



NAAC Accredited

Vidarbha Bahu-uddeshiya Shikshan Sanstha's

**TULSIRAMJI GAIKWAD-PATIL**  
**College of Engineering & Technology**

DTE CODE : 4151

— POLYTECHNIC —

MSBTE CODE : 1683



3.32 CGPA

(Approved by AICTE, New Delhi and Govt. of Maharashtra &amp; Affiliated to MSBTE, Mumbai)

• An ISO 9001:2015 Certified Institution

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• NH7, Mohgaon, Wardha Road, Nagpur - 441108

• Email: [principalpoly@tgpcet.com](mailto:principalpoly@tgpcet.com), [1683principal@msbte.com](mailto: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	BASIC MATHEMATICS	311302	CO1	Apply the concepts of algebra to solve engineering (discipline) related problems.
				CO2	Utilize trigonometry to solve branch specific engineering problems.
				CO3	Solve area specific engineering problems under given conditions of straight lines.
				CO4	Apply differential calculus to solve discipline specific problems.
				CO5	Use techniques and methods of statistics to crack discipline specific problems.
2	1	COMMUNICATION SKILLS (ENGLISH)	311303	CO1	Construct grammatically correct sentences in English.
				CO2	Compose paragraphs and dialogues on given situations
				CO3	Comprehend passages correctly.
				CO4	Use contextual words in English appropriately
				CO5	Deliver effective presentations in English using appropriate body language
3	1	BASIC SCIENCE (PHYSICS & CHEMISTRY)	311305	CO1	Use basic instruments to measure the physical quantities in various engineering situations.
				CO2	Apply the basic principles of electromagnetics to solve given engineering problems.
				CO3	Apply basic principles of thermometry and fibre optics to solve engineering problems.
				CO4	Predict the structure, properties and behaviour of molecules and compounds based on the types of chemical bond.
				CO5	Apply the concepts of electrochemistry and corrosion preventive measures in industry.
				CO6	Use the appropriate engineering material and catalyst appropriately.



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**ELECTRICAL ENGINEERING DEPARTMENT**

SR. NO.	SEM	NAME OF COURSE	COURSE CODE	CO's	COURSE OUTCOMES
4	1	FUNDAMENTALS OF ICT	311001	CO1	Use computer system and its peripherals for given purpose
				CO2	Prepare Business document using Word Processing Tool
				CO3	Analyze Data and represent it graphically using Spreadsheet
				CO4	Prepare professional Slide Show presentations
				CO5	Use different types of Web Browsers and Apps
				CO6	Explain concept and applications of Emerging Technologies
5	1	YOGA AND MEDITATION	311003	CO1	Practice basic Yoga and Pranayama in daily life to maintain physical and mental fitness.
				CO2	Practice meditation regularly for improving concentration and better handling of stress and anxiety.
				CO3	Follow healthy diet and hygienic practices for maintaining good health.
6	1	ENGINEERING WORKSHOP PRACTICES	311005	CO1	Use firefighting tools and equipment.
				CO2	Prepare job using different tools in fitting shop.
				CO3	Perform various operations using plumbing and carpentry tools.
				CO4	Prepare various welding joints.
7	1	ENGINEERING GRAPHICS	311006	CO1	Draw geometrical figures and engineering curves.
				CO2	Apply principles of orthographic projections for drawing given pictorial views.
				CO3	Draw isometric views of given component or from orthographic projections.
				CO4	Use various drawing codes, conventions and symbols as per IS SP-46 in engineering drawing.
				CO5	Draw free hand sketches of given engineering elements.



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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	APPLIED MATHEMATICS	312301	CO1	Solve the broad-based engineering problems of integration using suitable methods.
				CO2	Use definite integration to solve given engineering related problems.
				CO3	Apply the concept of differential equation to find the solutions of given engineering problems.
				CO4	Employ numerical methods to solve programme specific problems.
				CO5	Use probability distributions to solve elementary engineering problems.
2	2	APPLIED SCIENCE (PHYSICS & CHEMISTRY)	312308	CO1	Select relevant material in industries by analyzing its physical properties .
				CO2	Apply the concept of simple harmonic motion , resonance and ultrasonic sound for various engineering applications.
				CO3	Apply the concept of modern Physics ( X-rays, LASER, Photosensors and Nanotechnology ) for various engineering applications.
				CO4	Use the relevant metallurgical processes in different engineering applications.
				CO5	Use relevant water treatment processes to solve industrial problems.
				CO6	Use appropriate fuel and electrolyte for engineering applications.
3	2	FUNDAMENTALS OF ELECTRICAL ENGINEERING	312310	CO1	Determine various parameters used in electric circuit.
				CO2	Use basic laws of electrical engineering in D.C. Circuits.
				CO3	Use capacitor and battery in electrical circuits.
				CO4	Use principles of magnetism in Magnetic Circuits.
				CO5	Apply Laws of electromagnetism in electrical circuit and systems.



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**ELECTRICAL ENGINEERING DEPARTMENT**

SR. NO.	SEM	NAME OF COURSE	COURSE CODE	CO's	COURSE OUTCOMES
4	2	ELEMENTS OF ELECTRONICS	312309	CO1	Identify various electronic components
				CO2	Use semiconductor diodes in different applications.
				CO3	Use semiconductor transistors in different applications.
				CO4	Use different types of Oscillators as per requirement
				CO5	Test operation of regulated power supply.
5	2	BASIC MECHANICAL ENGINEERING	312006	CO1	Find faults in Thermal Power Plant using acquired knowledge and skills in a given situation.
				CO2	Diagnose faults of Material handling system using acquired knowledge and skills.
				CO3	Identify faults of Hydraulic turbines and Hydraulic pumps in a given situation.
				CO4	Diagnose faults of given Air compressor and Refrigeration system using acquired knowledge and skills.
6	2	BUSINESS COMMUNICATION USING COMPUTERS	312003	CO1	Enhance the ability to be fully self-aware and take challenges by overcoming all fears and insecurities and grow fully.
				CO2	Increase self-knowledge and awareness of emotional skills and emotional intelligence at the place of study/work.
				CO3	Provide the opportunity to realizing self-potential through practical experience while working individually or in group.
				CO4	Develop interpersonal skills and adopt good leadership behaviour for self-empowerment and empowerment of others.
				CO5	Set appropriate life goals with managing stress and time effectively.
7	2	PROFESSIONAL COMMUNICATION	312002	CO1	Communicate effectively (oral / spoken and Written) in various formal and informal situations minimizing the barriers.
				CO2	Develop listening skills through active listening and note taking.
				CO3	Write circulars, notices and minutes of the meeting.
				CO4	Draft inquiry letter, complaint letter , Job application with resume / CV, Compose effective E - mails .
				CO5	Write Industrial reports.



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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 AND NETWORK	313332	CO1	Analyze the parameters of single-phase AC series circuits
				CO2	Analyze the parameters of single-phase AC parallel circuits
				CO3	Analyze the parameters of polyphase AC circuits.
				CO4	Apply network reduction methods to solve DC circuits.
				CO5	Apply network theorems to solve basic electrical circuits.
2	3	ELECTRICAL POWER GENERATION, TRANSMISSION AND DISTRIBUTION	313333	CO1	Maintain the optimised working of the thermal power plant and hydro power plant
				CO2	Select the relevant power generation technology based on economic operation.
				CO3	Interpret the normal operation and parameters of the electric transmission system
				CO4	Interpret the parameters of the extra high voltage transmission system
				CO5	Maintain the functioning and operation of electric power distribution system.
3	3	ELECTRICAL AND ELECTRONIC MEASUREMENT	313334	CO1	Apply the basics of measurement to the measuring instruments
				CO2	Measure precisely electrical power and energy using appropriate meters.
				CO3	Use digital measuring instruments for different applications.
				CO4	Maintain required pressure for given application using pressure transducer
				CO5	Use appropriate transducer for maintaining required flow, level and temperature in given application.



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### ELECTRICAL ENGINEERING DEPARTMENT

SR. NO.	SEM	NAME OF COURSE	COURSE CODE	CO's	COURSE OUTCOMES
4	3	FUNDAMENTALS OF POWER ELECTRONICS	313335	CO1	Test the functionality of a given power electronic device
				CO2	Test the switching performance of a thyristor.
				CO3	Test the performance of given controlled converter.
				CO4	Test the performance of given chopper.
				CO5	Use suitable power electronic circuit for given application.
5	3	ESSENCE OF INDIAN CONSTITUTION	313002	CO1	List salient features and characteristics of the constitution of India.
				CO2	Follow fundamental rights and duties as responsible citizen of the country.
				CO3	Analyze major constitutional amendments in the constitution.
				CO4	Follow procedure to cast vote using voter-id
6	3	ELECTRICAL MATERIAL AND WIRING PRACTICE	313015	CO1	Follow safe working practices when undertaking electrical work.
				CO2	Select relevant conducting, electromagnetic and magnetic materials.
				CO3	Select relevant insulating materials
				CO4	Perform different types of electrical wiring and cabling activities
				CO5	Implement relevant earthing systems.





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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	ENVIROMENTAL EDUCATION AND SUSTAINBILITY	314301	CO1	Identify the relevant Environmental issues in specified locality.
				CO2	Provide the green solution to the relevant environmental problems.
				CO3	Conduct SWOT analysis of biodiversity hotspot
				CO4	Apply the relevant measures to mitigate the environmental pollution.
				CO5	Implement the environmental policies under the relevant legal framework.
2	4	D.C. MACHINES AND TRANSFORMERS	314322	CO1	Test the performance of D.C. Generators
				CO2	Test the performance of D.C. Motors
				CO3	Test the performance of Single phase transformers
				CO4	Use three phase transformer for different applications
				CO5	Use relevant special purpose transformers for different applications.
3	4	UTILIZATION OF ELECTRICAL ENERGY	314323	CO1	Design simple lighting scheme..
				CO2	Select type of electric furnaces according to applications
				CO3	Operate the different electric welding system
				CO4	Select suitable electric drive for a particular application
				CO5	Maintain different electric traction system.



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### ELECTRICAL ENGINEERING DEPARTMENT

SR. NO.	SEM	NAME OF COURSE	COURSE CODE	CO's	COURSE OUTCOMES
4	4	DIGITAL ELECTRONICS AND MICROCONTROLLER APPLICATION	314324	CO1	Apply knowledge of number system and logic circuits in working of digital system.
				CO2	Build simple combinational and sequential circuits
				CO3	Access various registers in 8051 microcontroller
				CO4	Develop and execute programs in assembly language for microcontroller
				CO5	Use microcontroller in various applications.
5	4	ELECTRICAL ESTIMATING AND CONTRACTING	314325	CO1	Prepare generic tender document, quotation, comparative statement, and supply order
				CO2	Prepare estimate of domestic and commercial electrical installations.
				CO3	Prepare estimate of industrial electrical installations.
				CO4	Prepare estimate of public lighting installations.
				CO5	Prepare estimate of overhead and underground distribution lines.
6	4	COMPUTER AIDED DRAWING AND SIMULATION.	314008	CO1	Comprehend Electrical Drawings
				CO2	Locate various components of CAD software.
				CO3	Use relevant CAD Tools and Commands for Electrical Drawings.
				CO4	Draw different Electrical Drawings using CAD software
				CO5	Simulate Basic Electrical and Electronic circuits.





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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	A.C. MACHINES PERFORMANCE	315333	CO1	Test the performance of three phase induction motor.
				CO2	Control the speed of three phase induction motor using appropriate technique(s)
				CO3	Use single phase induction motor for industrial applications.
				CO4	Test the performance of three phase alternator.
				CO5	Use special purpose electrical machines for industrial applications.
2	5	SWITCHGEAR AND PROTECTION	315334	CO1	Recognize the different types of faults occurring in power system.
				CO2	Select the suitable switchgears for different applications.
				CO3	Test the performance of different protective relays.
				CO4	Use suitable protection schemes for alternators, motors, transformers, busbars and transmission lines.
				CO5	Select suitable protection schemes for power system against over voltages.
3	5	ENTREPRENEURSHIP DEVELOPMENT AND STARTUPS	315002	CO1	Identify one's entrepreneurial traits.
				CO2	Use information collected from stakeholder for establishing/setting up/founding starts up
				CO3	Use support systems available for Starts up
				CO4	Prepare project plans to manage the enterprise effectively



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**ELECTRICAL ENGINEERING DEPARTMENT**

SR. NO.	SEM	NAME OF COURSE	COURSE CODE	CO's	COURSE OUTCOMES
4	5	SEMINAR AND PROJECT INITIATION COURSE	315003	CO1	Identify topics of seminar presenting to the large gathering at the institute/conference.
				CO2	Collect relevant and updated research-based data and information to prepare a paper of seminar presentation.
				CO3	Apply presentation skills.
				CO4	Create conducive environment for learning and discussion through seminar presentation.
				CO5	Identify a problem statement and establish the action plan for the successful completion of the project.
5	5	INTERNSHIP	315004	CO1	Observe time/resource management and industrial safety aspects.
				CO2	Acquire professional experience of industry environment .
				CO3	Establish effective communication in working environment.
				CO4	Prepare report of assigned activities and accomplishments.
6	5	RENEWABLE ENERGY TECHNOLOGY	315337	CO1	Test the performance of the solar panels.
				CO2	Maintain working of small wind turbines.
				CO3	Utilize small-capacity hydrogen fuel cell systems for various applications.
				CO4	Maintain basic components of biogas plant.
				CO5	Identify major components of the geothermal, ocean and small hydro power plants.



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COURSE OUTCOMES

SIXTH SEMESTER