24MA201 PROBABILITY AND STATISTICS FOR ENGINEERS (CE/ME)

Course Category:	Basic Science	**Credits:**	4
Course Type:	Theory	**Lecture - Tutorial - Practice:**	4-0-0

Course Outcomes

By the end of the course, the student will be able to…

- **CO 1:** Apply Bayes' theorem to calculate conditional probabilities and use discrete random variables to determine probability distributions like Binomial and Poisson for decision-making (K3).
- **CO 2:** Apply continuous random variables to the normal distribution, approximate the binomial distribution using the normal distribution, and utilize other probability densities (K3).
- **CO 3:** Apply sampling distribution to statistical parameter mean of σ known and unknown cases and sampling distribution of variance.(K3)
- **CO 4:** Implement point and interval estimation methods and testing the hypotheses concerning the one and two means (K3).
- **CO 5:** Apply control chart limits to analyze statistical control and utilize the regression analysis and assessing correlation between the variables (K3).

Contribution of Course Outcomes towards achievement of Program Outcomes (1 – Low, 2 - Medium, 3 – High)		PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO 11	PO 12	PSO1	PSO2
	CO1	3	2			1									
	CO2	3	2			1									
	CO3	3	2			1									
	CO4	3	2			1									
	CO5	3	2			1									

Course Structure

Unit 1: Probability Distributions

Probability: Conditional probability, Multiplication rule of probability, Bayes' theorem. **Probability Distributions:**Discrete Random Variable, Binomial distribution, Poisson approximation to the Binomial distribution, Poisson Process.

UNIT II

Probability Densities: Continuous Random Variable , Normal distribution, Normal approximation to the Binomial distribution.
Other probability densities: Uniform distribution, Log normal distribution, Gamma distribution, Beta distribution, Weibull distribution.

UNIT III

Sampling Distributions: Introduction, Populations and Samples, Sampling distribution of mean (σ known), Sampling distribution of mean (σ unknown),Sampling distribution of the variance.

UNIT – IV

Inferences concerning mean: Point Estimation,Interval Estimation, Test of Hypothesis, Hypothesis Concerning one mean, Relation between Tests and Confidence intervals, Comparisons two treatments (large and small samples).

UNIT – V

Regression Analysis: The method of least squares, Multiple Regression,Correlation.

The Statistical Content of Quality Improvement Programs: Quality Control, Control Charts for Measurements, Control Charts for Attributes.

Text books	[1] Probability and Statistics for Engineers, Eighth edition by Richard A. Johnson Prentice Hall of India.
Reference books	[1] Probability & Statistics for Engineers & Scientists by R.E. Walpole, R.H.Myers & S.L.Myers, Sixth Edition, Prentice Hall of India / Pearson Education. [2] Probability and Statistics by Purna Chandra Biswal, Pearson Education Prentice Hall of India 2007. [3] Probability and Statistics by T.K.V.Iyengar, B.Krishna Gandhi, S.Ranganatham, M.V.S.S.N.Prasad, S.Chand.
E-resources and other digital material	[1] probweb.berkeley.edu/teaching.html [2] statsci.org/teaching.html [3] video lectures.nptel.iitm.ac.in

24EE211 ELECTRICAL AND ELECTRONICS ENGINEERING

Category: Engineering Science (ES) 3L 0T 0P 3C

Pre-requisite:Engineering mathematics, Engineering physics

CourseOutcomes:

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

CO1: **Apply** mesh and node analysis to DC and AC circuits, and calculate RMS and average values for AC wave forms.[K3]

CO2: **Understand** the working principles and characteristics of DC generator and motor. [K3]

CO3: **Understand** the working principles and characteristics of three phase induction motor and transformer. [K3]

CO4: **Understand** the working principles and characteristics of PN junction diode, Zener diode and rectifier circuits. [K3]

CO5: **Understand** the CB CC CE configurations of transistors. [K3]

CourseStructure:

Unit1:DC and AC circuits:

Contents

DC circuits: Introduction, basic circuit components- resistors, inductors, capacitors, Ohm's law and its limitations, Kirchhoff's laws, ideal independent voltage source, Ideal independent current source, dependent sources, practical voltage and current sources, mesh and nodal analysis (with independent sources only).

AC circuits: Generation of AC voltages, waveforms and basic definitions, relationship between frequency, speed and number of poles, root mean square and average values of alternating current and voltages, form factor and peak factor.

Unit2: DC Machines

Contents

DC Machines: Introduction, construction of dc machines, types of dc machines, armature windings, operation of a dc machine as a generator, operation of dc machine as a motor, generation of dc voltage dc generator, torque production in a dc motor, speed control of dc motors

Unit 3: AC Machines:

Contents

Induction Motors: Introduction, constructional features of three-phase induction motors, principle of operation of three-phase induction motor-slip and rotor frequency, voltage and current equations and equivalent circuit of an induction motor.

Transformers: Introduction, constructional features of single phase transformers, principle of operation of single-phase transformers, EMF equation of single-phase transformers, equivalent circuit of single-phase transformers, auto transformer.

Unit 4: Semiconductor diode and its characteristics

Contents

- Semiconductor diode and its characteristics : Conductors, semiconductors, insulators, P-N junction (diode), operation of P-N junction diode (forward and reverse bias), V-I characteristics of diode (forward and reverse bias), Zener diode, Zener diode as a voltage regulator, half wave, full wave, bridge rectifiers and its ripple factor calculations.

Unit 5: Bipolar junction transistor (BJT) characteristics

Contents

Bipolar junction transistor (BJT) characteristics : Transistor operation, types of transistors (NPN & PNP), regions of operation of transistors, transistor as an amplifier, transistor as a switch, common base configuration (CB), common emitter configuration (CE),common collector configuration (CC), comparison of CB, CC, CE configurations.

Textbook(s)/Reference(s):

Textbooks:

1. I.J.Nagrath and Kothari , "Theory and problems of Basic Electrical Engineering",Prentice-Hall of India Pvt. Ltd.
2. Dr. K. Uma Rao, Dr. A. Jayalakshmi,"Basic Electric Engineering", PearsonPublications.
3. T.K. Nagasarkar and M.S. Sukhja,: Basic Electric Engineering:, oxford University press.
4. R. L. Boylestad& Louis Nashlesky, Electronic Devices & Circuit Theory, PearsonEducation, 2021.

References:

1. Ashfaq Husain , Haroon Ashfaq, " *Fundamentals of Electrical Engineering*", 4th edition, Dhanpat Rai & Co , 2014.
2. I.J.Nagrath and Kothari , "*Theory and problems of Basic Electrical Engineering*",

2nd edition,Prentice-Hall of India Pvt.Ltd.,2016.

3. R. S. Sedha, A Textbook of Electronic Devices and Circuits, S. Chand & Co, 2010.
4. Santiram Kal, Basic Electronics- Devices, Circuits and IT Fundamentals, Prentice Hall, India, 2002.

24ME201 MECHANICS OF MATERIALS

Category: Program Core (PC) **3L 0T 0P 3C**
Pre-requisite: Engineering Mechanics

Course Outcomes:

At the end of the course, the student will be able to…

- **CO1:** Estimate the stresses and strains in structural members subjected to axial loading. **[K3]**
- **CO2:** Inspect Shear force and Bending moment diagrams for determinate beams which are subjecting to transverse loading **[K4]**
- **CO3**: Analyze the members subjected to bending and torsion. **[K4]**
- **CO4**: Examine the deflections of determinate beams and safe load on columns.**[K4]**
- **CO5**: Solve plane stress problems and calculate the stresses in thin cylindrical and spherical vessels. **[K3]**

Course Structure:

Unit – 1: Tension, compression and shear

Introduction, Concepts of Normal Stress and Strain, Stress-Strain Diagrams, Elasticity and Plasticity, Linear Elasticity and Hooke's Law, Poisson's Ratio, Shear Stress and Strain, Allowable Stresses and Allowable Loads. Numerical problems on Change in length of axially loaded members, Change in length for a tapered bar under axial loading.

Unit – 2: Statically determinate beams

Introduction, Types of Beams, Loads and Reactions, Shear Force and Bending Moments, Relationships between Load, Shear Force and Bending Moment, Shear Force and Bending Moment Diagrams.

Unit – 3: Bending and Torsion

Bending stresses: Introduction, Pure bending, Bending stress Equation, Design of beams for bending stresses.

Torsion: introduction, torsional deformations of circular bar, circular bars of linearly elastic materials, transmission of power by circular shafts.

Unit – 4: Beam deflections and columns

Deflections of statically determinate beams: Introduction, Differential Equations of the Deflection Curve, Deflections by Integration of the Bending Moment Equation, Macaulay's Method.

Columns: Introduction, Buckling and Stability, Columns with Pinned ends, Columns with other support conditions, Limitations of Euler's Formula, Rankine's Formula.

Unit – 5: Principal Stresses and Pressure Vessels

Analysis of plane stress: Introduction, Plane Stress, Principal Stresses and Maximum Shear Stress. Mohr's Circle for Plane Stress.

Thin cylindrical and spherical pressure vessels: Introduction, Stresses in thin cylindrical and spherical pressure vessels subjected to internal pressure. Effect of internal pressure on the dimensions of the thin cylindrical and spherical pressure vessels.

Textbook(s)/Reference(s):

Text Books:

[1] James M. Gere and Barry J.Goodno, "Mechanics of Materials", Eighth edition, CENGAGE Learning, 2013

[2] Egor Paul Popov, "Mechanics of Materials", Second edition, Pearson Education, 2015

Reference books:

[1] R.K.Bansal, "Strength of Materials "Sixth edition, Laxmi Publishers, 2017

[2] Dr. Sadhu Singh, "Strength of Materials", Ninth edition, Khanna Publishers, 2007.

[3] R.K. Rajput," Strength of Materials ",First Edition, S.Chand& Company, 2006.

[4] S.S.Rattan, "Strength of Materials", Third Edition, Tata McGraw Hill Education Private Limited, 2017.

E-resources and other digital material:

[1] Prof. M.S. Sivakumar, IIT Madras, Strength of material, [English],

Web Available: **http://nptel.ac.in/courses/112106141/**

[2] Dr. Satish C Sharma, IIT Roorkee, Strength of material, [English],

Web Available: **http://nptel.ac.in/courses/112107146/**

[3] Dr. S. P. Harsha, IIT Roorkee, Strength of material, [English],

Video Available: **http://nptel.ac.in/courses/112107147**

24ME202 ENGINEERING THERMODYNAMICS

Course Category: Program Core (PC) 3L 0T 0P 3C

Course Outcomes:
Upon successful completion of the course, the student will be able to:

CO1: Illustrate the basic concepts of thermodynamics and can distinguish work and heat forms of energy

CO2: Apply first of law of thermodynamics to flow and non-flow processes and thermodynamic systems

CO3: Apply the second law of thermodynamics to systems and understand the concept of entropy, exergy and irreversibility

CO4: Evaluate the properties of steam and steam thermal power plants analysis

CO5: Able to find properties of gas mixtures and can analyse air cycles

Course Structure

UNIT I

FUNDAMENTAL CONCEPTS AND DEFINITIONS: Thermodynamic system, type of systems Macroscopic and microscopic points of view, properties and state of a substance, Thermodynamic equilibrium and Quasistatic Process, thermodynamic path, cycle, Zerothlaw of thermodynamics, Temperatures scales

WORK AND HEAT: Ideal gas equation, equation of state, Work transfer, pdV-work and heat transfer in various Quasistatic processes, flow work, path function and point function, heat transfer-A path function, comparison of heat and work.

UNIT II

FIRST LAW FOR NON-FLOW SYSTEMS: Joule Experiment in establishing First law of thermodynamics, First law of thermodynamics for a system undergoing a cycle and for a change in state of system, Energy –a property of a system, internal energy and enthalpy, constant volume and constant pressure specific heats and their relation to internal energy and enthalpy of ideal gases.

FIRST LAW FOR FLOW SYSTEMS: Control mass and control volume, first law of thermodynamics for a control volume, steady flow energy equation and application to engineering equipment.

UNIT III

SECOND LAW OF THERMODYNAMICS: Cyclic heat engines and Refrigerators, Heat pumps, Kevin Planks and Clausius statements, Equivalence of Kevin Planks and Clausius statements, Carnot

cycle, Carnot theorem and its corollary, absolute thermodynamic temperature scale, efficiency of reversible heat engine and COP of reversed heat engine, Causes of irreversibility, Concept of Exergy and irreversibility (Theory).

ENTROPY: Clausius Theorem, property of entropy, Inequality of Clausius, Entropy change in irreversible process, Entropy principle, Problems on Entropy change and entropy generation in system during change of state, T-ds relations.

UNIT IV

PURE SUBSTANCES: P-v, P-T, T-s and h-s diagrams for a pure substance, Triple point, Critical point, Dryness fraction, Steam tables, problems using steam tables and Mollier chart.

VAPOUR POWER CYCLES: Ideal Rankine cycle, Actual Rankine cycle, Reheat Cycle, Regenerative cycle.

UNIT V

PROPERTIES OF GAS MIXTURES: Properties of mixture of gases-Dalton`s law of Partial Pressures, Internal Energy, enthalpy and specific heats of gas mixtures and Entropy of gas mixtures

AIR POWER CYCLES: Otto cycle, Diesel cycle, Dual cycle

Textbooks:

[1] P. K. Nag, "Engineering Thermodynamics" 6thedition, Tata Mc Graw Hill Education Private Limited, 2017.
[2] Yunus A. Cengel M. and Michael A. Boles, "Thermodynamics – An Engineering Approach", 8th edition, McGrawHill Education (India) Private Limited, 2014.

Reference Books:

[1] G.J.Van Wylen & Sonntag, "Fundamentals of Classical Thermodynamics", 4th Edition, Wiley publication 2005.

e- Resources:

[1] www.learnthermo.com/tutorials.php
[2] www.khanacademy.org/science/physics/ thermodynamics
[3] www.courseera.org/learn/ thermodynamics -intro
[4] www.edx.org/course/thermodynamics -iitbombayx-me209-1x-1
[5] http://nptel.ac.in/courses/112106141
[6] http://nptel.ac.in/courses/112108148

Note: Steam tables are permitted in internal and external examinations

24ME203 KINEMATICS OF MACHINES

Category: PROGRAM CORE (PC) 3L 0T 0P 3C

Pre-Requisite: Engineering Graphics
Engineering Mechanics

Course Outcomes:

At the end of the course, the student will be able to…

CO1: Analyze different mechanisms used in machines and everyday life.
CO2: Evaluate velocity and acceleration of various links in a Mechanism
CO3: Develop cam profiles for different followers
CO4: Apply the analytical techniques for Synthesis of Mechanisms
CO5: Determine parameters of gears and gear trains

Course Structure:

Unit 1:

INTRODUCTION: Mechanisms and machines, Rigid and resistant bodies, Link, Kinematic pair, Types of joints, Constrained motions, Degrees of Freedom, Classifications of Kinematic pairs, kinematic-chain, Linkage, mechanism and structure, Classification of mechanisms, Inversions of Mechanism- Four - Link (bar) chain, Single Slider - Crank Chain, Double – Slider Crank Chain.

Unit 2:

VELOCITY AND ACCELERATION ANALYSIS:
Introduction, Absolute and Relative Motion, Vectors, Addition and subtraction of Vectors, Motion of a Link, Velocity and Acceleration analysis for simple mechanisms, Velocity and Acceleration of Intermediate and offset points, Angular velocity and Angular acceleration of Links of simple mechanisms: Instantaneous center, Notation, Number of I - Centers, Kennedy's theorem, Locating I - Centre's, Angular velocity by I - Centre Method for simple mechanisms (Four bar and single slider).

Unit 3:

CAMS:
Introduction, Types of cams, Types of Followers, Definitions, Graphical synthesis of cam profile limited to reciprocating & radial follower. (Knife Edge, Roller and flat faced Followers**)**

Unit 4:

KINEMATIC SYNTHESIS : Stages of synthesis-Concepts of type, Number and dimensional synthesis - Tasks of dimensional synthesis, Concepts of function generation, Rigid body guidance and path generation, Freudenstein's equation for function generation using three precision points for four bar mechanism. (3 precision points only).

Unit 5:

GEARS: Introduction, Classification of Gears, Terminology, Law of Gearing, Velocity of Sliding, Forms of Teeth- Cycloidal Profile Teeth, Involute Profile Teeth, Comparison of Cycloidal and Involute tooth forms, Length of Path of contact, Length of Arc of contact, Number of pairs of Teeth

in contact, Concept of Interference in Involute Gears, Minimum number of Teeth in Involute Gears,

GEAR TRAINS: Introduction, simple Gear Train, Compound Gear Train, Reverted Gear train, Planetary or Epicyclic Gear Train, Analysis of Epicyclic Gear Train (Tabular method only)**.**

Textbook(s) / Reference(s):

Textbooks:

[1] S.S.Rattan, Theory of Machines, 4th Edition, 2014, TMH.
[2] Robert L Norton. "Kinematics & Dynamics of Machinery", 2017. Mc Graw Hill Education

References:

[1] R S Khurmi, Theory of Machines.14th Edition, S.Chand & Company Ltd. Eurasia Publishing House
[2] Ghosh and Mallik, Theory of Mechanisms and Machines, 3rd Edition,2006 East West Press
[3] Dr. R. K. Bansal & Dr. J. S. Brar, Theory of Machines 4th Edition, 2009, Lakshmi publications

24ME281 SOLID MODELLING LAB

Category: Program Lab **0L 0T 3P 1.5C**

***Pre-requisite*: -**

Course Outcomes:

At the end of the course, the student will be able to...

CO1	Construct 2D sketches in a modelling software [K3]
CO2	Develop part models of machine components [K3]
CO3	Combine part models of machine components for assembly [K4]
CO4	Translate geometric models to other file formats. [K4]

Course Structure:

Contents:

1. Construction of 2D sketches.
2. Modelling of simple machine components.
3. Assembly of Machine components.
4. Orthographic views of the assembled components.
5. Solid modelling of real components
6. Exporting the files to other file formats
7. Group assignment topic

List of experiments:

1. Part drawing & Assembly of Screw jack
2. Part drawing & Assembly of Stuffing Box
3. Part drawing of Marine engine connecting rod end
4. Part drawing & Assembly of Single tool post
5. Part drawing & Assembly of Socket and spigot joint
6. Part drawing & Assembly of Foot-step bearing
7. Develop various types of GI pipe fittings
8. Develop double strap diamond butt joint

Textbook(s) / Reference(s):

Textbooks:

[1] Pro/Engineer Wildfire 5.0 by Roger Toogood, Jack Zecher, SDC Publications.

[2] Machine Drawing by K.L Narayana, P.Kannaiah, K.Venkata Reddy,
Publisher: New Age International

References:

[1] Parametric Modeling with Pro/ENGINEER Wildfire 5.0

[2] Parametric Modeling with Creo Parametric 1.0

e-resources and other digital material

[1] http://www.proetutorials.com/
[2] http://learningexchange.ptc.com/tutorials/by_sub_product/p tc-creo-elements-pro-pro-engineer/sub_product_id:1
[3] http://www.eng-tips.com/viewthread.cfm?qid=48209
[4] https://catiatutor.com/
[5] www.v5train.com

NPTEL Video references:

[1] https://www.youtube.com/watch?v=c2VtgkfZ2BQ
[2] https://www.youtube.com/watch?v=hjgGxl4Yk_M
[3] https://www.youtube.com/watch?v=xsKtzWBZ5FY
[4] https://www.youtube.com/watch?v=rIFeKNzm4gE
[5] https://www.youtube.com/watch?v=uCdypjnnKto
[6] https://www.youtube.com/watch?v=YIzwA_Wlj_M

24EE285 ELECTRICAL AND ELECTRONICS ENGINEERING LAB

Category: Engineering Science 0L 0T 3P 1.5C

List of experiments

Part-A Electrical Engineering:

1. Verification of KCL and KVL
2. Determination of parameters of choke coil
3. Open circuit characteristics of a separately excited DC generator
4. Brake test on DC shunt motor
5. Brake test on three phase induction motor
6. OC and SC test of the transformer

Part – B Electronics Engineering

1. Obtain the V-I characteristics of PN junction diode
2. Obtain the V-I characteristics of Zener diode
3. Verify the output waveforms of the rectifier and calculate the ripple factor.
4. Obtain the input and output characteristics of a transistor in CB configuration
5. Obtain the input and output characteristics of a transistor in CE configuration
6. Obtain the input and output characteristics of a transistor in CC configuration

Minimum of 5 experiments must be conducted from Part A and Part B

24UC201 UNIVERSAL HUMAN VALUES-II: UNDERSTANDING HARMONY
(Common to all Branches of Engineering)

Category: Mandatory Course **2L 1T 0P 3C**

***Pre-requisite*: UHV-I** (in Student Induction Program)

Course Outcomes:

At the end of the course, the student will be able to...

CO 1: Apply the right understanding of the concepts of value education and basic human aspirations through self-exploration for the fulfillment of human aspirations **[K3]**.

CO 2: Analyse various aspects of the human being as the combination of Self and Body for attaining harmony at the level of human being (individual) **[K4]**.

CO 3: Apply the knowledge of nine universal values in human-human relationship for harmony at the level of family, and appreciate all the essential factors that help in attaining harmony at the level of society **[K3]**.

CO 4: Differentiate the characteristics and activities of various orders of Nature and study the mutual fulfillment among them, and also identify the existence as co-existence at all levels **[K4]**.

CO 5: Present sustainable solutions to various challenges in society and Nature, and identify that the solutions are practicable **[K3]**.

Mapping of Course Outcomes to Program Outcomes:

(**H**=high; **M**=medium; **L**=low)

	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1						H						H
CO2						H						H
CO3						H			M	M		H
CO4						H	H		M	M		H
CO5						H	H	H	H	H		H

Course Structure:

Unit 1: Course introduction, need, basic guidelines, content and process for value education

Purpose and motivation for the course, recapitulation from UHV-I, Self-exploration: what is it? its content and process, 'Natural acceptance' and experimental validation – as the process for self-exploration, Continuous happiness and prosperity – a look at basic human aspirations. Right understanding, relationship and physical facility – the basic requirements for fulfillment of aspirations of every human being with their correct priority, understanding happiness and prosperity correctly – a critical appraisal of the current scenario, method to fulfill the above human aspirations: understanding and living in harmony at various levels.

Unit 2: Understanding Harmony in the Human Being – Harmony in Myself

Understanding human being as a co-existence of the sentient 'I' and the material 'Body'. Understanding the needs of Self ('I') and 'Body' – happiness and physical facility, Understanding the Body as an instrument of 'I' (I being the doer, seer and enjoyer).

Understanding the characteristics and activities of 'I' and harmony in 'I'. Understanding the harmony of I with the Body: Sanyam and Health; correct appraisal of Physical needs, meaning of Prosperity in detail, Programs to ensure Sanyam and Health.

Unit 3: Understanding Harmony in the Family and Society – Harmony in Human-Human Relationship

Understanding values in human-human relationship; meaning of Justice (nine universal values in relationships) and program for its fulfillment to ensure mutual happiness; Trust and Respect as the foundational values of relationship, Understanding the meaning of Trust; Difference between intention and competence, Understanding the meaning of Respect, Difference between respect and differentiation; the other salient values in relationship.

Understanding the harmony in the society (society being an extension of family); Resolution, Prosperity, fearlessness (trust) and co-existence as comprehensive Human Goals, Visualizing a universal harmonious order in society–Undivided Society, Universal Order–from family to world family.

Unit 4: Understanding Harmony in Nature & Existence – Whole existence as Coexistence

Understanding the harmony in the Nature, Inter-connectedness and mutual fulfillment among the four orders of Nature – recyclability and self-regulation in nature, Understanding Existence as Co-existence of mutually interacting units in all-pervasive space, Holistic perception of harmony at all levels of existence.

Unit 5: Implications of the above Holistic Understanding of Harmony on Professional Ethics

Contents

Natural acceptance of human values, Definitiveness of ethical human conduct, Basis for humanistic education, humanistic constitution and humanistic universal order, Competence in professional ethics: a) ability to utilize the professional competence for augmenting universal human order, b) ability to identify the scope and characteristics of people-friendly and eco-friendly production systems, c) ability to identify and develop appropriate technologies and management patterns for above production systems, Case studies of typical holistic technologies, management models and production systems, Strategy for transition from the present state to Universal Human Order: a) at the level of individual: as socially and ecologically responsible engineers, technologists and managers, b) at the level of society: as mutually enriching institutions and organizations.

Textbook(s) / Reference(s):

Textbooks:

1. Gaur, R.R., Sangal, R, & Bagaria, G.P. (2010). *A Foundation Course in Human Values and Professional Ethics*, Excel Books Private Limited, New Delhi.
2. Gaur, R.R., Asthana, R, & Bagaria, G.P. (2019) *A Foundation Course in Human Values and Professional Ethics* (2^{nd} revised edition). Excel Books Private Limited, New Delhi.

References:

1. Jeevan Vidya: Ek Parichaya, A. Nagaraj, Jeevan Vidya Prakashan, Amarkantak (1999).
2. Human Values, A. N. Tripathi, New Age International Publishers, New Delhi (2004).

3. The Story of Stuff: The impact of overconsumption on the planet, our communities, and our health and how we can make it better, Annie Leonard, Free Press, New York (2010).
4. The story of my experiments with truth: Mahatma Gandhi Autobiography, Mohandas Karamchand Gandhi, B. N. Publishing (2008).
5. Small is beautiful: A study of economics as if people mattered, E. F. Schumacher, Vintage Books, London (1993).
6. Slow is beautiful: New Visions of Community, Cecile Andrews, New Society Publishers, Canada (2006).
7. Economy of Permanence, J. C. Kumarappa, Sarva-Seva-Sangh Prakashan, Varanasi (2017).
8. Bharat Mein Angreji Raj, Pandit Sunderlal, Prabhath Prakashan, Delhi (2018).
9. Rediscovering India, Dharampal, Society for Integrated Development of Himilayas (2003).
10. Hind Swaraj or Indian Home Rule, M. K. Gandhi, Navajivan Publishing House, Ahmedabad (1909).
11. India Wins Freedom: The Complete Version, Maulana Abul Kalam Azad, Orient Blackswan (1988).
12. The Life of Vivekananda and the Universal gospel, Romain Rolland, Advaitha Ashrama, India (2010).
13. Mahatma Gandhi: The Man who become one with the Universal Being, Romain Rolland, Srishti Publishers & Distributors, New Delhi (2002).

E-resources:

- Textbook-1: https://dokumen.pub/a-foundation-course-in-human-values-and-professional-ethics-firstnbsped-9788174467812.html
- AICTE – SIP Youtube Channel: https://www.youtube.com/channel/UCo8MpJB_aaVwB4LWLAx6AhQ
- AICTE – UHV Teaching Learning Material:https://fdp-si.aicte-india.org/download.php#1