildings using CADD software tools.
3) Plan appropriate building services for a building
4) Design a rain water harvesting system for a building.
5) Plan appropriate acoustics, sound insulation and fire fighting arrangements for a building

SECTION I

Unit 1: Site Selection of Building, Principles of Building Planning, Orientation and By- Laws and Dimension Relationships **(4 Hrs)**

Site selection criteria for building.

Principles of Building Planning and significance of Sun Diagram (Sun Path Diagram) and Wind flow Direction.

Orientation: - Basic Zones of India on bases of climate condition, Orientations of building for various part of India on bases of climate conditions.

Building Planning Byelaws and Regulations as per SP-7, National Building Code ofIndia.

Dimensions & Space requirement in relation to body measurements. Space designfor passage between walls, service access, stairs, ramps, elevators.

Unit 2: Planning and Design of Residential Buildings (4 Hrs)

Planning and functional requirements of Residential Building: - Bungalows (Detached), Twin bungalows (Semi Detached), Row houses, Ownership flats, and Apartments.
Parking Area Criteria

Unit 3: Planning and Design of Public Buildings (5 Hrs)

Educational Building: Pre-primary and primary school, Secondary and HigherSecondary school, Degree School (College).
Institutional Building:- Health centre and Hospitals.
Business and Mercantile building – Shops, banks, markets, & departmental stores.
Office and Other building: Post office, Administrative building etc.
Parking Area Criteria (for all above Public Building)

Unit 4: Building Permissions and its Procedure (2 Hrs)

Procedure and list of document for Building Permission and significance of various certificates (Commencement Certificate, Plinth Completion Certificate and Occupancy certificate).

SECTION II

Unit 5: Building Services (4 Hrs)

Plumbing Systems:- Significance of Plumbing and Drainage plan and layout, Water Supply Requirements for Buildings, various types of traps, Fittings, Chambers and various type of materials like PVC, GI, AC, CI, HDPE, Stoneware, CPVC with various gauges and thickness, Water Closet Pan: Types and sizes.
Introduction to Concept and Design of Rain Water Harvesting.
Electrification: - Concealed and open wiring system, requirements and locations ofvarious Electrical points, Concept of earthing.

Unit 6: Green Buildings and Low Cost Housing (4 Hrs)

Computer aided design and drawing, Development of plan, Elevation and Section.
Concepts of Green Building and energy efficient buildings.
Low cost Housing, Materials & methods (Conceptual introduction only).

Unit 7: Acoustics and Sound Insulation (5 Hrs)

Acoustics:- Sound Frequency, Intensity, sound decibel rating, absorption of sound-Various materials. Sabine's formula, optimum reverberation time, conditions for good acoustics, effect of reflectors, flat ceiling, design of an auditorium, defects in auditorium and remedies, acoustics of various buildings such as Auditorium hall, Classrooms, broadcasting room etc.

Sound insulation:- Acceptable noise level – Noise prevention at its source, transmission of noise, Noise control- general Consideration.

Unit 8: Fire Resistant Structures (2 Hrs)

Fire resistant Structures - Fire protection precautions, confining of fire, Fire hazards, characteristics of fire resistant material, various building material and resistance for fire, Fire resisting construction, fire load- Normal and abnormal, distribution of fire load, grading of structural elements and buildings, fire escapes.

INTERNAL CONTINUOUS ASSESSMENT (ICA)

(A) ICA shall consist of all the following drawings strictly using CADD software tool.

(No drawing sheets shall be used for any drawing of ICA)

Line Plans of residential buildings (4 Numbers): Detached house, Semi-detached house, Row house and Apartment Building

Line plans of any 2 Public buildings.

Planning and designing of residential building (G+1) and preparation of full set of CADD drawings for the residential building. Full set of the following CADD drawing prints shall be submitted as a part of term work.

a) 'Municipal Building Permission drawing'
b) Water supply, drainage layout plan and Electrification layout plan.
c) Furniture layout plan
d) Perspective view of selected Residential building for project

Note: Every student shall develop different and separate plan of residential building for the term work purpose. Group projects are not allowed in any case.

(B) Report of Planning & Design of a building, selected for a project work –

The report shall include the Line plan, Principles of planning adopted, Byelaws, Rules and regulations followed while planning, Design calculations for Staircase, Sanitary requirements, etc.

END SEMESTER EXAMINATION

(1) Theory examination (35 marks, 2 Hours)

It will consist of theory and sketching questions based on full syllabus of the subject. However, it will ***not*** include development of residential/public building drawing on drawing sheets.

(2) Practical & Oral (50 marks)

a) Practical examination shall consist of planning of residential building and development of drawings using CADD drafting tool during practical examination. The assessment will be based on knowledge of student about building planning and CADD drafting skills depicted by the candidate during practical examination. Maximum two hours shall be allotted to the students to complete given task on CADD software tool during Practical examination.

b) In addition Oral examination shall be based on CADD drawing developed during practical examination and term work.

TEXT BOOKS

1) Building Design and Drawing: Y.S. Sane-Allies Book Stall, Pune
2) Building Design and Drawing : Shaha, Kale & Patki – T.M.H., New Delhi
3) Building Construction : Sushilkumar –Standard Publishers, Delhi
4) Building Construction : N.K.R. Murthy -Allies Book Stall, Pune
5) Building Construction: Arora and Gupta – Satya Prakash, New Delhi.
6) A Text book of building Construction: Bindra, Arora – Dhanpat Rai Publications.
7) Civil Engineering Drawing, Sharma & Gurucharan Singh, Standard Publishers
8) A Course in Civil Engineering Drawing, Sikka, S.K. Kataria & Sons
9) Engineering Drawing, Dhanarajay A Jolhe, Tata McGraw Hill
10) Engineering Drawing + AutoCAD , by K.Venugopal , New Age InternationalPublishers
11) Mastering AutoCAD 2019 and AutoCAD LT 2019, George Omura and Brian C. Benton, SYBEX Publishers.

REFERENCE BOOKS

1) Building Technology by I. Seeley.
2) SP 7 – 1983: National Building code, Indian Standards, Delhi.
3) Planning an Annual Notebook, The Architect's Handbook, E & OE.
4) SP 1650- 1973: Standard code for Building & Decorative finishes- Indian Standards, Delhi.
5) Building Planning And Drawing, Dr. N. Kumarswamy and A. Kameswara Rao, 6/e PB 6th Edition
6) Building Construction illustrated: Francis D.K. Ching- Willey (India 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 Structure: B. Tech. (Civil Engineering)

T.Y. B. Tech (Civil Engineering)
w. e. f. Academic Year 2022-23

PUNYASHLOK AHILYADEVI HOLKAR SOLAPUR UNIVERSITY, SOLAPUR
Faculty of Science & Technology

Credit System structure of T. Y. B. Tech. Civil Engg.- I, Semester- V,
(Revised from 2022-2023)

Course Code	Theory Course Name	Hrs./week				Credits	Examination Scheme				
		L	T	P	D		ISE	ESE		ICA	Total
CE51C	Design of Steel Structures	3	-	-	-	3	30	70		-	100
CE52C	Geotechnical Engineering	3	-	-	-	3	30	70		-	100
CE53C	Highway and Tunnel Engineering	3	-	-	-	3	30	70		-	100
CE54C	Hydrology and Water Resources Engineering	3	-	-	-	3	30	70		-	100
CE55C	Design of Concrete Structures I	3	-	-	-	3	30	70		-	100
CE56C	Environmental Engineering-II	3	-	-	-	3	30	70		-	100
SL-5	HSS Course – Elective (Self Learning mode)	-	-	-	-	1	-	50		-	50
	Total	**18**	**-**	**-**	**-**	**19**	**180**	**470**		**-**	**650**
	Laboratory/Drawings							**POE**	**OE**		
CE57L	Geotechnical Engineering	-	-	2	-	1	-	25	-	25	50
CE58L	Highway & Tunnel Engineering	-	-	2	-	1	-	-	-	25	25
CE59L	Planning & Design of Public Building	1	-	-	2	2	-	50	-	25	75
CE510L	Environmental Engineering-II	-	-	2	-	1	-	-	25	25	50
	Total	**1**	**-**	**6**	**2**	**5**	**-**	**100**		**100**	**200**
	Grand Total	**19**	**-**	**6**	**2**	**24**	**180**	**570**		**100**	**850**

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

Note:- Students shall undergo a field training of 15 days in the winter vacation after T.Y. B. Tech Part 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. Part II.

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

(A) Student can select & enroll a 'Self Learning Module- I' (HSS) Course from following list

SL5- A:- Self Learning Module – I (HSS)

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 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 Institute. 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 Engg. –II, Semester –VI, W. E.F. 2022-2023

Course Code	Theory Course Name	Hrs./week				Credits	Examination Scheme				
		L	T	P	D		ISE	ESE		ICA	Total
CE61C	Foundation Engineering	3	-	-	-	3	30	70		-	100
CE62C	Hydraulic Structures and Water Power Engg.	3	-	-	-	3	30	70		-	100
CE63E	Professional Elective Course-I *(Refer list at the end)*	3	-	-	-	3	30	70		-	100
CE64C	Design of Concrete Structures II	3	-	-	-	3	30	70		-	100
CE65C	Principles of Management and Quantitative Techniques	3	-	-	-	3	30	70		-	100
CE66C	Railway, Airport & Harbour Engineering	3	-	-	-	3	30	70		-	100
	Total	**18**	**-**	**-**	**-**	**18**	**180**	**420**		**-**	**600**
	Laboratory/Drawings:							**POE**	**OE**		
CE67L	Project on Steel Structures	-	-	-	2	1	-	-	25	25	50
CE68L	Principles of Management and Quantitative Techniques	-	-	2	-	1	-	-	25	25	50
CE69L	*Mini Project using Application Software	-	-	2	-	1	-	-	-	25	25
	Total	**-**	**-**	**4**	**2**	**3**	-	**50**		**75**	**125**
	Grand Total	**18**	**-**	**4**	**2**	**21**	**180**	**470**		**75**	**725**

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' in any one of the using suitable application software. The Mini project shall be assessed by the concerned subject teachers for ICA.

Note:

1) Students shall undergo a field training of 15 days in the summer vacation after T.Y. B. Tech. Part II. The training report shall be assessed in Final Year B.Tech. Part -I by the concerned 'Seminar' guides.
2) Internal Continuous Assessment (ICA): 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, journal writing, report presentation etc., as applicable
3) 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.

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
Prof Elective-I	**Semester-VI**	Structural Analysis by Matrix Methods	Airport Planning and Design	Construction Engineering Materials	Open Channel flow & River Hydraulics
		Structural Dynamics	Pavement Design	Systems Engineering & Economics	Solid and Hazardous Waste Management
		Design of Bridges		Advanced Concrete Technology	Urban Hydrology and Hydraulics
		Design of Pre stressed concrete structures			

Punyashlok Ahilyadevi Holkar Solapur University, Solapur

T.Y. B. Tech Civil – Part I

CE54C-HYDROLOGY AND WATER RESOURCE ENGINEERING

.

Teaching Scheme	**Examination Scheme**
Lectures:-3Hrs/Week, 3 Credits	**ISE:** 30 Marks
	ESE: 70 Marks

Course Outcomes:

After successful completion of the course, 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

CE56C- ENVIRONMENTAL ENGINEERING-II

.

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

Course Outcomes:

After successful completion of the course, students will be able to

1. Plan the layout of sewage collection system, matching with topography of the region and characterization of sewage.
2. Select aerobic or anaerobic wastewater treatment processes and decide their sequence.
3. Design of aerobic and anaerobic wastewater treatment units and disposal of treated wastewater into the streams.
4. Elaborate the novel decentralized wastewater treatment systems.
5. Select appropriate methods of Solid waste Disposal and Management of hazardous waste based on their characteristics.
6. Analyze air pollution and adopt various measures to control air pollution.

SECTION-I

Unit 1: Collection and conveyance of Sewage (8)

Components of wastewater flows, waste water sources and flow rate. Variation in flow rates, Waste water constituents: Characteristics of various types of waste waters, Sewerage system, layout, types of sewers, collection system. Appurtenances, Design of sanitary and storm water sewers, Maintenance of sewerage systems, Sewage and sludge pumping, location, capacity and pumping station design.

Unit 2: Unit Operations (10)

Primary treatment- Screening, comminuting, grit removal, oil and grease trap, chemical precipitation.

Secondary treatment- Activated sludge process, Process design and operating parameters,

modification of ASP, operational problems, MBBR, SBR and MBR, Trickling filter, classification, process design considerations, Secondary Clarifications.

Unit 3: Anaerobic treatment and Low cost treatment (6)

Fundamentals of anaerobic treatment, sludge characteristics, Treatment and disposal, Concept of different anaerobic reactors.

Low cost waste water treatment methods- Principle of waste stabilization pond, Design and operation of oxidation pond, aerobic and anaerobic lagoons, Oxidation ditch, septic tank, Selection of alternative treatment process flow sheets.

SECTION-II

Unit 4: Disposal of waste water (8)

Disposal of waste water stream pollution, Self-purification, DO sag curve, Streeter Phelp's Equation, Emerging Technology for wastewater Treatment: objectives of small & decentralized wastewater Treatment systems:

i.Root zone Technology,

ii.Constructed Wetlands,

iii.Duckweed Ponds,

iv.Fluidized aerobic bed Technology,

v.UASB

vi.Anaerobic baffled reactor

Unit 5: Solid Waste Disposal (6)

Solid waste management - Solid waste definition, Types, sources, characteristics. Functional outlines- storage, collection, processing techniques, Treatments of solid waste-Composting, Incineration, Pyrolysis and sanitary land filling.

Unit 6: Air Pollution (7)

Air Pollution- Definition, Sources and classification of pollutants, Effects. Introduction to meteorological aspects of control of industrial air pollution- Settling Chamber, Bag filter, Cyclone separator, Scrubbers, Electrostatic precipitators. Control of vehicular air pollution. Air quality standards.

LABORATORY WORK

INTERNAL CONTINUOUS ASSESSMENT (ICA)

The Internal Continuous Assessment (ICA) work includes practical work to find the characteristics of wastewater and demonstration of Air monitoring equipments and design of sewage treatment plant

Internal Continuous Assessment (ICA) work shall consist of the following:-

(A) List of Experiments (Any Eight)

Analysis of Waste Water,

1.pH Value

2.Total Solids

3.Dissolved Oxygen

4.Biochemical Oxygen Demand

5.Chemical Oxygen Demand

6.Chlorides

7.Oil & Grease

8.Sulphate Content

9.Total Nitrogen

10.Demonstration of High Volume Sampler

11.Demonstration of Auto Exhaust Analyzer.

(B) Design of sewerage system & Treatment system for a small urban area.

(C) Visit to sewage treatment plant

Internal Continuous Assessment (ICA) submission shall consist of the following –

Journal containing experiments carried out in part A of the Internal Continuous Assessment (ICA) and visit Report on (C).

Detail design and appropriate drawings required for part B of the Internal Continuous Assessment (ICA) work.

END SEMESTER EXAMINATION (Oral)

Oral examination will be based on the above syllabus.

TEXT BOOKS

1. Environmental Engineering by Peavey- H. S. Rowe, D.R. and Thobanoglous, McGraw – Hill Book Company
2. Water supply and pollution control - Viessman W. and Hammer M.J. Harper Collins College Publishers.
3. Waste Water Engineering Treatment & Disposal - Metcalf & Eddy, Tata McGraw Hill, 1982
4. Sewage Disposal and Air Pollution Engineering - Garg S.K., Khanna Publishers
5. Waste water Supply Engineering by B. C. Punmia
6. Solid Waste Management in Developing countries - Bhide A.D. and Sundersen B.B. Indian National Scientific Documentation Centre, New Delhi
7. Air Pollution- Rao M.N. and Rao H.V.N. Tata McGraw Hill, 1990
8. Environmental Engineering, S.C. Sharma, Khanna Publishing House
9. Basic Environmental Engineering, R.C. Gaur, Newage Publications
10. Environmental Engineering, Dr. A.K. Jain (ISBN: 978-93-86173560),Khanna Publishers

Punyashlok Ahilyadevi Holkar Solapur University, Solapur

T.Y. B. Tech Civil – Part II

CE63E- PROFESSIONAL ELECTIVE COURSE-I

SOLID AND HAZARDOUS WASTE MANAGEMENT

.

Teaching Scheme	**Examination Scheme**
Lectures:-3Hrs/Week, 3 Credits	**ISE:** 30 Marks
	ESE: 70 Marks

Course Outcomes:

After successful completion of the course, 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: **(6)**

Solid Waste management: Functional outlines of refuse, storage, transportation of refuse, analysis, composition and quantity of refuse, various 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.

Unit2: **(5)**

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: **(4)**

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: **(6)**

Incineration: Theory and types of incinerators, location, planning aspects, effects of feed, composition, rate and temperature, air supply, design of incineration plant, proximate analysis and ultimate analysis of refuse. Solid waste management rules, status of solid waste management in India.

SECTION-II
HAZARDOUS WASTE MANAGEMENT

Unit 5: **(6)**

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

Unit 6: **(4)**

Qualitative estimation of damages, risk assessment and management.

Unit 7: **(6)**

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

Unit 8: **(6)**

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

T.Y. B. Tech Civil – Part II

CE65C PRINCIPLES OF MANAGEMENT AND QUANTITATIVE TECHNIQUES

.

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

Course Outcomes:

After successful completion of the course, students will be able to

1. Demonstrate decision making and communication as a member of a team as well as Lead a team for effective management of construction projects.
2. Apply the Optimization techniques for decision making in construction industry.
3. Explain the lean construction technique and its use in construction industry
4. Carry out ABC analysis, Break even analysis and calculate EOQ and Inventory costs for construction project.
5. List the various types of master libraries in the ERP system.
6. Use Statistical Methods and Control charts (X, R, p, c charts) for quality control of materials and workmanship in Civil Engineering projects.

SECTION – I

Unit 1: **(4)**

Definition and Functions of Management; Planning: Process of planning, Management by objectives; Organizing: Formal and informal organization, centralization, decentralization, line, line and staff, functional organization; Leading, directing, controlling and coordination; Communication process, motivation.

Unit 2: **(10)**

Importance of Decision Making, steps in decision making.

Decision under certainty: Linear Programming, Formulation of simple L-P model, Graphical method, Simplex method, Duality.

Application of Linear Programming in 'Transportation Problems': North-West corner method, Least cost method, Vogel's Approximation method (Only Initial Basic Feasible Solution) and Application of Linear Programming in 'Assignment problems'.

Unit 3: **(4)**

Decision under uncertainty: Wald's, Savage, Hurvitz and Laplace criterion of optimism and regret, expected monitory value, Theory of games (dominance pure and mixed strategy). Decision under risk: Decision tree.

Unit 4: **(4)**

Introduction to Lean Construction. Need for Productivity Measurement and improvement; Productivity Measurement System (PMS).

Introduction to Sampling/ Work Sampling; Survey/ Foreman delay survey; Value Stream/ Process Mapping.

.

SECTION – II

Unit 5: **(6)**

Inventory control: Introduction, inventory cost, EOQ analysis, ABC analysis, safety stocks. Break even analysis.

Unit 6: **(8)**

Construction ERP

Benefits, best practices: ISO Documents, Responsibilities, Document Directory Structures,Safety Measures, Approval system for Purchase, Work Orders and Billing, User permissions, The master libraries in the ERP system – Resources Master Library, Construction Activity Specifications Master Library.

Unit 7: **(6)**

Quality control: Concept, Statistical Methods, Control charts (X, R, p, c charts)

Internal Continuous Assessment (ICA)

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

TEXT BOOKS

1. A Textbook of Organizational Behaviour, CB Gupta, S. Chand Publications
2. Construction Engineering & Management, S.C. Sharma & S.V. Deodhar, Khanna Book Publishing
3. Optimization Techniques, S.S. Rao, Wiley Eastern India
4. Operation Research, Hamdy A. Taha, Operation Research, Prentice Hall of India, New Delhi, 8th Ed.2011
5. Store Management, Menon K. S., Store Management, McMillan Co. New Delhi, 2nd Ed. 1998.
6. Statistical Quality Control, E. L. Grant, Statistical Quality Control, Wiley International Education, 6th Ed.
7. Udo Linden, Mrunalini Kulkarni, Hit-Office Construction ERP technical manual, Engineering Design Software and Services Pvt. Ltd., Pune, April 2018 Edition.

REFERENCE BOOKS

1. Total Quality Management, Ponia & Sharma, Khanna Publishing House, Delhi
2. Engineering Management: Industrial Engineering & Management, S.C. Sharma, Khanna Publishing House, Delhi
3. Principles and Practice of Management, Prasad, L.M, Sultan Chand
4. Organizational Behaviour, L.M. Prasad, Sutan Chand and Sons.
5. Handbook of Construction Management, Joy PK, Macmillan
6. Construction Project Management, Jha, Pearson
7. Total Quality Management, Gopal, PHI Publications
8. Industrial Engineering & Operations Management, S.K. Sharma. S.K. Kataria & Sons
9. Principles of Operation Research: Prentice Hall of India, 2nd Ed.1925,Wagner H. M.
10. Operation Research: Shaum's outline series, Richard Bronson Govindsami N., Tata McGraw Hill , 2nd Ed.2004
11. Material Management, Gopal Krishnan, Sudeshan,
12. Handbook of Quality Control, Juran J. M., A. B. Godfrey, Mc Graw- Hill International,5th Ed.
13. Lean Construction Management by Shang Gao · Sui Pheng Low, Spinger.

Punyashlok Ahilyadevi Holkar Solapur University, Solapur

Name of the Faculty: Science & Technology

CHOICE BASED CREDIT SYSTEM

Syllabus: Civil Engineering

Name of the Course: Final Year B. Tech

(Syllabus to be implemented w.e.f. June 2021)

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

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

1. Graduate will demonstrate peer-recognized technical competency in the analysis, design and construction of Civil Engineering Structures.

2. Graduate will demonstrate leadership and initiative to advance professional and organizational goals with commitment to ethical standards of profession, teamwork and respect for diverse cultural background.

3. Graduate will be engaged in ongoing learning and professional development through pursuance of higher education and self-study.

4. Graduates will be committed to create practice of engineering and other professionals in a responsible manner contributing to the socio-economic development of the society.

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

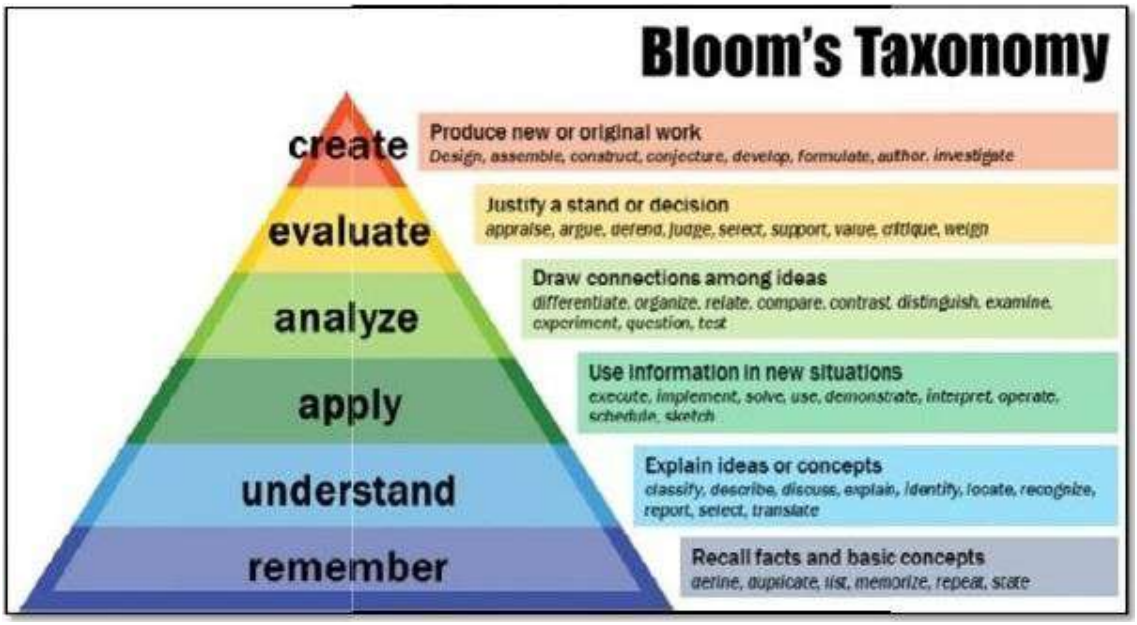
The program specific outcomes of B. Tech. Civil Engineering Program are as following:

1) Students 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) Students will be able to analyze and design the water resources systems, municipal and industrial waste treatment plants with due consideration to pollution free environment.

3) Students will be able to use appropriate application software, develop skills necessary for professional practice as a Civil Engineer and prepare themselves for education & for Public service commissions

Blooms Taxonomy



PUNYASHLOK AHILYADEVI HOLKAR SOLAPUR UNIVERSITY, SOLAPUR
Faculty of SCIENCE & TECHNOLOGY

Credit System structure of Final Year B. Tech. Civil Engg. II, Semester – VIII, W. E.F. 2021-2022

Course Code	Theory Course Name	Hrs./week				Credits	Examination Scheme				
		L	T	P	D		ISE	ESE		ICA	Total
CV421	Professional Elective Course- III	4	-	-	-	4	30	70		-	**100**
CV422	Professional Elective Course - IV	4	-	-	-	4	30	70		-	**100**
CV423	Railway & Harbour Engineering	3	1	-	-	4	30	70		-	**100**
CV424	Open Elective-III :Economic policies in India	3	-	-	-	3	30	70		-	**100**
CV425	Professional Practice, Law & Ethics	3	-	-	-	3	30	70		-	**100**
	Total	**17**	**1**	-	-	**18**	**150**	**350**		-	**500**
	Laboratory/Drawings							**POE**	**OE**		
CV421	Professional Elective Course- III	-	-	2	-	1	-	-	25	25	**50**
CV422	Professional Elective Course - IV	-	-	2	-	1	-	-	25	25	**50**
	Project work	-	-	8	-	4	-	-	100	100	**200**
	Total			**12**	-	**6**	-	**150**		**150**	**300**
	Grand Total	**17**	**1**	**12**	-	**24**	**150**	**500**		**150**	**800**

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, classtests, quizzes, attendance and interaction during theory and lab sessions, journal writing, report presentation etc., as applicable.

Professional Elective Courses: Student shall choose any one course from a group

Elective No	Semester	(I) Structural Engineering	(II) Geotechnical Engineering & Transportation Engg	(III) Construction Engineering & Management	(IV) Environmental Engineering & Hydraulics, Hydrology & Water Resources Engineering
Prof. Elective-I	Semester-VI	Masonry Structures	Structural Geology	Construction Engineering Materials	Ecological Engineering
		Structural Analysis by MatrixMethods	Urban TransportationPlanning.	Systems Engineering & Economics	Solid and Hazardous Waste Management
		Structural Dynamics	Pavement Design	Infrastructure Planning and Management	Physico-Chemical Processes for Water and Wastewater Treatment
					Hydraulic modeling
					Urban Hydrology and Hydraulics
					Instrumentation & Sensor Technologies for Civil Engg. Applications
					Open Channel flow & River Hydraulics
Prof. Elective-II	Semester-VII	Metal Structure Behaviour- I	Traffic Engineering and Management	Construction Productivity	Environmental Systems
		Advanced Structural Analysis	Geosynthetics and soil structures		Water Power Engineering
		Finite Element Method	Advanced Railway Track		

Prof. Elective-III	**Semester -VIII**	Industrial Structures	Public Transportation Systems	Construction Cost Analysis	Rural Water Supply and Onsite Sanitation Systems
		Repairs & Rehabilitation of Structures	Airport Planning and Design	Construction Equipment & Automation	Air & Noise Pollution and Control
			High Speed RailEngineering		Surface Hydrology
Prof. Elective-IV	**Semester -VIII**	Metal Structure Behaviour - II	Infrastructure Planning and Design	Advanced Concrete Technology	Water and Air Quality Modelling
		Design of Bridges	Transportation Economics	Entrepreneurship	Water Resources Field Methods
			Railway Project Design & Planning for Civil Engineering		
			Ground Improvement Techniques		

Punyashlok Ahilyadevi Holkar Solapur University, Solapur

Final Year B. Tech Civil – Part II

CV- 421 PROFESSIONAL ELECTIVE COURSE-III
421 (I) AIR AND NOISE POLLUTION AND CONTROL

Teaching Scheme
Lectures:-4 Hrs/Week, 4 Credits
Practical:- 2 Hrs./Week, 1 Credit

Examination Scheme
ISE: 30 Marks
ESE: 70 Marks
OE: 25 Marks
ICA: 25 Marks

Course Outcomes:

At the end of course, students will be able to

1. Proper understanding about the various air pollutants, their source of generation, their impacts, their effect on human, plants, environment and materials.
2. Apply knowledge of meteorology for controlling air pollution and Design air pollution controlling equipments.
3. Apply knowledge of legislation for prevention and control of air pollution.
4. Knowledge to analyze quality of air in the form of air quality index and dispersion modeling.
5. Basic information about Noise and its control.
1. Hands on experience on sampling and measurements of air Pollutants

SECTION I

Unit 1:Introduction to Air Pollution (10 Hrs)

Air and its composition, Structure of the atmosphere, Types of exposures, Air Pollution, units of measurement. Sources of air pollution (Natural and Artificial, Primary and Secondary, point and Non-Point, Line and Area, Stationary and mobile sources) and its classification, Major air Pollutants and their characteristics, Specific group pollutants such as CFC, GHG etc. Air Pollutants from various industrial sectors. Indore Air Quality, Odor Pollution, Impact of air pollution on human health, vegetation, aquatic life, flora and fauna and Monuments & Buildings, etc.

Unit 2: Pollutant Dispersion **(10 Hrs)**

Concept of atmospheric stability, Meteorology, Adiabatic and Environmental Lapse rate. Plume behavior. Effect of topography, terrain and structure on Pollutant dispersion. Effect of wind on Pollutant dispersion. Concept of maximum mixing depth and ventilation coefficient. Wind rose diagram, Plume behavior, Plume rise and Effective stack height.

Air Quality: Introduction to Air quality index and Comprehensive Environmental Pollution Index etc. and its application. Sampling and measurement of air pollutants. Introduction to National Ambient Air Quality Standards.

Dispersion modeling: Introduction to Dispersion modeling, its applications and limitations. Introduction to Gaussian Plume model and GLC determination.

Unit 3: Impacts of Air Pollution **(10 Hrs)**

Extreme air Pollution scenarios: Acid Rain, Global Warming, Smog(s), Ozone layer depletion, Urban Heat Islands, etc. Various treaties and protocols: Kyoto Protocol and Montreal Protocol etc. Episodes.

Air sampling, analysis and Legislation

Air sampling and pollution measurement methods, principles and instruments, Ambient air quality and emission standards, Air pollution indices (aerosols, fog, smog index, etc), Air (Prevention and Control) Pollution Act, 1981, legislation and regulations

SECTION – II

Unit 4: Control of gaseous pollutants and Pollution **(10 Hrs)**

Control principles of Removal of gaseous pollutants by adsorption, absorption, reaction and other methods. Introduction to control methods and equipment for Particulate matter and gases. Working of scrubbers, Electrostatic Precipitator, Gravity settlers, Cyclone separator, Filter bags etc. Other mechanisms of air pollution control such as Biochemical Processes, catalytic processes etc.

Unit 5:Introduction to Noise **(10 Hrs)**

Noise pollution: Basics of acoustics and specification of sound; sound power, sound intensity and sound pressure levels; plane, point and line sources, multiple sources; outdoor and indoor

noise propagation; psychoacoustics and noise criteria,

Unit 6: Effects, Standards, Monitoring and Control of Noise (10 Hrs)

Effects of noise on health, annoyance rating schemes; special noise environments: Infrasound, ultrasound, impulsive sound and sonic boom; noise standards and limit values; noise instrumentation and monitoring procedure. Noise indices. Noise control methods

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

1. Air pollution – Wark and Warner
2. Air Pollution – Rao and Rao, TMH
3. Environmental Engineering – by Peavy and Rowe, TMH.
4. Air Pollution and Control- Murali Krishna, Jain Brothers
5. Environmental Pollution Control and Engineering, Rao C.S., New Age International (P) Limited, 1st Ed., 1991.
6. Air Pollution, Perkin, H.G. McGraw Hill 1974.
7. Sources and Control of Air Pollution, R J Heinsohn and R L Kabel, Prentice Hall, 1999
8. Air Pollution Control Equipment Calculations, L Theodore, John Wiley and Sons, 2008

REFERENCE BOOKS

1. Air pollution – Martin Crawford
2. Air Pollution and Control Technologies- Y. Anjaneyulu, Allied Publishers
3. Fundamentals of Air Pollution- Raju BSN, IBH Publisher
4. An Introduction to Air Pollution- R. K. Trivedi and Goyal, BS Publications.
5. Air Pollution. Physical and Chemical Fundamentals, Sainfeld, J.H. McGraw Hill, N.Y.

1975.
6. Air Pollution: Measurement, Modeling and Mitigation, A Tiwari and J Colls, Taylor & Francis, 2010
7. Catalytic Air Pollution Control, Hack, Furraoto and Gulati,John Wiley and Sons, 2009

LIST OF EXPERIMENTS

1. Sampling of PM 2.5 in ambient air.
2. Sampling of Respirable Suspended Particulate Matter PM10 in ambient air.
3. Sampling of Suspended Particulate Matter in ambient air.
4. Sampling and analysis of nitrogen dioxide in ambient air.
5. Sampling and analysis of sulphur dioxide in ambient air.
6. Measurement of Noise using Sound Level Meter.
7. Demo of Stack monitoring kit.
8. Demo of weather monitoring station.
9. Demo of handy air sampler

Design based Problems (DP) /Open Ended Problem:

1. Analysis of air quality at different places
2. Noise level measuring at different places
3. Design of various control equipment
4. Various case studies related to the subject

Major Equipment:

1. Respirable dust sampler
2. PM2.5 Sampler
3. Stack monitoring kit
4. Sound level meter
5. Handy air sampler etc.

Punyashlok Ahilyadevi Holkar Solapur University, Solapur

Final Year B. Tech Civil – Part II

CV- 425 PROFESSIONAL PRACTICE, LAW & ETHICS

Teaching Scheme
Lectures:- 3 Hrs/Week, 3 Credits

Examination Scheme
ISE: 30 Marks
ESE: 70 Marks

Course Outcomes:

1. Explain role of various stakeholders in the Civil Engineering profession and
2. Draft and interpret contracts and contracts management in civil engineering, dispute resolution mechanisms and laws governing engagement of labour
3. Explain process of filing Intellectual Property Rights and Patents.
4. Interpret and explain fundamental ethics governing the profession society as practitioners of the civil engineering profession.
5. Exlain legal and practical aspects of Civil Engineering profession

Section I

Unit 1- Professional Practice – (7)

Respective roles of various stakeholders:

Government (constituting regulatory bodies and standardization organizations, prescribing norms to ensuresafety of the citizens);

Standardization Bodies (ex. BIS, IRC)(formulating standards of practice);

professional bodies (ex. Institution of Engineers(India), Indian Roads Congress, IIA/ COA, ECI, Local Bodies/ Planning Authorities) (certifying professionals and offering platforms for interaction);

Clients/ owners (role governed by contracts); Developers (role governed by regulations such as RERA); Consultants (role governed by bodies such as CEAI); Contractors (role governed by contracts and regulatory Acts and Standards); Manufacturers/ Vendors/ Service agencies (role governed by contracts and regulatory Acts and Standards)

Unit2- Professional Ethics – (7)

Definition of Ethics, Professional Ethics, Business Ethics, Corporate Ethics, Engineering

Ethics, Personal Ethics;

Code of Ethics as defined in the website of Institution of Engineers (India); Profession, Professionalism, Professional Responsibility, Professional Ethics; Conflict of Interest, Gift Vs Bribery, Environmental breaches, Negligence, Deficiencies in state-of-the-art; Vigil Mechanism, Whistleblowing, protected disclosures.

Unit3:General Principles of Contracts Management: (8)

Indian Contract Act, 1972 and amendments covering General principles of contracting; Contract Formation & Law; Privacy of contract; Various types of contract and their features; Valid & Voidable Contracts; Prime and sub-contracts; Joint Ventures & Consortium; Complex contract terminology; Tenders, Request For Proposals, Bids & Proposals; Bid Evaluation; Contract Conditions & Specifications; Critical /" Red Flag" conditions; Contract award & Notice To Proceed; Variations & Changes in Contracts; Differing site conditions; Cost escalation; Delays, Suspensions & Terminations; Time extensions & Force Majeure; Delay Analysis; Liquidated damages & Penalties; Insurance & Taxation; Performance and Excusable Non-performance; Contract documentation; Contract Notices; Wrong practices in contracting (Bid shopping, Bid fixing, Cartels); Reverse auction; Case Studies; Build-Own-Operate & variations; Public-Private Partnerships; International Commercial Terms;

SECTION II

Unit4 :Arbitration, Conciliation and Alternative Dispute Resolution) system: (7)

Arbitration – meaning, scope and types – distinction between laws of 1940 and 1996; UNCITRAL model law – Arbitration and expert determination; Extent of judicial intervention; International commercial arbitration; Arbitration agreements – essential and kinds, validity, reference and interim measures by court; Arbitration tribunal – appointment, challenge, jurisdiction of arbitral tribunal, powers, grounds of challenge, procedure and court assistance; Award including Form and content, Grounds for setting aside an award, Enforcement, Appeal and Revision; Enforcement of foreign awards – New York and Geneva Convention Awards; Distinction between conciliation, negotiation, mediation and arbitration, confidentiality, resort to judicial proceedings, costs; Dispute Resolution Boards; Lok Adalats

Unit5 :Engagement of Labour and Labour & other construction-related Laws: (8)

Role of Labour in Civil Engineering; Methods of engaging labour- on rolls, labour sub-contract, piece rate work; Industrial Disputes Act, 1947; Collective bargaining; Industrial Employment (Standing Orders) Act, 1946; Workmen's Compensation Act,

1923; Building & Other Construction Workers (regulation of employment and conditions of service) Act (1996) and Rules (1998); RERA Act 2017, NBC 2017

Unit6 : Law relating to Intellectual property: (8)

Introduction – meaning of intellectual property, main forms of IP, Copyright, Trademarks, Patents and Designs, Secrets;

Law relating to Copyright in India including Historical evolution of Copy Rights Act, 1957, Meaning of copyright – computer programs, Ownership of copyrights and assignment, Criteria of infringement, Piracy in Internet – Remedies and procedures in India;

Law relating to Patents under Patents Act, 1970 including Concept and historical perspective of patents law in India, Patentable inventions with special reference to biotechnology products, Patent protection for computer programs, Process of obtaining patent – application, examination, opposition and sealing of patents, Patent cooperation treaty and grounds for opposition, Rights and obligations of patentee, Duration of patents – law and policy considerations, Infringement and related remedies;

Text/Reference Books:

1. B.S. Patil, Legal Aspects of Building and Engineering Contracts, 1974.
2. The National Building Code, BIS, 2017
3. RERA Act, 2017
4. Meena Rao (2006), Fundamental concepts in Law of Contract, 3rd Edn. ProfessionalOffset
5. Neelima Chandiramani (2000), The Law of Contract: An Outline, 2nd Edn. AvinashPublications Mumbai
6. Avtarsingh (2002), Law of Contract, Eastern Book Co.
7. Dutt (1994), Indian Contract Act, Eastern Law House
8. Anson W.R. (1979), Law of Contract, Oxford University Press
9. Kwatra G.K. (2005), The Arbitration & Conciliation of Law in India with case law onUNCITRAL Model Law on Arbitration, Indian Council of Arbitration
10. Wadhera (2004), Intellectual Property Rights, Universal Law Publishing Co.
11. T. Ramappa (2010), Intellectual Property Rights Law in India, Asia Law House
12. Bare text (2005), Right to Information Act

13. O.P. Malhotra, Law of Industrial Disputes, N.M. Tripathi Publishers
14. K.M. Desai(1946), The Industrial Employment (Standing Orders) Act
15. Rustamji R.F., Introduction to the Law of Industrial Disputes, Asia Publishing House

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. 2. To develop holistic approach to management. 3. To makes students as effective manager.					
Course Outcomes	• Better understanding of management and link them to organizational contexts • Developing students regarding skills of management • 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. **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) 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 3. Principles and Practice of Management - L M Prasad, S. Chand and Sons (ISBN : 978-93-5161-050-2) 4. Principles of Management - T. Ramaswamy, McGraw Hill Education - (ISBN-10: 818-48-8871-6, ISBN-13:978-81-8488-87-1) 5. Principles of Management - Knootz & O'Donell, Tata McGraw Hill (ISBN-10:0070581924, ISBN-13:978-00-7058-192-)0 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 2. To give practical knowledge in order to prepare for effective presentation, business writing, reporting, presenting during job interviews, etc. 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. • The course will help students learn to communicate professionally both in writing as well as ora'. • 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. b) **Effective Conversation:** Concept, Social Conversation; Conversation Control; Transactional Analysis (TA); Applications of Conversational Control 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) 2. Managerial Communication – Urmila Rai and S. M.Rai, Himalaya Publishing House (ISBN-10: 9350247992, ISBN-13: 978-93-5024-799-0) 3. Business Communication : Skills, Concepts and Applications – P. D. Chaturvedi, Mukesh Chaturvedi, Pearson Education (ISBN: 978-81-3171-872-8, 8131718727) 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. 2. To know various procedures, licenses and permissions required for events 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 – a) Preparation of Event Plan for Wedding, Annual General Body Meeting of an MNC. b) Preparation of Budget for Conduct of National Level Intercollegiate Sports Events. c) Preparation of Event Plan for College Day Celebrations. d) Preparation of Budget for Conducting Intercollegiate Commerce Fest 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 2. Event Management – Annie Stephen & Hariharan, Himalaya Publishing House 3. Event Marketing and Management – Sanja Singh Gaur & Sanjay V. Saggere, Vikas Publications 4. Event Management – Lynn Van Der Wagen & Brenda R. Carlos, Pearson Higher Education 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. 2. To facilitate learning in modern concepts, techniques and practices in the management of human resources. 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 • Understand procurement process that includes; HRP, factors affecting Recruitment sources, selection process and placement • Differentiate training and development and understand methods of training • 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. Human Resources Planning-Objectives, Importance, HRP Process.						
Module 3	**Recruitment and Selection**					
Recruitment-Sources of Recruitment-Selection Process-Placement and Induction-Retention of Employees. 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. • 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. 2. Human Resource Management- Text and Cases. K. Aswathappa, (HPH) 3. Human Resource Management. P.Subba Rao Himalaya Publishing House (HPH). 4. Personnel Management – C.B Mamoria. 5. Human Resource Management: Text and Cases - VSP Rao. 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. • 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. 2. Human Resource Management- Text and Cases. K. Aswathappa, (HPH) 3. Human Resource Management. P.Subba Rao Himalaya Publishing House (HPH). 4. Personnel Management – C.B Mamoria. 5. Human Resource Management: Text and Cases - VSP Rao. 6. Personnel/ Human Resource Management by David DeCenzo, Stephen Robbins, Prentice Hall of India.

Punyashlok Ahilyadevi Holkar Solapur University, Solapur

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

Name of the Faculty: Commerce & Management

CHOICE BASED CREDIT SYSTEM

Syllabus: Master of Business Administion

Name of the Course: M.B.A. Part- II (Sem. III & IV)
(Syllabus to be implemented from w.e.f. June 2021)

Third Semester

Paper Code	Title of the Paper	Semester Exam			No. of weekly lectures	Credits
		UP	IA	Total		
Hard Core						
121	Strategic Management	80	20	100	4	4
122	Management Accounting	80	20	100	4	4
123	Project Report	50	50	100	4	4
Elective Core						
124	Elective Subject I (Paper – I)	80	20	100	4	4
125	Elective Subject I (Paper – II)	80	20	100	4	4
126	Elective Subject II (Paper – I)	80	20	100	4	4
127	Elective Subject II (Paper – II)	80	20	100	4	4
Open Elective						
128	Entrepreneurship Development	80	20	100	4	4

Fourth Semester

Paper Code	Title of the Paper	Semester Exam			No. of weekly lectures	Credits
		UP	IA	Total		
Hard Core						
129	Business Ethics & Corporate Governance	80	20	100	4	4
130	Total Quality Management	80	20	100	4	4
Elective Core						
131	Elective Subject I (Paper – III)	80	20	100	4	4
132	Elective Subject I (Paper – IV)	80	20	100	4	4
133	Elective Subject I (Paper – V)	80	20	100	4	4
134	Elective Subject II (Paper – III)	80	20	100	4	4
135	Elective Subject II (Paper – IV)	80	20	100	4	4
136	Elective Subject II (Paper – V)	80	20	100	4	4

Semester – III

Semester : III	Hard Core	Semester Exam			L/W	Credits
Code: 301	Strategic Management	Theory	I A	Total		
Subject Title		80	20	100	04	04
Course Objectives	1. To make understand key concepts of business strategy. 2. To provide knowledge about strategy formulation and implementation. 3. To make aware about tools and techniques used for strategy analysis.					
Course Outcomes	• Understanding relevancy of strategic management concepts with the current business scenario • Ability to enhance strategic decision-making skills					
Module 1	**Strategy and Appraisal**					**8**
Defining strategy, Levels at which strategy operates, Strategic Decision Making, Vision, Mission, Objectives, and Strategic Management Process						
Module 2	**Environmental Analysis**					**12**
Concept of Environment, Internal and External, Environmental Sectors, Environmental Scanning, Appraising the Environment, Organizational appraisal, Organizational Capability, Competitive Advantage, Methods and techniques used for organizational appraisal.						
Module 3	**Strategy Formulation and Choice of Alternatives**					**12**
Corporate Level Strategies- Stability, Expansion (Concentration, Integration, Diversification, Internationalization, Co-operation strategies, Digitalization) Retrenchment (Turnaround, Divestment, Liquidation), Combination Strategies, Business Level Strategies						
Module 4	**Strategic Analysis and Choice**					**10**
SWOT analysis, Process of Strategic Choice- GAP Analysis, Tools and techniques for strategic Analysis, Mckinsey's 7 S Framework, Corporate Portfolio Analysis - Bostan's Consultancy Model,GE-9 Cell Model, Industry Analysis – Porter's 5 Force Model, Competitor Analysis, Factors in Strategic Choice						
Module 5	**Strategy Implementation**					**10**
Model of strategy Implementation, Project implementation, Procedural Implementation, Resource Allocation, Structural Implementation- Structures for Strategies, Behavioural Implementation – Strategic Leadership, Functional Strategies, Operational Strategies						
Module 6	**Strategy Evaluation and Control**					**08**
Participants, Barriers in evaluation, Strategic Control, Operational Control, techniques of strategic evaluation and control.						

Recommended Books	1. Business Policy – Kazmi Azhar – Tata McGraw Hill 2. Business Policy and Strategic Management – P. Subba Rao, Himalaya Publication 3. Strategic Management – Alpna Trehan, Dreamtech Press 4. Business Policy and Strategic Management –R. Shrinivasan 5. Business Ethics – Dr. A. K. Gavai (Himalaya Publishing House) 6. Business Ethics – A. C. Fernando (Pearson) 7. Business Ethics – C. S. V. Murthy (Himalaya Publishing House) 8. Business Ethics – Andrew Crane & Dirk Matten

Semester : III	Open Elective	Semester Exam			L/W	Credits
Code: 3013	Entrepreneurship Development	Theory	I A	Total	4	4
Subject Title		80	20	100		
Course Objectives	1. To make the students understand the importance of Entrepreneurship. 2. To make students understand various traits, competencies of entrepreneurship and ways of developing them 3. To embed into students an inspiration to opt Entrepreneurship as Career. 4. To make students know about the supportive environment for Entrepreneurship					
Course Outcomes	• Motivation to become Entrepreneurs • Capability to explore the scope of Entrepreneurial career • Approaching market needs with innovative enterprising solutions.					
Module 1	**Foundations of Entrepreneurship Development:**					14
Concepts of Entrepreneur & Entrepreneurship. Entrepreneurial Traits and competencies, Developing Entrepreneurial competencies, Entrepreneurship as a career, Concept and Need of Entrepreneurship Development, Theories of Entrepreneurship: Innovation Theory by Schumpeter, Theory of High Achievement by McClelland, X-Efficiency Theory by Leibenstein, Theory of Profit by Knight, Theory of Social change by Everett Hagen.						
Module 2	**Influences on Entrepreneurship Development**					06
External Influences on Entrepreneurship Development: Socio- Cultural, Political, Economical, Personal. Intrapreneurship / Corporate Entrepreneurship, Entrepreneurial culture with special reference to Intrapreneurship / Corporate Entrepreneurship. Entrepreneurial Success and Failure: Reasons and Remedies. Entrepreneurship Development Cycle.						
Module 3	**Innovation and Entrepreneur**					04
Innovation – Concept and Meaning, Difference with Invention and Creativity, Role of innovation in entrepreneurship, Sources of Innovation, Principles, Barriers and essential conditions for Innovation						
Module 4	**Women, Rural & Social Entrepreneurship**					10
Women Entrepreneurs – Meaning and concept, Problems/Challenges and Remedies to Woman Entrepreneurship Rural Entrepreneurship – Meaning, Need, Problems. Social Entrepreneurship – Meaning and Concept, examples of Social Entrepreneurship and its features.						

Module 5	Creating Entrepreneurial Venture	12
Start-ups - Trends Imperatives, benefits; players involved in the ecosystem. Business Plan – An Entrepreneurial Tool. Elements of Business Plan - Objectives, Market Analysis, Development of product / idea, Marketing, Finance, Organization & Management, Ownership, Critical risk contingencies of the proposal, Scheduling and milestones. Feasibility Reports - Technical, Financial, Marketing, Personnel.		
Module 6	**Entrepreneurship Development Environment & Financial Support**	**12**
Role of the following agencies in the Entrepreneurship Development i. DIC – District Industrial Center ii. NSIC – National Small Industries Corporation iii. NEDB – National Entrepreneurship Development Board Financial Support: Role of Central Government and State Government in promoting Entrepreneurship - various incentives, subsidies, grants etc. – with special reference to 'Export oriented units'. Financial schemes offered by various financial institutions, Role of Venture Capitalist, Angel Capitalist.		
Recommended Books	1. Fundamentals of Entrepreneurship Development and Project Management – Lipika K. Guliani & R. K. Gupta – Himalaya Publishing House (ISBN : 978-93-5142-684-4) 2. The Dynamics of Entrepreneurial Development and Management – Vasant Desai. – Himalaya Publishing House (ISBN : 978-93-5024-454-8) 3. Fundamentals of Entrepreneurship – G. S. Sudha – R. B. D. Publishing House (ISBN : 81-8142-120-5) 4. Entrepreneurial Development – S. S. Khanka – S. Chand & Co. (ISBN : 978-81-219-1801-5) 5. Entrepreneurship Development – E. Gordon & K. Natarajan – Himalaya Publishing House (ISBN : 978-93-5202-540-4)	

Semester - IV

Semester: IV	Hard Core	Semester Exam			L/W	Credits
Code : 401	Business Ethics & Corporate Governance	Theory	I A	Total		
Subject Title		80	20	100	4	4
Course Objectives	1. To introduce Business Ethics and corporate governance concepts to student Managers. 2. To teach students practical application of Ethical practices in life situations. 3. To deal with case studies and deal with practical problem solving ethical approach.					
Course Outcomes	• Students will be able to take appropriate ethical decisions after learning corporate Governance. • Students will become familiar with international ethical environment and know concepts of Indian ethics and governance. • Students will be ready with corporate ethical and governance knowledge and will be ready for attractive placements					
Module 1	**Introduction to Business Ethics**					**10**
An overview of Ethics – Business Ethics – Concepts – Nature, Objectives, Need and benefits –Ethical theories – Values & Value based Management .Importance of Ethics in business. Stages of Ethical Consciousness. principles of business ethics						
Module 2	**Theories of Business Ethics**					**10**
Introduction of values, characteristics of values, importance of values, business values, corporate values. Relationship of values, norms, belief and standard Ethical theories- Metaethics, Normative Ethics, Teleological ethical theory, Deontological Ethical Theory– Ethical Decision Making – Ethical Dilemma –						
Module 3	**Ethics in Functional Areas.**					**10**
Ethical issues in Finance – Ethical issues in Marketing – Ethical issues in HR – Ethical Issues in Operations – Ethics in Information Technology – Trans-cultural issues.						
Module 4	**Corporate Social Responsibility**					**10**
Corporate Social Responsibility & its Significance in Business – Concept of Social Audit & its Relevance Corporate Social Responsibility and corporate citizenship – Forms of CSR, Dimensions of CRS – Stakeholder theory of corporation.						

Module 5	Corporate Governance.	10
Introduction Definition of Corporate Governance Evolution of Corporate Governance Difference between Corporate Governance and Corporate Management Theories of Corporate Governance Models of Corporate Governance		
Module 6	**Roles and Responsibilities of Directors in Corporate Governance.**	**10**
Role of Directors, Responsibilities of Directors, Duties of Directors, Functions of the Board Committees of the Board, Corporate codes - Self-regulatory codes - Reports of committees on Corporate Governance - Kumara Mangalam Birla Committee Report , CII Report		
Recommended Books	9. Business Ethics- Andrew Crane & Dirk Matten. 10. Business Environment - Francis Cherunilam, Himalaya 11. Business Ethics – C. S. V. Murthy. 12. Entrepreneurial Development. Dr. S.S. Khanka , S Chand Publication. 13. Business Ethics, Manisha Paliwal –New Age International Press, New Delhi. 14. Management Ethics, Patyrick J. A. & Quinn J. F. – Response Publishing, New Delhi. 15. Ethics in Management, Sherlekar – Himalaya Publishing, New Delhi.	

Semester : IV	Specialization : Marketing Management	Semester Exam			L/W	Credits
Code: 403 V	International Marketing	Theory	I A	Total		
Subject Title		80	20	100	4	4
Course Objectives	1. The aim of the course is for the student to develop their knowledge and understanding of the field of international marketing, which includes strategies for internationalization and the structural changes of markets. 2. The course also aims to allow students to develop in-depth knowledge of internationalization in the retail sector in relation to the companies' social responsibility.					
Course Outcomes	• Be capable of identifying international customers through conducting marketing research and developing cross-border segmentation and positioning strategies. • Be capable of developing a global marketing strategy by applying the basic concepts of product, pricing, promotion, and channels of distribution in international settings.					
Module 1	**Introduction to Marketing**					**10**
Marketing: Meaning, Nature & Scope as the key business function in Organizations – Marketing for New Realities – Holistic Marketing Concept – Extended Marketing Mix – Key Customer Markets: Consumer, Business, Global, Non-profit & Government – Market Space – Meta Markets. Concept of Value chain – Marketing Environment – Internal and External environment – Introduction to Marketing Research & Modern Marketing Information System – Concept of Big Data – Marketing Intelligence Market Strategic Planning – Elements of Marketing Plan						
Module 2	**International Buying Behaviour**					**10**
Customer Relationship Management – Loyalty Programs. Types of Consumer Buying Behaviour – Factors affecting Buyer Behaviour - Buyer Roles – Consumer Buying Decision Process: The 5 Stage Model. Organizational Buying Decisions – Buying Center – Tapping Global Markets. Segmentation, Targeting & Positioning – Strategies. Competitor Analysis – Competitive Market Strategies – Leaders, Challengers, Followers & Niches.						
Module 3	**International Product Planning and Pricing Decisions:**					**10**
International Product Planning and Pricing Decisions: Major Product decisions-product design, labeling, packaging, branding and product support services; Product standardization vs. adaptation; managing product line. Pricing decisions for International Markets: Factors affecting international price determination; International pricing process and policies; Delivery terms and currency for export price quotations; Transfer pricing						

Semester : IV	Specialization : Marketing Management	Semester Exam			L/W	Credits
Code: 403 V	International Marketing	Theory	I A	Total		
Subject Title		80	20	100	4	4
Course Objectives	1. The aim of the course is for the student to develop their knowledge and understanding of the field of international marketing, which includes strategies for internationalization and the structural changes of markets. 2. The course also aims to allow students to develop in-depth knowledge of internationalization in the retail sector in relation to the companies' social responsibility.					
Course Outcomes	• Be capable of identifying international customers through conducting marketing research and developing cross-border segmentation and positioning strategies. • Be capable of developing a global marketing strategy by applying the basic concepts of product, pricing, promotion, and channels of distribution in international settings.					
Module 1	**Introduction to Marketing**					**10**
Marketing: Meaning, Nature & Scope as the key business function in Organizations – Marketing for New Realities – Holistic Marketing Concept – Extended Marketing Mix – Key Customer Markets: Consumer, Business, Global, Non-profit & Government – Market Space – Meta Markets. Concept of Value chain – Marketing Environment – Internal and External environment – Introduction to Marketing Research & Modern Marketing Information System – Concept of Big Data – Marketing Intelligence Market Strategic Planning – Elements of Marketing Plan						
Module 2	**International Buying Behaviour**					**10**
Customer Relationship Management – Loyalty Programs. Types of Consumer Buying Behaviour – Factors affecting Buyer Behaviour - Buyer Roles – Consumer Buying Decision Process: The 5 Stage Model. Organizational Buying Decisions – Buying Center – Tapping Global Markets. Segmentation, Targeting & Positioning – Strategies. Competitor Analysis – Competitive Market Strategies – Leaders, Challengers, Followers & Niches.						
Module 3	**International Product Planning and Pricing Decisions:**					**10**
International Product Planning and Pricing Decisions: Major Product decisions-product design, labeling, packaging, branding and product support services; Product standardization vs. adaptation; managing product line. Pricing decisions for International Markets: Factors affecting international price determination; International pricing process and policies; Delivery terms and currency for export price quotations; Transfer pricing						

Module 4	International Distribution Decisions	10
Distribution channel- from traditional to modern channel structures, Intermediaries for international markets-their roles and functions; Alternative middlemen choices, Factors affecting choice of channels; Locating, selecting and motivating channel members; International distribution logistics- Issues and Planning.		
Module 5	**International Promotion Strategies**	**10**
Communications across countries-complexities and issues; Country-of-origin effect; Sales promotions in international markets, trade fairs and exhibitions, International public relations, International Advertising decisions, Personal selling and sales management; Developing international promotion campaign.		
Module 6	**Policy Framework And Procedural Aspects & Global e-marketing**	**10**
India's Export – Import policy – EXIM Policy –promotional measures - Export oriented Units – Deemed Exports - Export- Import Documentation – Kinds of Documents – Principal Export Documents – Auxiliary documents –Documents in Import Trade Global e-marketing – The death of distance, Mobile marketing, The development of E- Commerce – B2B, E-marketing on social media sites		
Recommended Books :	1. International Marketing, Francis Cherunilam ,Himalaya Publication House (ISBN :978-93-5367-055-9.) 2. International Marketing - Onkvisit, Sak., and John J. Shaw - Tata McGraw Hill 3. Global Marketing - Keegan, Warran J. and Mark C. Pearson. 4. International Marketing Management , M.V. Kulkarni, Everest Publishing House 5. International Business – P. Subha Rao - Himalaya Publication House 6. Global Marketing Management – Warren J Keegan, Naval K. Bhargava	