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Vidarbha Bahu-uddeshiya Shikshan Sanstha's

TULSIRAMJI GAIKWAD-PATIL
College of Engineering & Technology

DTE CODE : 4151

— POLYTECHNIC —

MSBTE CODE : 1683



3.32 CGPA

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• An ISO 9001:2015 Certified Institution

• Web: www.tgpcetpoly.com

• NH7, Mohgaon, Wardha Road, Nagpur - 441108

• Email: principalpoly@tgpcet.com, 1683principal@msbte.com

• Contact: 97637 11372

ELECTRICAL ENGINEERING DEPARTMENT**COURSE OUTCOMES****FIRST SEMESTER**

SR. NO.	SEM.	NAME OF COURSE	COURSE CODE	CO's	COURSE OUTCOMES
1	1	FUNDAMENTALS OF ICT	22001	CO 1	Use computer system and its peripherals.
				CO 2	Prepare business document using word processing tool.
				CO 3	Interpret data and represent it graphically using spreadsheet.
				CO 4	Prepare professional presentation.
				CO 5	Use different types of web browser.
2	1	ENGINEERING GRAPHICS	22002	CO 1	Draw geometrical figures and engineering curves.
				CO 2	Draw the views of given object using principles of orthographic projection.
				CO 3	Draw isometric views of given component or from orthographic projection
				CO 4	Use Drawing codes, conventions and symbols as per IS SP-46 in engineering drawing.
				CO 5	Draw free hand sketches of given engineering elements.
3	1	WORKSHOP PRACTICE	22004	CO 1	Select tools and machinery according to job.
				CO 2	Use hand tools in different shops for performing different operations.
				CO 3	Operate equipment and machinery in different shops.
				CO 4	Prepare job according to drawing.
				CO 5	Maintain workshop related tools, equipment and machinery.
4	1	ENGLISH	22101	CO 1	Formulate Grammatically Correct sentences.
				CO 2	Summaries comprehension passages
				CO 3	Compose Dialogues and paragraphs for different situation
				CO 4	Use relevant words as per context.
				CO 5	Delivered prepared speeches to express, ideas, thoughts and emotions.



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ELECTRICAL ENGINEERING DEPARTMENT

SR. NO.	SEM.	NAME OF COURSE	COURSE CODE	CO's	COURSE OUTCOMES
5	1	BASIC SCIENCE (PHYSICS & CHEMISTRY)	22102	CO1	Estimate errors in the measurement of physical quantities.
				CO2	Apply the principles of electricity and magnetism to solve engineering problems.
				CO3	Use the basic principles of heat and optics in related engineering problems.
				CO4	Apply the catalysis process in industries
				CO5	Use corrosion preventive measure in industry
				CO6	Use relevant engineering materials in industry.
6	1	BASIC MATHEMATICS	22103	CO1	Apply the concept of algebra to solve engineering related problems.
				CO2	Utilize basic concepts of trigonometry to solve elementary engineering problems.
				CO3	Solve basic engineering problems under given conditions of straight lines.
				CO4	Solve the problems based on measurements of regular closed figure and regular solids.
				CO5	Use the basic concepts of statistic to solve engineering problems.



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ELECTRICAL ENGINEERING DEPARTMENT**COURSE OUTCOMES****SECOND SEMESTER**

SR. NO.	SEM	NAME OF COURSE	COURSE CODE	CO's	COURSE OUTCOMES
1	2	BUSINESS COMMUNICATION USING COMPUTERS	22009	CO1	Communicate effectively by avoiding barriers in various formal and informal situations.
				CO2	Communicate skillfully using non-verbal methods of communication.
				CO3	Give presentation by using audio visual aids.
				CO4	Write reports using correct guidelines.
				CO5	Compose e-mail and formal business letters.
2	2	APPLIED MATHEMATICS	22210	CO1	Calculate the equation of tangent, maxima, minima, radius of curvature by differentiation.
				CO2	Solve the given problem(s) of integration using suitable methods
				CO3	Apply the concepts of integration to find the area and volume.
				CO4	Solve the differential equation of first order and first degree using suitable methods.
				CO5	Use Laplace transform to solve first order first degree differential equations.
3	2	APPLIED SCIENCE (PHYSICS & CHEMISTRY)	22211	CO1	Use relevant capacitors in electrical circuits.
				CO2	Use equipment/instruments based on radioactive ultrasonic principles.
				CO3	Use equipment/instruments based on photoelectric effect, X-Ray and LASER.
				CO4	Select relevant water treatment process for various applications.
				CO5	Use relevant electrolyte in batteries for different applications.
				CO6	Use relevant metals, alloys and insulating materials in various applications.



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ELECTRICAL ENGINEERING DEPARTMENT

SR. NO.	SEM	NAME OF COURSE	COURSE CODE	CO's	COURSE OUTCOMES
4	2	FUNDAMENTALS OF ELECTRICAL ENGINEERING	22212	CO1	Determine various parameters used in electric circuit.
				CO2	Use of basic laws of electrical engineering.
				CO3	Make use of capacitor in different conditions.
				CO4	Use principles of magnetism.
				CO5	Use principles of electromagnetism
5	2	ELEMENTS OF ELECTRONICS	22213	CO1	Use relevant diode in different electronics circuits.
				CO2	Use diode in rectifiers and filters .
				CO3	Use BJT and FET in electronics circuits
				CO4	Use DC regulated power supply.
				CO5	Use Transistor as an oscillator
				CO6	Use of logic gates in electronics circuits
6	2	BASIC MECHANICAL ENGINEERING	22214	CO1	Check the broad based" ·working of various types of boilers and steam turbines.
				CO2	Check the broad based working of diesel engines and gas turbines
				CO3	Check the broad based working or Pelton replace Francis turbines
				CO4	Check the broad based working of air compressors.
				CO5	Check the broad based working of refrigeration and air-conditioning systems



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ELECTRICAL ENGINEERING DEPARTMENT**COURSE OUTCOMES****THIRD SEMESTER**

SR. NO.	SEM	NAME OF COURSE	COURSE CODE	CO's	COURSE OUTCOMES
1	3	ELECTRICAL CIRCUITS	22324	CO1	Troubleshoot problems related to single phase AC series circuit.
				CO2	Troubleshoot problems related to single phase AC parallel circuit.
				CO3	Troubleshoot problems related to three phase circuit.
				CO4	Use principles of circuit analysis to troubleshoot problems related to electrical circuit.
				CO5	Apply network theorems to troubleshoot problems related to electrical circuit.
2	3	ELECTRICAL AND ELECTRONIC MEASUREMENTS	22325	CO1	Identify electrical measuring instruments
				CO2	Use voltmeter and ammeter for electrical measurement
				CO3	use wattmeter for electrical power measurement
				CO4	use energy meter for electrical energy measurement
				CO5	use measuring instrument
3	3	FUNDAMENTALS OF POWER ELECTRONICS	22326	CO1	Select power electronics devices for specific applications.
				CO2	Maintain the performance of Thyristors.
				CO3	Troubleshoot turn-on and turn-off circuits of Thyristors.
				CO4	Maintain phase controlled rectifiers.
				CO5	Maintain industrial control circuits.



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ELECTRICAL ENGINEERING DEPARTMENT

SR. NO.	SEM	NAME OF COURSE	COURSE CODE	CO's	COURSE OUTCOMES
4	3	ELECTRICAL POWER GENERATION	22327	CO1	Maintain the optimised working of the thermal power plant.
				CO2	Maintain the optimised working of large and micro hydro power plants.
				CO3	Maintain the optimised working of solar and biomass-based power plants.
				CO4	Maintain the optimised working of wind power plants.
				CO5	Select the adequate mix of power generation based on economic operation.
5	3	ELECTRICAL MATERIALS AND WIRING PRACTICE	22328	CO1	Follow safe practices when undertaking electrical works.
				CO2	Select relevant conductors and electromagnetic materials.
				CO3	Select relevant insulating materials.
				CO4	Perform different types of electrical wiring/cabling activities.
				CO5	Implement relevant earthing system.



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ELECTRICAL ENGINEERING DEPARTMENT**COURSE OUTCOMES****FOURTH SEMESTER**

SR. NO.	SEM	NAME OF COURSE	COURSE CODE	CO's	COURSE OUTCOMES
1	4	ELECTRIC MOTORS AND TRANSFORMERS	22418	CO1	Use different electric motors.
				CO2	Use DC machines.
				CO3	Use single phase transformer for different applications.
				CO4	Use three phase transformers for different applications.
				CO5	Use relevant special purpose transformers to different applications.
2	4	ELECTRICAL DRAWING AND CAD	22033	CO1	Draw the symbolic representation of electrical components manually.
				CO2	Draw free hand sketches, isometric and orthographic views of electrical machines and components.
				CO3	Use CAD tools to draw simple electrical components and machines.
				CO4	Use CAD to create electrical circuits with components.
				CO5	Edit electrical line drawing and control panel layouts in CAD.
3	4	ELECTRICAL POWER TRANSMISSION AND DISTRIBUTION	22419	CO1	Interpret the normal operation of the electric transmission and distribution systems.
				CO2	Maintain the functioning of the medium and high voltage transmission system.
				CO3	Interpret the parameters of the extra high voltage transmission system.
				CO4	Maintain the functioning of the low voltage AC distribution system.
				CO5	Maintain the components of the transmission and distribution lines.



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ELECTRICAL ENGINEERING DEPARTMENT

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4	4	INDUSTRIAL MEASUREMENT	22420	CO1	Select the relevant transducers for measuring various parameters.
				CO2	Maintain the different types of pressure transducers.
				CO3	Maintain the different types of flow transducers.
				CO4	Maintain the different types of level transducers.
				CO5	Maintain the different types of temperature transducers
5	4	DIGITAL ELECTRONICS AND MICROCONTROLLER APPLICATION	22421	CO1	Use Boolean expressions to realize logic circuits.
				CO2	Build simple combinational and sequential circuits.
				CO3	Analyse the architecture of microcontroller ICs .
				CO4	Write programs in assembly language for micro controllers.
				CO5	Interface the memory and J/O devices to microcontrollers.
6	4	ENVIRONMENTAL STUDIES	22447	CO1	Develop Public awareness about environment
				CO2	Select alternative energy resources for Engineering Practice
				CO3	Conserve Ecosystem and Biodiversity
				CO4	Apply techniques to reduce Environmental Pollution
				CO5	Manage social issues and Environmental Ethics as lifelong learning



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ELECTRICAL ENGINEERING DEPARTMENT**COURSE OUTCOMES****FIFTH SEMESTER**

SR. NO.	SEM	NAME OF COURSE	COURSE CODE	CO's	COURSE OUTCOMES
1	5	ENTERPRENURESHIP DEVELOPMENT	22032	CO1	Identify your entrepreneurial traits.
				CO2	Identify the business opportunities that suits you.
				CO3	Use the support systems to zero down to your business idea.
				CO4	Develop comprehensive business plans.
				CO5	Prepare plans to manage the enterprise effectively
2	5	INDUSTRIAL TRAINING	22057	CO1	Communicate effectively (verbal as well as written) the execute work.
				CO2	Prepare the industry report of the executed work.
				CO3	Exercise time management and safety in the work environment.
				CO4	Work in teams for successful completion of projects assuring quality.
3	5	CAPSTONE PROJECT PLANNING	22058	CO1	Write the problem/task specification in existing systems related to the occupation.
				CO2	Select, collect and use required information/knowledge to solve the problem/complete the task.
				CO3	Logically choose relevant possible solution(s).
				CO4	Consider the ethical issues related to the project (if there are any). Assess the impact of the project on society (if there is any).
				CO5	Prepare 'project proposals with action plan and time duration scientifically before beginning of project
				CO6	communicate effectively and confidently as a member and leader of team



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ELECTRICAL ENGINEERING DEPARTMENT

SR. NO.	SEM	NAME OF COURSE	COURSE CODE	CO's	COURSE OUTCOMES
4	5	MANAGEMENT	22509	CO1	Use basic management principles to execute daily activities
				CO2	Use principles of planning and organising for accomplishment of tasks
				CO3	Use principles of directing and controlling for implementing the plans
				CO4	Apply principles of safety management in all activities
				CO5	Understand various provisions of industrial
5	5	INDUSTRIAL AC MACHINES	22523	CO1	Use the relevant three phase induction motor (IM) for different applications.
				CO2	Use the relevant single phase induction motors in different applications.
				CO3	Use the relevant three phase alternator for different load conditions.
				CO4	Use suitable synchronous motors in different applications.
				CO5	Use suitable Fractional HP motors for different applications.
6	5	SWITCHGEAR AND PROTECTION	22524	CO1	Identify various types of faults in power system.
				CO2	Select suitable switchgear for different applications.
				CO3	Test the performance of different protective relays.
				CO4	Maintain protection system of alternators and transformers.
				CO5	Maintain protection schemes for motors and transmission lines.
				CO6	Maintain protection schemes for power system against over voltage.



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7	5	ENERGY CONSERVATION AND AUDIT	22525	CO1	Interpret energy conservation policies in India.
				CO2	Implement energy conservation techniques in electrical machines.
				CO3	Apply energy conservation techniques in electrical installations.
				CO4	Use Co-generation and relevant tariff for reducing losses in facilities.
				CO5	Carryout energy audit for electrical system.
8	5	ILLUMINATION AND ELECTRIFICATION OF BUILDINGS	22530	CO1	Select The Relevant Illumination Levels For Various Application
				CO2	Select The Relevant Lamps For Various Application
				CO3	Select The Lighting Accessories Required For Selected wiring Scheme
				CO4	Design A Control Circuit For Illumination
				CO5	Design A Illumination Scheme For Various Application
				CO6	Interpret The Illumination Scheme For various purposes



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ELECTRICAL ENGINEERING DEPARTMENT**COURSE OUTCOMES****SIXTH SEMESTER**

SR. NO.	SEM	NAME OF COURSE	COURSE CODE	CO's	COURSE OUTCOMES
1	6	CAPSTONE PROJECT - EXECUTION & REPORT WRITING	22060	CO1	Implement the planned activity individually and/or as team.
				CO2	Select , collect and use required information /knowledge to solve the identified problem, Take appropriate decisions based on collected and analysed information.
				CO3	Ensure quality in product.
				CO4	Incorporate energy and environment conservation principles, Consider the ethical issues related to the project, Assess the impact of the project on society.
				CO5	Communicate effectively and confidently as a member and leader of team.
				CO6	Prepare project report after performing due plagiarism check using appropriate tools.
2	6	MAINTENANCE OF ELECTRIC EQUIPMENT	22625	CO1	Follow safe practices to prevent accidents while using electrical equipment
				CO2	Prepare maintenance schedules for electrical equipment
				CO3	Maintain rotating electrical machines
				CO4	Maintain single phase and three phase transformers
				CO5	Maintain insulation systems of electrical equipment
3	6	UTILIZATION OF ELECTRICAL ENERGY	22626	CO1	Maintain the functioning of different types of lamps and fittings
				CO2	Maintain different electric heating and welding equipment
				CO3	Maintain different electric drives and elevators
				CO4	Use different electric traction systems
				CO5	Use equipment for economic operation



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4	6	ELECTRICAL ESTIMATION AND CONTRACTING	22627	CO1	Interpret various electrical diagrams
				CO2	Prepare estimate of domestic and commercial electrical installations
				CO3	Prepare estimate of industrial electrical installations
				CO4	Prepare estimate of overhead and underground distribution lines
				CO5	Prepare estimate of public lighting installations
				CO6	Prepare quotation, tender and other related documents
5	6	EMERGING TRENDS IN ELECTRICAL ENGINEERING	22628	CO1	Suggest the relevant IOT technologies for electrical systems
				CO2	Suggest the relevant components for implementing a smart grid
				CO3	Suggest different electrical systems for a smart city
				CO4	Suggest the relevant MCC or IMCC for the given application
				CO5	Propose the relevant improved tariff and metering for the specified type of consumer
6	6	ELECTRIC SUBSTATION PRACTICES (EE/EP/EU)	22633	CO1	Follow safety rules for Substation.
				CO2	Maintain substation earthing and neutral grounding.
				CO3	Maintain the Sub-station Equipment and Bus bar layout
				CO4	Interpret single line diagram of substation.
				CO5	Maintain Gas insulated Substation