Agnihotri College of Engineering

Nagthana Road, Wardha

Department of Electrical Engineering

B.Tech 3rd Semester

Course Outcome's

Electrical Engineering Mathematics	
BTCHEE301T	
After successful completion of this course the student will be able to:	
CO1	Solution of Partial Differential Equations of First Order First Degree, Numerical Solution to Ordinary differential equations
CO2	Formulation and solving the systems with complex variable
CO3	Understanding the basics of various Transforms and converting the functions into required transforms, Laplace Transforms analysis and its application to solve differential equations
CO4	Application of Differential equations and Laplace Transform for mathematical model formulation of the physical systems, Understanding the concept of transfer function
CO5	Understanding the concepts of Stochastic analysis and its application
Network Analysis	
BTCHEE302T	
After successful completion of this course the student will be able to:	
CO1	Apply mesh current and node voltage methods to analyze electrical circuit
CO2	Apply network theorems for the analysis of networks
CO3	Obtain transient and steady-state responses of electrical circuits.
CO4	Synthesize waveforms and apply Laplace transforms to analyze networks.
CO5	Evaluate different Network Functions and understand two port network behavior
Electrical Measurement and Instrumentation	
BTCHEE303T	
After successful completion of this course the student will be able to:	
CO1	Various aspects of measurement and instrumentation.
CO2	Different active and passive components measurement methods.
CO3	Power and Energy measurement.
CO4	Instrument Transformers.
CO5	Aspects and types of transducers.
Analog Devices & Circuits	
BTCHEE304T	
After successful completion of this course the student will be able to:	
CO1	Design and Analyze rectifier circuits
CO2	Understand the characteristics and use of a transistor as amplifiers
CO3	Apply the knowledge of transistor for the analysis of power amplifiers and oscillators.
CO4	Understand OP-AMPs.
CO5	Analyze and utilize OP-AMPs

Renewable Energy Studies	
BTCHEE305T	
After successful completion of this course the student will be able to:	
CO1	Memorize the fundamental of solar radiation geometry
CO2	Identify and analyse the process of power generation through solar photovoltaic
CO3	Highlighting the various applications of Solar Energy.
CO4	Outline the site requirement criteria for wind farm & compare different types of wind generators
CO5	Identifying non-conventional Energy sources such as Geothermal, MHD, Biomass, Fuel cell, Tidal, Ocean for generating ElectricitY
Introduction To Python Programming	
BTCHEE306T	
After successful completion of this course the student will be able to:	
CO1	Identify different operators and execute different programs using loops
CO2	Analyse Strings, List, Tuples, Dictionary and Sets
CO3	Illustrate functions and utilise Date Time in programming language.

Agnihotri College of Engineering

Nagthana Road, Wardha

Department of Electrical Engineering

B.Tech 4th Semester

Course Outcome's

SIGNAL AND SYSTEMS	
BTCHEE401T	
After successful completion of this course the student will be able to:	
CO1	Understanding the basics of signal space theory
CO2	Understanding the concepts of state space representation
CO3	Understand convolution sum of two signals
CO4	Apply Fourier and Laplace transforms, understand the duality Apply DFT, DTFT and z-transform
CO5	Understand the concept of sampling and reconstruction
DIGITAL ELECTRONICS	
BTCHEE402T	
After successful completion of this course the student will be able to:	
CO1	Understand number system, logic gates and logic families.
CO2	Design and implement combinational digital circuits.
CO3	Design and implement sequential logic circuits.
CO4	Understand the process of Analog to Digital conversion and Digital to Analog conversion.
CO5	Understand memories and PLDs to implement given logic.
ELECTRICAL MACHINES-I	
BTCHEE403T	
After successful completion of this course the student will be able to:	
CO1.	Determine Equivalent Circuit parameter, Efficiency and Regulation of Single Phase Transformer and to Explain the Phasor groups of Three Phase Transformer.
CO2.	Analyze different characteristics of D. C. Motor and Speed Control of D.C. Motor.
CO3.	Explain different types of Three Phase Induction Motor and Analyze the characteristics at different Value of Slip.
CO4.	Know Voltage Regulation of Three Phase Synchronous Generator and Behavior of Synchronous Motor with Different Excitations
CO5.	Understand Single Phase Machines and Special Machines.
POWER SYSTEM	
BTCHEE404T	
After successful completion of this course the student will be able to:	
CO1	Understand the basic structure of power system, smart grid and micro-grid.
CO2	Model and represent the power system components in its per unit value.
CO3	Learn the parameters of transmission lines and cables.
CO4	Evaluate the performance of transmission lines.
CO5	Acquaint with the method of load flow analysis and the concept of voltage stability.

ELECTROMAGNETIC FIELDS	
BTCHEE405T	
After successful completion of this course the student will be able to:	
CO1	Recognize and apply the knowledge of different co-ordinate systems.
CO2	Evaluate the physical quantities of electromagnetic fields in different media and apply Gauss law.
CO3	Describe static electric fields boundary conditions, nature of dielectric materials and evaluate potential fields.
CO4	Explain steady magnetic fields, their behavior in different media, associated laws and inductance.
CO5	Understand Maxwell's equations in different forms and different media.
SIMULATION & PROGRAMMING TECHNIQUES	
BTCHEE406T	
After successful completion of this course the student will be able to:	
CO1	Learn the basics of C programming and apply the knowledge for developing small programs including Function.
CO2	Apply the knowledge of C language for developing simple programs using variables, arrays, structures etc. for applications like searching and sorting, use of pointers & File handling functions.
CO3	Understand the basics of C++
CO4	Study the basic of MATLAB and apply fundamental knowledge for analysis of basic engineering problems.
CO5	Apply knowledge of MATLAB, Toolboxes and Simulink to solve matrix equations, plot graphs, build and analyze simple electrical circuits.

Agnihotri College of Engineering

Nagthana Road, Wardha

Department of Electrical Engineering

B.Tech 5th Semester

Course Outcome's

MICROPROCESSOR AND MICROCONTROLLERS	
BTCHEE501T	
After successful completion of this course the student will be able to:	
CO1	Describe internal organisation of 8085 and 8086 microprocessor and 8051 microcontrollers.
CO2	Describe the concept of addressing modes and timing diagram of microprocessor.
CO3	Interface 8085 & 8051 with keyboard/ Display, ADC/DAC, Stepper motor etc.
CO4	Demonstarte the concept of intterupt and its use.
CO5	Demonstrate the concept of serial & parallel data communication.
CO6	Describe Handshaking concept and interfacing with peripheral devices.
CO7	Interface various hardware with microprocessor and microcontroller.
CONTROL SYSTEMS	
BTCHEE502T	
After successful completion of this course the student will be able to:	
CO1	Model the linear systems and study the control system components specifications through classical and state variable approach.
CO2	Understand the time response and time response specifications and different controllers.
CO3	Analyze the absolute stability and analyze the relative stability through root locus method.
CO4	Frequency response tools like bode plat and nyquist plot.
CO5	Understand the concept of state varible approach.
POWER ELECTRONICS	
BTCHEE503T	
After successful completion of this course the student will be able to:	
CO1	Knowledge of different types of semiconductor switches and their characteristics.
CO2	Knowledge of different types of power conversion system with their operation.
CO3	Knowledge of various rectifier circuits at loading conditions.
CO4	Knowledge of various operating modes of inverter and control circuits.
CO5	Knowledge of different DC-DC conversion circuit & four quadrant operation.
ADVANCED ELECTRICAL POWER SYSTEM	
BTCHEE504T	
After successful completion of this course the student will be able to:	
CO1	Apply syammetrical components concepts in fault analysis.
CO2	Evaluate fault currents for different types of faults.
CO3	Appreciate concepts of power system stability.
CO4	Understand methods to control the voltage, frequency and power flow.
CO5	Understand economic operation of power system.

POWER STATION PRACTICE	
BTCHEE505T	
After successful completion of this course the student will be able to:	
CO1	Understand various sources of electrical energy and different factors related to generating stations and connected load.
CO2	Study general layout, major equipments and auxiliaries in thermal power station.
CO3	Understand the basic principle of hydro power station.
CO4	Learn basics of nuclear power generation.
CO5	Understand the different excitation systems, captive and cogeneration.

Agnihotri College of Engineering

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Department of Electrical Engineering

B.Tech 6th Semester

Course Outcome's

ENGINEERING ECONOMICS & INDUSTRIAL MANAGEMENT	
BTCHEE601T	
After successful completion of this course the student will be able to:	
CO1	Understand the concept of demand and supply and its relationship with the price
CO2	Related various factors of production with reference to different economic sectors
CO3	Analyze the causes and effects of inflation and understand the market structure
CO4	Acquire knowledge of various functions of management and marketing management
CO5	Perceive the concept of financial management for the growth of business.
COMPUTER APPLICATIONS IN POWER SYSTEM	
BTCHEE602T	
After successful completion of this course the student will be able to:	
CO1	Students will be able to determine bus Impedance & Admittance matrix by singular transformation for power system.
CO2	Determine bus Impedance & Admittance matrix by inspection and building algorithm and able to accommodate changes in Power System
CO3	Do the Short circuit calculation for symmetrical and unsymmetrical fault using bus impedance and admittance matrix.
CO4	Do the load flow analysis by N-R method and Transient stability analysis by Modified Eulers method.
SWITCH GEAR AND PROTECTION	
BTCHEE603T	
After successful completion of this course the student will be able to:	
CO1	Understand basic terminology of Protective Relaying, different types of faults and components used in Power System protection.
CO2	Apply over-current protection schemes for Medium voltage lines.
CO3	Apply various distance protection schemes for High voltage lines.
CO4	Understand differential and other protections used for Generator, Transformer and Motors
CO5	Comprehend switching phenomenon and working of various types of circuit breakers.
ENVIRONMENTAL ENGINEERING (OPEN ELECTIVE-I)	
BECVE605T	
After successful completion of this course the student will be able to:	
CO1	Explore the components of biosphere and impact of human activity on environment.
CO2	Summarize the causes and sources of pollutants, and their impact on global environment.
CO3	Develop ethics and scientific awareness about waste generation and treatment.
CO4	Identify sources and types of wastes and its management.
CO5	Understand noise, noise pollution and control.

ELECTRICAL DRIVES & THEIR CONTROL	
BTCHEE605T	
After successful completion of this course the student will be able to:	
CO1	Understand the concept of Electrical characteristics like starting, speed control and braking along with numerical
CO2	Relate various factors of industries with reference to PLC, its programming and Digital Control
CO3	Analyze the causes and effects of motor control used in Electric Vehicle
CO4	Acquire knowledge of various electrical drives used in industries, AC & DC contactors and work on drives used in Industries
CO5	Perceive the concept of Electric traction and their control strategies used in practice.

Agnihotri College of Engineering

Nagthana Road, Wardha

Department of Electrical Engineering

B.Tech 7th Semester

Course Outcome's

ENERGY MANAGEMENT & AUDIT	
BTCHEE701T	
After successful completion of this course the student will be able to:	
CO1	Explain present energy scenario with need of energy audit and energy conservation.
CO2	Recommend appropriate type of Energy Audit looking into user requirements.
CO3	Prepare process flow, material and energy balance diagrams.
CO4	Prepare energy action plan and strategy for monitoring and targeting as expected of Energy manager
CO5	Select proper energy conservation mechanism for Electrical and Mechanical Systems.
ELECTRICAL INSTALLATION DESIGN	
BTCHEE702T	
After successful completion of this course the student will be able to:	
CO1	Understand concept of electrical load assessment and basics of busbar and cables.
CO2	Identify switches for smooth functioning of protective scheme utilized for short circuit calculations.
CO3	Analyze Power and control circuit for industrial application utilizing Reactive power Management.
CO4	Apply industrial installations and earthling system design.
CO5	Inferring the design of 11kV and 33 kV substations for industrial installations.
INTRODUCTION TO SMART GRID	
BTCHEE703T	
After successful completion of this course the student will be able to:	
CO1	Present energy scenario and feature s of smart grid
CO2	Identify components and computational tools for smooth functioning of smart grid.
CO3	Analyze the various protection issues of smart grid.
CO4	Design smart grid with options like automation.
CO5	Sustainable energy options for the smart grid.
INTRODUCTION TO RENEWABLE ENERGY RESOURCEES (OPEN ELECTIVE-I)	
BTME703T	
After successful completion of this course the student will be able to:	
CO1	Recognize the need of renewable energy sources.
CO2	Understand various solar thermal energy conversion systems and solar photovoltaic systems in detail
CO3	Describe different biogas plants, bio-diesel production method and potential of hydrogen as a fuel
CO4	Explain the working principle of Wind energy systems and ocean thermal energy conversion systems
CO5	Describe the working of Fuel cell system, Geothermal &Magneto hydro dynanie (MHD) power generation systems and Understand the principles of energy conservation.

ANCIENT INDIAN HISITORY	
BTCHEE705T	
After successful completion of this course the student will be able to:	
CO1	Describe the comprehensive understanding of key periods and developments in ancient Indian history, while also fostering critical thinking, analytical skills, and an appreciation for the complexities of historical inquiry.
CO2	Describe the engineering graduates with a comprehensive understanding of the political, cultural, and socio-economic dynamics of ancient India during the Maurya, Shunga, Satavahana, and other related periods, fostering critical thinking and historical analysis skills.
CO3	Describe the engineering graduates with a holistic understanding of the political, cultural, and socio-economic landscape of ancient and medieval India during the periods of the Vikramaditya era, Gupta Dynasty, Pallava Dynasty, Chalukya Dynasty, Chola Dynasty, and Rashtrakuta Dynasty.

Agnihotri College of Engineering

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B.Tech 8th Semester

Course Outcome's

ELECTRICAL SAFETY & STANDARDS	
BTCHEE801T	
After successful completion of this course the student will be able to:	
CO1	Understand the Indian power sector organization and Electricity rules, electrical safety in residential, commercial, agriculture, hazardous areas .
CO2	Outline the electrical safety during installation, testing and commissioning procedure.
CO3	Make use of specification of electrical plants and classification of safety equipment for various hazardous locations.
CO4	Understand Safety Management & Standards in Electrical Systems.
Professional Elective VI ELECTRICAL DISTRIBUTION SYSTEM	
BTCHEE802T	
After successful completion of this course the student will be able to:	
CO1	Understand the general aspects of electrical distribution system
CO2	Design and analysis of distribution feeders and substations
CO3	Understand the need for protection and distribution automation.
CO4	Recognize the significance of voltage drop and power loss in the distribution system
CO5	Understand the need for controlling the PF, Voltage and Power and the equipment used for mitigating them
Professional Elective-VII POWER QUALITY	
BTCHEE803T	
After successful completion of this course the student will be able to:	
CO1	Explain importance of Power Quality and good grounding practices.
CO2	Describe the causes of flickers and transient over voltages and suggest corrective measures.
CO3	Discuss the causes and consequences of voltage sags and suggest mitigation techniques
CO4	Discuss the causes and effects of harmonics and suggest harmonic reduction techniques.
CO5	Explain the need, objectives and approaches of power quality monitoring and assessment.