

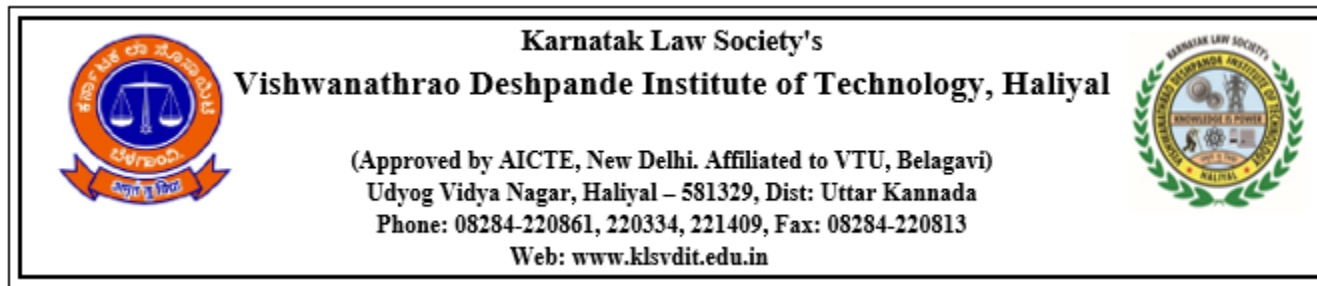
**Karnatak Law Society's**  
**Vishwanathrao Deshpande Institute of Technology, Haliyal**

(Approved by AICTE, New Delhi. Affiliated to VTU, Belagavi)  
 Udyog Vidya Nagar, Haliyal – 581329, Dist: Uttara Kannada  
 Phone: 08284-220861, 220334, 221409, Fax: 08284-220813  
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## Department of Mechanical Engineering (2018-22 Batch)

Subject Code	Subject Name	CO	CO Statements
18MAT31	Transform Calculus, Fourier Series and Numerical Techniques	CO1	To understand the concept of Laplace transform and inverse Laplace transform and its properties.
		CO2	To understand the behaviour of periodic functions using Fourier series.
		CO3	To illustrate discrete/continuous functions using Fourier transform and Z-transform.
		CO4	To determine the solution of ODE by using Numerical techniques.
		CO5	To determine the extremals of functionals using calculus of variations.
Subject Code	Subject Name	CO	CO Statements
18ME32	Mechanics of Materials	CO1	Understand simple, compound, thermal stresses and strains their relations and strain energy.
		CO2	Analyse structural members for stresses, strains and deformations.
		CO3	Analyse the structural members subjected to bending and shear loads.
		CO4	Analyse shafts subjected to twisting loads.
		CO5	Analyse the short columns for stability.
Subject Code	Subject Name	CO	CO Statements
18ME33	BASIC THERMODYNAMICS	CO1	Explain fundamentals of thermodynamics and evaluate energy interactions across the boundary of thermodynamic systems.
		CO2	Evaluate the feasibility of cyclic and non-cyclic processes using 2nd law of thermodynamics
		CO3	Apply the knowledge of entropy, reversibility and irreversibility to solve numerical problems and apply 1st law of thermodynamics to closed and open systems and determine quantity of energy transfers and change in properties.
		CO4	Interpret the behavior of pure substances and its application in practical problems.
		CO5	Recognize differences between ideal and real gases and evaluate thermodynamic properties of ideal and real gas mixtures using various relations.
Subject Code	Subject Name	CO	CO Statements
18ME34	Material science	CO1	Understand the mechanical properties of metals and their alloys.




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		<b>CO2</b>	Analyze the various modes of failure and understand the microstructures of ferrous and nonferrous materials.
		<b>CO3</b>	Describe the processes of heat treatment of various alloys
		<b>CO4</b>	Acquire the Knowledge of composite materials and their production process as well as applications
		<b>CO5</b>	Understand the properties and potentialities of various materials available and material selection procedures.
<b>Subject Code</b>	<b>Subject Name</b>	<b>CO</b>	<b>CO Statements</b>
18ME35A/45A	Metal cutting and Forming	<b>CO1</b>	Describe the construction and specification of various machine tools and machining operations
		<b>CO2</b>	Apply mechanics of machining process to evaluate machining forces and machining time
		<b>CO3</b>	Explain the different tool materials, tool nomenclature, machinability, surface finish and evaluate tool life
		<b>CO4</b>	Explain the concept of different metal forming processes like rolling, forging, extrusion, wire drawing etc.
		<b>CO5</b>	Estimate the forces involved in metal forming and raw material requirement calculations for sheet metal processes like blanking, drawing and bending
<b>Subject Code</b>	<b>Subject Name</b>	<b>CO</b>	<b>CO Statements</b>
18ME35B /45B	METAL CASTING AND WELDING	<b>CO1</b>	To provide adequate knowledge of quality test methods conducted on welded and cast components and to provide knowledge of various casting process in manufacturing.
		<b>CO2</b>	To provide in-depth knowledge on metallurgical aspects during solidification of metal and alloys and to provide detailed information about the moulding processes.
		<b>CO3</b>	To impart knowledge of various joining process used in manufacturing and to impart knowledge about behaviour of materials during welding, and the effect of process parameters in welding.
<b>Subject Code</b>	<b>Subject Name</b>	<b>CO</b>	<b>CO Statements</b>
18ME36A/18ME 46A	COMPUTER AIDED MACHINE DRAWING	<b>CO1</b>	Improve visualization skill, understand theory of projection
		<b>CO2</b>	Produce components , assembly drawing
		<b>CO3</b>	Recognize modern engineering tools, software environment to create engineering drawing




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		<b>CO4</b>	Engage in lifelong learning using sketching and drawing as communication tool
<b>Subject Code</b>	<b>Subject Name</b>	<b>CO</b>	
18 ME 36B/46B	MECHANICAL MEASUREMENTS AND METROLOGY	<b>CO1</b>	Understand the objectives of metrology, methods of measurement, selection of measuring instruments, standards of measurement and calibration of end bars.
		<b>CO2</b>	Explain tolerance, limits of size, fits, geometric and position tolerances, gauges and their design and different comparators with their functional requirement.
		<b>CO3</b>	Describe the Terminology of screw threads, Measurements by 2-wire and 3-wire methods, Gear terminology, use of gear tooth Vernier Caliper.
		<b>CO4</b>	Explain measurement systems, transducers, intermediate modifying devices and terminating devices.
		<b>CO5</b>	Describe the Measurement of Force, Pressure Torque, Temperature and Strain measuring devices
<b>Subject Code</b>	<b>Subject Name</b>	<b>CO</b>	<b>CO Statements</b>
18MEL37 A / 47A	MATERIALS TESTING LAB	<b>CO1</b>	Acquire experimentation skills in the field of material testing
		<b>CO2</b>	Develop theoretical understanding of the mechanical properties of materials by performing experiments
		<b>CO3</b>	Apply the knowledge to analyze a material failure and determine the failure inducing agent/s
		<b>CO4</b>	Apply the knowledge of testing methods in related areas
		<b>CO5</b>	Know how to improve structure/behavior of materials for various industrial applications
<b>Subject Code</b>	<b>Subject Name</b>	<b>CO</b>	<b>CO Statements</b>
18 MEL 37B/47B	MECHANICAL MEASUREMENTS AND METROLOGY LAB	<b>CO1</b>	Understand Calibration of pressure gauge, thermocouple, LVDT, load cell, micrometre.
		<b>CO2</b>	Apply concepts of Measurement of angle using Sine Centre/ Sine Bar/ Bevel Protractor, alignment using Autocollimator/ Roller set.
		<b>CO3</b>	Demonstrate measurements using Optical Projector/Tool maker microscope, Optical flats.
		<b>CO4</b>	Analyse Screw thread parameters using 2-Wire or 3-Wire method, gear tooth profile using gear tooth Vernier/Gear tooth micrometre.
		<b>CO5</b>	Understand the concepts of measurement of surface roughness.



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Subject Code	Subject Name	CO	CO Statements
18MEL38A/ 48A	WORKSHOP AND MACHINE SHOP PRACTICE	CO1	prepare fitting models according to drawings using hand tools
		CO2	understand integral parts of lathe,shaping,milling machines
		CO3	select cutting parameters like cutting speed,feed,depth of cut,and tooling
		CO4	perform cylindrical turning operations such as plain turning,taper turning,step turning,threading, facing,kurling, ecentric turning and estimate cutting time
		CO5	perform machining operations such as plain shaping,keyway cutting,indexing
Subject Code	Subject Name	CO	CO Statements
18MEL 38B/48B	Foundry, Forging and Welding Lab	CO1	Ability to Identify the different tools required for the foundry and prepare the mould cavity for different shapes
		CO2	Apply the knowledge of forging to prepare different forging models
		CO3	Able to determine different properties of sand through proper sand testing methods
		CO4	Demonstrate skills in preparation of various welding joints on M.S flats using Arc welding equipment.
Subject Code	Subject Name	CO	CO Statements
<b>18MAT41</b>	<b>Complex Analysis, Probability and Statistical Methods</b>	CO1	To understand the concept of complex functions.
		CO2	To understand the concept of complex integration.
		CO3	To apply discrete and continuous probability distributions in analyzing the probability models.
		CO4	To make use of the correlation and regression concept to fit a suitable mathematical model for the statistical data.
		CO5	To construct the joint probability distributions and analyze samples by using various sampling techniques.
Subject Code	Subject Name	CO	CO Statements
<b>18ME42</b>	<b>APPLIED THERMODYNAMICS</b>	CO1	Understand the concept and principles of heat engines, reciprocating compressors, and steam nozzles.
		CO2	Understand the concept and principles of Psychrometry, heat pump, and refrigerator.



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		<b>CO3</b>	Apply the concept of thermodynamics for air standard cycles, gas power cycles, vapour power cycles, IC engines, refrigerators, air conditioner, compressors, and steam nozzles.
		<b>CO4</b>	Analyze the performance of air/gas/vapour power cycles, refrigeration cycles, IC engines, air conditioner, compressors, and steam nozzles
<b>Subject Code</b>	<b>Subject Name</b>	<b>CO</b>	<b>CO Statements</b>
<b>18ME43</b>	<b>Fluid Mechanics</b>	<b>CO1</b>	Able to identify and define the fluid properties used in the analysis of fluid behavior, compressible flow and CFD.
		<b>CO2</b>	Able to understand and apply the principles of pressure, buoyancy, flotation, laminar turbulence and energy consideration in pipe flow
		<b>CO3</b>	Able to apply the knowledge of fluid statics, kinematics and dynamics while addressing problems of mechanical
		<b>CO4</b>	Able to understand and apply the concept of boundary layer and dimensional analysis for input output variables.
<b>Subject Code</b>	<b>Subject Name</b>	<b>CO</b>	<b>CO Statements</b>
<b>18ME44</b>	<b>Kinematics of Machines</b>	<b>CO1</b>	Knowledge of mechanisms and their motion.
		<b>CO2</b>	Understand the inversions of four bar mechanisms.
		<b>CO3</b>	Analyse the velocity, acceleration of links and joints of mechanisms.
		<b>CO4</b>	Analysis of cam follower motion for the motion specifications.
		<b>CO5</b>	Understand the working of the spur gears.
		<b>CO6</b>	Analyse the gear trains speed ratio and torque.
<b>Subject Code</b>	<b>Subject Name</b>	<b>CO</b>	<b>CO Statements</b>
<b>18KVK39/49</b>	<b>Vyavaharika Kannada (Kannada for Communication)</b>	<b>CO1</b>	Understand the grammar in Kannada language and their awareness
		<b>CO2</b>	Build communication skills in day to day activities.
		<b>CO3</b>	Develop interest on Kannada Language and Literature
<b>Subject Code</b>	<b>Subject Name</b>	<b>CO</b>	<b>CO Statements</b>




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<b>18KAK39/49</b>	<b>Aadalitha Kannada (Kannada for Administration)</b>	<b>CO1</b>	ಪದವಿವಿಧ್ಯರ್ಥಿಗಳಾಗಿರುವುದರಿಂದ ಆಡಳಿತ ಕನ್ನಡದ ಪರಿಚಯ ಮಾಡಿಕೊಡುವುದು.
		<b>CO2</b>	ಕನ್ನಡಭಾಷಾಬರಹ ಮತ್ತು ರಚನೆಯಲ್ಲಿ ನಿಯಮಗಳನ್ನು ಪರಿಚಯಿಸುವುದು.
		<b>CO3</b>	ಸಾಮಾನ್ಯ ಅರ್ಜಿಗಳು ಸರ್ಕಾರಿ ಮತ್ತು ಅರೆಸರ್ಕಾರಿ ಪತ್ರವ್ಯವಹಾರದ ಬಗ್ಗೆ ಅರಿವು ಮೂಡಿಸುವುದು
		<b>CO4</b>	ಭಾಷಾಂತರ ಮತ್ತು ಪ್ರಬಂದ ರಚನೆ ಬಗ್ಗೆ ಅರಿವು ಮೂಡಿಸುವುದು


Subject Code	Subject Name	CO	CO Statements
18ME51	Management and Economics	<b>CO1</b>	Explain the development of management and the role it plays at different levels in an organization.
		<b>CO2</b>	Comprehend the process and role of effective planning, organizing and staffing for the development of an organization.
		<b>CO3</b>	Understand the necessity of good leadership, communication and coordination for establishing effective control in an organization.
		<b>CO4</b>	Understand engineering economics demand supply and its importance in economics decision making and problem solving.
		<b>CO5</b>	Calculate present worth, annual worth and IRR for different alternatives in economic decision making.
		<b>CO6</b>	Understand the procedure involved in estimation of cost for a simple component, product costing and depreciation, its methods.

Subject Code	Subject Name	CO	CO Statements
18ME52	DESIGN OF MACHINE ELEMENTS I	<b>CO1</b>	Apply the concepts of selection of materials for given mechanical components. List the functions and uses of machine elements used in mechanical systems, Apply codes and standards in the design of machine elements
		<b>CO2</b>	Analyse the performance and failure modes of mechanical components subjected to combined loading and fatigue loading using the concepts of theories of failure
		<b>CO3</b>	Demonstrate the application of engineering design tools to the design of machine components like shafts, keys and couplings.



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		<b>C04</b>	Demonstrate the application of engineering design tools to the design of machine components like welded and riveted joint
		<b>C05</b>	Demonstrate the application of engineering design tools to the design of machine components like temporary joints: Threaded fasteners and Power Screws

Subject Code	Subject Name	CO	CO Statements
18ME53	Dynamics of Machines	<b>C01</b>	To understand static and dynamic forces developed in planar mechanisms, rotating masses, governors and gyroscope
		<b>C02</b>	To analyse planar mechanisms, balancing of masses, characteristics of governors and gyroscope.
		<b>C03</b>	To understand the vibration system, classification and motion.
		<b>C04</b>	CO - 4 : Can you formulate and analyse undamped, damped and forced vibration system with single DOF..?

Subject Code	Subject Name	CO	CO Statements
18ME54	TURBO MACHINES	<b>C01</b>	Concept of turbomachines and comparison with Positive displacement machine, Model analysis.
		<b>C02</b>	Analyze the performance characteristics of turbomachines through dimensional analyses by applying geometric ,flow and fluid properties.
		<b>C03</b>	Explain the various components of energy transfer in turbo machines and velocity triangles.
		<b>C04</b>	Analyze the performance characteristics of steam turbine and hydraulic turbines.
		<b>C05</b>	Analyze the characteristics of pumps ,blowers and compressors.

Subject Code	Subject Name	CO	CO Statements
18ME55	FLUID POWER ENGINEERING	<b>C01</b>	Identify and analyse the functional requirements of a fluid power transmission system for a given application
		<b>C02</b>	Visualize how a hydraulic/pneumatic circuit will work to accomplish the



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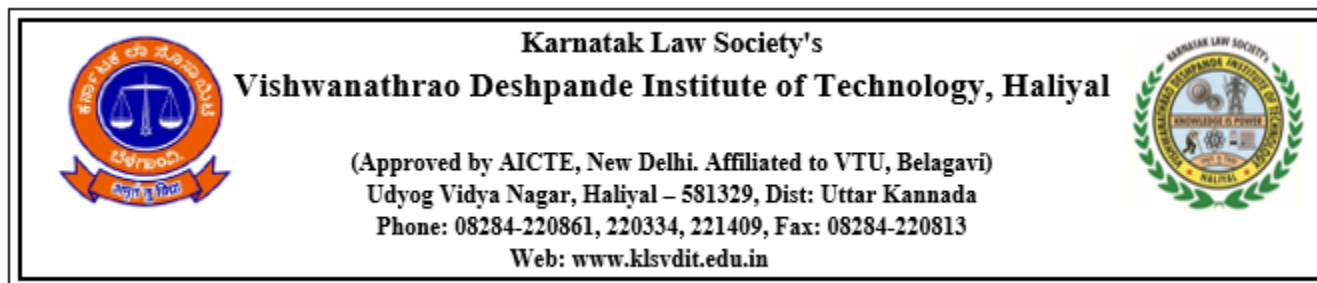
		function
	<b>C03</b>	Design and Develop appropriate hydraulic or pneumatic circuit or combination circuit like electro-hydraulics, electro- pneumatics for a given application.
	<b>C04</b>	Select and size the different components of the circuit, develop a comprehensive circuit diagram for given Applications.

Subject Code	Subject Name	CO	CO Statements
18ME56	OPERATIONS MANAGEMENT	<b>C01</b>	Explain the concept and scope of operations management in a business context
		<b>C02</b>	Recognize the role of Operations management among various business functions and its role in the organizations" strategic planning and gaining competitive advantage.
		<b>C03</b>	Analyze the appropriateness and applicability of a range of operations management systems/models in decision making.
		<b>C04</b>	Assess a range of strategies for improving the efficiency and effectiveness of organizational operations.
		<b>C05</b>	Evaluate a selection of frameworks used in the design and delivery of operations.

Subject Code	Subject Name	CO	CO Statements
18MEL57	Fluid Mechanics and Machinery Lab	<b>C01</b>	Able to understand, analysis and conclude the devices like V-notch, orifice meter and venturimeter.
		<b>C02</b>	Able to measure the minor and major losses, also analysis and conclude the experiments.
		<b>C03</b>	Able to understand, analysis the operating characteristics of pumps
		<b>C04</b>	Able to understand, analysis the operating characteristics of Turbines

Subject Code	Subject Name	CO	CO Statements
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18MEL58	ENERGY CONVERSION LAB	<b>CO1</b>	Perform experiments to determine the properties of fuels and oils.
		<b>CO2</b>	Test basic performance parameters of I.C. Engine and implement the knowledge in industry.
		<b>CO3</b>	Identify exhaust emission, factors affecting them and report the remedies.
		<b>CO4</b>	Demonstration of valve/port timing diagram and assembly of IC engines.

Subject Code	Subject Name	CO	CO Statements
18CIV59	Environmental Studies	<b>CO1</b>	Understand the principles of ecology and environmental issues that apply to air, land and water issues on a global scale
		<b>CO2</b>	Develop critical thinking and observation skills and apply them to the analysis of a problem or question related to the environment.
		<b>CO3</b>	Demonstrate ecology knowledge of a complex relationship between biotic and a biotic components
		<b>CO4</b>	Apply there ecological knowledge to illustrate and graph a problem and describe the realities that manages face when dealing with complex issues

Subject Code	Subject Name	CO	CO Statements
18ME61	FINITE ELEMENT METHODS	<b>CO1</b>	Identify the application and characteristics of FEA elements such as bars, beams, plane and isoparametric elements.
		<b>CO2</b>	Develop element characteristic equation and generation of global equation.
		<b>CO3</b>	Formulate and solve Axi-symmetric and heat transfer problems.
		<b>CO4</b>	Apply suitable boundary conditions to a global equation for bars, trusses, beams, circular shafts, heat transfer, fluid flow, axi-symmetric and dynamic problems

Subject Code	Subject Name	CO	CO Statements
18ME62	DESIGN OF MACHINE ELEMENTS II	CO1	To understand various types of springs used in mechanical systems and design different types of springs helical coil springs of circular and non-circular cross sections. Tension and compression springs, concentric



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			springs; springs under fluctuating loads. Leaf Springs etc.
		<b>CO2</b>	To select and design transmission elements like belts, pulleys, wire ropes etc.
		<b>CO3</b>	To select and design gear drives like spur gear, helical gear, bevel gear and worm gear.
		<b>CO4</b>	To understand and design different types of clutches and brakes used in mechanical and automobile systems.
		<b>CO5</b>	To understand the concept of lubrication and different types of lubrication. Design of different types of bearings

Subject Code	Subject Name	CO	CO Statements
18ME63	HEAT TRANSFER	<b>CO1</b>	Study the modes of heat transfer.
		<b>CO2</b>	Learn how to formulate and solve 1-D steady and unsteady heat conduction problems.
		<b>CO3</b>	Apply empirical correlations for fully-developed laminar, turbulent internal flows and external boundary layer convective flow problems.
		<b>CO4</b>	Study the basic principles of heat exchanger analysis and thermal design.
		<b>CO5</b>	Understand the principles of boiling and condensation including radiation heat transfer related engineering problems.

Subject Code	Subject Name	CO	CO Statements
18ME641	NON - TRADITIONAL MACHINING	<b>CO1</b>	Understand and compare traditional and non-traditional machining process and recognize the need for Non- traditional machining process
		<b>CO2</b>	Understand the constructional features, performance parameters, process characteristics, applications, advantages and limitations of USM, AJM and WJM
		<b>CO3</b>	Identify the need of Chemical and electro-chemical machining process along with the constructional features, process parameters, process characteristics, applications, advantages and limitations
		<b>CO4</b>	Understand the constructional features of the equipment, process



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			parameters, process characteristics, applications, advantages and limitations EDM & PAM
		<b>CO5</b>	Understand the LBM equipment, LBM parameters, and characteristics. EBM equipment and mechanism of metal removal, applications, advantages and limitations LBM & EBM

Subject Code	Subject Name	CO	CO Statements
18MEL66	Computer Aided Modelling and Analysis Lab	<b>CO1</b>	Did you acquire basic understanding of Modeling and Analysis software
		<b>CO2</b>	Understanding the different kinds of analysis and application of basic principles to find out the stress and other related parameters of bars, beams loaded with loading conditions.
		<b>CO3</b>	Understanding the thermal analysis of 1D and 2D problems with conduction and convection boundary conditions
		<b>CO4</b>	Applying the basic principles to carry out dynamic analysis to know the natural frequency of different kind of beams.

Subject Code	Subject Name	CO	CO Statements
18MEL67	HEAT TRANSFER LAB	<b>CO1</b>	Apply one dimensional steady and unsteady state conduction heat transfer through cylinder, composite slab and cylindrical pin fin.
		<b>CO2</b>	Evaluate the Stefan Boltzmann constant and Emissivity for thermal radiation.
		<b>CO3</b>	Compute average heat transfer coefficient for free ,forced convection, film wise and drop wise condensation.
		<b>CO4</b>	Analyse the performance of heat exchanger, vapour compression refrigeration and Air-conditioning system.

Subject Code	Subject Name	CO	CO Statements
18ME654	ADVANCED MATERIALS TECHNOLOGY	<b>CO1</b>	Apply the material selection concepts to select a material for a given application.
		<b>CO2</b>	Acquire the Knowledge of composite materials and their production



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		process as well as applications.
	<b>C03</b>	Understand the behaviour and applications of ceramics, glasses and Low & High Temperature Materials.
	<b>C04</b>	Understand the properties and the processes of various Metallic and non-Metallic Materials.
	<b>C05</b>	Understand the behaviour and applications of smart materials and Define Nanotechnology, Describe nano Material characterization

Subject Code	Subject Name	CO	CO Statements
<b>18MEM68</b>	<b>Mini-Project</b>	<b>C01</b>	Enable the Students to undertake short research projects in a team under the direction of members of the faculty
		<b>C02</b>	To impart skills in preparing detailed report describing the project and results.
		<b>C03</b>	To enable the students to undertake fabrication work of new experimental set up/devices or develop software packages
		<b>C04</b>	To effectively communicate by making an oral presentation before an evaluation committee

Subject Code	Subject Name	CO	CO Statements
<b>18ME71</b>	<b>Control Engineering</b>	<b>C01</b>	Identify the type of control and control actions. Develop the mathematical model of the physical systems.
		<b>C02</b>	Estimate the response and error in response of first and second order systems subjected standard input signals. Represent the complex physical system using block diagram and signal flow graph and obtain transfer function.
		<b>C03</b>	Analyse a linear feedback control system for stability using Hurwitz criterion, Rouths criterion and root Locus technique in complex domain.
		<b>C04</b>	Analyse the stability of linear feedback control systems in frequency domain using polar plots, Nyquist and Bode plots.

Subject	Subject Name	CO	CO Statements
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Code			
<u>18ME72</u>	<u>Computer Integrated Design and Manufacturing</u>	<u>CO1</u>	Define Automation, CIM, CAD, CAM and explain the differences between these concepts. Solve simple problems of transformations of entities on computer screen
		<u>CO2</u>	Explain the basics of automated manufacturing industries through mathematical models and analyze different types of automated flow lines..
		<u>CO3</u>	Analyse the automated flow lines to reduce time and enhance productivity.
		<u>CO4</u>	Explain the use of different computer applications in manufacturing, and able to prepare part programs for simple jobs on CNC machine tools and robot programming.
		<u>CO5</u>	Visualize and appreciate the modern trends in Manufacturing like additive manufacturing, Industry 4.0 and applications of Internet of Things leading to Smart Manufacturing.

Subject Code	Subject Name	CO	CO Statements
<u>18ME734</u>	<u>TOTAL QUALITY MANAGEMENT</u>	<u>CO1</u>	Understand the various approaches to TQM
		<u>CO2</u>	Understand the characteristics of quality leader and his role
		<u>CO3</u>	Develop feedback and suggestion system for quality management
		<u>CO4</u>	Enhance the knowledge in tools and techniques of quality management.
		<u>CO5</u>	Apply the tools and technique for effective implementation of TQM.

Subject Code	Subject Name	CO	CO Statements
<u>18ME744</u>	<u>MECHATRONICS</u>	<u>CO1</u>	Illustrate various components of Mechatronics systems.
		<u>CO2</u>	Understanding the concept of signal processing and use of interfacing systems such as ADC, DAC, digital I/O.
		<u>CO3</u>	To understand the concepts of microprocessors in various systems and to know the functions of each element.
		<u>CO4</u>	Understand the concept of PLC system and its ladder programming, and significance of PLC systems in industrial application



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		<u>C05</u>	Assess various control systems used in automation
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<u>Subject Code</u>	<u>Subject Name</u>	<u>CO</u>	<u>CO Statements</u>
<b>18MEL76</b>	<b>COMPTER INTEGRATED MAUFACTURING LAB</b>	<u>C01</u>	<u>Able to recognize &amp; handle design problem in systematic manner</u>
		<u>C02</u>	<u>To gain practical experience in 2D drafting and 3D modelling using software</u>
		<u>C03</u>	<u>Able to apply CIM in real life applications</u>
		<u>C04</u>	<u>To recognize the concepts of G and M codes for part programming</u>
		<u>C05</u>	<u>To expose students to advanced control systems like Fanuc etc</u>
		<u>C06</u>	<u>To know the various applications of CNC machine and exposure to CNC machine</u>


<u>Subject Code</u>	<u>Subject Name</u>	<u>CO</u>	<u>CO Statements</u>
<b>18MEL77</b>	<b>Design Laboratory</b>	<u>C01</u>	CO1: To understand the natural frequency, logarithmic decrement, damping ratio and damping.
		<u>C02</u>	CO2: To understand the balancing of rotating masses and critical speed of a rotating shaft
		<u>C03</u>	CO3: To understand the concept of stress concentration using photo elasticity an principles of pressure development in an oil film of a hydrodynamic journal bearing d
		<u>C04</u>	CO4: To understand the equilibrium speed, sensitiveness, power and effort of governor.

<u>Subject Code</u>	<u>Subject Name</u>	<u>CO</u>	<u>CO Statements</u>
-	<b>Proje ct-I</b>	<u>C01</u>	Ability to consolidate the literature search to identify and formulate engineering problem.
		<u>C02</u>	Ability to identify the community that shall benefit through the solution to the identified engineering problem and also demonstrate concern for environment.



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		<b>CO3</b>	Ability to engage in groups to identify the mathematical, engineering, management principles necessary to solve the identified engineering problem.
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18CS752	Python Application Programming	CO1	Examine Python syntax and semantics and be fluent in the use of Python flow control and functions.
		CO2	Demonstrate proficiency in handling Strings and File Systems.
		CO3	Create, run and manipulate Python Programs using core data structures like Lists, Dictionaries and use Regular Expressions.
		CO4	Interpret the concepts of Object-Oriented Programming as used in Python.
		CO5	Implement exemplary applications related to Network Programming, Web Services and Databases in Python


8CV753	Environmental Protection Managment (Open Elective)	CO1	Appreciate the elements of Corporate Environmental Management systems complying to international environmental management system standards.
		CO2	Lead pollution prevention assessment team and implement waste minimization options
		CO3	Develop, Implement, maintain and Audit Environmental Management systems for Organizations.

Subject Code	Subject Name	CO	CO Statements
18ME81	ENERGY ENGINEERING	CO1	Understand the construction and working of steam generators and their accessories.



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		CO2	Identify renewable energy sources, its construction and working of solar energy, Biomass and their utilization
		CO3	Understand principles of energy conversion from alternate sources including wind, geothermal, tidal and OTECH
Subject Code	Subject Name	CO	CO Statements
18ME822	TRIBOLOGY	CO1	Understand the fundamentals of tribology and select proper bearing materials and lubricants for a given tribological application
		CO2	Apply concepts of tribology for the performance analysis and design of components experiencing relative motion.
		CO3	Analyze the requirements and design hydrodynamic journal and plane slider bearings for a given application
		CO4	Select proper bearing materials and lubricants for a given Tribological application.
		CO5	Apply the principles of surface engineering for different applications of tribology.
Subject Code	Subject Name	CO	CO Statements
18ME824	AUTOMOBILE ENGINEERING	CO1	Identify the different parts of an automobile and it's working.
		CO2	Understand the working of transmission and braking systems.
		CO3	Understand the working of steering and suspension systems and their applications.
		CO4	Selection and applications of various types of fuels and injection systems.
		CO5	Analyse the cause of automobile emissions, its effects on environment and methods to reduce the emissions.
Subject	Subject Name	CO	CO Statements





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Code			
18MEP83	Project Phase -II	C01	Ability to apply the identified concepts and modern engineering tools to arrive at design solutions for the identified engineering problems.
		C02	Ability to demonstrate compliance to the prescribed standards / safety norms through implementation for the identified engineering problem.
		C03	Ability to engage in effective oral communication through presentation of the project work.
			CO Statements
18MEI85	Internship	C01	Able to acquire knowledge pertaining to best practices in the industry and correlate with the courses learnt
		C02	Able to identify industrial activities and to some extent related problems
		C03	Able to communicate with people, coordinate for performing the task and build rapport with the people maintaining ethics
		C04	Able to comprehend and present the report
18MES84	Seminar	C01	Prepare comprehensive report based on literature survey related to recent engineering development
		C02	Comprehend the engineering activities with effective presentation
		C03	Able to summarize, technical societal information through various resources
		C04	Justify the presentation content individually to a group