

**MET'S INSTITUTE OF TECHNOLOGY POLYTECHNIC,
BHUBAL KNOWLEDGE CITY, ADGAON NASHIK
DEPARTMENT OF ELECTRICAL ENGINEERING
COURSE OUTCOMES – 'I' SCHEME BY MSBTE**

Course	Course Code	Course Outcomes
FIRST SEMESTER		
Fundamentals of ICT - 22001	22001.1	Use computer system and its peripherals.
	22001.2	Prepare business document using word processing tool.
	22001.3	Interpret data and represent it graphically using spreadsheet.
	22001.4	Prepare professional presentations.
	22001.5	Use different types of web browsers.
Engineering Graphics -22003	22002.1	Draw geometrical figures and engineering curves
	22002.2	Draw the views of given object using principles of orthographic projection
	22002.3	Draw isometric views of given component or from orthographic projections.
	22002.4	Use drawing codes , conventions and symbols as per IS PS-46 in engineering drawing.
	22002.5	Draw free hand sketches of given engineering elements.
English - 22101	22101.2	Summarise comprehension passages
	22101.3	Compose dialogues and paragraphs for different situations.
	22101.4	Use relevant words as per context.
	22101.5	Deliver prepared speeches to express ideas, thoughts and emotions.
	22101.5	Deliver prepared speeches to express ideas, thoughts and emotions.
Basic Physics & Basic Chemistry - 22102	22102.2	Apply the principles of electricity and magnetism to solve engineering problems.
	22102.3	Use the basic principles of heat and optics in related engineering applications.
	22102.4	Apply the catalysis process in industries.
	22102.5	Use corrosion preventive measures in industry.
	22102.6	Use relevant engineering materials in industry.
	22102.6	Use relevant engineering materials in industry.
Basic Mathematics - 22103	22103.2	Utilize basic concepts of trigonometry to solve elementary engineering problems.
	22103.3	Solve basic engineering problems under given conditions of straight lines.
	22103.4	To Solve the problems based on measurement of regular closed figures and regular solids
	22103.5	Use basic concepts of statistics to solve engineering related problems.
Workshop Practice - 22007	22007.1	Use relevant tools and gauges employed in Textile/FCT industry.
	22007.2	Print job by block printing and screen printing.
	22007.3	Perform relevant basic mechanical operations and functions related to sewing and embroidery.
	22007.4	Perform relevant basic wiring activities of electrical installation in FCT/ Textile industry.

	22007.5	Perform mock drill related to fire fighting in simulated environments.
--	---------	------------------------------------------------------------------------

Course	Course Code	Course Outcomes
SECOND SEMESTER		
Applied Science - 22202	22211.1	Use relevant capacitors in electrical circuits.
	22211.2	Use equipment/instruments based on radioactive and ultrasonic principles.
	22211.3	Use equipment/instruments based on photoelectric effect, X-Rays and LASER.
	22211.4	Select relevant water treatment process for various applications.
	22211.5	Use relevant electrolyte in batteries for different applications.
	22211.6	Use relevant metal, alloys and insulating material in various applications.
Fundamentals Of Electrical Engineering - 22212	22212.1	Determine various parameters use in electric circuit.
	22212.2	Use basic laws of electric engineering.
	22212.3	Make use of capacitor in different conditions.
	22212.4	Use principles of magnetism.
	22212.5	Use principles of electromagnetisms.
Elements Of Electronics - 22213	22213.1	Use relevant diode in different electronics circuit.
	22213.2	Use diode in rectifiers and filters.
	22213.3	Use BJT and FET in electronic circuit.
	22213.4	Use DC regulated power supply.
	22213.5	Use transistor as an oscillator.
	22213.6	Use of logic gates in electronic circuits.
Basic Mechanical Engineering 22214	22214.1	Check the broad base working of various types of boilers and steam turbines.
	22214.2	Check the broad base working of diesel engines and gas turbines.
	22214.3	Check the broad base working of petrol replaces Francis turbines.
	22214.4	Check the broad base working of air compressors.
	22214.5	Check the broad base working of refrigeration and air- conditioning systems.
Business Communication Using Computers - 22009	22009.1	Communicate effectively by avoiding barriers in various formal and informal situations.
	22009.2	Communicate skill fully using non-verbal methods of communication.
	22009.3	Give presentations by using audio-visual aids.
	22009.4	Write reports using correct guidelines.
	22009.5	Compose e-mail and formal business letter.
Applied Mathematics - 22210	22210.1	Calculate the equation of tangent, maxima, minima, radius of curvature by differentiation.
	22210.2	Solve the given problem(s) of integration using suitable method.
	22210.3	Apply the concepts of integration to find the area and volume.
	22210.4	Solve the differential equation of first order and first degree using suitable methods.

	22210.5	Use Laplace transformer to solve first order and first degree differential equations.
--	---------	---------------------------------------------------------------------------------------

Course	Course Code	Course Outcomes
THIRD SEMESTER		
Electrical Circuits - 22324	22324.1	Troubleshoot problems related to single phase A.C series circuits.
	22324.2	Troubleshoot problems related to single phase A.C parallel circuits.
	22324.3	Troubleshoot problems related to three phase circuits.
	22324.4	Use principles of circuit analysis to troubleshoot problems related to electric circuits.
	22324.5	Apply network theorems to troubleshoot problems related to electric circuits.
Electrical and Electronic Measurement - 22325	22325.1	Identify electrical measuring instruments.
	22325.2	Use voltmeter and ammeter for electrical measurement.
	22325.3	Use wattmeter for electrical power measurement.
	22325.4	Use energy meter for electrical energy measurement.
	22325.5	Use various measuring instruments.
Fundamentals of Power Electronic - 22326	22326.1	Select the power electronic devices for specific application.
	22326.2	Maintain the performance of Thyristors.
	22326.3	Troubleshoot turn-off and turn on of circuits of Thyristors.
	22326.4	Maintain the phase controlled rectifiers.
	22326.5	Maintain the industrial control circuits.
Electrical Power Generation - 22327	22327.1	Maintain the optimised working of the thermal power plant.
	22327.2	Maintain the optimised working of large and micro hydro power plants.
	22327.3	Maintain the optimised working of solar and biomass-based power plants.
	22327.4	Maintain the optimised working of wind power plants.
	22327.5	Select the adequate mix of power generation based on economic operation.
Electrical materials and wiring practice 22328	22328.1	Follow safe practices when undertaking electrical works.
	22328.2	Select relevant conductors and electromagnetic /magnetic materials.
	22328.3	Select relevant insulating materials.
	22328.4	Perform different types of electrical wiring/cablings activities.
	22328.5	Implement relevant earthing systems.

Course	Course Code	Course Outcomes
FOURTH SEMESTER		
Electric Motors and Transformers-22418	22418.1	Use different electric motors.
	22418.2	Use different d.c. machines.
	22418.3	Use 1- PH transformer for different applications.
	22418.4	Use 3- PH transformer for different applications.
	22418.5	Use special purpose transformer for different applications.
Electrical Power Transmission and Distribution-22419	22419.1	Interpret the normal operation of the electric transmission and distribution systems.
	22419.2	Maintain the functioning of the medium and high voltage transmission system.
	22419.3	Interpret the parameters of the extra high voltage transmission system.
	22419.4	Do the Maintenance of the functioning of the low voltage AC distribution system.
	22419.5	Do the Maintenance of the components of transmission and distribution lines.
Industrial Measurement-22420	22420.1	Select the relevant transducers for measuring various parameters.
	22420.2	Maintain the different types of pressure transducers.
	22420.3	Maintain the different types of flow transducers.
	22420.4	Maintain the different types of Level transducers.
	22420.5	Maintain the different types of Temperature transducers.
Digital Electronics and Microcontroller Application-22421	22421.1	Use Boolean expression to realize the logic circuits.
	22421.2	Build simple combinational and sequential circuits.
	22421.3	Analyze the architecture of microcontroller ICs.
	22421.4	Write the programs in assembly language for microcontrollers.
	22421.5	Interface the memory and I/O devices to microcontrollers.
Environmental Studies-22447	22447.1	Developed public awareness about environment.
	22447.2	Select alternative energy resources for Engineering practice.
	22447.3	Conserve ecosystem and biodiversity.
	22447.4	Apply the techniques to reduce environmental pollution.
	22447.5	Manage social issues and environmental ethics as lifelong learning.
Electrical Drawing and CAD-22033	22033.1	Draw symbols of electrical components manually.
	22033.2	Draw free hand sketches, isometric views of electrical machines & components.
	22033.3	Use CAD tools to draw symbols of electrical machines & components.
	22033.4	Use CAD tools to create electrical circuits with components.
	22033.5	Use CAD tools to edit electrical line drawings & control panel layouts.

Course	Course Code	Course Outcomes
FIFTH SEMESTER		
Industrial AC Machines-22523	22523.1	Use 3 Ph I.M. for different applications.
	22523.2	Use 1 Ph I.M. for different applications.
	22523.3	Use 3 Ph alternator for different load conditions.
	22523.4	Use synchronous motors for different applications.
	22523.5	Use Fractional HP motors for different applications.
Management - 22509	22509.1	Use basic management principles to execute daily activities.
	22509.2	Use principles of planning and organising for accomplishment of tasks.
	22509.3	Use principles of directing and controlling for implementing the plans.
	22509.4	Apply principles of safety management in all activities.
	22509.5	Understand various provisions of industrial acts.
Switchgear and Protection-22524	22524.1	Identify various types of faults in power system.
	22524.2	Select suitable switchgears for different applications.
	22524.3	Performance of different protective relays.
	22524.4	Protection systems of alternators and transformers.
	22524.5	Protection schemes for motors and transmission lines.
	22524.6	Protection schemes for power system against over voltages.
Energy Conservation and Audit - 22525	22525.1	Interpret energy conservation policies in India.
	22525.2	Implement energy conservation techniques in electrical machines.
	22525.3	Apply energy conservation techniques in electrical installations.
	22525.4	Use Co-generation and relevant tariff for reducing losses in facilities.
	22525.5	Carryout energy audit for electrical system.
Capstone Project Planning - 22052	22052.1	Write problem specifications in existing system.
	22052.2	Select, collect & use required knowledge to solve problem.
	22052.3	Choose possible solution logically.
	22052.4	Consider ethical issues relate to project.
	22052.5	Assess impact of project on society.
	22052.6	Prepare project proposals with action plans & time duration scientifically.
Illumination and Electrification of building - 22530	22530.1	Select relevant Illumination level of various Application.
	22530.2	Select relevant lamp for various Application.
	22530.3	Select lighting accessories required for selected wiring scheme.
	22530.4	Design a controlled circuit for Illumination.
	22530.5	Design Illumination scheme for various Application.
	22530.6	Interpret Illumination scheme for various propose.

Elements of Industrial Automation (Elective) - 22526	22526.1	Maintain the relevant input/output components in industrial control system.
	22526.2	Wire PLCs for different applications.
	22526.3	Troubleshoot the PLC ladder programs for simple applications.
	22526.4	Test the PLC program in different applications.
	22526.5	Maintain the DCS and SCADA for different applications.

Course	Course Code	Course Outcomes
SIXTH SEMESTER		
Maintenance Of Electric Equipment - 22625	22625.1	Follow safe practices to prevent accidents while using Electrical equipment.
	22625.2	Prepare maintenance schedule for Electrical equipment.
	22625.3	Maintain rotating Electrical machines.
	22625.4	Maintain single phase and three phase transformers.
	22625.5	Maintain insulation systems of Electrical equipment.
Utilization Of Electrical Energy - 22626	22626.1	Maintain the functioning of different types lamps and fittings.
	22626.2	Maintenance of different electric heating and welding equipment.
	22626.3	Maintenance of different electric drives and elevator.
	22626.4	Use different electric traction systems.
	22626.5	Judge the equipment for economic operation.
Electrical Estimation And Contracting - 22627	22627.1	Interpret various Electrical diagrams.
	22627.2	Prepare estimate of domestic and commercial Electrical installations.
	22627.3	Prepare estimate of industrial Electrical installations.
	22627.4	Prepare estimate of overhead and underground distribution lines.
	22627.5	Prepare estimate of public lighting installations.
	22627.6	Prepare quotation, tender and other related documents.
Emerging Trends in Electrical Engineering -22628	22628.1	Suggest IOT technologies for Electrical systems.
	22628.2	Suggest the relevant components for implementing a smart grid.
	22628.3	Suggest different Electrical systems for a smart city.
	22628.4	Suggest the relevant MCC or IMCC for the given applications.
	22628.5	Propose the relevant improved tariff and metering for the specified type of consumer.
Capstone Project- Execution and Report Writing-	22060.1	Implement planned activities as individual or as a team.
	22060.2	Select, collect & use required knowledge to solve problems.
	22060.3	Take proper decision based on collected information.

22060	22060.4	Ensure product quality.
	22060.5	Incorporate energy & environment conservation principles.
	22060.6	Consider ethical issues related to project.
	22060.7	Assess impact project on society.
	22060.8	Communicate team members effectively & confidently.
Electrical Substation Practices - 22633	22633.1	Follow safety rules for substation.
	22633.2	Maintain substation earthing & neutral earthing.
	22633.3	Substation equipments & bus bar layout.
	22633.4	Interpret SLD of substation.
	22633.5	Maintain GIS.

Prof. S.R.Ghuge
HOD

Dr. R. S. Narkhede
Principal