



**Details of Courses with Course Outcomes for Session 2018-19**

**1. Course Name: Discrete Mathematics (ROE-038), Year of study: 2018-19**

Course outcome	Statement (On completion of this course, the student will be able to -)
ROE-038/048.1	Understand the basic concepts of sets, relations and functions.
ROE-038/048.2	Analyze the problems which are faced in engineering.
ROE-038/048.3	Comprehend the meaning of proposition, tautology, contradiction and Quantifiers.
ROE-038/048.4	Solve the difference equation and recurrence relation.
ROE-038/048.5	Evaluate different algebraic structures under different binary operations as group, ring and field.
ROE-038/048.6	Analyze the different graphs, trees and finite state machine.

**2. Course Name: Universal Human Values & Professional Ethics (RVE-301), Year of study: 2018-19**

Course outcome	Statement (On completion of this course, the student will be able to -)
RVE-301/401.1	Understand the need, concept and content of value-education in individual's life and modifies their aspirations for happiness & prosperity.
RVE-301/401.2	Comprehend the term self-exploration and its application for self-evaluation and development.
RVE-301/401.3	Reconstruct the concepts about different values & discriminate between them.
RVE-301/401.4	Analyze the concept of co-existence & evaluate the program to ensure self regulation.
RVE-301/401.5	Identify the holistic perception of harmony at level of self, family, society, nature and explain it by various examples.
RVE-301/401.6	Apply professional ethics in their future profession & contribute for making a value based society.

**3. Course Name: Fluid Mechanics (RCE-303), Year of study: 2018-19**

Course outcome	Statement (On completion of this course, the student will be able to-)
RCE-303.1	Apply basic principles of fluid statics to determine forces on planar and curved submerged surfaces.
RCE-303.2	Distinguish between fluid flows using continuity equation, stream function and velocity potential function.
RCE-303.3	Apply principles of dimensional analysis to form dimensionless numbers.
RCE-303.4	Apply the Bernoulli's equation to fluid measurement problems.
RCE-303.5	Determine flow rates, pressure changes, minor and major head losses for viscous flows through pipes.



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RCE-303.6	Understand the concepts of laminar and turbulent boundary layers and use the momentum integral to determine integral thicknesses, wall shear stresses and skin friction coefficients.
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**4. Course Name: Material Science (RME-301), Year of study: 2018-19**

Course outcome	Statement (On completion of this course, the student will be able to-)
RME-301.1	Explain crystal structure and properties of ferrous and non-ferrous materials.
RME-301.2	Understand the mechanical properties & testing of materials.
RME-301.3	Interpret the phase diagram of ferrous metals and alloys.
RME-301.4	Explain the microstructure and heat treatment of metals and alloys.
RME-301.5	Summarize the properties and applications of composite materials, polymers and ceramics.
RME-301.6	Understand smart materials and Nano-materials.

**5. Course Name: Mechanics of Solids (RME-303), Year of study: 2018-19**

Course outcome	Statement (On completion of this course, the student will be able to -)
RME-303.1	Determine stress & strain, strain energy and design the elements considering equilibrium and theories of failure.
RME-303.2	Determine stresses, slope and deflection in beams by applying equation of elastic curve.
RME-303.3	Determine the stress, deflection & strain energy stored to design helical and laminated springs.
RME-303.4	Design Columns and Struts against crippling.
RME-303.5	Design thin & thick walled spherical and cylindrical shells.
RME-303.6	Design the curved beams and the elements under unsymmetrical bending.

**6. Course Name: Thermodynamics (RME-302), Year of study: 2018-19**

Course outcome	Statement (On completion of this course, the student will be able to -)
RME-302.1	Explain fundamental concepts of thermodynamics.
RME-302.2	Apply first law of thermodynamics to open and closed systems.
RME-302.3	Understand second law of thermodynamics, concept of entropy and their applications.
RME-302.4	Understand availability and irreversibility and thermodynamic relations.
RME-302.5	Use properties of pure substance and air-water vapour mixture to analyze the open and closed systems.
RME-302.6	Analyze air and vapour compression refrigeration systems.



**7. Course Name: Fluid Mechanics Lab (RCE-353), Year of study: 2018-19**

Course outcome	Statement (On completion of this course, the student will be able to -)
RCE-353.1	Demonstrate practical understanding of friction losses in pipes and verify momentum equation experimentally.
RCE-353.2	Calibrate the flow measurement devices.
RCE-353.3	Distinguish between the flow patterns and practical understanding of equilibrium of floating bodies.

**8. Course Name: Material Science and Testing Lab (RME-351), Year of study: 2018-19**

Course outcome	Statement (On completion of this course, the student will be able to -)
RME-351.1	Examine the microstructure of different materials.
RME-351.2	Conduct and compare methods for heat treatment of steel.
RME-351.3	Determine and interpret the mechanical properties of given materials using destructive testing.

**9. Course Name: Thermodynamics Lab (RME-352), Year of study: 2018-19**

Course outcome	Statement (On completion of this course, the student will be able to -)
RME-352.1	Understand the working of IC Engines.
RME-352.2	Understand the working of boilers.
RME-352.3	Understand the working of gas & steam turbines.

**10. Course Name: Computer Aided Machine Drawing-I (RME-353), Year of study: 2018-19**

Course outcome	Statement (On completion of this course, the student will be able to -)
RME-353.1	Use various conventional representation of machine components and materials.
RME-353.2	Apply the fundamental concepts of engineering drawing to represent various machine components
RME-353.3	Draw machine elements in AutoCAD using the concept of computer aided 2D drafting



**11. Course Name: Mathematics-III (RAS-401), Year of study: 2018-19**

Course outcome	Statement (On completion of this course, the student will be able to -)
RAS-301/401.1	Understand and evaluate the linear equations by using numerical methods.
RAS-301/401.2	Analyze the problems which are faced in engineering.
RAS-301/401.3	Comprehend the meaning of analytic function, singularities and Laurent series.
RAS-301/401.4	Solve the differential equation using numerical methods.
RAS-301/401.5	Evaluate the root of the algebraic and transcendental equation by using numerical methods.
RAS-301/401.6	Analyze the behaviour of statistical data by using testing of hypothesis and probability distributions.

**12. Course Name: Environment & Ecology (RAS-302/402), Year of study: 2018-19**

Course outcome	Statement (On completion of this course, the student will be able to -)
RAS-302/402.1	Recall an understanding of the basic concepts of ecology and environment. (K1, K2)
RAS-302/402.2	Relate the human needs and activities to their impact on environment and ways to achieve environment conservation. (K3)
RAS-302/402.3	Identify the need for finding substitutes to and conservation of scarce natural resources. (K2)
RAS-302/402.4	Evaluate the applicability and relative importance of different types of energy sources. (K5)
RAS-302/402.5	Analyze existing environmental problems for designing suitable measures to control it. (K4)
RAS-302/402.6	Extend the educational components of environment to individual, social, national and legal variable for problem solving. (K3, K6)

**13. Course Name: Electrical Machines and Controls (REE-409), Year of study: 2018-19**

Course outcome	Statement (On completion of this course, the student will be able to-)
REE-409.1	Understand the fundamentals of the electromechanical devices and control system.
REE-409.2	Comprehend the concept for construction and working of various electrical machines.
REE-409.3	Understand the performance and characteristics of electrical machines.
REE-409.4	Develop mathematical model of a mechanical system using its analogous electrical system.
REE-409.5	Apply various techniques to determine time response and stability of a given system.
REE-409.6	Understand characteristics and applications of different process controllers.



**14. Course Name: Measurement and Metrology (RME-401), Year of study: 2018-19**

Course outcome	Statement (On completion of this course, the student will be able to-)
RME-401.1	Understand the fundamentals of measuring system and errors in measurement.
RME-401.2	Select and use appropriate measuring instruments for Time, Pressure and Strain.
RME-401.3	Associate the suitable measuring instruments to measure Flow, Temperature, Torque and Vibration.
RME-401.4	Discuss and use the linear and angular measurement instruments.
RME-401.5	Explain the working of coordinate measuring machine (CMM) and comparators.
RME-401.6	Use the principle of interferometry for the measurement.

**15. Course Name: Manufacturing Science & Technology-I (RME-402), Year of study: 2018-19**

Course outcome	Statement (On completion of this course, the student will be able to-)
RME-402.1	Differentiate between conventional and non-conventional manufacturing processes.
RME-402.2	Analyze metal forming operations like forging, tube drawing, extrusion, rolling etc.
RME-402.3	Describe various aspects of sheet metal working operations.
RME-402.4	Comprehend various aspects of casting in die casting, centrifugal casting, investment casting, continuous casting, CO <sub>2</sub> casting, stir casting.
RME-402.5	Understand the manufacturing of plastic components.
RME-402.6	Design the locating, holding and guiding devices.

**16. Course Name: Applied Thermodynamics (RME-403), Year of study: 2018-19**

Course outcome	Statement (On completion of this course, the student will be able to-)
RME-403.1	Comparison of different air standard cycle and evaluate the performance of IC engine
RME-403.2	Analyze the Rankine cycle with various configurations to optimize the design of a power plant, combustion of fuel and the calculations involved in it.
RME-403.3	Classify boilers, condensers and their components based on their working.
RME-403.4	Distinguish between steam and gas flows in nozzles.
RME-403.5	Understand and analyze working of gas turbine.
RME-403.6	Differentiate between actual and ideal cycles and analyze jet propulsion and rocket engines.



**17. Course Name: Electrical Machines & Controls Lab (REE-459), Year of study: 2018-19**

Course outcome	Statement (On completion of this course, the student will be able to-)
REE-459.1	Perform various operational test on Electrical Machines.
REE-459.2	Compute the performance characteristic of electro-mechanical devices.
REE-459.3	Understand control processes associate with AC & DC machines

**18. Course Name: Measurement and Metrology Lab (RME-451), Year of study: 2018-19**

Course outcome	Statement (On completion of this course, the student will be able to-)
RME-451.1	Use measuring instruments for linear and angular measurement.
RME-451.2	Differentiate among limits, fits & tolerances.
RME-451.3	Select and use appropriate instruments for the measurement of pressure, temperature and frequency.

**19. Course Name: Manufacturing Science & Technology-I Lab (RME-452), Year of study: 2018-19**

Course outcome	On completion of this course, the student will be able to-
RME-452.1	Make pattern and execute metal casting
RME-452.2	Perform machining processes like; turning, milling, drilling, grinding etc.
RME-452.3	Execute various forming and welding operations.

**20. Course Name: Computer Aided Machine Drawing-II (RME-453), Year of study: 2018-19**

Course outcome	On completion of this course, the student will be able to
RME-453.1	Recognize and use conventional representation of machine components, materials, surface finish and welded joints in part, assembly and production drawings.
RME-453.2	Represent limits, fits, tolerances and surface roughness on a drawing.
RME-453.3	Draw part drawings of machine components and assembly drawing using computer design software.

**21. Course Name: Engineering Economics (RAS-501), Year of study: 2018-19**

Course outcome	Statement (On completion of this course, the student will be able to-)
RAS-501.1	Understand the basic principles, scope and the applications of Engineering Economics
RAS -501.2	Understand and apply the knowledge of elasticity of demand and supply on price determination.
RAS -501.3	Apply the knowledge of demand forecasting to make effective demand forecast.
RAS -501.4	Understand the complexity of uncertain market structure and be able to take decisions of price determinations.



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RAS -501.5	Understand the various management concepts and thoughts and using for better resource management.
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**22 .Course Name: Cyber Security (RUC-501), Year of study: 2018-19**

Course outcome	Statement (On completion of this course, the student will be able to-)
RUC-501.1	Explain the core information system (IS) principles
RUC-501.2	Identify the key components of Cyber Security network architecture
RUC-501.3	Analyze system and application for Cyber Security threats, vulnerabilities and also different classes of attack.
RUC-501.4	Design and develop Policies, Procedures, Guidelines for implementing Security
RUC-501.5	Summarize InfoSec Standard ISO 27000 series and Explain Laws like IT Act 2000, Copyright Act, and Intellectual Property Law.
RUC-501.6	Illustrate Current Trends in information Security in areas of Cloud Computing, Supply Chain Management and Outsourcing.

**23. Course Name: Machine Design-I (RME-501), Year of study: 2018-19**

Course outcome	Statement (On completion of this course, the student will be able to-)
RME-501.1	Understand the design requirements and follow the general procedure for designing machine elements.
RME-501.2	Understand the modes of failure and design the machine components using theories of failure.
RME-501.3	Design a machine element under fluctuating loads.
RME-501.4	Design the riveted joints.
RME-501.5	Design machine shafts, keys and couplings subjected to twisting moment and/or bending moment
RME-501.6	Design helical springs and screw jack.

**24. Course Name: Heat & Mass Transfer (RME-502), Year of study: 2018-19**

Course outcome	Statement (On completion of this course, the student will be able to-)
RME-502.1	Apply the laws of conduction, convection and radiation heat transfer phenomenon.
RME-502.2	Understand and solve problems related to heat transfer through extended surfaces and that to transient conduction.
RME-502.3	Understand and analyze the natural and forced convection heat transfer process.
RME-502.4	Understand thermal radiation and related laws.
RME-502.5	Understand and apply LMTD and NTU methods for evaluating effectiveness of heat exchangers.
RME-502.6	Understand the phenomenon of mass transfer, condensation and boiling.



**25. Course Name: Manufacturing Science & Technology-II (NME-503), Year of study: 2018-19**

Course outcome	Statement (On completion of this course, the student will be able to-)
RME-503.1	Apply the theory of metal-cutting for effective machining.
RME-503.2	Explain the working and construction of machine tools.
RME-503.3	Understand pre-assembly finishing operations.
RME-503.4	Understand limits, fits and tolerances as per IS standard.
RME-503.5	Comprehend various metal-joining processes and the associated defects.
RME-503.6	Select and apply appropriate unconventional machining and welding techniques.

**26. Course Name: I.C. Engines & Compressors (RME-051), Year of study: 2018-19**

Course outcome	Statement (On completion of this course, the student will be able to-)
RME-051.1	Examine and Compare the Air standard and Air fuel cycles based on thermodynamic view.
RME-051.2	Describe the phenomena of combustion in SI Engine, carburetion, Ignition system and supercharging.
RME-051.3	Describe and distinguish the phenomena of combustion in CI Engine and Injection system used in CI engines.
RME-051.4	Describe the cooling and lubrication system for SI / CI engines.
RME-051.5	Demonstrate various aspects related to selection of suitable fuels and compute various performance parameters of SI / CI engines
RME-051.6	Understand and modify compressors and blowers.

**27. Course Name: Design and Simulation Lab- I (RME-551), Year of study: 2018-19**

Course outcome	Statement (On completion of this course, the student will be able to-)
RME-551.1	Design & draw the basic joints like Cotter joint, Knuckle joint, boiler riveted joint, eccentrically loaded riveted joint.
RME-551.2	Design shafts and springs subjected to combined steady & variable bending and twisting loads.
RME-551.3	Design and draw the shaft-couplings, helical spring and screw jack under the given load conditions.





**28. Course Name: Heat & Mass Transfer Lab (RME-552), Year of study: 2018-19**

Course outcome	Statement (On completion of this course, the student will be able to-)
RME-552.1	Understand and Analyze the methods to evaluate thermal conductivity of materials.
RME-552.2	Understand and analyze the Natural and Forced convective heat transfer coefficient and determine the fin-efficiency.
RME-552.3	Understand and analyze the radiation and Heat exchangers.

**29. Course Name: Manufacturing Technology-II Lab (RME-553), Year of study: 2018-19**

Course outcome	Statement (On completion of this course, the student will be able to-)
RME-553.1	Perform machining operations like threading on Lathe machine and Tool grinding on tool-grinder machine.
RME-553.2	Perform gear cutting on Milling machine and Machining a block on shaper machine.
RME-553.3	Perform Gas welding and Arc Welding.

**30. Course Name: Seminar (RME-559), Year of study: 2018-19**

Course outcome	Statement (On completion of this course, the student will be able to-)
RME-559.1	Explore the current technical area.
RME-559.2	Search out the relevant material for the selected topic.
RME-559.3	Portray the task with good presentation and report writing.

**31. Course Name: Industrial Management (RAS-601), Year of study: 2018-19**

Course outcome	Statement (On completion of this course, the student will be able to-)
RAS-601.1	Understand the basic principles, scope and the applications of industrial management
RAS -601.2	Explain functions of management including human resources management
RAS -601.3	Conduct work study to develop standard time and method for jobs
RAS -601.4	Implement techniques like EOQ and SQC for inventory and quality control
RAS -601.5	Apply the techniques like PERT and CPM to manage projects effectively



**32. Course Name: Sociology (RAS-602), Year of study: 2018-19**

Course outcome	Statement (On completion of this course, the student will be able to-)
RAS 602.1	Comprehend social relations in industry/organization and correlate the dynamics of diverse context of Indian society.
RAS 602.2	Understand the global rise and development of industry and empower themselves to analyze and evaluate different aspects of industrialization.
RAS 602.3	Demonstrate the implications of policies and its consequences in the context of industrialization and its growth in India.
RAS 602.4	Evaluate the social consequences of modernization, automation and industrial activities on the ecosystem thereby, sensitizing the engineers on public health and safety issues which shall serve as cornerstone for cultural, societal and environmental considerations.
RAS 602.5	Envisage prospective models of industrialization across the globe to understand the consumer society and the sociological concerns of industrial development in the present world.
RAS 602.6	Gain and recognize the need for bridging the implications of sociological theories with engineering sciences and encourage themselves for lifelong learning.

**33. Course Name: Fluid Machinery (RME-601), Year of study: 2018-19**

Course outcome	Statement (On completion of this course, the student will be able to-)
RME-601.1	Apply momentum and moment of momentum equation to flow through hydraulic machinery.
RME-601.2	Calculate the force and work done by jet on fix and moving plates.
RME-601.3	Understand working and performance of Reaction Turbines.
RME-601.4	Understand working and performance of centrifugal pumps.
RME-601.5	Understand working and performance of Positive Displacement Pumps.
RME-601.6	Comprehend the working of Hydraulic ram, Jet pumps, Air lift pumps.

**34. Course Name: Theory of Machine (RME-602), Year of study: 2018-19**

Course outcome	Statement (On completion of this course, the student will be able to-)
RME-602.1	Comprehend the fundamentals of the kinematics of machines and analyze the motion of different mechanism using relative velocity and instantaneous centre method.
RME-602.2	Construct, analyze and evaluate the cam profile for different motions of followers.
RME-602.3	Analyze the gear geometry and evaluate different gear trains.
RME-602.4	Analyze static and dynamic forces in planner mechanisms.
RME-602.5	Understand the concept of balancing and its application in IC engines.
RME-602.6	Explain the working principle and performance characteristics of various types of governors, brakes and dynamometers.



**35. Course Name: Machine Design-II (RME-603), Year of study: 2018-19**

Course outcome	Statement (On completion of this course, the student will be able to-)
RME-603.1	Understand the fundamental of gear systems and select suitable materials and manufacturing methods for gear.
RME-603.2	Design the spur gear, helical gear, bevel gear and worm gearing system as per the AGMA and Indian standards.
RME-603.3	Understand modes of lubrication and select suitable lubricants.
RME-603.4	Design a sliding contact/journal bearing.
RME-603.5	Design/Select suitable rolling contact bearings and analyze for their life and reliability.
RME-603.6	Design principal parts of an IC engine.

**36. Course Name: Refrigeration & Air-conditioning (RME-061), Year of study: 2018-19**

Course outcome	Statement (On completion of this course, the student will be able to-)
RME-061.1	Explain air refrigeration cycle and its application in aircraft refrigeration system.
RME-061.2	Analyze vapour compression refrigeration cycle using p-h and T-s diagrams.
RME-061.3	Explain and analyze the vapour Absorption refrigeration system.
RME-061.4	Explain properties and applications of refrigerants and their effect on environment.
RME-061.5	Use psychometric properties for analyzing air-conditioning systems.
RME-061.6	Discuss the working of various equipments used in refrigeration and air-conditioning systems.

**37. Course Name: Fluid Machinery Lab (RME-651), Year of study: 2018-19**

Course outcome	Statement (On completion of this course, the student will be able to-)
RME-651.1	Verify the impulse momentum equation experimentally.
RME-651.2	Analyse the performance of Pelton Wheel and Francis Turbine.
RME-651.3	Analyse the performance of Centrifugal and Reciprocating pumps.

**38. Course Name: Theory of Machines Lab (RME-652), Year of study: 2018-19**

Course outcome	Statement (On completion of this course, the student will be able to-)
RME-652.1	Comprehend various mechanisms and their inversions.
RME-652.2	Measure the gyroscopic effect and the sensitivity of governors.
RME-652.3	Determine critical speed of shafts.



**39. Course Name: Design and Simulation Lab-II (RME-653), Year of study: 2018-19**

Course outcome	Statement (On completion of this course, the student will be able to-)
RME-653.1	Understand the basics of computer language C and C++ to write basic computer programme.
RME-653.2	Write computer programme for the design of machine components and validate it.
RME-653.3	Develop a computer programme for the complete design of a mechanical Subsystem / system.

**40. Course Name: Refrigeration & Air-conditioning Lab (RME-654), Year of study: 2018-19**

Course outcome	Statement (On completion of this course, the student will be able to-)
RME-654.1	Describe different components of refrigeration and air-conditioning system i.e. compressors, evaporators, expansion devices etc.
RME-654.2	Evaluate air-conditioning and vapour compression refrigeration systems.
RME-654.3	Evaluate performance of cooling tower and ice plant.

**41. Course Name: NOE-073 (Operations Research), Year of study: 2018-19**

Course outcome	Statement (On completion of this course, the student will be able to-)
NOE-073.1	Formulate suitable mathematical models of the day-to-day business problems and employ Simplex method to solve Linear Programming Problems.
NOE-073.2	Develop minimum cost solutions for conventional Transportation and Assignment problems..
NOE-073.3	Use Network flow models to find solution to problems like - shortest path, Minimal spanning Tree, Max-Flow & Minimum cut problems.
NOE-073.4	Monitor the progress of projects using techniques like PERT & CPM and take necessary steps to avoid any time and cost overruns in projects.
NOE-073.5	Suggest optimum strategies for the decision makers via Games theory fundamentals.
NOE-073.6	Apply OR tools & techniques to make optimum decisions regarding issues like - Queuing system design, Inventory Control, Replacement of old equipments .



**42. Course Name: NME-701 (Computer Aided Design), Year of study: 2018-19**

Course outcome	Statement (On completion of this course, the student will be able to-)
NME-701.1	Understand the basic structure of CAD tools and its hardware components.
NME-701.2	Explain the basic elements of computer graphics and transformations
NME-701.3	Represent synthetic curves in Parametric form.
NME-701.4	Perform solid modeling with the help of AutoCAD and Pro-E software.
NME-701.5	Understand the basic steps in Finite Element Analysis.
NME-701.6	Formulate and solve any 1D and 2D engineering problem using Finite element method.

**43. Course Name: NME-702 (Automobile Engineering), Year of study: 2018-19**

Course outcome	Statement (On completion of this course, the student will be able to-)
NME-702.1	Understand the design principles for main components of an automotive vehicle.
NME-702.2	Understand the basics of transmission systems of an automotive vehicle.
NME-702.3	Understand the function & types of braking, chassis and suspension systems of an automobile.
NME-702.4	Understand the electrical & fuel supply systems of an automotive vehicle.
NME-702.5	Understand the automobile air-conditioning, cooling & lubrication systems.
NME-702.6	Understand the key features of an automobile maintenance system.

**44. Course Name: NME-032 (Project Management), Year of study: 2018-19**

Course outcome	Statement (On completion of this course, the student will be able to-)
NME-032.1	Understand the basic terminology and concepts used in project management.
NME-032.2	Understand the types of organization and the process of awarding project contracts.
NME-032.3	Analyze and appraise various project proposals.
NME-032.4	Develop the plan and schedule through various project management tools and techniques.
NME-032.5	Understand the complexity and challenges associated with project milieu.
NME-032.6	Use suitable computer aided project management software packages/modules for various project environments.



**45. Course Name: NME-041 (Total Quality Management), Year of study: 2018-19**

Course outcome	Statement (On completion of this course, the student will be able to-)
NME-041.1	Understand the traditional and modern quality concepts.
NME-041.2	Appreciate the issues related to quality of bought out and manufactured products.
NME-041.3	Select the suitable organization structure for different products and companies
NME-041.4	Exercise process and product control through Statistical Quality Control.
NME-041.5	Diagnose and control various defects using reliability studies.
NME-041.6	Understand and implement advanced quality management systems like Taguchi, JIT and ISO-9000 in the organization.

**46. Course Name: CAD/CAM Lab (NME-751), Year of study: 2018-19**

Course outcome	On completion of this course, the student will be able to
NME-751.1	Write and debug C/C++ programs for line, circle and geometric transformations.
NME-751.2	Draw the basic machine component/assembly using CAD Software.
NME-751.3	Write and execute manual part-programs for different machining operations on CNC lathe/milling machines.

**47. Course Name: I. C. Engine & Automobile Lab (NME-752), Year of study: 2018-19**

Course outcome	Statement (On completion of this course, the student will be able to-)
NME-752.1	Analyse the performance of an IC engine.
NME-752.2	Understand the transmission, braking, air conditioning and fuel supply systems used in automobiles
NME-752.3	Compare different vehicle based on technical specification.

**48. Course Name: Industrial Training (NME-753), Year of study: 2018-19**

Course outcome	Statement (On completion of this course, the student will be able to-)
NME-753.1	Understand the operational aspects of an organization.
NME-753.2	Prepare and present summery of knowledge gained during summer training.
NME-753.3	Relate and express impact of industry on human race and environment (living / non - living) in a better way.



**49. Course Name: Project (NME-754/NME-852), Year of study: 2018-19**

Course outcome	Statement (On completion of this course, the student will be able to-)
NME-754/852.1	Identify, formulate and investigate complex engineering problems with the help of acquired engineering knowledge & exposure.
NME-754/852.2	Select and apply suitable modelling and simulation tools to make decisions at different stages of the solution process.
NME-754/852.3	Demonstrate the communication and inter-personal skills while working on projects as an individual or as a member of a team.
NME-754/852.4	Understand the relevance and importance of social, ethical, environmental and cultural concerns in project conception, planning & execution.
NME-754/852.5	Understand the general principles of engineering & management and apply them to multidisciplinary project environments.
NME-754/852.6	Realize the need for, and engage in, lifelong learning to face the challenges posed by technological changes

**50. Course Name: NME-801 (Power Plant Engineering), Year of study: 2018-19**

Course outcome	Statement (On completion of this course, the student will be able to-)
NME-801.1	Explain the economics involved in Power Plant and identify the factors related to selection of plant.
NME-801.2	Discuss various components of steam power plant and the factors influencing the site selection for the plant.
NME-801.3	Describe the working of various components of diesel power plant and compare it with steam power plant.
NME-801.4	Illustrate the working of gas turbine power plant and its components.
NME-801.5	Explain the components, principles and working of nuclear & non-conventional power plant.
NME-801.6	Describe the electrical, instrumentation & pollution control systems used in power plants.

**51. Course Name: Advance Welding Technology (NME-055), Year of study: 2018-19**

Course outcome	Statement (On completion of this course, the student will be able to-)
NME-055.1	Understand the theoretical and practical aspects of welding and its phenomena.
NME-055.2	Understand the various welding process.
NME-055.3	Describe the basic metallurgy of the melted and heat-affected zone of a metal or alloy and heat transfer involved in different welding process
NME-055.4	Understand the various process involved in repair and maintenance of welding i.e. hard facing, cladding
NME-055.5	Understand the weldability of different metal.
NME-055.6	Demonstrate their ability to check the weldment quality using various inspection and testing methods.



**52. Course Name: Non Destructive Testing (NME-065), Year of study: 2018-19**

Course outcome	Statement (On completion of this course, the student will be able to-)
NME-065.1	Understand the Scope and advantage of Non Destructive testing
NME-065.2	Differentiate various defect types and select the appropriate NDT methods for better evaluation.
NME-065.3	Apply various NDT techniques such as Die penetrate test and magnetic inspection for various products.
NME-065.4	Understand the principle of Radiographic Method used in material testing
NME-065.5	Understand the principle of Ultrasonic testing method and its applications
NME-065.6	Understand the Special NDT Techniques such as Eddy Current Inspection, Acoustic emission testing

**53. Course Name: Seminar (NME-851), Year of study: 2018-19**

Course outcome	Statement (On completion of this course, the student will be able to-)
NME-851.1	Explore the current technical area.
NME-851.2	Search out the relevant material for the selected topic.
NME-851.3	Portray the task with good presentation and report writing.