



Viswambhara Educational Society

VAAGDEVI COLLEGE OF ENGINEERING

UGC-Autonomous

Department of Mechanical Engineering

COURSE OUTCOMES FOR B.TECH - ME R20 FOR THE YEAR 2020-2021

Course Outcome	Semester I Sem	Subject Name (Subject Code) LINEAR ALGEBRA AND CALCULUS (B20MA01)	No. of Hours L:3 T:1 P:0	Credits: 4
After the completion of this course, the students should be able to				
1	Understand the principles of matrix to calculate the characteristics of system of linear algebraic equations using multiple methods.			
2	Determine eigen values, eigen vectors and orthogonally diagonalize symmetric matrices.			
3	Analyze the nature of sequence and series to identify the convergence.			
4	Evaluate limits of single-variable functions graphically and computationally. Analyze improper integrals using Beta and Gamma functions.			
5	Calculate Partial derivatives, Jacobian and extrema of functions of multiple variables with or without constraints.			
Course Outcome	Semester I Sem	Subject Name (Subject Code) Engineering Chemistry (B20CH01)	No. of Hours L:3 T:1 P:0	Credits:4
After the completion of this course, the students should be able to				
1	The knowledge of batteries and corrosion			
2	The knowledge of water treatment and			
3	The knowledge of polymers and their use			
4	The required knowledge of principles and concepts of phase rule and surface chemistry			
5	The knowledge of combustion and fuel			
Course Outcome	Semester I Sem	Subject Name (Subject Code) ENGINEERING GRAPHICS (B20ME02)	No. of Hours L:1 T:0 P:4	Credits: 3
After the completion of this course, the students should be able to				
1	Analyze the Projections of points.			
2	Understand the Projections of solids.			
3	Estimate the use of Drawings, dimensioning, scales and conic sections.			
4	Modify the Applications of this knowledge in Computer Graphics.			
5	Compare the conversion of isometric views to Orthographic views.			
Course Outcome	Semester I Sem	Subject Name (Subject Code) PROGRAMMING FOR PROBLEM SOLVING (B20CS01)	No. of Hours L:4 T:0 P:0	Credits: 4
After the completion of this course, the students should be able to				
1	Understanding how problems are posed and how they can be analyzed for obtaining solution.			
2	Understanding the fundamentals of C programming.			

3	Learning of sequencing, branching, looping and decision making statements to solve Scientific and engineering problems.			
4	Implementing different operations on arrays and creating and using of functions to solve problems			
5	Ability to design and implement different types of file structures using standard Methodology			
Course Outcome	Semester I Sem	Subject Name (Subject Code) ENGLISH LANGUAGE AND INTERACTIVE COMMUNICATION SKILLS LAB (B20EN02)	No. of Hours L:0 T:0 P:3	Credits: 1.5
After the completion of this course, the students should be able to				
1	Understand their strengths and weaknesses in English usage in formal and informal contexts.			
2	Use English comfortably in their individualized contexts			
3	Use IT skills and research skills in English speaking and writing			
4	Improve their vocabulary, pronunciation, receptive and expressive skills in English			
Course Outcome	Semester I Sem	Subject Name (Subject Code) PROGRAMMING FOR PROBLEM SOLVING LAB (B20CS02)	No. of Hours L:0 T:0 P:3	Credits:1.5
After the completion of this course, the students should be able to				
1	To provide the necessary knowledge on general engineering problem solving methodologies.			
2	To provide necessary foundations for step by step computer program development and to present the basic concepts in C programming language.			
3	To prepare the students to write modular and readable C Programs.			
4	The Course introduces the essential concepts like abstract data types, user defined data types.			
5	To analyze the performance of algorithms and how to use such knowledge for later processing with the help of files.			
6	Aims to train the students to write working programs to solve problems			
Course Outcome	Semester I Sem	Subject Name (Subject Code) ENGINEERING WORKSHOP (B20ME04)	No. of Hours L:0 T:0 P:2	Credits: 1
After the completion of this course, the students should be able to				
1	Know the fundamental knowledge of various trades and their usage in real time Applications			
2	Compare Foundry, Welding, Black smithy, Fitting, Machine shop and house wiring			
3	Understand the basis for analyzing power tools in construction and wood working, electrical engineering and mechanical engineering			
4	Apply basic concepts of computer hardware for assembly and disassembly			
Course Outcome	Semester II Sem	Subject Name (Subject Code) DIFFERENTIAL EQUATIONS AND VECTOR CALCULUS (B20MA02)	No. of Hours L:3 T:1 P:0	Credits: 4
After the completion of this course, the students should be able to				
1	Apply the fundamental concepts of ordinary differential equations to real time problems.			
2	Find the complete solution of a non homogeneous differential equations and applying its concepts in solving physical problems of Engineering.			

3	Evaluate the multiple integrals in various coordinate systems.			
4	Apply the concepts of gradient, divergence and curl to formulate Engineering problems.			
5	Analyze line, surface and volume integrals using fundamental theorems.			
Course Outcome	Semester II Sem	Subject Name (Subject Code) ENGINEERING PHYSICS (B20PH03)	No. of Hours L:3 T:1 P:0	Credits:4
After completion of this course, the student shall be/shall				
1	Learns about transformation concepts in Mechancis			
2	Gains knowledge on basics of rigid body dynamics and lasers which leads to new innovations and improvements			
3	The knowledge of physics relevant to engineering is critical for converting ideas into technology			
4	An understanding of Physics also helps engineers understand the working and limitations of existing devices and techniques, which eventually leads to newinnovations and improvements			
Course Outcome	Semester II Sem	Subject Name (Subject Code) ENGINEERING MECHANICS (B20CE01)	No. of Hours L:3 T:1 P:0	Credits:4
After completion of this course, the student shall be/shall				
1	Understand the basic concepts of engineering mechanics and force Systems			
2	Calculate the friction developed in motion of bodies			
3	Calculate centroid and moment of inertia for simple and composite bodies			
4	Apply the concepts of mechanics for solving problems of particles and rigid body motion			
5	Understand the Work Energy method for plane motion			
Course Outcome	Semester II Sem	Subject Name (Subject Code) INTRODUCTION TO PYTHON PROGRAMMING (B20CS06)	No. of Hours L:1 T:0 P:2	Credits:2
After completion of this course, the student shall be/shall				
1	Defining the fundamentals of writing Python scripts			
2	Expressing the Core Python scripting elements such as variables and conditional control structures			
3	Implement the Python scripting using looping statements.			
4	Apply Python functions to facilitate code reuse			
5	Extending how to work with modules and packages			
Course Outcome	Semester II Sem	Subject Name (Subject Code) BASIC ELECTRICAL AND ELECTRONICS ENGINEERING (B20EE01)	No. of Hours L:3 T:0 P:0	Credits:3
After completion of this course, the student shall be/shall				
1	Analyze circuit theorems, mesh and nodal analysis, series and parallel networks, Electrical power			
2	Gain knowledge on AC circuits, reactance, Impedance, Susceptance and Admittance and Power Factor			
3	Learn the working principle of DC motors, Transformers			
4	Study the characteristics of PN Junction diode and zener diode			
5	Learn the basic of Amplifiers and Rectifiers			
Course Outcome	Semester II Sem	Subject Name (Subject Code) BASIC ELECTRICAL AND	No. of Hours L:0 T:0 P:3	Credits:1.5

		ELECTRONICS ENGINEERING LAB (B20EE02)		
After completion of this course, the student shall be/shall				
1	Learn to simplify complex electric and electronic circuits by applying the KVL and KCL laws			
2	Identify the optimal loading on machines			
3	Analyze the performance of DC machines			
4	Identify and analyze the performance and operation of semi conducting devices			
Course Outcome	Semester II Sem	Subject Name (Subject Code) PHYSICS LAB (B20PH05)	No. of Hours L:0 T:0 P:3	Credits:1.5
After completion of this course, the student shall be/shall				
1	The laboratory course helps the student how to operate different equipments related to engineering. It also allows the student to develop experimental skills to design new experiments in engineering			
2	The course enlightens the student about modern equipment like Solar cell, Optical fibres etc			
3	With the exposure to these experiments, the student can compare the theory and correlate with experiment			
Course Outcome	Semester III Sem	Subject Name (Subject Code) METALLURGY AND MATERIAL SCIENCE (B20ME07)	No. of Hours L:3 T:0 P:0	Credits:3
After completion of this course, the student shall be/shall				
1	Understand the bond formation, grains and grain boundaries in crystalline metals			
2	Apply lever rule in calculating the liquid and solid percentage			
3	Apply heat treatment processes to different materials to get required properties			
4	Gain knowledge about advanced materials like composites & ceramics.			
5	Analyze the applications and the properties of cast irons and steels			
Course Outcome	Semester III Sem	Subject Name (Subject Code) MECHANICS OF SOLIDS (B20ME08)	No. of Hours L:3 T:0 P:0	Credits:3
After completion of this course, the student shall be/shall				
1	Understand the concepts of stress and strain in mechanics of solids and material properties.			
2	Apply the fundamental concepts of shear force & bending moment for Cantilever beam, simply supported beam & overhanging beam with point loads, UDL, gradually varying loads & their combination			
3	Apply the fundamental concepts of Bending stresses & shear stresses for different Beams			
4	Apply the different methods to determine the deflection & slope of different beams like double integration method, Area moment method & Macaulay's method			
5	Apply the Lamé's equation to determine stresses in Thick cylinders and to understand the concept of torsion and its application to circular shafts.			
Course Outcome	Semester III Sem	Subject Name (Subject Code) THERMODYNAMICS (B20ME09)	No. of Hours L:3 T:0 P:0	Credits:3
After completion of this course, the student shall be/shall				
1	Understand the basic thermodynamic principles and their applications			
2	Apply the laws of thermodynamics for different thermal systems.			
3	Use mollier diagram and steam tables to find the properties of pure substances			
4	Calculate different properties of perfect gases, real gases and mixtures of perfect			

5	Analyse different power cycles			
Course Outcome	Semester III Sem	Subject Name (Subject Code) MACHINE DRAWING (B20ME10)	No. of Hours L:2 T:0 P:2	Credits:3
After completion of this course, the student shall be/shall				
1	Understand various conventions used in machine drawing			
2	Identify the design and use of various machine components			
3	Interpret and make conclusions about a given drawing			
4	Prepare the assembly and part drawings for various machine components			
5	Apply the First angle projection to machine parts			
Course Outcome	Semester III Sem	Subject Name (Subject Code) BASICS OF ARTIFICIAL INTELLIGENCE (B20CS26)	No. of Hours L:2 T:0 P:0	Credits:2
After completion of this course, the student shall be/shall				
1	Possess the ability to formulate an efficient problem space for a problem expressed in English			
2	Possess the ability to select a search algorithm for a problem			
3	Possess the characterization time and space complexities			
4	Possess the skill for representing knowledge using the appropriate technique			
5	Possess the ability to apply AI techniques to solve problems of Game Playing			
6	Possess the Expert Systems, Machine Learning and Natural Language Processing			
Course Outcome	Semester III Sem	Subject Name (Subject Code) ENGLISH FOR EFFECTIVE COMMUNICATION (B20EN01)	No. of Hours L:2 T:0 P:0	Credits:2
After completion of this course, the student shall be/shall				
1	Skim and scan the digital text to summarize it for future reference			
2	Read the text to make notes according to their n			
3	Use English language effectively in spoken and written forms			
4	Communicate confidently in various contexts and different cultures			
5	Acquire basic proficiency in English including reading and listening comprehension, writing and speaking skills			
Course Outcome	Semester III Sem	Subject Name (Subject Code) HUMAN VALUES & PROFESSIONAL ETHICS (B20MC04)	No. of Hours L:2 T:0 P:0	Credits:0
After completion of this course, the student shall be/shall				
1	It ensures students sustained happiness through identifying the essentials of human values and skills.			
2	It facilitates a correct understanding between profession and happiness			
3	It helps students understand practically the importance of trust, mutually satisfying human behavior and enriching interaction with nature			
4	Ability to develop appropriate technologies and management patterns to create harmony in professional and personal life			
Course Outcome	Semester III Sem	Subject Name (Subject Code) MECHANICS OF SOLIDS LAB (B20ME12)	No. of Hours L:0 T:0 P:3	Credits:1.5
After completion of this course, the student shall be/shall				
1	Perform material testing and analyze various material properties			
2	Understand the Impact load effect on various Beams			

3	Perform Hardness test to find hardness of components			
4	Find the stiffness of springs with all parameters			
5	Perform Deflection test on Beams and can analyze the Beams			
Course Outcome	Semester III Sem	Subject Name (Subject Code) METALLURGY LAB (B20ME13)	No. of Hours L:0 T:0 P:3	Credits:1.5
After completion of this course, the student shall be/shall				
1	Understand the Basic Crystal structures of various materials			
2	Identify Grain and grain boundary, crystal structure of different materials			
3	Study the microstructure of various materials			
4	Analyze Metallurgical properties of various Metals and Non-Metals			
5	Analyze Metallurgical properties of ferrous and Nonferrous alloys			
Course Outcome	Semester IV Sem	Subject Name (Subject Code) PROBABILITY AND STATISTICS (B20MA07)	No. of Hours L:3 T:1 P:0	Credits:4
After completion of this course, the student shall be/shall				
1	Use probability theory and deals with modelling uncertainty in order to evaluate the probability of real world events			
2	Develop discrete probability distributions and its applications, and use these techniques to generate data from Binomial and Poisson Distributions			
3	Use the techniques of continuous probability distributions to generate data from Normal Distributions			
4	Perform correlation and regression analysis, in order to estimate the nature and the strength of the linear relationship between two variables			
5	Construct confidence interval to estimates population parameters to test the hypothesis			
Course Outcome	Semester IV Sem	Subject Name (Subject Code) FLUID MECHANICS AND HYDRAULIC MACHINERY (B20ME14)	No. of Hours L:3 T:0 P:0	Credits:3
After completion of this course, the student shall be/shall				
1	Apply mathematics and basic sciences and translates this knowledge to understand fluid flow principles and their applications			
2	Understand fundamental knowledge of the mechanics of fluid at rest and in motion			
3	Observe fluid phenomena by developing and using the principles, laws			
4	Analyze fluid interactions with natural and constructed systems			
5	Associate fundamental knowledge & performance of different turbines & pumps			
Course Outcome	Semester IV Sem	Subject Name (Subject Code) THERMAL ENGINEERING-I (B20ME15)	No. of Hours L:3 T:0 P:0	Credits:3
After completion of this course, the student shall be/shall				
1	Understand the concept and working of two and four strokes I.C. engines			
2	Analyse the normal and abnormal condition for the combustion of SI and CI engines also the parameters which effect the combustion characteristics			
3	Able to calculate the performance of the engine with different parameters			
4	Get knowledge about compressors and their classifications			
5	Differentiate various compressor on the basis of their working and requirement and can use suitable one.			

Course Outcome	Semester IV Sem	Subject Name (Subject Code) KINEMATICS OF MACHINES (B20ME16)	No. of Hours L:3 T:0 P:0	Credits:3
After completion of this course, the student shall be/shall				
1	Identify the basic mechanisms involved in machines			
2	Develop familiarity with application of kinematics theories to real-world machines			
3	Identify the basic relations between distance, time, velocity and acceleration			
4	Understand analytical linkage analysis, determine cam profiles			
5	Analyze gear trains and gear profiles, speed regulation methods			
Course Outcome	Semester IV Sem	Subject Name (Subject Code) PRODUCTION TECHNOLOGY (B20ME17)	No. of Hours L:3 T:0 P:0	Credits:3
After completion of this course, the student shall be/shall				
1	Apply the knowledge of casting, welding joints and forces and power requirements in metal forming processes			
2	Relate the melting, solidification, pattern allowances, gating and riser design of mold cavity, aspects of casting.			
3	Understand basic calculations of forces and power requirements in the metal forming operations			
4	Differentiate the application of welding using the arc welding, gas welding, resistance welding, soldering and brazing.			
5	Survey the defects occurring in forging operation			
Course Outcome	Semester IV Sem	Subject Name (Subject Code) FLUID MECHANICS AND HYDRAULIC MACHINERY LAB (B20ME19)	No. of Hours L:0 T:0 P:3	Credits:1.5
After completion of this course, the student shall be/shall				
1	Apply knowledge of fluid mechanics and hydraulic machines and translates this knowledge for understanding fluid flow principles and their application to experiments.			
2	Practical exposure by using components vacuum gauge, pressure gauge, manometers, pipes, motors, pumps & turbines.			
3	Use comparison of theoretical values with the real parameters			
4	Know and understand the experimental analysis in turbines and pumps with parameters such as discharge, head of water, speed of brake drum.			
Course Outcome	Semester IV Sem	Subject Name (Subject Code) PRODUCTION TECHNOLOGY LAB (B20ME20)	No. of Hours L:0 T:0 P:3	Credits:1.5
After completion of this course, the student shall be/shall				
1	Understand basic knowledge and concepts of various experiments			
2	Perform joining of materials (similar/dissimilar) using welding			
3	Analyze the concepts of extrusion and design of die			
4	Operate injection molding and blow molding machines			
Course Outcome	Semester IV Sem	Subject Name (Subject Code) FUELS & LUBRICANTS LAB (B20ME21)	No. of Hours L:0 T:0 P:2	Credits:1
After completion of this course, the student shall be/shall				
1	Analyze the flash point & fire point of liquid fuels			
2	Observe the carbon percentage for liquid fuels			
3	Illustrate the viscosity of Liquid lubricants			

4	Apply different methods to determine the calorific value of fuels
5	Compare the depth of penetration for different lubricants