

Shree Mahavir
Education Society's



Mahavir Polytechnic

Mhasrul Varvandi Road , Nashik, Maharashtra

Department of Electrical Engineering

Course Outcomes

MSBTE prescribed syllabus, as per the Scheme 'I'

Semester - I

Abbreviation	Subject	Code
ENG -	English	(17101)

- 1) Formulate grammatically correct sentences.
- 2) Summaries comprehension passages.
- 3) Compose dialogues and paragraphs for different situations.
- 4) Use relevant words as per context.
- 5) Delivered prepare speeches to express ideas, thoughts and emotions.

EPH -	Basic Science (Physics and Chemistry)	(17102)
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- 1) Estimate errors in the measurement of physical quantities.
- 2) Apply the principles of electricity and magnetism to solve the engineering problems.
- 3) Use the basic principles of heat and optics in related engineering application.
- 4) Apply the catalysis process in industries.
- 5) Use corrosion preventive measures in industry.
- 6) Use relevant engineering materials in industry.

BMS –

Basic Mathematics

(17104)

- 1) Apply the concepts of algebra to solve engineering related problems.
- 2) Utilize basic concepts of trigonometry to solve elementary engineering problems.
- 3) Solve basic engineering problems under given conditions of straight lines.
- 4) Solve the problems based on measurement of regular closed figures and regular solids.
- 5) Use basic concepts of statistics to solve engineering related problems.

ICT –

Fundamentals of ICT

(22001)

- 1) Use computer system and its peripherals.
- 2) Prepare business document using word processing tool.
- 3) Interpret data and represent it graphically using spreadsheet.
- 4) Prepare professional presentation.
- 5) Use different types of Web browsers.

EGM –

Engineering Graphics

(22002)

- 1) Draw geometrical figures and engineering curves.
- 2) Draw the view of given object using principle of orthographic projection.
- 3) Draw Isometric views of given component or from orthographic projection.
- 4) Use drawing code, conventions and symbols as per IS SP-46 in Engineering drawing.
- 5) Draw free hand sketches of given engineering elements.

Semester – II

Abbreviation	Subject	Code
AME-	Applied Mathematics	(22210)

- 1) Calculate the equation of Tangent, Maxima, Minima, radius of curvature by differentiation.
- 2) Solve the given problem(S) of integration using suitable methods.
- 3) Apply the concepts of integration to find the area and volume.
- 4) Solve the differential equation of first order and first degree using suitable methods.
- 5) Use Laplace transform to solve first order and first degree differential equation.

ASE -	Applied Science (Physics & Chemistry)	(22211)
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- 1) Use relevant capacitors in electrical circuit.
- 2) Use Equipment's/Instruments based on radioactive and ultrasonic Principle.
- 3) Use Equipment's/Instruments based on Photoelectric effect, X-ray and LASER.
- 4) Use relevant water treatment process for various applications.
- 5) Use relevant electrolyte in batteries for different applications.
- 6) Use relevant metals, Alloys and insulating materials in various applications.

FEE -	Fundamentals of Electrical Engineering	(22212)
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- 1) Determine various parameters used in Electric Circuit.
- 2) Use of Basic laws of Electrical Engineering.
- 3) Make use of capacitor in different conditions.
- 4) Use principles of magnetism.
- 5) Use principles of electromagnetism.

EOE –

Elements of Electronics

(22213)

- 1) Use relevant diode in different electronics circuit.
- 2) Use Diodes in Rectifiers and Filters.
- 3) Use BJT and FET in electronics circuits.
- 4) Use DC regulated power supply.
- 5) Use Transistor as an Oscillator.
- 6) Use of an Logic gates in Electronic Circuits.

BME –

Basic Mechanical Engineering

(22214)

- 1) Check the broad based working of various types of Boilers and Steam Turbines.
- 2) Check the broad based working of various types of Diesel engine and Gas Turbines.
- 3) Check the broad based working of various types of Pelton replace Francis Turbines.
- 4) Check the broad based working of various types of Air Compressors.
- 5) Check the broad based working of Refrigeration and Air-conditioning systems.

BCC –

Business Communication using Computers

(22009)

- 1) Communicate effectively by avoiding barriers in various formal and Informal situations.
- 2) Communicate skillfully using non-verbal methods of Communication.
- 3) Give presentations by using Audio-Visual Aids.
- 4) Write reports using correct guidelines.
- 5) Compose e-mail and formal business letters.

Semester – III

Abbreviation	Subject	Code
ECI –	Electrical Circuits	(22324)

- 1) Troubleshoot Problems related to Single phase A.C. series circuit.
- 2) Troubleshoot Problems related to Single phase A.C. parallel circuit.
- 3) Troubleshoot Problems related to three phase circuit.
- 4) Use Principles of Circuit analysis to troubleshoot problems related to electric circuit.
- 5) Apply network theorem to troubleshoot problems related to electric circuit.

EEM –	Electrical and Electronic Measurements	(22325)
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- 1) Identify Electrical Measuring Instrument.
- 2) Use Voltmeter and Ammeter for electrical measurement.
- 3) Use Wattmeter for electrical power measurement.
- 4) Use Energy meter for electrical Energy measurement.
- 5) Use measuring Instruments.

FPE –	Fundamentals of Power Electronics	(22326)
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- 1) Select power Electronics devices for specific application.
- 2) Maintain the performance of Thyristor.
- 3) Troubleshoot Turn-on and Turn-off circuits of Thyristor.
- 4) Maintain phase controlled rectifiers.
- 5) Maintain Industrial Control circuits.

EPG –	Electrical Power Generation	(22327)
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- 1) Maintain the optimized working of the Thermal power plant.
- 2) Maintain the optimized working of the large and Micro Hydro power plant.
- 3) Maintain the optimized working of the Solar and biomass-based power plant.
- 4) Maintain the optimized working of the Wind power plant.
- 5) Select the adequate mix of power generation based on economic operation.

- 1) Follow safe practices when undertaking electrical works.
- 2) Select relevant conductors and electromagnetic materials.
- 3) Select relevant insulating material.
- 4) Perform different types of electrical wiring/cabling activities.
- 5) Implement relevant Earthing system.

Semester – IV

Abbreviation	Subject	Code
CNE –	Electric Motors and Transformers	(22418)

- 1) Use different electric motors.
- 2) Use DC machines.
- 3) Use single phase transformer for different applications.
- 4) Use three phase transformer for different applications.
- 5) Use relevant specific purpose transformers for specific applications.

EPT –	Electric Power Transmission & Distribution	(22419)
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- 1) Interpret the normal operation of electrical transmission & distribution system.
- 2) Maintain the functioning of medium & high voltage transmission system.
- 3) Interpret the parameter of extra high voltage transmission system.
- 4) Maintain the functioning of low voltage AC distribution system.
- 5) Maintain the components of transmission & distribution lines.

IME –	Industrial Measurements	(22420)
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- 1) Select the relevant transducers for measuring the various parameters.
- 2) Maintain the different types of pressure transducers.
- 3) Maintain the different types of flow transducers.
- 4) Maintain the different types of level transducers.
- 5) Maintain the different types of temperature transducers.

DEM – Digital Electronics & Microcontroller Applications (22421)

- 1) Use Boolean expression to realize logic circuit.
- 2) Build simple combinational & sequential circuit.
- 3) Analyze the architecture of microcontroller IC's
- 4) Write programs in assembly language for microcontroller.
- 5) Interface the memory & I/O device to microcontrollers.

EST – Environmental Studies (22447)

- 1) Develop public awareness about environment.
- 2) Select alternative energy resources for engineering practices.
- 3) Conserve ecosystem & biodiversity.
- 4) Apply techniques to reduce environmental pollution.
- 5) Manage social issues & environmental ethics as lifelong learning.

EDC – Electrical Drawing & CAD (22033)

- 1) Draw the symbolic representation of electrical component manually.
- 2) Draw free hand sketches, isometric or orthographic views of electrical machines & Components.
- 3) Use CAD tools to draw Simple electrical components & machines.
- 4) Use CAD to create the electrical circuits with component.
- 5) Edit electrical line drawings & control panel layout in CAD.

Semester – V

Abbreviation	Subject	Code
MAN –	Management	(22509)

- 1) Use basic management principles to execute daily activity.
- 2) Use principles of planning & organizing for accomplishment of tasks.
- 3) Use principles of directing & controlling for implementing the plans.
- 4) Apply principles of safety management in all activities.
- 5) Understand the various provisions of industrial acts.

IAM –	Industrial AC Machine	(22523)
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- 1) Use the relevant three phase induction motor for different applications.
- 2) Use the relevant single phase induction motors in different applications.
- 3) Use the relevant three phase alternator for different load conditions.
- 4) Use suitable synchronous motors in different applications.
- 5) Use suitable fractional HP motors for different applications.

SAP –	Estimating and Costing	(22524)
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- 1) Identify various types of faults in power systems.
- 2) Select suitable switchgears for different applications.
- 3) Test the performance of different protective relays.
- 4) Maintain protection systems of alternators & transformers.
- 5) Maintain protection schemes for motors & transmission lines.
- 6) Maintain protection schemes for power system against over voltages.

ECA – Energy Conservation & Audit (22525)

- 1) Interpret energy conservation policies in India.
- 2) Implement energy conservation technique in electrical machines.
- 3) Apply energy conservation techniques in electrical installation.
- 4) Use Co- generation and relevant tariff for reducing losses in facilities.
- 5) Carryout energy audit for electrical system.

IEB– Illumination & Electrification of Buildings (22530)

- 1) Select the relevant Illumination levels for various applications.
- 2) Select relevant lamps for various applications.
- 3) Select the lighting accessories required for selected wiring scheme.
- 4) Design a control circuit for Illumination.
- 5) Design Illumination schemes for various applications.
- 6) Interpret the Illumination Scheme for various purposes.

EDE – Entrepreneurship Development (22032)

- 1) Identify your entrepreneurial traits.
- 2) Identify the business opportunities that suit you.
- 3) Use the support systems to zero down to your business idea.
- 4) Develop comprehensive business plans.
- 5) Prepare plans to manage the enterprise effectively.

- 1) Write the problems/task specifications in existing systems related to the occupation.
- 2) Select, collect & use required information /knowledge to solve the problem/complete the tasks.
- 3) Logically choose relevant possible solutions.
- 4) Consider the ethical issues related to project (if there is any)
- 5) Assess the impact of the project on society (if there is any)
- 6) Prepare 'project proposals' with action plan & time duration scientifically before beginning of project.

Semester – VI

Abbreviation	Subject	Code
MAN –	Maintenance of Electric Equipment	(22625)
	<ol style="list-style-type: none">1) Follow safe practices to prevent accidents while using electrical equipment.2) Prepare maintenance schedules for electrical equipment.3) Maintain rotating electrical machines.4) Maintain single phase & three phase transformer.5) Maintain insulation systems of electrical equipment.	
UEE –	Utilization of Electrical Energy	(22626)
	<ol style="list-style-type: none">1) Maintain the functioning of different types of lamps & fittings.2) Maintain different electric heating & welding equipment.3) Maintain different electric drives & elevators.4) Use different electric traction systems.5) Use equipment for economic operation.	
EEC –	Electrical Estimation & Contracting	(22627)
	<ol style="list-style-type: none">1) Know the importance and classification of Road.2) Understand the types of Surveys and Investigation for location of new Roads.3) Understand the different methods of Road Construction.4) Apply the Equipment used in Road Constructions.5) Understand the information of various tests on highway constructions materials.	

ETE – Emerging Trends in Electrical Engineering (22628)

- 1) Suggest the relevant IOT Technologies for electrical systems.
- 2) Suggest the relevant components for implementing a smart grid .
- 3) Suggest different electrical systems for a smart city.
- 4) Suggest the relevant MCC or IMCC for the given applications.
- 5) Propose the relevant improved tariff & metering for the specified type of consumer.

ESP – Electric Substation Practices (22633)

- 1) Follow safety rules for Substation.
- 2) Maintain substation earthing & neutral grounding.
- 3) Maintain the Sub- station equipment & Bus bar layout
- 4) Interpret single line diagram of substation.
- 5) Maintain Gas insulated Substation.

CPE – Capstone Project Execution & Report Writing (22060)

- 1) Implement the planned activity invitee individually and as team.
- 2) Select, collect & use required information / Knowledge to solve the identified problem.
- 3) Take appropriate decisions based on collected & analyzed information.
- 4) Ensure quality in product.
- 5) Incorporate energy & environment conservation principles.
- 6) Consider the ethical; issues related to the project (if there are any).
- 7) Assess the impact of the project on society (if there are any).
- 8) Communicate effectively & confidently as a member & leader of team.