



SAMRAT ASHOK TECHNOLOGICAL INSTITUTE

(Engineering College), VIDISHA M.P.

(An Autonomous Institute Affiliated to RGPV Bhopal)

Applied Science (Physics)

Semester/Year		I/II	Program			B.Tech				
Subject Category	BS	Subject Code:	PYB101	Subject Name:	Applied Physics					
Maximum Marks Allotted							Contact Hours			Total Credits
Theory				Practical		Total Marks	L	T	P	
End Sem	Mid-Sem	Quiz	Assignment	End Sem	Lab-Work					
60	20	10	10	30	20	150	3	0	1	4
Prerequisites:										
Intermediate Physics (Theory and Lab)										
Course Objective:										
This course is designed to impart fundamental knowledge about some areas of physics which are to the core of emerging technologies. It is planned to provide knowledge about Quantum mechanics, Lasers, Fiber Optics, Holography, Superconductor, Nano materials, Dielectric and piezoelectric materials. Laboratory sessions are also designed which are blended with experiments on the fundamental and advanced areas of physics.										
Course Outcomes:										
After completion of the course, students will be able										
CO1	To understand basic quantum physics and apply it to the behaviour of a system at the microscopic level and solve the problems.									
CO2	To understand process of lasers and explain the requirements, properties, classification of various lasers. They will also develop an understanding of optical fibers and holography and can explain the characteristics, various losses, dispersion in optical fibers and processes of construction and reproduction of holograms.									
CO3	To understand the basic concepts and theory of semiconductor for devices application.									
CO4	To understand and know the principle of superconductors and nanomaterials. The student will be able to explain types of superconductors, their properties and applications, nano technology and its applications.									
CO5	To understand the characteristic of Dielectrics and Piezoelectric materials in terms of their applications.									
CO6	To perform experiments related to the course contents.									
UNITs	Descriptions							Hrs.	CO's	
I	Quantum mechanics: Planck's quantum hypothesis, Wave-particle duality of radiation, de-Broglie matter waves, Davisson and Germer's electron diffraction experiment, Compton effect, Phase and group velocity, Heisenberg uncertainty principle and its applications, wave function and its significance, Eigen value and Eigen function, Schrödinger wave equations, particle in one dimensional potential box.							8		
II	Lasers: Properties of lasers, the basic process of lasers, Population-inversion, classification of lasers, working of He-Ne, Ruby, Nd: YAG and CO ₂ lasers, Applications of Lasers in Communication, Medical and Industry. Optical fibers: Light guidance through optical fibres, the qualitative idea of critical and acceptance angle, types of fibers, numerical aperture, V-Number, intermodal & material dispersions in fiber. Holography: Basic principle of holography, Construction and reconstruction of Image on hologram and applications of holography.							8		
III	Basic of semiconductors: Density of energy states, Energy-band formations, direct and indirect band gap, Effective mass, Fermi energy							8		

	<p>levels. Mobility and carrier concentrations (intrinsic). Radiative and non-radiative recombination mechanisms in semiconductors .</p> <p>Semiconductor Devices: Properties of PN junction and I-V diode equation, Photovoltaic cell, LED Materials for fabrication, LED Structures and Characteristics; Injection Laser Diode (ILD) - Laser action in semiconductors , structures and efficiency.</p>		
IV	<p>Superconductors: Free electrons theory of metals, Temperature dependence of resistivity in superconducting Metals , Effect of magnetic field (Meissner effect) , Temperature dependence of critical field, Type I and Type II superconductors, BCS theory (Qualitative), High-temperature superconductors and Applications of superconductors.</p> <p>Nanomaterials: Basic principle of nanoscience and technology, structure, properties ad uses of Fullerene and Carbon nanotubes, Applications of nanotechnology.</p>	8	
V	<p>Dielectrics Materials: Polar and Non-Polar Dielectrics, Dipole moment and Polarization, Dielectric constant& Polarization, Gauss law in Dielectric, the relation between electric field vector E, Pand D.</p> <p>Piezoelectric materials- Ferroelectric materials , Piezoelectric effect, direct and converse parameter definitions, Piezoceramics, Piezopolymers, Piezoelectric materials as sensor and transducers.</p>	8	
Guest Lectures (if any)			
Total Hours		40	
Suggestive list of experiments:			
<ol style="list-style-type: none"> To determine the width of a single slit from the study of Fraunhofer diffraction pattern using a He-Ne Laser. To determine the frequency of A.C. mains using an electrical - vibrator. Determination of Planck's constant. To determine the frequency of A.C. mains using a sonometer. To study the nature of polarization of light using the half-wave plate. To find the numerical aperture of the given fibre. To determine the refractive indices μ_0 and μ_e of Quartz prism for ordinary and extraordinary rays using the spectrometer. To determine the wavelength of monochromatic source of light by Fresnel's biprism. To study the V-I characteristics of semiconductor diode To study V-I Characteristics of LED To study the V-I characteristics of tunnel diode To determine the radius of curvature of a given plano-convex lens by Newton's rings method. To determine the absorption coefficient of a glass plate by "LUMMER- BRODHUM" photometer. To determine the resolving power of a telescope. To determine the wavelength of light emitted by mercury vapour lamp using a diffraction grating. 			
<p>Text Book-</p> <ul style="list-style-type: none"> • Concepts of Modern Physics, Arthur Beiser, Tata McGraw-Hill, 6th edition, 2009. • Optics, A.Ghatak, McGraw Hill, 2012. • Engineering Physics , Hitendra K Malik & A.K. Singh, Mc Graw Hill Education Private Limited • Elements of Modern Physics, S.H. Patil • Kiruthiga Sivaprastha, Modern Physics, S. Chand • A Textbook of Engineering Physics, Gaur and Gupta, Dhanpat Rai Publishers, New Delhi, 8th edition, 2011. • Electrical Engineering Materials by A.J. Dekker, PHI publication 			
<p>Reference Books-</p> <ul style="list-style-type: none"> • Lasers and non-linear optics, B.B.Laud, New Age international, 3rd edition, 2011 			

- Solid State Physics, S.O.Pillai , New Age International Ltd, publishers
- Electromagnetic Theory for Telecommunications, C.S.Liu and V.K.Tripathi, Foundation Books, New Delhi,2007
- Quantum Mechanics by L.I. Schiff, Mc Graw Hill Co.
- A Textbook of Quantum Mechanics by Piravonu Mathews, K. Venkatesan (Tata McGraw Hill)
- Cady, W. G., Piezoelectricity, Dover Publication
- Piezoelectric Materials & Devices: Application in Engineering And Medical Sciences By M.S. Vijiya .CRC Press.
- Electrical Engineering Materials Physics Properties by SP A Seth, Dhanpat Rai Publications.

Modes of Evaluation and Rubric

Assignments, Quiz, Tests & exams

Criteria	Excellent (3 points)	Good (2 points)	Fair(1 point)
Quiz	> 80%	60-80%	40-60%
Test & exam	>75%	60 -75%	< 60%
Assignment	Assignment is coherently organized and the logic / solution to all the problems provided. Writing is clear and concise and persuasive.	Assignment is generally well organized and logic / solution to maximum of the problems provided barring few inaccuracies.	Assignment is poorly organized and difficult to follow. Does not flow logically from one part to another with lots of mistakes

List/Links of e-learning resource

- <https://nptel.ac.in/courses/122107035/#>
- <https://nptel.ac.in/course.html>
- <http://www.tndte.gov.in/site/wp-content/uploads/2016/08/Engineering-physics.pdf>
- <https://physicstoday.scitation.org>
- Barbastathis, G. and Sheppard C., Optics, <https://ocw.mit.edu/courses/mechanical-engineering/2-71-optics-spring-2009/>

Recommendation by Board of studies on

14.06.2022

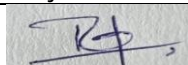
Approval by Academic council on

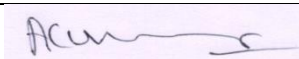
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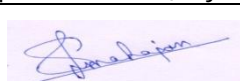
Jetendra Parashar

Subject handled by department


Applied Science (Physics)



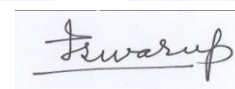














SAMRAT ASHOK TECHNOLOGICAL INSTITUTE

(Engineering College), VIDISHA M.P.

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Mechanical Engineering

Semester/Year		II		Program			B.Tech			
Subject Category	ESC	Subject Code:	MEA 101	Subject Name:	Basic Mechanical Engineering					
Maximum Marks Allotted							Contact Hours			Total Credits
Theory				Practical		Total Marks	L	T	P	
End Sem	Mid-Sem	Quiz	Assignment	End Sem	Lab-Work					
60	20	10	10	30	20	150	3	0	2	4
Course Objective:										
This Course develop the basic understand about Mechanical Engineering Subjects. At the end of the course students able to know about the basic laws of Thermodynamics and principle of fluid mechanics, Internal Combustion Engine, Material Science and Renewable Sources of Energy										
Course Outcomes:										
At the end of the course, the students will able to:										
CO1: Understand the basic concept of Thermodynamics and working of Boilers and its accessories, evaluate the performance of boiler and properties of Steam.										
CO2: Understand the properties of fluids.										
CO3: Understand the basic Concepts of Internal Combustion Engines and its working.										
CO4: Identify Engineering Materials, and its properties.										
CO5: Understand the basics Metrology, Sin Bar, slip Gauge etc.										
UNITS	Descriptions						Hrs.	CO's		
I	Thermodynamics: Thermodynamic Systems, Properties, Cycles, Process. Zeroth law, First and second law of thermodynamics; steam properties, steam processes at constant pressure, volume, enthalpy & entropy, Refrigeration: Vapour compression cycles, coefficient of performance (COP), refrigerant, properties, and eco-friendly refrigerants.						10	1		
II	Fluids: Fluid properties, pressure, density and viscosity, pressure variation with depth, static and kinetic energy, Bernoulli's equation for incompressible fluids, viscous and turbulent flow, working principle of fluid coupling, pneumatic machines.						8	2		
III	Internal Combustion Engines: Otto and Diesel cycles; working of two stroke & four stroke petrol & diesel IC engines; pv-diagrams of four stroke petrol and diesel engines (Actual & theoretical) Valve timing diagrams, Efficiency: mechanical, thermal, Air standard efficiencies of Otto and Diesel Cycle, Simple Problems.						8	3		
IV	Materials: Classification of engineering material, Composition of cast iron and carbon steels on iron-carbon diagram and their mechanical properties; Alloy steel and their applications; stress-strain diagram, Hooks law and modulus of elasticity, Tensile, shear, hardness and fatigue testing of materials.						6	4		
V	Renewable Energy: New and Renewable sources of Energy such as Solar Energy and its Principle, Solar Collectors, Solar Ponds. Wind Energy, Tidal Energy, and Geothermal Energy. Introduction to electric Vehicles (EVs) and their Principle.						8	5		
Guest Lectures (if any)										

Total Hours	40
Reference Books-	
<ul style="list-style-type: none"> • 1. Nag PK, Tripathi et al.; Basic Mechanical Engineering; TMH • 2. Pravin Kumar; Basic Mechanical Engineering; Pearson • 3. Agrawal B & CM; Basic Mechanical Engineering, Wiley India • 4. Rajput RK; Basic Mechanical Engineering; LP • 5. Nag PK; Engineering Thermodynamics, TMH • 6. Ganeshan; Combustion Engines; TMH • 7. Narula; Material Science, TMH • 8. Sawhney GS; Fundamental of Mechanical Engineering; PHI 	
Modes of Evaluation and Rubric	
<p>There will a continuous evaluation for during the semester for 40 sessional marks and 60 semesters— End examination marks. The practical marks is 50, out of which 30 marks shall be awarded for viva-voce and 20 marks for lab work. Out of 40 sessional marks, 20 shall be awarded for Mid-semester, 20 marks to be awarded for day-to-day performance and Quiz/Assignments.</p> <p>For the 60 marks, there will be a semester – End examination as per norms of AICTE</p>	
List of experiments: (Total 10 Practicals)	
List of Suggested Core Experiments:	
<ol style="list-style-type: none"> 1. Study of Different Boilers and its working with Cut Section Models 2. Study of 4 stroke and 2 Stroke S.I. & C.I. Engine with cut section Models 	
Recommendation by Board of studies on	
Approval by Academic council on	
Compiled and designed by	
Subject handled by department	



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Mechanical Engineering

Semester/Year		II		Program		B.Tech			
Subject Category	ESC	Subject Code:	MEA 105	Subject Name:	Manufacturing Process				
Maximum Marks Allotted						Contact Hours			Total Credits
Theory			Practical		Total Marks	L	T	P	
End Sem	Mid-Sem	Quiz + Assignment	End Sem	Lab-Work + Quiz					
60	20	10+10	30	10 +10	150	3	0	2	
Course Objective:									
This Subjects deals with the Basic Knowledge related to production such as casting, welding, joining etc. After completing this subjects students are able to analyze the difference between various manufacturing techniques and solve the basic problem related to the subjects									
Course Outcomes:									
At the end of the course, the students will able to:									
1. Identify the issue that arises in making pattern, moulding process and there Design									
2. Acquire the Knowledge and application of forging, press working, and to evaluate the power requirements									
3. Understand the Welding Process, Defects in Welding and their remedies.									
4. Understand the Metal Cutting force Analysis and Economics of Material Cutting									
5. Understand the strength of measurement, linear and Angular Instruments.									
UNITS	Descriptions						Hr s.	CO's	
I	Pattern Making: Pattern and pattern making, types of patterns, Pattern materials, pattern allowances, pattern design considerations, core, core boxes. Moulding and Foundry: moulding sand, core sands and their properties, gating, runners, risers, solidification, defects and elimination, moulding machines, centrifugal casting, die casting, shell moulding, Lost wax moulding; continuous casting, cupola description and operation.						8	1	
II	Forging: Theory and application of forging processes, operations, principle of drop and horizontal forging machines, forging defects, general principle of forging design. Press working: press tool operations, process of shearing, punching, piercing, blanking, trimming , embossing, coining, bending, forming and drawing press, tool dies, force, pressure and power requirements.						8	2	
III	Welding: Gas welding method, flames, gas cutting, Electric arc welding, A.C. and D.C. welding machines and their characteristics. TIG & MIG Welding , Pressure welding, electric resistance welding i.e. spot, seam and butt welding; Thermit Welding, welding defects and their remedies; brazing and soldering, Introduction of spinning.						8	3	
IV	Metal cutting : Principles of metal cutting, tool geometry ,Tool life plots , Mach inability, Tool wear, Cutting force analysis ,Cutting tool materials & Cutting fluids ,Economics of metal machining .						8	4	

V	Metrology: Standards of Measurements, Linear and angular instruments; slip gauges, sine bar, angle gauges, screw thread measurements, limit gauges, limit fits and tolerances. Introduction to surface roughness measurement, comparators, and coordinate measuring machine;	8	5
Guest Lectures (if any)			
Total Hours		40	
List of Experiment:			
<ol style="list-style-type: none"> 1. To Prepare a T- Half lap joint in carpentry shop. 2. To Prepare a Dovetail joint in carpentry shop. 3. To Prepare A Model of Single door window frame in carpentry shop. 4. To Prepare Chisel from given mild steel rod in black smithy shop. 5. To Prepare Butt Joint by Electric Arc Welding Process. 6. To Prepare Lap Joint by Electric Arc Welding Process. 7. Demonstration of Gas Welding. 8. To Fabrication of Table frame in welding shop. 9. To Prepare Sand Mould single piece pattern in Foundry Shop. 10. To Prepare Sand Mould Two-piece pattern in Foundry Shop. 11. To Prepare V Joint in Fitting shop. 12. Assembly of Simple Engine/Machine in Fitting Shop 			
Reference Books-			
<ol style="list-style-type: none"> 1. Kaushik JP; Manufacturing Processes; PHI 2. Bawa; Manufacturing Processes; TMH 3. Rao PN; Manufacturing Tech- Vol 1 and 2; TMH 4. Schey JA; Introduction to mfg processes; McGraw Hill 5. Chapman; Workshop Technology 6. Begeman; Manufacturing Process : John Wiley 7. Raghuvanshi; Workshop Technology ; Dhanpat Rai. 8. Hajra Choudhary; Workshop Technology.; Vol I 9. Pandya & Singh; Production Engineering Science. 10. Production Engineering by P.C. Sharma 			
Modes of Evaluation and Rubric			
There will a continuous evaluation for during the semester for 40 sessional marks and 60 semesters—End examination marks. Out of 40 sessional marks, 20 shall be awarded for Mid-semester, 20 marks to be awarded for day-to-day performance and Quiz/Assignments. For the 60 marks, there will be a semester – End examination as per norms of AICTE			
Recommendation by Board of studies on			
Approval by Academic council on			
Compiled and designed by			
Subject handled by department			



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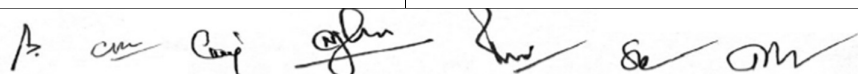
(Engineering College), VIDISHA M.P.

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Department of Mechanical Engineering

Semester/Year		II		Program			B.Tech			
Subject Category	ESC	Subject Code:	MEA103	Subject Name:	Engineering Mechanics					
Maximum Marks Allotted							Contact Hours			Total Credits
Theory				Practical		Total Marks	L	T	P	
End Sem	Mid-Sem	Quiz	Assignment	End Sem	Lab-Work					
60	20	10	10			100	3	0	0	3
Prerequisites:										
Basic knowledge of Force analysis, basic units and fundamental mechanics, law of inertia										
Course Objective:										
To understand the application of engineering mechanics to Analyse the various types of force calculations problem in machine elements and fundamentals of Friction applied in braking design and bearings and in automobile and other machines.										
Course Outcomes:										
At the end of course completion students' will be able to:										
CO1. Understands the calculations of forces and analysis in various machine elements and systems.										
CO2. Understand the basic application of friction in real life problem of machines elements.										
CO3. Understand the calculations of Inertia and centroid to find out to balance the machines or bodies.										
CO4. Understand the calculation of reaction forces in beam and in machines shaft to design against various types of loadings.										
CO5. Understand the calculation of forces in frames in the design of automobile frames or chassis etc.										
UNITs	Descriptions						Hrs.	CO's		
I	Static of force systems: Composition and resolution of forces, concurrent, non-concurrent and parallel forces in a plane, free body diagrams, Moment of a force and Varignon's theorem, conditions of equilibrium, polygon of forces and Funicular Polygon, equivalent force system, Bodies in equilibrium, structures under equilibrium, couple, moment of a couple, equivalent couple, addition of couples, illustrative exercises						8	1		
II	Static and Dynamic Friction: Coulomb's law of friction, Static friction, Friction on inclined plane, Friction in rolling, Ladder and wedge friction, Screw and Nut friction, Friction in journal. Numerical Problems.						8	2		
III	Centroid & Moment of Inertia, Friction Location of centroid and Moment of Inertia of plane areas, Perpendicular Axis and Parallel Axis						8	3		

	theorems, Product of Inertia, Principal Axes and Principal Moment of solid bodies.		
IV	Shear Force and Bending Moment: Shear Force and Bending moment Diagram for Cantilever and Simply supported beam with concentrated, distributed load, and couple. Overhanging beams. Point of Inflexion/Contra-flexure. Relationship between bending moment and shear for pure bending.	8	4
V	Analysis of trusses, Perfect and imperfect truss, method of joints, method of sections, , illustrative exercises.	8	5
Guest Lectures (if any)		-	-
Total Hours		40	
Textbook-			
<ol style="list-style-type: none"> 1. Beer & Johnson, Vector Mechanics for Engineers – Statics, Tata Mc Graw Hills New Delhi. 2. Timoshenko-Engineering Mechanics, TMH 3. R.C. Hibbler – Engineering Mechanics: Statics & Dynamics. 4. A. Boresi& Schmidt- Engineering Mechanics: Statics & Dynamics, Thomson' Books 5. Shames- Engineering Mechanics-statics dynamics, Pearson Education. 6. Dr. K.L. Kumar, Engineering Mechanics, Tata Mc Graw Hills New Delhi 7. Shelley- 800 Solved Problems in Vector Mech. For engineers Vol-1 Statics, Schaum Series, TMH 8. R.K. Rajput, Engineering Mechanics S. Chand & Co. 			
Reference Books-			
<ol style="list-style-type: none"> 1. G. L.Meriam- Engineering Mechanics-Statics, Wielly India. 2. S Ramamrutham – Engineering Mechanics, Dhanpat Rai publishing company. 3. SS bhavikatti – Engineering Mechanics, New age international publication 			
Modes of Evaluation and Rubric			
Continuous evaluation through assignment, quizzes, theory class & external assessment.			
List/Links of e-learning resource:			
<ul style="list-style-type: none"> • knimbus • SWAYAM 			
Recommendation by Board of studies on			
Approval by Academic council on			
Compiled and designed by			
Subject handled by department			





SAMRAT ASHOK TECHNOLOGICAL INSTITUTE
(Engineering College), VIDISHA M.P.
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Department of Applied Science

Semester/Year		First Sem	Program			B.Tech.				
Subject Category	Departmental Core	Subject Code:	MAB101	Subject Name:	Linear Algebra and Calculus					
Maximum Marks Allotted							Contact Hours			Total Credits
Theory				Practical		Total Marks	L	T	P	
End Sem	Mid-Sem	Quiz	Assignment	End Sem	Lab-Work					
60	20	10	10	-	-	100	3	1	-	4
Prerequisites:										
Basic of Differentiations, Integrations and Matrices.										
Course Objective:										
The objective of this course is to familiarize the prospective engineers with techniques in calculus, and linear algebra. It aims to equip the students with standard concepts and tools at an intermediate to advanced level that will serve them well towards tackling more advanced level of mathematics and applications that they would find useful in their disciplines.										
Course Outcomes:										
This course is to develop students abilities to:										
1. Apply Differential Calculus to Notions of Curvature. Apart from some other Applications they will have a Basic Understanding of Taylor's Theorem, Maxima and Minima.										
2. The Fallouts of Partial Differentiation that is Fundamental to Application of Analysis to Engineering Problems.										
3. Finding area and Volume using Double and Triple Integrals.										
4. The Essential Tool of Matrices and Linear Algebra in a Comprehensive Manner. Student will understand Matrices and their Application to Solve System of Linear Simultaneous Equations.										
5. Students will Gain Experience with Problem Solving in Boolean Algebra and Graph Theory.										
UNITS	Descriptions						Hrs.	CO's		
I	Differential Calculus: Lebnitz Theorem, Expansion of functions by Maclaurins and Taylors theorem (one variable), Maxima & Minima of two variables, Curvature: Radius and Centre of Curvature for Cartesian Coordinates.						8	1		
II	Partial Differentiation: Partial Derivatives of Higher Order, Homogeneous Functions, Euler's Theorem, Total differentiation, Errors and Approximations.						8	2		
III	Integral Calculus : Definite Integral as a Limit of the Sum, Application in Summation of Series, Multiple Integrals, Change of order of Integration, Application of Double and Triple Integrals (Area & Volume).						8	3		
IV	Matrix : Definition, Types & Properties of Matrices, Elementary Transformation, Rank of Matrix, Consistency of Linear System of Equations and their solutions, Eigen Values and Eigen Vectors, Cayley Hamilton Theorem and its Application to find the Inverse.						8	4		

V	Boolean Algebra & Graph Theory: Algebra of logic, Principal of Duality and basic theorem, Boolean expression and Boolean functions, Definition of Graph, Types of Graphs, Sub Graphs, Walk, Path and Circuits,.	8	5
TOTAL HOURS		40	
Reference Books:			
<ol style="list-style-type: none"> 1. Engg. Mathematics: By B.S. Grewal 2. Boolean Algebra: R.S. Agrawal 3. Engg. Mathematics: by H.K. Dass 4. Engg. Mathematics : By B. V. Rammanna 			
Recommendation by Board of studies on		14-06-2022	
Approval by Academic council on		16-06-2022	
Compiled and designed by		Applied Maths Board of Studies, Chairman Dr. Shailesh Jaloree	







SAMRAT ASHOK TECHNOLOGICAL INSTITUTE
 (Engineering College), VIDISHA M.P.
 (An Autonomous Institute Affiliated to RGPV Bhopal)
Department of Humanities and Management

Semester/Year		II Year		Program			B. Tech All Branches				
Subject Category	MAC	Subject Code:	MAC101	Subject Name:		Universal Human Values					
Maximum Marks Allotted								Contact Hours			Total Credits
Theory				Practical			Total Marks	L	T	P	
End Sem	Mid-Sem	Quiz	Assignment	End Sem	Lab-Work	Quiz					L
00	00	00	00	60	20	20	100	-	-	2	Grade
Prerequisites:											
During the Induction Program, students would get an initial exposure to human values through Universal Human Values – I. This exposure is to be augmented by this compulsory full semester foundation course.											
Course Objective:											
At the end of the course, the students will be able to:											
<ol style="list-style-type: none"> 1. Develop a holistic perspective based on exploration about others and themselves. 2. Develop clarity, importance of harmony and humanity towards family, society and nature/existence. 3. Strengthen self-reflection. 4. Develop commitment and courage to act. 											
Course Outcomes:											
<ol style="list-style-type: none"> 1. By the end of the course, students will become aware of themselves, and their surroundings (family, society, nature) 2. They would have better critical ability. 3. They would become more responsible in life; and keeping human relationships and human nature in mind will be able to handle problems with sustainable solutions. 4. They would also become sensitive to their commitment towards nature and existence. 5. They would be able to apply what they have learnt to their own selves in different day-to-day real-life scenarios, at least a beginning would be made in this direction. 											
UNITs		Descriptions						Hrs.	CO's		
I		Introduction - Need, Basic Guidelines, Content and Process for Value Education <ol style="list-style-type: none"> 1. Self-Exploration–what is it? - Its content and process; 'Natural Acceptance' and Experiential Validation- as the process for self-exploration 2. Continuous Happiness and Prosperity- A look at basic Human Aspirations 3. Right understanding, Relationship and Physical Facility- the basic requirements for fulfilment of aspirations of every human being with their correct priority 4. Understanding Happiness and Prosperity correctly- A critical appraisal of the current scenario 						8	1		

	5. Method to fulfil the above human aspirations: understanding and living in harmony at various levels. Include practice sessions to discuss natural acceptance in human being as the innate acceptance for living with responsibility.		
II	<p>Understanding Harmony in the Human Being - Harmony in Myself!</p> <ol style="list-style-type: none"> 1. Understanding human being as a co-existence of the sentient 'I' and the material 'Body' 2. Understanding the needs of Self ('I') and 'Body' - happiness and physical facility 3. Understanding the characteristics and activities of 'I' and harmony in 'I' 4. Understanding the harmony of I with the Body: Sanyam and Health; correct appraisal of Physical needs, meaning of Prosperity in detail 5. To ensure Sanyam and Health. Include practice sessions to discuss the role others have played in making material goods. Identifying from one's own life. Differentiate between prosperity and accumulation. 	6	2
III	<p>Understanding Harmony in the Family and Society- Harmony in Human- Human Relationship</p> <ol style="list-style-type: none"> 1. Understanding values in human-human relationship; meaning of Justice (nine universal values in relationships) and program for its fulfillment to ensure mutual happiness. 2. Understanding the meaning of Trust; Difference between intention and competence. 3. Understanding the meaning of Respect, Difference between Respect and differentiation; the other salient values in relationship. 4. Understanding the harmony in the society (society being an extension of family): Resolution, Prosperity, fearlessness (trust) and co-existence as comprehensive Human Goals. 5. Visualizing a universal harmonious order in society- Undivided Society, Universal Order- from family to world family. Gratitude as a universal value in relationships. Elicit examples from students' lives. 	4	3
IV	<p>Understanding Harmony in the Nature and Existence - Whole existence as Coexistence</p> <ol style="list-style-type: none"> 1. Understanding the harmony in the Nature. 2. Interconnectedness and mutual fulfilment among the four orders of nature recyclability and self-regulation in nature. 3. Understanding Existence as Co-existence of mutually interacting units in all-pervasive space. 4. Holistic perception of harmony at all levels of existence. 5. Include practice sessions to discuss human being as cause of imbalance in nature (film "Home" can be used), pollution, depletion of resources and role of technology etc. 	8	4
V	<p>Implications of the above Holistic Understanding of Harmony on Professional Ethics</p> <ol style="list-style-type: none"> 1. Natural acceptance of human values. 2. Definitiveness of Ethical Human Conduct. 3. Basis for Humanistic Education, Humanistic Constitution and Humanistic Universal Order 4. 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 	9	5

	appropriate technologies and management patterns for above production systems. 5. Strategy for transition from the present state to Universal Human Order: a. as socially and ecologically responsible engineers, technologists b. At the level of society: as mutually enriching institutions and organizations.		
Guest Lectures (if any)		5	
Total Hours		40	
Suggestive list of experiments:			
Text Book-Human Values and Professional Ethics by R R Gaur, R Sangal, G P Bagaria, Excel Books, New Delhi, 2010			
Reference Books- 1. JeevanVidya: EkParichaya, A Nagaraj, JeevanVidyaPrakashan, Amarkantak, 1999. 2. Human Values, A.N. Tripathi, New Age Intl. Publishers, New Delhi, 2004.			
Modes of Evaluation and Rubric			
Questionnaire, Quiz, Presentation and standard procedure will be followed .			
List/Links of e-learning resource			
https://fdp-aicte-india.org https://vvce.ac.in			
Recommendation by Board of studies on	26/02/2022		
Approval by Academic council on			
Compiled and designed by	Dr. Manorama Saini and Dr. VeenaDatar		
Subject handled by department	Humanities and Management		

H. C.
15/06/2022

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