



# ESWAR COLLEGE OF ENGINEERING

(Approved by AICTE, & Affiliated to JNTUK, A.P.)

KESANUPALLI (V), NARASARAOPETA-522549, AP

www.eswarcollegeofengg.org, email:eswarcollegeofengg@gmail.com

## DEPARTMENT OF AUTOMOBILE ENGINEERING

### COURSE OUTCOMES

A.Y:- 2019-2020

Year/Sem: II B.Tech I SEM

<b>Course Name: METALLURGY &amp; MATERIALS SCIENCE</b>	
<b>Course Code: AME2101</b>	
<b>AME2101.1</b>	Understand the crystalline structure of different metals and study the stability of phases in different alloy systems
<b>AME2101.2</b>	Describe behavior of ferrous and non ferrous metals and alloys and their application in different domains.
<b>AME2101.3</b>	Able to understand the effect of heat treatment
<b>AME2101.4</b>	Able to understand the addition of alloying elements on properties of ferrous metals.
<b>AME2101.5</b>	Clarify the Grasp the methods of making of metal powders and applications of powder metallurgy
<b>AME2101.6</b>	Comprehend the properties and applications of ceramic, composites and other advanced methods.

<b>Course Name: MECHANICS OF SOLIDS</b>	
<b>Course Code: AME2102</b>	
<b>AME2102.1</b>	Model & Analyze the behavior of basic structural members subjected to various loading and support conditions based on principles of equilibrium.
<b>AME2102.2</b>	Analyze and design structural members and machine parts under axial, shear and bending loads, moment and torsional moment.
<b>AME2102.3</b>	Analyze beams, columns, frames for normal, shear, and torsion stresses and to solve deflection problems in preparation for the design of such structural components.
<b>AME2102.4</b>	Able to analyse beams and draw correct and complete shear and bending moment diagrams for beams.
<b>AME2125.5</b>	Understanding of the loads, stresses, and strains acting on a structure and their relations in the elastic behavior
<b>AME2102.6</b>	Design and analysis of Industrial components like pressure vessels.

<b>Course Name: THERMODYNAMICS</b>	
<b>Course Code: AME2103</b>	
<b>AME2103.1</b>	Describe basic concepts of thermodynamics.
<b>AME2103.2</b>	Able to Laws of thermodynamics.
<b>AME2103.3</b>	Explain Concept of entropy.



# ESWAR COLLEGE OF ENGINEERING

(Approved by AICTE, & Affiliated to JNTUK, A.P.)

KESANUPALLI (V), NARASARAOPETA-522549, AP

www.eswarcollegeofengg.org, email:eswarcollegeofengg@gmail.com

AME2103.4	Evaluation of vapors and their depiction in tables .
AME2123.5	Evaluation of charts.
AME2103.6	Evaluation of properties of perfect gas mixtures.
<b>Course Name: AUTOMOTIVE ENGINES</b>	
<b>Course Code: AME2104</b>	
AME2104.1	Able to understand the development in internal combustion engines
AME2104.2	Describe fuel admission in SI Engines and related systems
AME2104.3	Explain various components involved in fuel injection in CI engines
AME2104.4	learn about the fuel characteristics
AME2104.5	Explain Intake & Exhaust system.
AME2104.6	Able to know the importance of lubrication and cooling system

<b>Course Name: COMPUTER AIDED ENGINEERING DRAWING PRACTICE</b>	
<b>Course Code: AME2105</b>	
AME2105.1	Able to draw projections of regular solids inclined to both planes, including auxiliary views.
AME2105.2	Analyze and illustrate the interpenetration of right regular solids, including the intersection of cylinder vs. cylinder, cylinder vs. prism, and cylinder vs. cone.
AME2105.3	Able to understand the basics of perspective projections, including points, lines, plane figures, and simple solids, using vanishing point methods
AME2105.4	Able to AutoCAD commands to draw geometric entities, create 2D and 3D wireframe models, and perform dimensioning
AME2105.5	Able to display the created models as isometric, orthographic, or perspective projections.
AME2105.6	Demonstrate the ability to create geometrical models of simple solids and machine parts using computer-aided solid modeling techniques.

<b>Course Name: MANAGERIAL ECONOMICS &amp; FINANCIAL ANALYSIS</b>	
<b>Course Code: AME2106</b>	
AME2106.1	Able to the knowledge of estimating the Demand and demand elasticities for a product.
AME2106.2	Describe Input-Output-Cost relationships and estimation of the least cost combination of inputs
AME2106.3	Able to understand the nature of different markets and Price Output determination under various market conditions
AME2106.4	Define knowledge of different Business Units



# ESWAR COLLEGE OF ENGINEERING

(Approved by AICTE, & Affiliated to JNTUK, A.P.)

KESANUPALLI (V), NARASARAOPETA-522549, AP

www.eswarcollegeofengg.org, email:eswarcollegeofengg@gmail.com

AME2106.5	Able to prepare Financial Statements and the usage of various Accounting tools for Analysis.
AME2106.6	Evaluate various investment project proposals with the help of capital budgeting techniques for decision making.

<b>Course Name: ELECTRICAL &amp; ELECTRONICS ENGG.LAB</b>	
<b>Course Code: AME2107</b>	
AME2107.1	Able to find out the efficiency of dc shunt machine without actual loading of the machine.
AME2107.2	Able to estimate the efficiency and regulation for different load conditions and power factors of single phase transformer with OC and SC test.
AME2107.3	Able to analyse the performance characteristics and to determine efficiency of DC shunt motor & 3-phase induction motor.
AME2107.4	Able to pre-determine the regulation of an alternator by synchronous impedance method.
AME2107.5	Able to control the speed of dc shunt motor using speed control methods.
AME2107.6	Able to find out the characteristics of PN junction diode & transistor

<b>Course Name: MECHANICS OF SOLIDS AND METALLURGY LAB</b>	
<b>Course Code: AME2108</b>	
AME2108.1	Apply methods to determine Mechanical properties and Elastic Constants
AME2108.2	Appraise the students with the use of testing machines
AME2108.3	Characterize the microstructures of different ferrous and non ferrous metals.
AME2108.4	Identify the effect of heat treatment and cooling rates on the properties of steels
AME2108.5	Hardeneability of steels by Jominy End Quench Test
AME2108.6	Microstructure of Mild steels, low carbon steels, high – C steels

**Year/Sem: II B.Tech II SEM**

<b>Course Name: KINEMATICS OF MACHINERY</b>	
<b>Course Code: AME2201</b>	
AME2201.1	Contrive a mechanism for a given plane motion with single degree of freedom.
AME2201.2	Analyze a mechanism for a given straight line motion and automobile steering motion.
AME2201.3	Analyze the motion (velocity and acceleration) of a plane mechanism.



# ESWAR COLLEGE OF ENGINEERING

(Approved by AICTE, & Affiliated to JNTUK, A.P.)

KESANUPALLI (V), NARASARAOPETA-522549, AP

www.eswarcollegeofengg.org, email:eswarcollegeofengg@gmail.com

AME2201.4	Suggest and analyze mechanisms for a prescribed intermittent motion like opening and closing of IC engine valves etc.
AME2201.5	Able to Select a power transmission system for a given application
AME2201.6	Analyze motion of different transmission systems
<b>Course Name: THERMAL ENGINEERING -I</b>	
<b>Course Code: AME2202</b>	
AME2202.1	Describe various losses that occur in the actual engine operation.
AME2202.2	Able to know the various engine systems along with their function and necessity.
AME2202.3	Explain normal combustion phenomenon and knocking in S.I. and C.I. Engines
AME2202.4	Determine perform testing on S.I and C.I Engines for the calculations of performance and emission parameters.
AME2202.5	Explain compressors and to calculate power and efficiency of reciprocating compressors
AME2202.6	Calculate power and efficiency of rotary compressors

<b>Course Name: FLUID MECHANICS &amp; HYDRAULIC MACHINES</b>	
<b>Course Code: AME2203</b>	
AME2203.1	The basic concepts of fluid properties.
AME2203.2	The mechanics of fluids in static and dynamic conditions.
AME2203.3	Boundary layer theory, flow separation and dimensional analysis.
AME2203.4	Hydrodynamic forces of jet on vanes in different positions.
AME2203.5	Working Principles and performance evaluation of hydraulic pump
AME2203.6	Working Principles and performance evaluation of hydraulic turbines.

<b>Course Name: PRODUCTION TECHNOLOGY</b>
---



# ESWAR COLLEGE OF ENGINEERING

(Approved by AICTE, & Affiliated to JNTUK, A.P.)

KESANUPALLI (V), NARASARAOPETA-522549, AP

www.eswarcollegeofengg.org, email:eswarcollegeofengg@gmail.com

<b>Course Code: AME2204</b>	
<b>AME2204.1</b>	Design patterns, Gating, runner and riser systems
<b>AME2204.2</b>	Select a suitable casting process based on the component
<b>AME2204.3</b>	Learn various arc and solid state welding processes and select a suitable process based on the application and requirements
<b>AME2204.4</b>	Able to Understand various bulk deformation processes
<b>AME2204.5</b>	Able to Understand various sheet metal forming and processing of plastics
<b>AME2204.6</b>	Explain the sheet metal forming

<b>Course Name: INDUSTRIAL ENGINEERING &amp; MANAGEMENT</b>	
<b>Course Code: AME2206</b>	
<b>AME2206.1</b>	Design and conduct experiments, analyse, interpret data and synthesize valid conclusions
<b>AME2206.2</b>	Design a system, component, or process, and synthesize solutions to achieve desired needs
<b>AME2206.3</b>	Use the techniques, skills, and modern engineering tools necessary for engineering practice with appropriate considerations for public health and safety, cultural, societal, and environmental constraints
<b>AME2206.4</b>	Function effectively within multi-disciplinary teams and understand the fundamental precepts of effective project management
<b>AME2206.5</b>	Explain about analysis
<b>AME2206.6</b>	Determination of floats, importance, project crashing, smoothing and numerical examples.

<b>Course Name: MACHINE DRAWING</b>	
<b>Course Code: AME2207</b>	
<b>AME2207.1</b>	Able understanding of various machine elements and simple mechanical parts such as screw threads, bolts, keys, cotter joints, etc.
<b>AME2207.2</b>	Describe selecting appropriate views, proportions, and additional views to accurately represent machine elements and parts.
<b>AME2207.3</b>	able to translate theoretical knowledge into practical skills by producing working drawings
<b>AME2207.4</b>	Able to communicate technical information effectively through engineering drawings
<b>AME2207.5</b>	analysis of machine elements and parts
<b>AME2207.6</b>	Define knowledge of machine elements commonly used in various applications

<b>Course Name: THERMAL ENGINEERING LAB</b>
---



# ESWAR COLLEGE OF ENGINEERING

(Approved by AICTE, & Affiliated to JNTUK, A.P.)

KESANUPALLI (V), NARASARAOPETA-522549, AP

www.eswarcollegeofengg.org, email:eswarcollegeofengg@gmail.com

<b>Course Code: AME2207</b>	
<b>AME2207.1</b>	Analyze and draw valve and port timing diagrams for various types of engines.
<b>AME2207.2</b>	Able to conduct and interpret fuel tests accurately.
<b>AME2207.3</b>	Methods for exhaust emission measurements and evaluating engine performance.
<b>AME2207.4</b>	Able to calculate and analyze friction power losses in engines.
<b>AME2207.5</b>	Determining friction power using retardation or motoring tests on IC engines.
<b>AME2207.6</b>	Analyze heat distribution curves and understand the energy balance within the engine.

<b>Course Name: FLUID MECHANICS &amp; HYDRAULIC MACHINES LAB</b>	
<b>Course Code: AME2208</b>	
<b>AME2208.1</b>	To gain practical exposure on the performance evaluation methods of Turbine flow meter
<b>AME2208.2</b>	To gain practical exposure on the performance evaluation methods of Pelton Wheel
<b>AME2208.3</b>	To gain practical exposure on the performance evaluation methods of Francis Turbine
<b>AME2208.4</b>	To gain practical exposure on the performance evaluation methods of Reciprocating pump
<b>AME2208.5</b>	To gain practical exposure on the performance evaluation methods of Venturimeter
<b>AME2208.6</b>	To gain practical exposure on the performance evaluation methods of Centrifugal pump

**Year/Sem: III B.Tech I SEM**

<b>Course Name: DYNAMICS OF MACHINERY</b>	
<b>Course Code: AME3101</b>	
<b>AME3101.1</b>	Analyze stabilization of sea vehicles, aircrafts and automobile vehicles
<b>AME3101.2</b>	Compute frictional losses, torque transmission of mechanical systems.
<b>AME3101.3</b>	Analyze dynamic force analysis of slider crank mechanism and design of flywheel.
<b>AME3101.4</b>	Able to understand how to determine the natural frequencies of continuous systems starting from the general equation of displacement.
<b>AME3101.5</b>	Able to understand balancing of reciprocating and rotary masses.
<b>AME3101.6</b>	Able to know the vibrations



# ESWAR COLLEGE OF ENGINEERING

(Approved by AICTE, & Affiliated to JNTUK, A.P.)

KESANUPALLI (V), NARASARAOPETA-522549, AP

www.eswarcollegeofengg.org, email:eswarcollegeofengg@gmail.com

<b>Course Name: FUELS AND COMBUSTION</b>	
<b>Course Code: AME3102</b>	
<b>AME3102.1</b>	Able to understand the various kinds of fuels
<b>AME3102.2</b>	Able to understand the characteristics and origin
<b>AME3102.3</b>	Able to understand the thermodynamics behind combustion
<b>AME3102.4</b>	Clarify the flame propagation
<b>AME3102.5</b>	Able to know the choice of combustion systems
<b>AME3102.6</b>	Define combustion and chemical kinetics.

<b>Course Name: DESIGN OF MACHINE ELEMENTS</b>	
<b>Course Code: AME3103</b>	
<b>AME3103.1</b>	able to understand the concepts of various theories of failure
<b>AME3103.2</b>	Clarify factors of safety
<b>AME3103.3</b>	Able to Design for strength and rigidity
<b>AME3103.4</b>	Define used to design mechanical parts such as joints, shafts couplings
<b>AME3103.5</b>	Able to know the fundamentals of lubrication, various bearings and estimation of bearing life.
<b>AME3103.6</b>	design concepts to design various engine components.

<b>Course Name: VEHICLE TRANSPORT MANAGEMENT</b>	
<b>Course Code: AME3104</b>	
<b>AME3104.1</b>	Able to understand the need of preventive maintenance.
<b>AME3104.2</b>	Administration and inter departmental liaison
<b>AME3104.3</b>	Able how to prevent accidents by recording and estimating using different mechanisms.
<b>AME3104.4</b>	Able understand the vehicle schedule and crew timings and fare collection systems.
<b>AME3104.5</b>	Derive fare structure by estimating the operating costs for various types of vehicles.
<b>AME3104.6</b>	Estimate the operating cost by considering factors like depreciation, obsolescence, life of vehicles and wages

<b>Course Name: HEAT TRANSFER</b>	
<b>Course Code: AME3105</b>	
<b>AME3105.1</b>	Represent the physical problems of heat transfer in terms of governing equations or mathematical models



# ESWAR COLLEGE OF ENGINEERING

(Approved by AICTE, & Affiliated to JNTUK, A.P.)

KESANUPALLI (V), NARASARAOPETA-522549, AP

www.eswarcollegeofengg.org, email:eswarcollegeofengg@gmail.com

AME3105.2	Differentiate between different boundary conditions and apply the same for solving heat transfer problems
AME3105.3	Design thermal systems applying the concepts of heat transfer under steady state and well as unsteady state conditions
AME3105.4	Design, select and analyze the heat exchangers
AME3105.5	Apply the radiation concepts to the engineering devices
AME3105.6	Able to know the Radiation Heat Transfer

<b>Course Name: AUTOMOTIVE ENGINES LAB AND FUELS LABORATORY</b>	
<b>Course Code: AME3106</b>	
AME3106.1	Able to know the principles in assembly & dismantling of Single cylinder two and four stroke engines
AME3106.2	Able to know the assembly & dismantling of Carburetor and Fuel injection pump
AME3106.3	Able to know the assembly & dismantling of Lubrication system and Cooling system
AME3106.4	Clarify the Flash and Fire points of petrol and diesel
AME3106.5	Describe the viscosity of lubricants & Fuels
AME3106.6	Able to know the Cloud and Pour point Test

<b>Course Name: HEAT TRANSFER LAB</b>	
<b>Course Code: AME3107</b>	
AME3107.1	Determine the overall heat transfer coefficient of composite slabs.
AME3107.2	Analyze the effects of insulation on heat transfer and quantify the reduction in heat loss.
AME3107.3	Calculate Heat Transfer Coefficients And Understand The Principles Of Heat Transfer In Spherical Geometries.
AME3107.4	Measure heat transfer coefficients in forced convection experiments under different flow conditions.
AME3107.5	Understand the principles of blackbody radiation and its significance in thermal radiation.
AME3107.6	Identify the conditions under which boiling transitions occur and the implications for heat transfer applications.

<b>Course Name: PRODUCTION TECHNOLOGY LAB</b>	
<b>Course Code: AME3108</b>	
AME3108.1	apply some of the manufactures process directly in the industry for preparation of complicated jobs
AME3108.2	various jobs using various manufacturing process
AME3108.3	preparation of jobs can be extended to implement in the preparation of complicated jobs.
AME3108.4	Pattern Design and making and Sand properties testing
AME3108.5	Able to know the elding





# ESWAR COLLEGE OF ENGINEERING

(Approved by AICTE, & Affiliated to JNTUK, A.P.)

KESANUPALLI (V), NARASARAOPETA-522549, AP

www.eswarcollegeofengg.org, email:eswarcollegeofengg@gmail.com

<b>AME3108.6</b>	Explain the metal forming process
------------------	-----------------------------------

## Year/Sem: III B.Tech II SEM

<b>Course Name : MACHINE TOOLS &amp; METROLOGY</b>	
<b>Course Code: AME3201</b>	
AME3201.1	Define fundamentals of metal cutting and forces
AME3201.2	Explain Engine Lathe and its various operations
AME3201.3	Describe Shaping, Slotting, and Planning, Drilling and boring machines and its various operations
AME3201.4	Able to know the Milling machines, grinding machines and its various operations
AME3201.5	Explain systems of limits and tolerances and measurement instruments.
AME3201.6	Able to know the optical measuring instruments and surface measurement instruments.
<b>Course Name: INSTRUMENTATION &amp; CONTROL SYSTEMS</b>	
<b>Course Code: AME3202</b>	
AME3202.1	Definition and fundamental principles of measurement systems.
AME3202.2	Explain Various temperature measurement devices such as expansion, electrical resistance, thermistors, thermocouples, and pyrometers.
AME3202.3	Measurement of speed using mechanical tachometers, electrical tachometers, stroboscopes, and non-contact tachometers.
AME3202.4	Able to know the Application of strain gauges for measuring torque and the usage of strain gauge rosettes
AME3202.5	Measurement of humidity, including moisture content of gases and various devices like sling psychrometers, absorption psychrometers, and dew point meters.
AME3202.6	Explain Introduction to control systems, their importance, and classification into open and closed systems.

<b>Course Name: AUTOMOTIVE ELECTRICAL AND ELECTRONICS</b>	
<b>Course Code: AME3203</b>	
AME3203.1	Able to understand the different automotive electrical systems
AME3203.2	Define energy storages and ignition systems
AME3203.3	Explain electronic components involved
AME3203.4	Able to identify the fault diagnosis and preventive measures.
AME3203.5	Describe understand the dash board units and electrical accessories
AME3203.6	Determine Binary numbers and conversions

<b>Course Name: ALTERNATIVE ENERGY SOURCES FOR AUTOMOBILES</b>	
<b>Course Code: AME3204</b>	
AME3204.1	Able to understand the ever increasing quality of life
AME3204.2	Explain this phenomenon imposes high demand on conventional fossil fuels
AME3204.3	Describe search for alternate fuels is a continuous phenomenon.



# ESWAR COLLEGE OF ENGINEERING

(Approved by AICTE, & Affiliated to JNTUK, A.P.)

KESANUPALLI (V), NARASARAOPETA-522549, AP

www.eswarcollegeofengg.org, email:eswarcollegeofengg@gmail.com

AME3204.4	Able to various alternate fuels along with their merits and limitations.
AME3204.5	Explain hydrogen fuel usage
AME3204.6	Able to know the use of turbines in automobiles

<b>Course Name: AUTOMOTIVE EMISSION AND POLLUTION CONTROL</b>	
<b>Course Code: AME3205</b>	
AME3205.1	Explain air pollution and pollutants, their sources & their effects.
AME3205.2	Describe different parameters responsible for pollutant formation.
AME3205.3	Choose instruments for pollution measurements.
AME3205.4	Analyze measurement of pollutants
AME3205.5	Explain Constant Volume Sampling I and 3
AME3205.6	Able to know the Encapsulation technique for noise reduction

<b>Course Name: AUTOMOTIVE ELECTRICAL AND ELECTRONICS LAB</b>	
<b>Course Code: AME3206</b>	
AME3206.1	Know the batteries and starter motor testing
AME3206.2	Understanding the alternator testing and wiring system
AME3206.3	Study of Battery Ignition System and different Electrical Equipment's
AME3206.4	Know about the different sensors and various electronics system
AME3206.5	Understand the lighting system of two wheeler and FourWheeler
AME3206.6	Know the Automotive Electronics

<b>Course Name: METROLOGY AND MACHINE TOOLS LAB</b>	
<b>Course Code: AME3207</b>	
AME3207.1	Define fundamentals of metal cutting and forces
AME3207.2	Explain Engine Lathe and its various operations
AME3207.3	Describe Shaping, Slotting, and Planning, Drilling and boring machines and its various operations
AME3207.4	Able to know the Milling machines, grinding machines and its various operations
AME3207.5	Explain systems of limits and tolerances and measurement instruments.
AME3207.6	Able to know the optical measuring instruments and surface measurement instruments.

<b>Course Name: AUTO SCANNING &amp; VEHICLE TESTING LAB</b>	
<b>Course Code: AME3208</b>	



# ESWAR COLLEGE OF ENGINEERING

(Approved by AICTE, & Affiliated to JNTUK, A.P.)

KESANUPALLI (V), NARASARAOPETA-522549, AP

www.eswarcollegeofengg.org, email:eswarcollegeofengg@gmail.com

AME3208.1	Able to understand automotive scan tools
AME3208.2	Diagnostic equipment for fault diagnosis and troubleshooting
AME3208.3	Computerized engine analyzer and wheel balancing machine
AME3208.4	Describe Two wheeler chassis dynamometer
AME3208.5	Explain Head light focusing test and Visibility test
AME3208.6	Able to know the bus depots and service station workshop layouts

**Year/Sem: IV B.Tech I SEM**

<b>Course Name: AUTOMOTIVE CHASSIS &amp; SUSPENSION</b>	
<b>Course Code: AME4101</b>	
AME4101.1	Explain different chassis layouts and frames, Suspensions, Wheels and Tyres
AME4101.2	Determine stability and weight distribution and suitability of frames.
AME4101.3	Describe, about various Front Axles, factors of wheel alignment Steering Systems and Calculate dimensions of Front Axle
AME4101.4	Able to know Front Wheel Mounting
AME4101.5	Able to know the brakes and its components
AME4101.6	Describe Classification of two and three wheelers

<b>Course Name: VEHICLE DYNAMICS</b>	
<b>Course Code: AME4102</b>	
AME4102.1	Understand the principles underlying the development and design of road vehicles under the influence of dynamic loads
AME4102.2	Analyze the performance and establish the design specifications for the acceleration and braking conditions.
AME4102.3	Model, simulate and analyze the conventional road vehicles for better ride comfort.
AME4102.4	Analyze the cornering forces and effects of tractive forces on cornering
AME4102.5	Analyze the cornering effects of tractive forces on cornering
AME4102.6	Design suspension systems for better damping and comfort

<b>Course Name: CAD/CAM</b>	
<b>Course Code: AME4103</b>	
AME4103.1	Describe the mathematical basis in the technique of representation of



# ESWAR COLLEGE OF ENGINEERING

(Approved by AICTE, & Affiliated to JNTUK, A.P.)

KESANUPALLI (V), NARASARAOPETA-522549, AP

www.eswarcollegeofengg.org, email:eswarcollegeofengg@gmail.com

	geometric entities including points, lines, and parametric curves,
<b>AME4103.2</b>	Describe the surfaces and solid, and the technique of transformation of geometric entities using transformation matrix
<b>AME4103.3</b>	Describe the use of GT for the product development
<b>AME4103.4</b>	Describe the use of CAPP for the product development
<b>AME4103.5</b>	Able to know the Identify the various elements
<b>AME4103.6</b>	Able to know the activities in the Computer Integrated Manufacturing Systems.

<b>Course Name: FINITE ELEMENT METHODS</b>	
<b>Course Code: AME4104</b>	
<b>AME4104.1</b>	Understand the concepts behind variational methods and weighted residual methods in FEM
<b>AME4104.2</b>	Identify the application and characteristics of FEA elements such as bars, beams, plane and isoparametric elements, and 3-D element
<b>AME4104.3</b>	Develop element characteristic equation procedure and generation of global stiffness equation will be applied.
<b>AME4104.4</b>	Able to apply Suitable boundary conditions to a global structural equation, and reduce it to a solvable form.
<b>AME4104.5</b>	Able to identify how the finite element method expands beyond the structural domain, for problems involving dynamics, heat transfer, and fluid flow.
<b>AME4104.6</b>	Analysis of Steady state heat transfer

<b>Course Name: VEHICLE BODY ENGG. &amp; SAFETY</b>	
<b>Course Code: AME4105</b>	
<b>AME4105.1</b>	Classify the vehicles and define basic terms
<b>AME4105.2</b>	Able to know the Select appropriate body materia
<b>AME4105.3</b>	Calculate various aerodynamic forces and moments acting on vehicle
<b>AME4105.4</b>	Calculate load distribution in vehicle body
<b>AME4105.5</b>	Explain the ergonomics, stability the vehicle.
<b>AME4105.6</b>	Identify the various safety aspects in a given vehicle.

<b>Course Name: CONDITION MONITORING</b>	
<b>Course Code: AME4106</b>	
<b>AME4106.1</b>	Gaining invaluable insights into the benefits of Condition Monitoring
<b>AME4106.2</b>	Understanding the reasons for selecting particular maintenance strategies
<b>AME4106.3</b>	Understanding effective methodologies for implementing Condition Monitoring Techniques
<b>AME4106.4</b>	Identifying the optimum maintenance strategy for different types of equipment
<b>AME4106.5</b>	Gaining practical approaches to minimise the risk of plant and machinery breakdowns



# ESWAR COLLEGE OF ENGINEERING

(Approved by AICTE, & Affiliated to JNTUK, A.P.)

KESANUPALLI (V), NARASARAOPETA-522549, AP

www.eswarcollegeofengg.org, email:eswarcollegeofengg@gmail.com

<b>AME4106.6</b>	Awareness of International Standards covering asset management
------------------	--

<b>Course Name: AUTOMOBILE CHASSIS LAB &amp; INSTRUMENTATION LAB</b>
--

<b>Course Code: AME4107</b>
-----------------------------

<b>AME4107.1</b>	Calibration of Pressure Gauges and transducer
------------------	---

<b>AME4107.2</b>	Able to know the servicing the generators and batteries and ignition systems.
------------------	---

<b>AME4107.3</b>	Able to know temperature detector for temperature measurement
------------------	---

<b>AME4107.4</b>	calibration of a rotometer for flow measurement
------------------	---

<b>AME4107.5</b>	Able to measurement of vibration amplitude of an engine bed at various loads.
------------------	---

<b>AME4107.6</b>	Explain Mcleod gauge for low pressure
------------------	---------------------------------------

<b>Course Name: CAD/CAM LAB</b>
---------------------------------

<b>Course Code: AME4108</b>
-----------------------------

<b>AME4108.1</b>	Able to appreciate the utility of the tools like ANSYS or FLUENT in solving real time problems and day to day problems.
------------------	---

<b>AME4108.2</b>	Able to know the Use of these tools for any engineering and real time applications
------------------	--

<b>AME4108.3</b>	Able to know the Development of part drawings for various components
------------------	--

<b>AME4108.4</b>	Generation of various 3D models through protrusion
------------------	--

<b>AME4108.5</b>	Determination of deflection and stresses in 2D and 3D trusses and beams
------------------	---

<b>AME4108.6</b>	Acquire knowledge on utilizing these tools for a better project in their curriculum as well as they will be prepared to handle industry problems with confidence when it matters to use these tools in their Employment
------------------	---

**Year/Sem: IV B.Tech II SEM**

<b>Course Name: AUTOMOTIVE CONTROL SYSTEMS</b>
--

<b>Course Code: AME4201</b>
-----------------------------

<b>AME4201.1</b>	Define current state of automotive control systems
------------------	--

<b>AME4201.2</b>	Explain basic Engine Operation: Effective Work, Air-Fuel Ratio, Combustion, and Energy conversion.
------------------	--

<b>AME4201.3</b>	Able to know the Engine control systems
------------------	---

<b>AME4201.4</b>	Explain Diagnosis of automotive engines
------------------	---

<b>AME4201.5</b>	Able to know the Vehicle modelling and Road and driver models
------------------	---

<b>AME4201.6</b>	Describe Introduction to Mechatronics
------------------	---------------------------------------

<b>Course Name: VEHICLE MAINTENANCE</b>
---

<b>Course Code: AME4202</b>
-----------------------------

<b>AME4202.1</b>	Able to know the maintain various records
------------------	---

<b>AME4202.2</b>	Clarify scheduled and unscheduled maintenance
------------------	---



# ESWAR COLLEGE OF ENGINEERING

(Approved by AICTE, & Affiliated to JNTUK, A.P.)

KESANUPALLI (V), NARASARAOPETA-522549, AP

www.eswarcollegeofengg.org, email:eswarcollegeofengg@gmail.com

AME4202.3	They are also expected to maintain of various systems of a vehicle.
AME4202.4	Describe repair of various systems of a vehicle.
AME4202.5	Able to service of various systems of a vehicle
AME4202.6	Explain Wheel Alignment

<b>Course Name: PRODUCT DESIGN AND ASSEMBLY AUTOMATION</b>	
<b>Course Code: AME4203</b>	
AME4203.1	Understand the mechanics of vibratory conveying and the principles behind vibrator feeders
AME4203.2	Analyze the effect of active orienting devices on feed rate and the performance of orienting systems
AME4203.3	Discuss the development process of assembly automation and factors influencing the choice of assembly method
AME4203.4	Analyze assembly processes and derive general rules for product design for automation
AME4203.5	Discuss the role of design for assembly (DFA) in the design process and general guidelines for manual assembly.
AME4203.6	Evaluate the performance and economics of assembly systems, including indexing machines, free transfer machines, and robot assembly

<b>Course Name: AUTOMOTIVE SAFETY</b>	
<b>Course Code: AME4204</b>	
AME4204.1	Design of the body for safety, energy equation
AME4204.2	Explain forces in roll over, head on impact, plastics collapse and analysis
AME4204.3	Describe Safety and equipments
AME4204.4	Define Collision warning system
AME4204.5	Able to know the Steering and mirror adjustment, central locking system
AME4204.6	Claiify driver support systems and geographical information systems