JCT
College of Engineering and Technology

JCT COLLEGE OF ENGINEERING & TECHNOLOGY

PICHANUR, COIMBATORE-641105

NBA ACCREDITED Engineering 4 Courses PCE | EEE MECH | CSE

ELECTRICAL AND ELECTRONICS ENGINEERING
Regulation 2017

Course Outcomes

Course Code: C113
Course: EE8251- Circuit Theory
On completion of this course the Students will be able to

C113.1	Apply Kirchhoff's current and voltage laws to simple circuit and solve complex circuit using mesh & Nodal method
C113.2	Apply network theorems to solve simple and complex linear circuit
C113.3	Solve the series and parallel resonant circuit analyze the performance of single & double tuned circuit
C113.4	Solve the transient response analysis
C113.5	Understand the Phasor diagrams and three phase circuits

Course Code: C115
Course: GE8261- Engineering Practices Laboratory
On completion of this course the Students will be able to

C115.1	Carry out basic home electrical works and appliances
C115.2	Measure the electrical quantities
C115.3	Elaborate on the components, gates, soldering practices.

Course Code: C116
Course: EE8261- Electric Circuits Laboratory
On completion of this course the Students will be able to

C116.1	Understand and apply circuit theorems and concepts in engineering applications.
C116.2	Simulate electric circuits
C116.3	Understand Analog and digital oscilloscopes

Course Code: C202
Course: EE8351- Digital Logic Circuits
On completion of this course the Students will be able to

C202.1	Design combinational and sequential Circuits
C202.2	Study various number systems and simplify the logical expressions using Boolean functions
C202.3	Design various synchronous and asynchronous circuits
C202.4	Understand asynchronous sequential circuits and PLDs
C202.5	Establish digital simulation for development of application oriented logic circuits.

Course Code: C203
Course: EE8391- Electromagnetic Theory
On completion of this course the Students will be able to

C203.1	Understand the basic mathematical concepts related to electromagnetic vector fields.
C203.2	Understand the basic concepts about electrostatic fields, electrical potential, energy density and their applications.
C203.3	Acquire the knowledge in magneto static fields, magnetic flux density, vector potential and its applications.
C203.4	Understand the different methods of emf generation and Maxwell's equations
C203.5	Understand the basic concepts electromagnetic waves and characterizing parameters
C203.6	Understand and compute Electromagnetic fields and apply them for design and analysis of electrical equipment and systems

Course Code: C204
Course: EE8301- Electrical Machines -I
On completion of this course the Students will be able to

C204.1	Analyze the magnetic-circuits.
C204.2	Acquire the knowledge in constructional details of transformers.
C204.3	Understand the concepts of electromechanical energy conversion.
C204.4	Acquire the knowledge in working principles of DC Generator.
C204.5	Acquire the knowledge in working principles of DC Motor
C204.6	Acquire the knowledge in various losses taking place in D.C. Machines

Course Code: C205
Course: EC8353- Electron Devices and Circuits
On completion of this course the Students will be able to

C205.1	Explain the structure and working operation of basic electronic devices
C205.2	Able to identify and differentiate both active and passive elements
C205.3	Analyze the characteristics of different electronic devices such as diodes and transistors
C205.4	Choose and adapt the required components to construct an amplifier circuit.
C205.5	Employ the acquired knowledge in design and analysis of oscillators

Course Code: C206
Course: ME8792- Power Plant Engineering
On completion of this course the Students will be able to

C206.1	Explain the layout, construction and working of the components inside a thermal power plant.
C206.2	Explain the layout, construction and working of the components inside a Diesel, Gas and Combined cycle power plants.
C206.3	Explain the layout, construction and working of the components inside nuclear power plants.
C206.4	Explain the layout, construction and working of the components inside Renewable energy power plants.
C206.5	Explain the applications of power plants while extend their knowledge to power plant economics and environmental hazards and estimate the costs of electrical energy production.

Course Code: C208
Course: EC8311- Electronics Laboratory
On completion of this course the Students will be able to

C208.1	Ability to understand and analyze electronic circuits.
C208.2	Design and Frequency response characteristics of a Common Emitter amplifier
C208.3	Design and testing of RC phase shift and LC oscillators
C208.4	Understand the behavior of semiconductor

Course Code: C208
Course: EE8311- Electrical Machines Laboratory - I
On completion of this course the Students will be able to

208.1	Understand and analyze DC Generator
208.2	Understand and analyze DC Motor
208.3	Understand and analyze Transformers

Course Code: C210
Course: EE8401- Electrical Machines - II
On completion of this course the Students will be able to

C210.1	Understand the construction and working principle of Synchronous Generator
C210.2	Understand MMF curves and armature windings
C210.3	Acquire knowledge on Synchronous motor.
C210.4	Understand the construction and working principle of Three phase Induction Motor
C210.5	Understand the construction and working principle of Special Machines
C210.6	Predetermine the performance characteristics of Synchronous Machines.

Course Code: C211
Course: EE8402- Transmission and Distribution
On completion of this course the Students will be able to

C211.1	Understand the importance and the functioning of transmission line parameters.
C211.2	Understand the concepts of Lines and Insulators.
C211.3	Acquire knowledge on the performance of Transmission lines.
C211.4	Understand the importance of distribution of the electric power in power system
C211.5	Acquire knowledge on Underground Cables
C211.6	Understand the function of different components used in Transmission and Distribution levels of power system and modeling of these components

Course Code: C212
Course: EE8403- Measurements and Instrumentation
On completion of this course the Students will be able to

C212.1	Acquire knowledge on Basic functional elements of instrumentation
C212.2	Understand the concepts of Fundamentals of electrical and electronic instruments
C212.3	Compare between various measurement techniques
C212.4	Acquire knowledge on Various storage and display devices
C212.5	Understand the concepts Various transducers and the data acquisition systems
C212.6	Model and analyze electrical and electronic Instruments and understand the operational features of display Devices and Data Acquisition System.

Course Code: C213

Course: EE8451- Linear Integrated Circuits and Applications

On completion of this course the Students will be able to

C213.1	Acquire knowledge in IC fabrication procedure
C213.2	Analyze the characteristics of Op-Amp
C213.3	Understand the importance of Signal analysis using Op-amp based circuits.
C213.4	Functional blocks and the applications of special ICs like Timers, PLL circuits, regulator Circuits.
C213.5	Understand and acquire knowledge on the Applications of Op-amp
C213.6	Understand and analyze, linear integrated circuits their Fabrication and Application

Course Code: C214

Course: IC8451- Control Systems

On completion of this course the Students will be able to

C214.1	Develop various representations of system based on the knowledge of Mathematics, Science and Engineering fundamentals.
C214.2	Analyze time domain and frequency domain of various models of linear system.
C214.3	Interpret characteristics of the system to develop mathematical model.
C214.4	Design appropriate compensator for the given specifications.
C214.5	Understand use of PID controller in closed loop system.

Course Code: C215

Course: EE8411- Electrical Machines Laboratory - II

On completion of this course the Students will be able to

C215.1	Understand and analyze EMF and MMF method
C215.2	Analyze the characteristics of V and Inverted V curve
C215.3	Understand the importance of Synchronous machines
C215.4	Understand the importance of Induction Machines
C215.5	Acquire knowledge on separation of losses

Course Code: C216
Course: EE8461- Linear and Digital Integrated Circuits Laboratory
On completion of this course the Students will be able to

C216.1	understand and implement Boolean Functions
C216.2	Understand the importance of code conversion
C216.3	Design and implement 4-bit shift registers
C216.4	Acquire knowledge on Application of Op-Am
C216.5	Design and implement counters using specific counter IC

Course Code: C301
Course: EE8501- Power System Analysis
On completion of this course the Students will be able to

C301.1	Model the power system under steady state operating condition
C301.2	Understand and apply iterative techniques for power flow analysis
C301.3	Model and carry out short circuit studies on power system
C301.4	Model and analyze stability problems in power system
C301.5	Acquire knowledge on Fault analysis.
C301.6	Model and understand various power system components and carry out power flow, short circuit and stability studies

Course Code: C302
Course: EE8551-Microprocessors andMicrocontrollers
On completion of this course the Students will be able to

C302.1	Acquire knowledge in Addressing modes & instruction set of 8085 & 8051.
C302.2	Need & use of Interrupt structure 8085 & 8051.
C302.3	understand the importance of Interfacing
C302.4	Explain the architecture of Microprocessor and Microcontroller.
C302.5	Write the assembly language programme.
C302.6	Develop the Microprocessor and Microcontroller based applications.

Course Code: C303
Course: EE8552- Power Electronics
On completion of this course the Students will be able to

C303.1	Analyze and design AC-AC converters
C303.2	Analyze and design DC-DC converters
C303.3	Analyze and design DC-AC converters
C303.4	Understand the Operation of AC voltage controller and various configurations.
C303.5	Choose the converters for real time applications

Course Code: C304
Course: EE8591-Digital Signal Processing
On completion of this course the Students will be able to

C304.1	Understand the importance of Fourier transform, digital filters and DS Processors.
C304.2	Acquire knowledge on Signals and systems & their mathematical representation.
C304.3	Ability to understand and analyze the discrete time systems.
C304.4	Ability to analyze the transformation techniques & their computation.
C305.5	Understand the types of filters and their design for digital implementation.
C305.6	Acquire knowledge on programmability digital signal processor & quantization effects.

Course Code: C306
Course: OMD551-BASICS OF BIOMEDICAL INSTRUMENTATION
On completion of this course the Students will be able to

C306.1	Learn the different bio potential and its propagation.
C306.2	Familiarize the different electrode placement for various physiological recording
C306.3	Design bio amplifier for various physiological recording
C306.4	Understand various technique non electrical physiological measurements
C306.5	Understand the different biochemical measurements

Course Code: C307
Course: EE8511- Control and Instrumentation Laboratory
On completion of this course the Students will be able to

C307.1	Understand control theory and apply them to electrical engineering problems.
C307.2	Ability to analyze the various types of converters.
C307.3	Design compensators
C307.4	Understand the basic concepts of bridge networks.
C307.5	Understand the basics of signal conditioning circuits.
C307.6	Study the simulation packages.

Course Code: C310
Course: EE8601- Solid State Drives
On completion of this course the Students will be able to

C310.1	Understand and suggest a converter for solid state drive.
C310.2	select suitability drive for the given application
C310.3	Study about the steady state operation and transient dynamics of a motor load system.
C310.4	Analyze the operation of the converter/chopper fed dc drive.
C310.5	Analyze the operation and performance of AC motor drives.
C310.6	Analyze and design the current and speed controllers for a closed loop solid state DC motor drive.

Course Code: C311
Course: EE8602- Protection and Switchgear
On completion of this course the Students will be able to

C311.1	Understand and analyze Electromagnetic and Static Relays.
C311.2	Suggest suitability circuit breaker
C311.3	Find the causes of abnormal operating conditions of the apparatus and system.
C311.4	Analyze the characteristics and functions of relays and protection schemes.
C311.5	Study about the apparatus protection, static and numerical relays.
C311.6	Acquire knowledge on functioning of circuit breaker

Course Code: C312
Course: EE8691- Embedded Systems
On completion of this course the Students will be able to

C312.1	Understand and analyze Embedded systems.
C312.2	Suggest an embedded system for a given application.
C312.3	Operate various Embedded Development Strategies.
C312.4	Study about the bus Communication in processors.
C312.5	Acquire knowledge on various processor scheduling algorithms.
C312.6	Understand basics of Real time operating system

Course Code: C313
Course: GE8075-Intellectual Property Rights
On completion of this course the Students will be able to

C313.1	Manage Intellectual Property portfolio to enhance the value of the firm.

Course Code: C314
Course: EE8006- Power Quality
On completion of this course the Students will be able to

C314.1	Understand various sources, causes and effects of power quality issues, electrical systems and their measures and mitigation.
C314.2	Analyze the causes & Mitigation techniques of various PQ events.
C314.3	Study about the various Active & Passive power filters.
C314.4	Understand the concepts about Voltage and current distortions, harmonics.
C314.5	Analyze and design the passive filters.
C314.6	Acquire knowledge on compensation techniques
C314.7	Acquire knowledge on DVR

Course Code: C315
Course: EE8661 Power Electronics and Drives Laboratory
On completion of this course the Students will be able to

C315.1	Practice and understand converter and inverter circuits and apply software forengineering problems.
C315.2	Experiment about switching characteristics various switches.
C315.3	Analyze about AC to DC converter circuits.
C315.4	Analyze about DC to AC circuits.
C315.5	Acquire knowledge on AC to AC converters
C315.6	Acquire knowledge on simulation software

Course Code: C316
Course: EE8681-Microprocessors and Microcontrollers Laboratory
On completion of this course the Students will be able to

C316.1	Understand and apply computing platform and software for engineering problems.
C316.2	Programming logics for code conversion
C316.3	Acquire knowledge on A/D and D/A.
C316.4	Understand basics of serial communication.
C316.5	Understand and impart knowledge in DC and AC motor interfacing.
C316.6	Understand basics of software simulators.

Course Code: C317
Course: EE8611- Mini Project
On completion of this course the Students will be able to

C317.1	take up their final year project work and find solution by formulating proper methodology

Course Code: C401
Course: EE8701- High Voltage Engineering
On completion of this course the Students will be able to

C401.1	Understand Transients in power system
C401.2	Understand Generation and measurement of high voltage.
C401.3	Understand High voltage testing.
C401.4	Understand various types of over voltages in power system.
C401.5	Measure over voltages.
C401.6	Test power apparatus and insulation coordination

Course Code: C402
Course: EE8702- Power System Operation and Control
On completion of this course the Students will be able to

C402.1	Understand the day-to-day operation of electric power system.
C402.2	Analyze the control actions to be implemented on the system to meet the minute-to-minute variation of system demand.
C402.3	Understand the significance of power system operation and control.
C402.4	Acquire knowledge on real power-frequency interaction.
C402.5	Understand the reactive power-voltage interaction.
C402.6	Design SCADA and its application for real time operation.

Course Code: C403
Course: EE8703- Renewable EnergySystems
On completion of this course the Students will be able to

C403.1	Create awareness about renewable Energy Sources and technologies.
C403.2	Adequate inputs on a variety of issues in harnessing renewable Energy.
C403.3	Recognize current and possible future role of renewable energy sources.
C403.4	Explain the various renewable energy resources and technologies and their applications.
C403.5	Understand basics about biomass energy
C403.6	Acquire knowledge about solar energy

Course Code: C404
Course: OCS752 Introduction to C Programming
On completion of this course the Students will be able to

C404.1	Develop simple applications using basic constructs
C404.2	Develop applications using arrays and strings
C404.3	Develop applications using functions and structures

Course Code: C405
Course: EE8010- Power Systems Transients
On completion of this course the Students will be able to

C405.1	Understand and analyze switching and lightning transients.
C405.2	Acquire knowledge on generation of switching transients and their control.
C405.3	Analyze the mechanism of lighting strokes.
C405.4	Understand the importance of propagation, reflection and refraction of travelling waves.
C405.5	Find the voltage transients caused by faults
C405.6	Understand the concept of circuit breaker action, load rejection on integrated power system.

Course Code: C406

Course: EI8075- Fibre Optics and Laser Instrumentation
On completion of this course the Students will be able to

C406.1	Understand the principle, transmission, dispersion and attenuation characteristics of optical fibers
C406.2	Apply the gained knowledge on optical fibers for its use as communication medium and as sensor as well which have important applications in production, manufacturing industrial and biomedical applications
C406.3	Understand laser theory and laser generation system.
C406.4	Apply laser theory for the selection of lasers for a specific Industrial and medical application.

Course Code: C407
Course: EE8711- Power System Simulation Laboratory
On completion of this course the Students will be able to

C407.1	Understand power system planning and operational studies.
C407.2	Acquire knowledge on Formation of Bus Admittance and Impedance Matrices and Solution of Networks.
C407.3	Analyze the power flow using GS and NR method
C407.4	Find Symmetric and Unsymmetrical fault
C407.5	Understand the economic dispatch..
C407.6	Analyze the electromagnetic transients

Course Code: C408
Course: EE8712- Renewable Energy Systems Laboratory
On completion of this course the Students will be able to

C408.1	Create awareness about renewable Energy Sources and technologies.
C408.2	Adequate inputs on a variety of issues in harnessing renewable Energy.
C408.3	Recognize current and possible future role of renewable energy sources.
C408.4	Explain the various renewable energy resources and technologies and their applications.
C408.5	Understand basics about biomass energy.
C408.6	Acquire knowledge about solar energy.

Course Code: C409
Course: EE8015 Electric Energy Generation, Utilization and Conservation
On completion of this course the Students will be able to

C409.1	Understand the main aspects of generation, utilization and conservation.
C409.2	Identify an appropriate method of heating for any particular industrial application.
C409.3	Evaluate domestic wiring connection and debug any faults occurred
C409.4	Construct an electric connection for any domestic appliance like refrigerator as well as to design a battery charging circuit for a specific household application.
C409.5	Realize the appropriate type of electric supply system as well as to evaluate the performance of a traction unit
C409.6	Understand the main aspects of Traction.

Course Code: C410
Course: EI8073 Biomedical Instrumentation
On completion of this course the Students will be able to

C410.1	Understand the philosophy of the heart, lung, blood circulation and respiration system.
C410.2	Provide latest ideas on devices of non- electrical devices.
C410.3	Gain knowledge on various sensing and measurement devices of electrical origin.
C410.4	Understand the analysis systems of various organ types.
C410.5	Bring out the important and modern methods of imaging techniques and their systems
C410.6	Explain the medical assistance/techniques, robotic and therapeutic equipments.

Course Code: C411

Course: EE8811 Project Work

On completion of this course the Students will be able to

C411.1	Take up any challenging practical problems and find solution by formulating proper methodology.