RAYAT-BAHRA UNIVERSITY

University School of Engineering and Technology

Detailed Syllabus (2nd Sem)

Batch 2015 Onwards

Programme   : Engineering

Level   : Undergraduate

Course   : B.Tech.

Branch   : Computer Science and
                  Engineering

2nd Semester

B.Tech.

Computer Science and Engineering

2nd Sem B.Tech (Computer Science and Engineering)

Sub code	Subject Name	L	T	P	C
AM1201	Engineering Mathematics-II	3	1	0	4

Course Objective: The main objective of Engineering Mathematics is ensure the students to formulate and analyze mathematical and statistical problems, precisely define the key terms, and draw clear and reasonable conclusions. Moreover, to explain the importance of Engineering mathematics and its techniques to solve real life problems and provide the limitations of such techniques and the validity of the results.

Unit-I Basic Mathematics   **(05 Hours)**

Probability, Addition and Multiplication theorem, Definition of measures of central tendency. Its various measures: Arithmetic mean, harmonic mean, weighted mean, geometric mean, median and mode. Definition of Dispersion. Various measures for finding the dispersion like Range, inter Quartile deviation, percentile, Mean deviation, Standard deviation, Coefficient of variation. Introduction to number system, Introduction to A.P., G.P. and other series

Unit - I: Linear Algebra   **(05 Hours)**

Inverse of a matrix by elementary transformations, Rank of a matrix (Echelon & Normal form), Consistency of linear system of equations and their solution by Matrix Inversion and Rank methods., Linear dependence and independence of vectors, Eigen values and Eigen vectors, Cayley-HamiltonTheorem and its applications. Applications of Linear algebra to Engineering

Unit - II: Complex Numbers & Its Geometrical Representations   **(05 Hours)**

Complex numbers and Its Properties, Modulus & argument of a complex number, Polar form of a complex number Triangle Inequality. Geometrical Representations of complex numbers

Unit-III De Moivre's Theorem and Its Applications   **(05 Hours)**

De Movrie's theorem for any integer and fraction. Roots of a complex number and solution of algebraic equations by De Moivre's theorem. Expansion of cos^n(theta), sin^n(theta), cosn(theta), sin(theta) and tann(theta)

Unit-IV Complex Functions   **(05 Hours)**

Complex exponential, logarithmic and general exponential function. Complex Trigonometric, hyperbolic and inverse hyperbolic functions. C+iS method of summation of series for complex trigonometric and hyperbolic functions.

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Unit-V Analytic Functions   (05 Hours)

Limit, continuity and differentiability of complex functions.Analytic functions, Cauchy-Riemann equations in cartesian and polar co-ordinates. Construction of harmonic functions and Milne Thomson method. Entire functions, Applications of analytic functions to flow problems and velocity potentials. Conformal mapping and its applications

Unit-VI Complex Integration-I: (10 Hours)

Sets and curves in complex plane .Simply and multiply connected domains. Parametric representations of curves. ML inequality .Complex Line integrals, Cauchy theorem, Independence of path. Existence of Indefinite Integrals . Fundamental theorem of Integal Calculus. Principle of path deformationCauchy Integral formula. Cauchy Integral formula for higher order derivatives and multiply connected domains . Converse of Cauchy Integral theorem. Liouvile's theorem Fundamental theorem of Algebra. Taylor and Laurrent series. Zeros and poles of analytic functions. Singularities and residues. Contour integration . Cauchy Resiudes theorem.

Unit – VII:Power series,   (05 Hours)

 Convergence of Power Series.Radius of convergence. Cauchy Hadmard Theorem.Power series representations of analytic functions.

Text Book

1.E.Kreyszig :Advanced Engineering Mathematics-Volume-I,JohnWiley & Sons

Reference Books.

1.R.K.Jain & S.R.K. Iyenger, Advance Engineering Mathematics, Narosa Publishing House

2. B.S.Grewal :Higher Engineering Mathematics,Khanna Publications

3. C.P.Gandhi: Engineering Mathematics For Graduates: Laxmi Publications, Pvt Ltd.

 4. R.D.Sharma, Mathematics for Class XI, XII. Dhanpar Rai Publications, New Delhi

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Sub code	Subject Name	L	T	P	C
PY1202	Engineering Physics-II (Theory)	3	1	0	4

Objective/s and Expected Outcome :

The objective of teaching engineering Physics II course is to develop a scientific temper and analytical capability in the Engineering graduates through learning of Physical concepts and their applications in engineering and technology. The course content is useful in understanding the engineering problems for its physical interpretation and viability.

After studying this course the students will be able co relate fundamental key concepts:

e.g. Role of Laser and optical fiber in designing various types of communication systems, Mechanical behavior of materials help mechanical Engineers in designing various types of machines. Quantum mechanics helps in development of future quantum computations.

1. **Semiconductor Physics:**
   Introduction, Energy band description and types of semiconductors, Effect of temperature on semi conductor , Doping, n- type and p-Type semiconductors, formation of p-n junction, characteristics of p-n junction diode , various types of p-n junction diodes and their applications(quantitative idea),diode as a rectifier.   **(6)**

2. **Lasers :**
   Introduction to lasers, coherence, characteristics of laser, spontaneous and stimulated emission, Einstein's coefficients, three and four level laser system, Types of lasers : Ruby, He-Ne, applications of lasers   **(6)**

   Optical Fibers :
   Optical fiber, physical structure and basic theory, Numerical aperture, modes in optical fibers, step index and graded index fibers, Attenuation, losses in optical fibers, splicers, connectors and couplers, applications of optical fibers in communication   **(6)**

3. **Mechanical behavior of Materials :**
   Elastic Behavior of materials, Ductile and brittle behavior, True stress and true strain, Tensile properties, yield point, Modulus of elasticity(Young, Bulk and shear),work hardening, Fracture, creep and Fatigue and hardness.   **(5)**
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4. **Oscillations :**
   Periodic and oscillatory motion, SHM, differential equation of SHM and its solution, Energy of harmonic oscillator, damped harmonic oscillator, forced vibration and resonance.   **(6)**

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5. **Sound Waves and Acoustics of Buildings :**
   Waves (audible ultrasonic and infrasonic), types of acoustics, Reverberations, Sabine formula(without derivation), transmission of sound waves and transmission loss**.**   **(5)**

6. **Nano Physics :**
   Nanoscale, surface to volume ratio, electron confinement, quantum Well, quantum wire, quantum dot,Nanomaterials, Electrical ,Magnetic and optical properties, synthesis of nano materials ball milling and sol-gel techniques, Carbon nanotubes (synthesis and properties) applications of nanomaterials.   **(6)**

Text Books :

1. Modern Engineering Physics S.L Gupta and Sanjeev Gupta, Dhanpat Rai Publications.
2. Text Book of Vibrations and Waves by S.P. Puri (Macmillan India Ltd.).

Reference Books:
1. Modern Physics for Engineers, S.P. Taneja, R.Chand & Co. Publishers, New Delhi, 3rd Edition, 2009
2. Solid State Physics, S. O. Pillai, Revised Sixth Edition, New Age Int (P) Ltd. Pub., 2005.
3. Engineering Physics, Malik; HK, Singh; AK, Tata McGraw Hill

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Sub code	Subject Name	L	T	P	C
PY1203	**Engineering Physics-II (Lab)**	**0**	**0**	**2**	**1**

List of Experiments : *Do any seven*

1. To determine attenuation & propagation losses in optical fiber.

2. To determine numerical aperture of an optical fiber.

3. To find the wavelength of a laser beam.

4. To find the divergence of a laser beam.

5. To study the V-I characteristics of PN Junction diode.

6. To determine the Young's modulus of material of rectangular bar by bending.

7. To find the magnetic susceptibility of $FeCl_3$ using quinke's tube.

8. To find the band gap of a semiconductor material.

9. To study the holography

Suggested Readings / Books

1. Practical Physics, C.L. Arora, S. Chand & Co.

2. Practical Physics, R.S. Sirohi, Wiley Eastern.

Sub code	Subject Name	L	T	P	C
EC1204	Mechatronics	3	0	0	3

Course Objective:

1. To understand the basic concepts of Instruments and sensors.

2. To Study various signal conditioning and display devices

3. To make students understand real life application of mechanics integrated with electronics control and signal processing

4. To prepare students for future application oriented approach with interdisciplinary approach

UNIT I - INTRODUCTION

Introduction to kinematics, controls and actuators, Integration of Mechanics with Electronics and its applications, Functional elements of an instrument, Static and dynamic characteristics –Errors in measurement. Measurement of R, L, C

UNIT II - ELECTRONIC INSTRUMENTS

Electronic voltmeters – Digital voltmeter – Multimeter — Cathode ray Oscilloscope –Block diagram – LED and LCD Displays. Principle of operation and construction of PMMC, MI, Dynamometer, Induction, Thermal and Rectifier type instruments, Measurement of voltage and current ,Use of ammeter shunts and voltmeter multiplier.

UNIT III – SENSORS AND TRANSDUCERS

Difference between Sensors and Transducers, Classification of Sensors, Basic Requirements of Sensors, Sensor Characteristics.

Displacement Sensors- Linear and Rotary displacement sensors, Potentiometer, Capacitive and Inductive type displacement sensor- position sensors- Optical encoder, Photoelectric sensor, Hall Effect Sensor.Strain Gauge, Pressure Sensors, proximity sensors, Piezoelectric Sensor, Tactile sensor, Tachogenerator ,Pyroelectric sensors ,Ultrasonic sensor, Resistive sensor Thermocouples, Thermistors, Thermodiodes Thermotransistors, Bimetallic Strip- Resistance Temperature Detector, Vibrometer and accelerometer, seismic accelerometer, Photoresistors, Photodiodes, Phototransistors, Photoconductors.

UNIT IV- SIGNAL CONDITIONING

Operational Amplifier, Wheatstone Bridge, Data Acquisition System, Pulse Modulation.

UNIT V - ELECTRICAL AND MECHANICAL ACTUATION SYSTEMS

Mechanical Systems, Type of Motions, Kinematic Chains, Cams, Gear Trains, Ratchet and pawl, Belt and chain drives, Bearings, Mechanical aspects of motor selection, Mechanical Switches, Solid state switches, solenoids, D.C. motors, A.C. motors, Stepper motors

Textbook:

1. Course in Mechanical Measurement and Instrumentation : A.K. Sawhney
   By Dhanpat Rai and Sons

Reference books:

1. Sensors and Transducers : Patranabis D. by Mcgraw Hills Publications
2. Mechatronics : W. Bolton by Pearson publications

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Sub code	Subject Name	L	T	P	C
EC1205	**Mechatronics Lab**	**0**	**0**	**2**	**1**

MECHATRONICS LAB:

- Complete demonstration and study of CRO, Multimeter, voltmeter
- Strain Measurement using strain Gauge and its application
- Displacement measurement using LVDT and its application
- Digital Temp measurement by RTD , Thermocouple and control
- PID controller Trainer
- Relay Control
- Pressure Measurement and Control
- Load measurement and display.
- MATLAB based Stepper Motor Control

A mini project by group of two students:

- Line follower robot
- Left- right movement robot
- Motor speed control using MATLAB and so on

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Sub code	Subject Name	L	T	P	C
CH1206	Engineering Chemistry (Lab)	0	0	2	1

Out of 14 experiments students must perform any 10 experiments

1. To determine the surface tension of a liquid using drop weight method.
2. To determine the viscosity of the given liquid (density to be determined).
3. Preparation of a Polymer.
4. Preparation of standard solutions.
5. Estimation of total, permanent and temporary hardness by EDTA method.
6. Conductometric titration and determination of strength of an acid.
7. Determination of molecular weight of polymer by viscosity average method.
8. To determine the cell constant of a conductivity cell.
9. Titration of strong acid/strong base conductmetrically.
10. Determination of viscosity of sample oil by Redwood / Ostwald's viscometer.
11. Photochemical oxidation-reduction (study of photochemical reduction of ferric salt).
12. To study the kinetics of methyl acetate hydrolysis catalyzed by 0.5N HCl Solution.
13. Determination of conductivity of the water sample.
14. Determine the reaction rate constant for 1st order reaction.

Sub code	Subject Name	L	T	P	C
ME1207	**Engineering Drawing**	**1**	**0**	**4**	**3**

Course Objectives

The students will be able to understand the basic concepts of engineering drawing in the design and manufacturing field, capability to read and interpret the engineering drawings. Impart and inculcate proper understanding of the theory of projections, development of solids, and sectioning of solids, to improve visualization skills of the students.

UNIT-1   (6 Hours)

Introduction to engineering drawing: Introduction to drawing equipment and use of instruments. Symbols and conventions in drawing Practice. Types of lines and their use, Technical lettering as per BIS codes, Introduction to Dimensioning, Concepts of scale in drawing, Types of scales.

UNIT-2   (12 Hours)

Spatial geometry: Projection of points in quadrants, Projection of lines, true lengths, inclinations, shortest distance; planes. Parallel to both H P and V P, Parallel to one and inclined to other, and inclined to both, contained in profile plane. True length and angle orientation of straight line: rotation method and auxiliary plane method. Distance between two non intersecting lines, and trace of line. Difference between plane and lamina. Projection of lamina Parallel to one and perpendicular to other, Perpendicular to one and inclined to other, Inclined to both reference planes, and Lamina oblique to three reference planes. Application of auxiliary planes, and trace of planes

UNIT-3   (5 Hours)

Geometrical solids: Definition of solids, types of solids, and elements of solids. Projection of solids in first or third quadrant, with axis parallel to one and perpendicular to other, axis parallel to one inclined to other, axis inclined to both the principle plane, axis perpendicular to profile plane and parallel to both H P and V P. Visible and invisible details in the projection. Use rotation and auxiliary plane method to draw the projections.

UNIT-4   (5 Hours)

Section of Solids : Definition of Sectioning and its purpose. Procedure of Sectioning, Types of sectional planes. Illustration through examples.

UNIT-5   **(7 Hours)**
Development of Surfaces: Purpose of development, Parallel line, radial line and triangulation method. Development of prism, cylinder, cone and pyramid surface for both right angled and oblique solids, and development of surface of sphere.

UNIT-6   **(13 Hours)**
Orthographic Projections: Theory, techniques, first and third angle projections, Multi view drawing from pictorial views. Introduction to isometric projections.

UNIT-7   **(5 Hours)**
Interpenetration of Solids: Vertical interpenetration, horizontal interpenetration drawing of profile at entry and exit. Purpose of intersection of surfaces, Intersection between the two cylinder, two prisms, prism and pyramid, pyramid and pyramid, cylinder and prism, cone and cylinder, sphere and cylinder etc., use of cutting plane and line method.

UNIT-8   **(4 Hours)**
Introduction to AutoCAD: Basic commands of AutoCAD viz. Line, Polyline, Rectangle, Polygon, Circle, Ellipse, Zoom, Scale, Offset, Mirror etc. Types of lines, Dimensioning, Editing commands like fillet, chamfer, trim, erase, copy etc. Array commands like rectangular array and polar array. Practice of planes, two dimensional figures ,projection of solids, sections of solids and isometric drawing

Course Learning Outcome
The students will be able to demonstrate the conventions and the methods of engineering drawing, visualization develop new products and drawings. Demonstrate the capability of interpreting the technical drawings. Apply the concepts of theory of projections, development of solids, and sectioning of solids in the drawings.

Text Book
1. Singh Harwinder, Engineering Drawing and Computer Graphics ,Dhanpat Rai publishing Co. New Delhi.

Recommended Books

1. Dhananjay A. Jolhe, Engineering Drawing with an Introduction to AutoCAD, Tata McGraw-Hill Education Private Limited, New Delhi.
2. D.M. Kulkarni, A.P. Rastogi and A. K. Sarkar, Engineering Graphics with Auto CAD, PHI Learning Private Limited, New Delhi.

Sub code	Subject Name	L	T	P	C
ME1207	Workshop (Theory)	1	0	4	3

Course Objectives

The students will be able to understand the tools and operations involved in fitting, welding, smithy, sheet metal, carpentry, electrical and machine shop. The students will also be able to understand and learn how to use the measuring instruments.

UNIT I (6 Hours)

Fitting: Fitting tools and equipment, basic fitting operations, fabrication of a metal job using fitting skills.

Welding: Welding tools and equipment, common types of welding, welding techniques, fabrication of joints using arc welding and gas welding.

UNIT II (6 Hours)

Smithy: Smithy tools and equipments, smithy operations, preparation of a simple job using hot forging skills.

UNIT III (6 Hours)

Sheet Metal: Sheet metal tools, sheet metal operations, development and fabrication of a job using sheet metal operations.

Carpentry: Carpentry tools and equipments, preparation of a wooden job using various joints.

UNIT IV (6 Hours)

Machining: Main parts of a centre lathe, work holding devices, cutting operations on a centre lathe, machining of a metal job using a centre lathe. Main parts of a shaper, work holding devices, machining of a simple metal job using a shaper.

UNIT V (6 Hours)

Metrology: Common measuring instruments used in workshop, experiments to find the angle of a dovetail, angle of a taper and the radius of a circular surface.

UNIT VI (6 Hours)

Foundry: Common foundry tools and equipment, preparation of a green sand mould.

UNIT VII (6 Hours)

Electroplating: Electro plating a given job.

The students will be able to demonstrate different tools and operations involved in fitting, welding, smithy, sheet metal, carpentry, electrical and machine shop. The students will also be able to use the measuring instruments.

Text Book
1. Singh Swarn, "Manufacturing practice" , Kataria sons & Co.

Reference Books

1. Sangwan K S ,Rao C R and Daiya K G, Practical Manual for Workshop Practice, EDD, BITS Pilani.
2. B S Nagendra Parashar and R K Mittal, Elements of Manufacturing Processes, Prentice Hall of India.
3. Campbell J.S., Principles of Manufacturing Materials and Processes, Tata Mc-Graw-Hill, New Delhi.

Sub Code	Subject Name	L	T	P	C
CS1208	**Programming in C (Theory)**	**3**	**0**	**0**	**3**

Objectives: At the end of the class, we expect students to have a good understanding about the concept of Programming using C, be able to write and read C Program code and develop projects in same.

Prerequisites: Students are expected to have some basic knowledge about computers and operating systems.

1) **Problem planning and introduction to C:** Algorithm, flowchart, Structured Programming Approach, structure of C program (header files, C pre-processor, standard library functions), History & Evolution of C language, characteristics & Appreciation of C.

2) **Datatypes and Operators**: Character set, Tokens, Keyword, Identities, Data types, Variables, Storage classes, arithmetic, relational and logical operators, increment and decrement operators, conditional operator, bit-wise operators, assignment operators, expressions, type conversions, conditional expressions, precedence and order of evaluation. Standard Input/output functions.

3) **Design making & looping statements:** if, if else, switch, while, for, do while, Nested statements; Jumping statements:break, continue, goto.

4) **Functions,Arrays & strings:** Advantages, declaration, definition & accessing a function, Passing arguments, Recursive function. Concepts, declaration, definition; accessing elements, One dimensional, two dimensional and Multidimensional arrays, string manipulation functions, Application of arrays and strings.

5) **Structures & Unions:** concepts, declaration, definition; Accessing structures, operations on structures, Arrays of structures, Unions, bit fields.

6) **Pointers:** concepts, declaration, definition & initializing pointers, accessing variable, pointer arithmetic, pointer to a pointer, Memory allocation, dynamic memory management, Pointers & Arrays, Pointers & structures.

7) **File Handling:** Input and output– concept of a file, text files and binary files, streams, standard I/O, Formatted I/O, file I/O operations, File status function, File positioning functions.

Text Book:

1.R. S. Salaria,-"Problem Solving and Programming in C", salaria publishing house.

Reference Books:

1. Balagurusamy : "C Programming" Tata McGraw-Hill
2. Y. Kanitkar – "Letus C" BPB Publisher
3. H. Schildt – "C the complete Reference" McGraw-Hill
4. Schaum Series- "C Programming" - Gotterfried

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Sub Code	Subject Name	L	T	P	C
CS1209	**Programming in C (Lab)**	**0**	**0**	**2**	**1**

Write a program to Find Size of int, float, double and char of Your System

1. Write a program to Swap Two Numbers Entered by User
2. Write a program to check whether a number entered by user is even or odd
3. Write a program in C that asks user an arithmetic operator ('+','-','*' or '/') and two operands and perform the corresponding calculation on the operands.
4. Write a program to find the sum of first n natural numbers where n is entered by user.
5. Write a program to calculate factorial of a number.
6. Write a program to find the sum marks of n students using arrays.
7. Write a program to find sum of two matrix of order 2*2 using multidimensional arrays where, elements of matrix are entered by user.
8. Write a program to Display Prime Numbers Between Intervals by Making Function.
9. Write a program to Calculate Factorial of a Number Using Recursion.
10. Write a program to demonstrate handling of pointers.
11. Write a program to Store Information (name, roll and marks) of a Student Using Structure.
12. Write a program to read name and marks of n number of students from user and store them in a file.

2nd Sem B.Tech (Computer Science and Engineering)

Sub Code	Subject Name	L	T	P	C
HV 1210	**Human Values & Professional Ethics**	2	0	0	2

Objective/s and Expected outcome:

To help the students to discriminate between valuable and superficial in the life. To help develop the critical ability to distinguish between essence and form, or between what is of value and what is superficial, in life - this ability is to be developed not for a narrow area or field of study, but for everyday situations in life, covering the widest possible canvas. To help students develop sensitivity and awareness; leading to commitment and courage to act on their own belief. It is not sufficient to develop the discrimination ability, it is important to act on such discrimination in a given situation.

1. Course Introduction

Need, Basic Guidelines, Content and Process for Value Education**,** Understanding the need, basic guidelines, content and process for Value Education. Self Exploration–what is it?- its content and process; Natural Acceptance‟ and Experiential Validation- as the mechanism for self exploration, Continuous Happiness and Prosperity- A look at basic Human Aspirations,

Right understanding, Relationship and Physical Facilities- 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

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‟ - *Sukh* and *Suvidha* , 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 *Swasthya*; correct appraisal of Physical needs, meaning of Prosperity in detail, Programs to ensure *Sanyam* and *Swasthya.*

3. Understanding Harmony in the Family and Society- Harmony in Human-Human Relationship

Understanding harmony in the Family- the basic unit of human interaction, Understanding values in human-human relationship; meaning of *Nyaya* and program for its fulfillment to ensure *Ubhay-tripti*; Trust (*Vishwas)* and Respect (*Samman)* as the foundational values of relationship, Understanding the meaning of *Vishwas*; Difference between intention and competence. Understanding the meaning of *Samman*, Difference between respect and differentiation; the other salient values in relationship, Understanding the harmony in the society (society being an extension of family): *Samadhan, Samridhi, Abhay, Sah-astitva* as comprehensive Human Goals ,

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Visualizing a universal harmonious order in society- Undivided Society (*Akhand Samaj),* Universal Order (*Sarvabhaum Vyawastha)*- from familyto world family.

4. Understanding Harmony in the Nature and Existence - Whole existence as Co-existence
Understanding the harmony in the Nature ,Interconnectedness and mutual fulfillment among the four orders of nature-recyclability and self-regulation in nature Understanding Existence as Co-existence (*Sah-astitva*) of mutuallyinteracting units in all-pervasive space , Holistic perception of harmony at all levels of existence .

5. Implications of the above Holistic Understanding of Harmony on Professional Ethics
 Natural acceptance of human values , Definitiveness of Ethical Human Conduct, Basis for Humanistic Education, Humanistic Constitution and Humanistic Universal Order , Competence in professional ethics:,Ability to utilize the professional competence for augmenting universal human order ,Ability to identify the scope and characteristics of people-friendly and eco-friendly production systems ,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,At the level of individual: as socially and ecologically responsible engineers, technologists and managers,At the level of society: as mutually enriching institutions and organizations.

Text Book:
1. R R Gaur, R Sangal, G P Bagaria, 2009, *A Foundation Course in Value Education.*

Reference Books:
1. Ivan Illich, 1974, *Energy & Equity,* The Trinity Press, Worcester, and HarperCollins, USA
2. E.F. Schumacher, 1973, *Small is Beautiful: a study of economics as if people mattered*, Blond & Briggs, Britain.
3. A Nagraj, 1998, *Jeevan Vidya ek Parichay,* Divya Path Sansthan, Amarkantak.
4. Sussan George, 1976, *How the Other Half Dies,* Penguin Press. Reprinted 1986, 1991
5. A.N. Tripathy, 2003, *Human Values*, New Age International Publishers
6. Subhas Palekar, 2000, *How to practice Natural Farming,* Pracheen(Vaidik) Krishi Tantra Shodh, Amravati.
7. E G Seebauer & Robert L. Berry, 2000, *Fundamentals of Ethics for Scientists & Engineers ,* Oxford University Press
8. B P Banerjee, 2005, *Foundations of Ethics and Management,* Excel Books.
9. B L Bajpai, 2004, *Indian Ethos and Modern Management*, New Royal Book Co., Lucknow. Reprinted 2008.

Sub code	Subject Name	L	T	P	C
FS1207	**Interpersonal Skills & Business Communication**	0	0	2	1

Objective: To make students develop good interpersonal skills through team building activities. This will make them overcome individual differences so that they become receptive to other's viewpoint and come to consensus. To expose them to the concepts of intra-group dynamics, conflict management and inter dependency. To help them enhance business communication.

Unit 1 Speaking (10 hours)
Activities : Group Discussion , debate, oral presentation, mock meeting.

Unit2-Personality Development (2hours)
Activity: PPT on Team Building and its challenges

Unit 3- Listening (2 hours)
Listening to and watching a movie (Rise of Phoenix) with team spirit as its moral.

Unit 4-Writing (6hours)
Business letters, notice writing, agenda writing, minutes of meeting, email writing

Unit5- Reading (2hours)
Reading Comprehension

Unit6-Vocabulary Enhancement (4 hours)
Phrasal Verbs, idioms

Unit-7 Grammar (2 hours)
Errors related to parts of speech

Learning Outcome: The students will learn to be good team players and imbibe the values of respecting others' view and co-operation. Good interpersonal skills as enormously valued in business organizations will help students adapt in the new environment successfully. The up gradation of business communication will also contribute to the students' success.

Text Book
Sanjay Kumar& Pushp Lata , Communication Skills, Oxford University Press(2014)
Reference Books
Meenakshi Raman & Sangeeta Sharma, Technical Communication- Principles and Practice, Second Edition, Oxford University Press (2014)

Vocabulary Builder- Barron's Educational Series

Wren & Martin, High School Grammar, S. Chand& Company Ltd.

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