NARAYANA ENGINEERING COLLEGE: : GUDUR

Dhurati Nagar, Gudur – 524 101, SPSR Nellore Dt., A.P, India.

MECHANICAL ENGINEERING DEPARTMENT

SEM-I **AY: 2019-20**

II B. Tech – I Sem

S.NO	COURSE CODE	SUBJECT	COURSE OUTCOMES
1	15A54301	Mathematics - III	**1.** Ordinary differential equations of first order. Applications and numerical methods. **2.** Ordinary differential equations of higher order. Applications and numerical methods. **3.** Systems of ordinary differential equations and their numerical methods. **4.** Laplace transform. **5.** Partial differential equations and their applications
2	15A52301	Managerial Economics & Financial Analysis	**1.**Determine the objectives, nature, scope, role & responsibilities of a manager of a business undertaking. **2.**Predict the demand for a product or product mix of a company& to analyze various factors influencing demand elasticity. **3.**Forecast& compute the future sales level of a product by using various quantitative & qualitative techniques and with the help of past sales data. **4.**Examine optimum production & cost functions with the help of mathematical equations & by developing graphical solutions through linear programming applications. **5.**Assess the cost behaviour, costs useful for managerial decision making and determine Break Even Point (BEP)of an enterprise.
3	15A01308	Mechanics of Solids	**1.**to understand the theory of elasticity including strain/displacement and Hooke's law relationships **2.** to analyze solid mechanics problems using classical methods and energy methods **3.** to solve torsion problems in bars and thin walled members

			4. to solve for stresses and deflections of beams under unsymmetrical loading **5.** to locate the shear center of thin wall beams;
4	15A03301	Engineering Drawing for Mechanical Engineers	**1.**Select, Construct and Interpret appropriate drawing scale as per the situation. **2.**Draw simple curves like ellipse, cycloid and spiral. **3.**Draw Orthographic projections of points, lines and planes. **4.**Draw orthographic projection of solids like cylinders, cones, prisms and pyramids including sections. Layout development of solids for practical situations. **5.**Draw isometric projections of simple objects.
5	15A03302	Engineering Mechanics	**1.**Determine the equilibrium of a particle in space using principle of laws of mechanics. **2.**Compute the equilibrium of rigid bodies in two dimensions and in three dimensions. **3.** Calculate the principal moment of inertia of plane areas. **4.** Solve the problems using equation of motions and analyze impact of elastic bodies on collision. **5**. Solve the problems of simple system with sliding friction and calculate linear and angular acceleration of moving body in general plane motion.
6	15A03303	Thermodynamics	**1.**Apply first law of thermodynamics for closed systems and flow process. **2.** Calculate thermal efficiencies of heat engine. **3.** Calculate work done and heat transfer for flow and non-flow process. **4.** Produce TDS relations from Maxwell's relations. **5.** Calculate properties of air vapor mixture using mathematical knowledge and psychrometric chart.

B.Tech III-I Semester (ME)

S.NO	COURSE CODE	SUBJECT	COURSE OUTCOMES
1.	15A01510	Fluid Mechanics and Hydraulic Machines	**1.** Calculate fluid properties and characteristics of flow using mathematical knowledge. **2.** Compute loses in circular conduits using conservation laws. **3.** Perform dimensional analysis of a given set of variables using Buckingham's π theorem and relate the model and prototype. **4.** Analyze the performance of pumps. **5.** Analyze the performance of hydraulic machines.
2.	15A03501	Thermal Engineering - II	**1.** Calculate the mean effective pressure and air standard efficiency of different gas power cycles. **2.** Calculate the performance test on IC engines. **3.** Sketch the velocity diagrams of single and multi-stage turbines. **4.** Explain the classification and working principle of various types of air compressors. **5.** Calculate properties of moist air and COP of vapor refrigeration systems by using refrigeration table and chart.
3.	15A03502	Dynamics of Machinery	**1.** Demonstrate working Principles of different types of governor & Gyroscopic effect on the mechanical system **2.** Illustrate basic of static and dynamic forces **3.** Determine natural frequency of element/system **4.** Determine vibration response of mechanical elements / systems **5.** Design vibration isolation system for a specific application
4.	15A03503	Machine Tools	**1.** Demonstrate understanding of casting process **2.** Illustrate principles of forming processes **3.** Demonstrate applications of various types of welding processes. **4.** Differentiate chip forming processes such as turning, milling, drilling, etc. **5.** Illustrate the concept of producing polymer components and ceramic components. 6. Distinguish between the c
5.	15A03504	Design of Machine Members - I	**1.**Apply the principle of solid mechanics to design machine member under variable loading.

			2. Calculate the diameter of shafts based on strength, rigidity and design various types of coupling based on application. **3.** Calculate design parameters of permanent and temporary joint on various loading application. **4.** Calculate the design parameter for energy storage element and engine components. **5.** Calculate the design parameters of various types of bearings
6.	15A03505	Entrepreneurship	**1.**Differentiate between Entrepreneur and Intrapreneur and appraise the importance of entrepreneurship in economic growth. **2.** Justify the need, objectives of Entrepreneurship Development Programs. **3.** Appraise the steps involved in setting up a business and business project reports. **4.** Justify the need of financing and accounting. **5.** Examine the government policy and assistance for the entrepreneur.

B.Tech IV-I Semester (ME)

S.NO.	COURSE CODE	SUBJECT	OUTCOMES
1.	15A52601	Management Science	**1.** Apply selection criteria and select an appropriate project from different options. **2.** Write work break down structure for a project and develop a schedule based on it. **3.** Identify opportunities and threats to the project and decide an approach to deal with them strategically. **4.** Use Earned value technique and determine & predict status of the project. **5.** Capture lessons learned during project phases and document them for future reference
2.	15A03701	Automobile Engineering	**1.** Illustrate the types and working of clutch and transmission system. **2.** Demonstrate the working of different types of final drives, steering gears and braking systems **3.** Illustrate the constructional features of wheels, tyres and suspension systems **4.** Demonstrate the understanding of types of storage, charging and starting systems **5.** Identify the type of body and chassis of an automobile
3.	15A03702	CAD/CAM	**1.** Identify proper computer graphics techniques for geometric modelling. **2.** Transform, manipulate objects & store and manage data. **3.** CAM Tool path Creation and NC- G code output. **4.** Use rapid prototyping and tooling concepts in any real life applications. **5.** Identify the tools for Analysis of a complex engineering component
4.	15A03703	Metrology And Measurements	1.Discuss the measurement systems, units and dimensions, calibration and correction. C304. 2.Explain the various linear and angular measurement systems and understand the concept of interchangeability C304. 3.Describe the working principle of auto collimator, CMM and list the applications of them. C304. 4.Explain the various form measurements like thread, gear, straightness, flatness, roundness and surface finish. C304. 5.Discuss the working of miscellaneous measuring equipment for measuring temperature, velocity, pressure.

5.	15A03706	Modern Manufacturing Methods	**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
6.	15A03709	Production & Operations Management	**1.**Illustrate production planning functions and manage manufacturing functions in a better way **2.** Develop competency in scheduling and sequencing of manufacturing operations **3.** Forecast the demand of the product and prepare an aggregate plan **4.** Develop the skills of Inventory Management and cost effectiveness **5.** Create a logical approach to Line Balancing in various production systems 6. Implement techniques of manufacturing planning and control