

D Y PATIL TECHNICAL CAMPUS, AMBI
D Y PATIL SCHOOL OF ENGINNERING ACADEMY, AMBI
Course Outcomes

Department of Automobile Engineering	
Semester –I	
CO of the Course "Engineering Mathematics-III"	
CO1	Solve higher order linear differential equations and its applications to modeling of mass spring systems with free and forced Damped and Un-damped systems
CO2	Use Laplace Transform and Fourier transform techniques to solve differential equations involved in vibration theory, heat transfer and related engineering applications
CO3	Apply statistical methods and regression analysis in analyzing and interpreting experimental data, testing of hypothesis and probability distributions
CO4	Apply concept of vector differential calculus to fluid mechanics and various engineering applications.
CO5	Apply knowledge of vector integral calculus to fluid mechanics and various engineering applications
CO6	Solve various partial differential equations like one dimensional diffusion and wave equations, one and two dimensional heat equations
CO of the Course"Strength of Material"	
CO1	Apply knowledge of mathematics, science for engineering applications
CO2	Design and conduct experiments, as well as to analyze and interpret data
CO3	Design a component to meet desired needs within realistic constraints of health and Safety
CO4	Identify, formulate, and solve engineering problems
CO5	Practice professional and ethical responsibility
CO6	Use the techniques, skills, and modern engineering tools necessary for engineering Practice

CO of the Course “Material Science”	
CO1	Explain the mechanism of plastic deformation
CO2	Understand the basic concepts and properties of Material, material fundamental and processing
CO3	Define the mechanical properties of materials and conduct destructive and non destructive tests to evaluate and test the properties of materials
CO4	Select proper metal, alloys, nonmetal and powder metallurgical component for specific requirement
CO5	Detect the defects in crystal and its effect on crystal properties. Evaluate the different properties of material by studying different test
CO6	Recognize how metals can be strengthened by cold-working and hot working
CO7	Draw and explain equilibrium diagrams for various alloy systems
CO8	Understand various strengthening mechanisms
CO9	Describe various pyrometers with a neat sketch and explain their working and application
CO10	Understand corrosion and suggest various means to prevent corrosion
CO11	Explain various aspects of powder metallurgy
CO of the Course ”Engineering Thermodynamics”	
CO1	Apply various laws of thermodynamics to various processes and real systems
CO2	Apply the concept of Entropy, Calculate heat, work and other important thermodynamic properties for various ideal gas processes
CO3	Estimate performance of various Thermodynamic gas power cycles and gas refrigeration cycle and availability in each case
CO4	Estimate the condition of steam and performance of vapour power cycle and vapour compression cycle.
CO5	Estimate Stoichiometric air required for combustion, performance of steam generators and natural draught requirements in boiler plants.
CO6	Use Psychrometric charts and estimate various essential properties related to Psychrometry and processes

CO of the Course "Manufacturing Process-I"	
CO1	Understand and analyze foundry practices like pattern making, mold making, Core making and Inspection of defects
CO2	Understand and analyze Hot and Cold Working, Rolling, Forging, Extrusion and Drawing Processes
CO3	Understand different plastic molding processes, Extrusion of Plastic and Thermoforming
CO4	Understand different Welding and joining processes and its defects
CO5	Understand, Design and Analyze different sheet metal working processes
CO6	Understand the constructional details and Working of Centre Lathe
CO of the Course "Automotive Refrigeration and Air Conditioning"	
CO1	The student shall gain appreciation and understanding of different types of refrigeration cycles, Application of refrigeration and air conditioning.
CO2	The student shall be able to select proper refrigerants considering Environmental effect, Physical effect on human being for automotive application
CO3	The student shall be able to select proper human comfort conditions.
CO4	The student shall gain knowledge of design consideration for the refrigeration and air conditioning also psychrometric properties, Psychrometric table reading etc.
CO5	The student shall be able to solve load calculations problems.
CO6	The student shall gain knowledge of diagnostic of automotive air conditioning system on vehicle, Trouble shooting , Care taken at the time of repairing and maintenance.
CO of the Course "Alternative Fuel and Emission Control"	
CO1	Student should get awareness about alternative fuels and their need.
CO2	Student should understand the emission norms.
CO3	Student should understand emission measuring techniques and emission control technologies for IC engine.
CO4	Student should know the emission formation mechanism in IC engine and its causes and remedies.
CO5	Student should know the Describe the BS norms and European norms for automotive vehicle.
CO6	Student should know the Selection and analyze different emission control technologies in IC engine.

CO of the Course "Machine and Vehicle Dynamics"	
CO1	Students should be able to understand balancing of rotating masses, Reciprocating masses and concept of static and dynamic balancing.
CO2	Students should be able to understand concept of static and dynamic balancing.
CO3	Students should be able to understand basic concept of vibration, types of vibration, undammed and damped vibration.
CO4	Students should be able to understand basic concept of different types of damping
CO5	Student should be able to understand force vibration, transmissibility.
CO6	Students should be able to understand vehicle coordinate system, performance characteristics of road vehicle for steady state operation and transient operation.
CO of the Course "Fundamentals of Computational Fluid Dynamics"	
CO1	Students should be able to model fluid / heat transfer problems and apply fundamental conservation principles.
CO2	Students should be able to discretize the governing differential equations and domain by Finite Difference Method.
CO3	Students should be able to solve basic convection and diffusion equations.
CO4	Students should be able to understands the role in fluid flow and heat transfer.
CO5	To prepare the students for career in industry in CAE through use of software tools.
CO6	To prepare the students for research leading to higher studies.
CO of the Course "CAE And Automation"	
CO1	Students should be able to understand the basic analytical fundamentals that are used to create and manipulate geometric models in a computer program.
CO2	Students should be able to understand integration of CAD, CAE and CAM system.
CO3	To introduce the students Finite Element Techniques.
CO4	Introductory exposure of Rapid prototyping to the student.
CO5	To develop a holistic view of initial competency in engineering design by modern computational methods.
CO6	To introduce the students Automation and Robot Technology
CO of the Course "Product Design and Development"	
CO1	Product design and development.
CO2	Hurdles in commercialization of product.
CO3	Importance of reverse engineering.
CO4	Focus of designing a product.
CO5	Design validation plan.
CO6	PLM and PDM

Department of Automobile Engineering	
Semester –II	
CO of the Course "Automotive Systems and Testing"	
CO1	The student shall gain appreciation and understanding function of front axle, types of stub axle, types of steering gear box etc.
CO2	Shall be able to understand need of suspension and its types, types of tyre, tyre specification, tyre rotation etc.
CO3	Student shall gain knowledge of design consideration braking system, suspension system and for chassis etc.
CO4	Vehicle performance parameters are key indication of vehicle property so learner must gain brief knowledge regarding that.
CO5	Student should aware from the tracks used for vehicle testing and must understood the testing procedure.
CO6	Students will get brief knowledge regarding safety systems, and sensors used for automotive functioning.
CO of the Course "Automotive System Design"	
CO1	The Students shall be able to select proper material for automotive components as per application.
CO2	The Students shall be able to select proper material for automotive components as per application.
CO3	2. The student shall gain appreciation and understand the design function in Automobile Engineering.
CO4	2. The student shall gain appreciation and understand the steps involved in designing of various parts like clutch, gearbox, propeller shaft, axles, suspension etc.
CO5	3. Shall be able to choose proper materials for different vehicle components depending on their physical properties.
CO6	3. Shall be able to choose proper materials for different vehicle components depending on their mechanical properties.

CO of the Course "Automotive NVH"	
CO1	Students should be able to understand role of Noise, Vibration and harshness in Automobile.
CO2	Students should be able to understand basic concept of vibration, types of vibration, undamped and damped vibration, also different types of damping.
CO3	Students should be able to understand fundamental of noise, noise measurement techniques.
CO4	Student should know the physical and psychological effect of vibration and noise.
CO5	Student should be able to understand different types of noise and vibrations control techniques.
CO6	Student should know the various sources on noise and vibration in automobile.
CO of the Course "Transport Management and Motor Industries"	
CO1	Study and fill up the forms required as per Motor Vehicle Act.
CO2	Prepare small project reports of bus / goods transport organization enabling him to work in different organizations like MSRTC, private organization.
CO3	Start SSI unit or may be able to work as service provider.
CO4	Understand; prepare the different documents used in transport organization. If necessary, he can modify the ideas of documentation.
CO5	Enter in the business of buying and selling of old and new vehicles.
CO6	Create awareness of ideal driving which includes safety, legal aspects, Understand the purpose of research institutes in India, which are working on Advancements of automobiles rather than adopting the idea of reverse engineering. Stress due to traffic jam, night driving.