NARAYANA ENGINEERING COLLEGE: : GUDUR
Dhurati Nagar, Gudur – 524 101, SPSR Nellore Dt., A.P, India.
MECHANICAL ENGINEERING DEPARTMENT

SEM-II   **AY: 2019-20**

II B. Tech – II Sem

S.No	Course Code	Subject	Course outcomes
1	15A54401	Probability And Statistics	**1.**Identify small, large samples and apply testing of hypothesis. **2** Apply ANOVA test to design of experiments. **3** Determine the solution of algebraic and transcendal system of linear equations. **4** To interpolate the values of unknown functions using Newton's Formula **5** Estimate the numerical values of the derivatives and integrals of unknown function difference equations
2	15A99301	Basic Electrical And Electronics Engineering	**1.**Explain the working of measuring instruments and solve the basic dc and ac circuits. **2.** Describe the operation of dc generators, motors, single phase induction motors and transformers. **3.** Clarify the working of basic electronic devices such as diode, transistor and rectifier. **4.** Demonstrate operation of digital devices such as logic gates, counters, flip-flops analog to digital converts and digital to analog converters. **5.** Justify the knowledge on working of communication systems such as radio, radar, fax and television.

3	15A03401	Machine Drawing	**1.**Able to understand product symbols, weld symbols, pipe joints **2.**Understand orthographic projections of machine elements **3.**Understand isometric projections of machine elements
4	15A03402	Kinematics Of Machines	**1.** Compute the forces and torques involved in friction drives like screw threads, clutches, belts, ropes and band and block brakes. **2.** Design a possible gear train and determine the speeds of simple, compound and epicyclic gear trains. **3.** Sketch slow speed and high speed cam profile for the required predefined motion of follower. **4.** Calculate kinematic properties of simple planar mechanisms using graphical approach, instantaneous center method and synthesis them at elementary level. **5.** Model planar mechanisms which will have defined required motion.
5	15A03403	Thermal Engineering – 1	**1.** Calculate the mean effective pressure and air standard efficiency of different gas power cycles. C215. **2.** Calculate the performance test on IC engines. C215. **3.** Sketch the velocity diagrams of single and multi-stage turbines. C215. **4.** Explain the classification and working principle of various types of air compressors. C215. **5.** Calculate properties of moist air and COP of vapor refrigeration systems by using refrigeration table and chart.

6	15A03404	Manufacturing Technology	**1.** Demonstrate understanding of metal cutting principles and mechanism **2.** Identify cutting tool geometry of single point and multipoint cutting tool **3.** Demonstrate various concept of sheet metal operation **4.** Demonstrate concepts and use of jigs and fixtures **5.** Illustrate various non-traditional machining techniques

B.Tech III-II Semester (ME)

S.No.	Course Code	Subject	Course outcomes
1.	15A03601	Operations Research	**1.**Identify and formulate LP problems using various methods for maximization and minimization problems. **2.**Apply mathematical techniques in different application areas of operations research like transportation and network models. **3.**Formulate mathematical models for quantitative analysis of Inventory control practice in industry. **4.**Calculate the queue length and waiting time for queuing models to make business decisions in operational research. **5.**Apply mathematical techniques to solve decision models using search technique and dynamic programming method.
2.	15A03602	Design of Machine Members – II	**1.** Select appropriate gears for power transmission on the basis of given load and speed **2.** Design gears based on the given conditions. **3.** Select bearings for a given applications from the manufacturers catalogue. **4.** Select and/or design belts and flywheel for given applications **5.** Design cam and follower mechanisms.Design clutches and brakes.

3.	15A03603	Heat Transfer	**1.** Identify the three modes of heat transfer (conduction, convection and radiation). **2.** Illustrate basic modes of heat transfer **3.** Develop mathematical model for each mode of heat transfer **4.** Develop mathematical model for transient heat transfer **5.** Demonstrate and explain mechanism of boiling and condensation. Analyze different heat exchangers and quantify their performance
4.	15A03604	Finite Element Method	**1.** Explain the steps involved in FEA and also the types of weight residual methods. **2.** Formulate FE equation for structural, heat transfer and vibration problems. **3.** Predict finite element equations for two dimensional thermal and torsion problems. **4.** Predict finite element equations for axisymmetric bodies, plate and shell. **5.** Apply matrix solution techniques to dynamic problems.
5.	15A03605	Metal forming Process	**1.**Explain the process of making patterns, preparation of sand mould, various special casting processes and casting defects. **2.**Describe various fusion, friction and special welding processes, soldering and brazing processes. **3.**Employ the appropriate metal forming techniques to produce components like hexagonal bolt, nut etc. **4.**Illustrate the various sheet metal forming processes for a specific application.

			5.Describe the properties and bonding techniques of plastics and various plastic molding techniques.
6.	15A03606	Non Conventional Source of Energy	1.Introduction to Renewable Energy Sources, Principles of Solar Radiation, Different Methods of Solar Energy Storage and its Applications, Concepts of Solar Ponds, Solar Distillation and Photo Voltaic Energy Conversion 2.Introduction to Flat Plate and Concentrating Collectors ,Classification of Concentrating Collectors 3.Introduction to Wind Energy, Horizontal and Vertical Access Wind Mills, BioConversion 4.Types of Bio-Gas Digesters and Utilization for Cooking Geothermal Energy Resources 5.Types of Wells and Methods of Harnessing the Energy, Ocean Energy and Setting of OTEC Plants

S.No.	Course Code	Subject	Course outcomes
1.	15A03801	Industrial Engineering	**1.** Illustrate the need for optimization of resources and its significance **2.** Develop ability in integrating knowledge of design along with other aspects of value addition in the conceptualization and manufacturing stage of various products. **3.** Demonstrate the concept of value analysis and its relevance. **4.** Manage and implement different concepts involved in method study and understanding of work content in different situations **5.** Describe different aspects of work system design and facilities design pertinent to manufacturing industries.
2.	15A03804	Power Plant Engineering	1.Comprehend various equipment/systems utilized in power plants 2.Demonstrate site selection methodology, construction and operation of Hydro Electric Power Plants 3.Discuss working, site selection, advantages,

			disadvantages of steam power plants
			4. Discuss operation of Combined Cycle Power Plants
			5. Discuss types of reactors, waste disposal issues in nuclear power plants. Illustrate power plant economics