

Shree Mahavir Education Society's
Sanghavi College of Engineering, Nashik
Department of Electrical Engineering
Course Outcomes

Second Year (2019 Pattern) : Semester-I

Course code	Course Name	Course Outcomes(Cos)
207006	Engineering Mathematics-III	CO1: Solve higher order linear differential equation using appropriate techniques to model and analyze electrical circuits. CO2: Apply Integral transforms such as Laplace transform, Fourier transform and Z-Transform to solve problems related to signal processing and control systems. CO3: Apply Statistical methods like correlation, regression and Probability theory as applicable to analyze and interpret experimental data related to energy management, power systems, testing and quality control. CO4: Perform Vector differentiation and integration, analyze the vector fields and apply to wave theory and electro-magnetic fields. CO5: Analyze Complex functions, conformal mappings, and perform contour integration in the study of electrostatics, signal and image processing.
203141	Power Generation Technologies	CO1: Identify components and elaborate working principle of conventional power plants. CO2: Recognize the importance and opportunities of renewable energies. CO3: Calculate and control power output of wind solar, and hydro power plant. CO4: Describe process of grid interconnection of distributed generation and requirements. CO5: Interpret the environmental and social impact of various generation technologies
203142	Material Science	CO1: Discuss classification, properties and characteristics of different electrical engineering materials. CO2: State various applications measuring methods for parameters of different classes of electrical engineering materials. CO3: Solve simple problems based on dielectric, magnetic and conducting materials. CO4: Apply knowledge of Nano-technology to electrical engineering. CO5: Execute tests on dielectric, insulating, magnetic, conducting, resistive materials as per IS to decide the quality of the materials.

Course code	Course Name	Course Outcomes(Cos)
203142	Material Science	CO6: Create learning resource material ethically to demonstrate self learning leading to lifelong learning skills and usage of ICT/online technology through collaborative/active learning activities.
203143	Analog And Digital Electronics	CO1: Design logical, sequential and combinational digital circuit using K-Map. CO2: Demonstrate different digital memories and programmable logic families. CO3: Apply and analyze applications of OPAMP in open and closed loop condition. CO4: Design uncontrolled rectifier with given specifications.
203144	Electrical Measurements and Instrumentation	CO1: Define various characteristic and classify measuring instruments along with range extension techniques. CO2: Apply measurement techniques for measurement of resistance, inductance and capacitance. CO3: Demonstrate construction, working principle of electrodynamic type and induction type instruments for measurement of power and energy. CO4: Make use of CRO for measurement of voltage, current and frequency. CO5: Classify transducer and apply it for measurement of physical parameters in real time.
203150	Applications of Mathematics in Electrical Engineering	CO1: Apply fundamentals of mathematics in solving electrical engineering problem CO2: Analyze complex electrical engineering problem using mathematical techniques. CO3: Implement program and simulation for problems in electrical engineering. CO4: Demonstrate self lifelong learning skills with applications of mathematics in electrical engineering through software.
203151	Soft Skill	CO1: DoSWOC analysis. CO2: Develop presentation and take part in group discussion. CO3: Understand and implement etiquette in workplace and in society at large. CO4: Work in team with team spirit. CO5: Utilize the techniques for time management and stress management

Course code	Course Name	Course Outcomes(Cos)
203152(A)	Audit Course-III(A) : Solar Thermal System	CO1: Differentiate between types of solar Concentrators CO2: Apply software tool for solar concentrators CO3: Design different types of Solar collectors and balance of plant
203152(B)	Audit Course-III(B) : C Language Programming	CO1: Elaborate data types, arithmetic, logical and conditional operators CO2: Apply control and looping statements in C programming CO3: Write programming using C language with functions, arrays and pointers
203152©	Audit Course-III(C): Japanese Language-I	Will have ability of basic communication. • Will have the knowledge of Japanese script. • Will get introduced to reading , writing and listening skills • Will develop interest to pursue professional Japanese Language course.

Second Year (2019 Pattern) : Semester-II

203145	Power System-I	CO1: Recognize different patterns of load curve and calculate associated different factors with it and tariff. CO2: Draft specifications of electrical equipment in power station. CO3: Design electrical and mechanical aspects in overhead transmission and underground cables. CO4: Evaluate the inductance and capacitance of different transmission line configurations. CO5: Analyse the performance of short and medium transmission lines
203146	Electrical Machines-I	CO1: Evaluate performance parameters of transformer with experimentation and demonstrate construction along with specifications as per standards. CO2: Distinguish between various types of transformer connections as per vector groups with application and to perform parallel operation of single/three phase transformers. CO3: Select and draft specifications of DC machines and Induction motors for various applications along with speed control methods. CO4: Justify the need of starters in electrical machines with merits and demerits. CO5: Test and evaluate performance of DC machines and Induction motors as per IS standard.

Course code	Course Name	Course Outcomes(Cos)
203147	Network Analysis	<p>CO1: Calculate current/voltage in electrical circuits using simplification techniques, Mesh, Nodal analysis and network theorems.</p> <p>CO2: Analyze the response of RLC circuit with electrical supply in transient and steady state.</p> <p>CO3: Apply Laplace transform to analyze behaviour of an electrical circuit.</p> <p>CO4: Derive formula and solve numerical of two port network and Design of filters</p> <p>CO5: Apply knowledge of network theory to find transfer function, poles and zeroes location to perform stability analysis and parallel resonance</p>
203148	Numerical Methods and Computer Programming	<p>CO1: Demonstrate types of errors in computation and their causes of occurrence.</p> <p>CO2: Calculate root of algebraic and transcendental equations using various methods.</p> <p>CO3: Apply numerical methods for various mathematical problems such as interpolation, numerical differentiation, integration and ordinary differential equation.</p> <p>CO4: Solve linear simultaneous equation using direct and indirect method.</p> <p>CO5: Develop algorithms and write computer programs for various numerical methods.</p>
203149	Fundamental of Microcontroller and Applications	<p>CO1: Describe the architecture and features of various types of the microcontroller.</p> <p>CO2: Illustrate addressing modes and execute programs in assembly language for the microcontroller.</p> <p>CO3: Write programs in C language for microcontroller 8051.</p> <p>CO4: Elaborate interrupt structure of 8051 and program to handle interrupt and ADC809</p> <p>CO5: Define the protocol for serial communication and understand the microcontroller development systems.</p> <p>CO6: Interface input output devices and measure electrical parameters with 8051 in real time.</p>
203152	Project Based Learning	<p>CO1: Identify, formulate, and analyze the simple project problem.</p> <p>CO2: Apply knowledge of mathematics, basic sciences, and electrical engineering fundamentals to develop solutions for the project.</p> <p>CO3: Learn to work in teams, and to plan and carry out different tasks that are required during a project.</p> <p>CO4: Understand their own and their team-mate's strengths and skills.</p>

Course code	Course Name	Course Outcomes(Cos)
203152	Project Based Learning	CO5: Draw information from a variety of sources and be able to filter and summarize the relevant points. CO6: Communicate to different audiences in oral, visual, and written forms.
203153(A)	Audit Course-IV(A): Solar Photovoltaic Systems	CO1: design of Solar PV system for small and large installations CO2: handle software tools for Solar PV systems
203153(B)	Audit Course-IV(B) Installation & Maintenance of Electrical appliances	<ul style="list-style-type: none"> • Observing the safety precautions while working, • Test line cord for continuity with test lamp/ multimeter • Dismantle and reassemble an electric iron • Heater, kettle, room heater, toaster, hair dryer, mixer grinder etc. • Install a ceiling fan and the regulator • Check a fluorescent lamp chock, starter and install it • Domestic installation testing before energizing a domestic installation
203153(C)	Audit Course-IV (C) Japanese Language-II	<ul style="list-style-type: none"> • Will have ability of basic communication. • Will have the knowledge of Japanese script. • Will get introduced to reading , writing and listening skills • Will develop interest to pursue professional Japanese Language course