Jawahar Education Society's,
INSTITUTE OF TECHNOLOGY, MANAGEMENT & RESEARCH, NASHIK.
(Accredited by NAAC)
(Approved by AICTE, New Delhi, DTE, Government of Maharashtra, Affiliated to Savitribai Phule Pune University)

Department of Electrical Engineering

Course Outcomes (CO)

Syllabus Pattern:-2024

Class:-SE Semester:- I

Sr. No	Subject	Course Outcomes (CO)
1	**PCC-201-ELE: Electrical Measurements & Instrumentation**	**1. CO1**: Describe the working principles of various measuring instruments and classify measuring instruments along with range extension techniques. **2. CO2**: Apply measurement techniques for measurement of resistance, inductance and capacitance. **3. CO3**: Demonstrate construction, working principle of electro dynamometer type wattmeter **4. CO4**: Analyze different measuring methods and transducers for electrical and physical quantity measurements. **5. CO5**: Use digital meters for measurement of Electrical quantities.
2	**PCC-202-ELE: Analog and digital Electronics**	**1. CO1**: Simplify complex logic expression by using Boolean algebra **2. CO2**: Design logical, sequential and combinational digital circuit using K-Map. **3. CO3**: Apply and analyze applications of OPAMP in open and closed loop conditions. **4. CO4**: Understand different analog circuits e.g. filters, IC555 and voltage regulators **5. CO5**: Design uncontrolled rectifier with given specifications
3	**PCC-203-ELE: Power System Engineering-I**	**1.CO1**: Recognize different patterns of load curve and calculate different factors associated with it and its tariff. **2.CO2**: Design of electrical and mechanical aspects in underground cables and overhead transmission line. **3.CO3:** Evaluate the inductance and capacitance of different transmission line configurations. **4. CO4:** Analyse the performance of short and medium transmission lines.
4	**MDM-231- ELE: Engineering Mathematics III**	**1.CO1**: Solve higher order linear differential equation using appropriate techniques for modelling, analyzing of electrical circuits and control systems. **2. CO2**: Apply Integral transforms such as Laplace transform, Fourier transform and Z-Transform to solve problems related to signal processing and control systems. **3.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. **4.CO4**: Perform Vector differentiation & integration, analyze the vector fields and apply to electro-magnetic fields & wave theory.

5	**OEL-221A-ELE: Personal Financial Management**	**1.CO1:** Students will learn to plan, monitor, and manage their monthly finances using budgeting techniques **2.CO2:** Students will understand how to use banking products wisely and maintain a good credit profile **3. CO3**: Students will gain basic knowledge of investment options and strategies for wealth building. **4. CO4:** Students will understand the role of insurance in financial planning and risk mitigation
6	**EEM-241-ELE: Engineering Economics**	**1. CO1:** To apply engineering economic concepts such as cost analysis, time value of money, break-even analysis, and investment evaluation **2. CO2:** To apply cost estimation techniques, evaluate asset depreciation, perform capital budgeting and conduct replacement analysis. **3. CO3:** To understand financial statements, analyze financial ratios, evaluate various sources of finance, manage working capital, and conduct comprehensive project appraisals. **4. CO4:** To analyze different market structures, pricing strategies, assess the impact of government policies and taxation on engineering projects, and evaluate how inflation affects project costs.
7	**VEC-251-ELE: Universal Human Values**	**1. CO1:** Recognize the concept of self-exploration as the process of value education (BTL-1) **2. CO2:** Interpret the human being as the coexistence of self and body. (BTL-2) **3. CO3:** Explain the relationship between oneself and the other self as the essential part of relationship and harmony in the family. (BTL-2) **4. CO4:** Interpret the interconnectedness, harmony and mutual fulfilment inherent in nature and the entire existence. **5. CO5:** Draw ethical conclusions in the light of Right understanding facilitating the development of holistic technologies production systems and management models. (BTL-3)

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Department of Electrical Engineering

Course Outcomes (CO)

Syllabus Pattern:-2024

Class:-SE Semester:- II

Sr. No	Subject	Course Outcomes (CO)
1	**PCC-204-ELE Electrical Machines-I**	**1.CO1**: Understand the construction and working of single-phase transformer with its efficiency. **2.CO2**: Explain connections of three phase transformer and parallel operation of single-phase transformer **3. CO3**: Understand the construction, working, types, commutation process and starters of DC machine **4. CO4**: Understand working and performance of three phase induction motor . **5.CO5:** Understand the necessity of starter for three phase induction motor and types of starters. Analyze the performance of short and medium transmission lines.
2	**PCC-205-ELE Numerical Methods and Computer Programming**	**1. CO1:** Identify suitable numerical techniques for solving engineering problems. **2. CO2:** Write Python programs to implement numerical methods for real-time scenarios. **3. CO3:** Apply problem-solving skills in electrical systems like circuits, signals, and machines. **4. CO4:** Analyze results and errors for various computational methods. 5. CO5: Work in teams to build solutions and present projects using Python
3	**PCC-206-ELE: Network Analysis**	**1. CO1:** Calculate current/voltage in electrical circuits using simplification techniques, Mesh, Nodal analysis. **2. CO2:** Solve different networks by applying various theorems such as Superposition, Thevenin's, Norton, Reciprocity, Maximum power transfer and Millman's theorems. **3. CO3:** Analyze the response of RLC circuit with electrical supply in transient and stead state. **4. CO4:** Apply Laplace transform to analyze behavior of an electrical circuit.
4	**MDM-232-ELE: Basics of Electrical Machines for Electric Vehicle-I**	**1.CO1:** Analyze and solve basic electrical circuits using Ohm's Law, and fundamental electrical theorems **2.CO2:** Identify and explain the key components and operation of an electric vehicle, including the motor, controller, and battery system. **3. CO3:** Understand the fundamental operating principles of electrical machines commonly used in electric vehicles (EVs) **4. CO4:** Evaluate the performance characteristics of electric machines in relation to EV requirements like torque, speed, and efficiency.

5	**OEL-221B-ELE: Business Essentials for Rural Development**	**1. CO1:** Understand the structure and dynamics of the rural economy in India. **2. CO2:** Identify the role of business and entrepreneurship in rural development. **3. CO3:** Develop basic business plans suited for rural markets. **4. CO4:** Apply problem-solving approaches to rural challenges using engineering and business skills. **5. CO5:** Analyze the role of technology, government policies, and social enterprises in transforming rural areas.
6	**EEM-242-ELE: Industrial Organization Management**	**1. CO1:** Discuss the fundamentals of management, quality of good leadership and teamwork, leadership skill, and industrial economics. **2. CO2:** Explain the importance of quality, technology management and quality management. **3. CO3:** Identify the importance of Intellectual property rights and understand the concept of patents, copy rights and trademarks. role of Human Resource Management **4. CO4:** Differentiate between different types of business organizations, business ownership and road map to Entrepreneurship
7	**VEC-252-ELE:** **Environmental Awareness**	**1. CO1:** Visualize ecology, ecosystem functions, and conservation **2. CO2:** Assess divers behind pollutions and its major environmental issues **3. CO3:** Develop an appreciation for India's biodiversity and conservation efforts **4. CO4:** Describe climate change and sustainable practices for its mitigation.