Agni College of Technology

Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai.
Accredited by NBA, New Delhi, An ISO 9001:2015 Certified Institution.
OMR, Thalambur, Chennai – 600130, www.act.edu.in

Course Outcomes (CO)

(R 2013)

Branch: B.E, Electrical and Electronics Engineering

Course Code: C101 Course Name:HS6151 Technical English – I

C101.1	Read different genres of texts adopting various reading strategies.
C101.2	Write cohesively and coherently and flawlessly avoiding grammatical errors, using a wide vocabulary range, organizing their ideas logically on a topic.
C101.3	Listen/view and comprehend different spoken discourses/excerpts in different accents.
C101.4	Speak clearly, confidently, comprehensibly.
C101.5	Communicate with one or many listeners using appropriate communicative strategies.

Course Code: C102 Course Name: MA6151 Mathematics – I

C102.1	Use both the limit definition and rules of differentiation to differentiate functions
C102.2	Apply differentiation to solve maxima and minima problems.
C102.3	Evaluate integrals both by using Riemann sums and by using the Fundamental Theorem of Calculus.
C102.4	Apply integration to compute multiple integrals, area, volume, integrals in polar coordinates, in addition to change of order and change of variables.
C102.5	Apply various techniques in solving differential equations.

Course Code:C103 Course Name: PH6151 Engineering Physics – I

C103.1	Acoustics, Production and the applications of Ultrasonics in Engineering and Medical Fields.
C103.2	Interference, different types of lasers and its application in various fields.
C103.3	Fiber optics and optical fiber and its applications.
C103.4	Development of quantum mechanics and its necessary, wave equations and its applications, X - Ray.
C103.5	Crystallography and can able to calculate the crystal parameters

Course Code: C104 Course Name:CY 6151 Engineering Chemistry – I

C104.1	To make the students conversant with basics of polymer chemistry.
C104.2	To make the student acquire sound knowledge of second law of thermodynamics and second law based derivations of importance in engineering applications.
C104.3	To acquaint the student with concepts of important photophysical and photochemical processes and spectroscopy.
C104.4	To develop an understanding of the basic concepts of phase rule and its applications to single and two component systems and appreciate the purpose and significance of alloys.
C104.5	To acquaint the students with the basics of nano materials, their properties and applications.

Course Code: C105 Course Name:GE6151 Computer Programming

C105.1	Explain the components of computer and logical operations.
C105.2	Convert the number system and their representation.
C105.3	Discuss hardware and software devices
C105.4	Summarize network fundamentals.

C105.5	Plan the logic using flowchart and develop algorithm to write a C Program.

Course Code: C106 Course Name: GE6152 Engineering Graphics

C106.1	Ability to familiarize with the fundamentals and standards of Engineering graphics
C106.2	Ability to perform freehand sketching of basic geometrical constructions and multiple views of objects
C106.3	Ability to Project orthographic projections of lines and plane surfaces
C106.4	Ability to draw projections of solids and development of surfaces
C106.5	Ability to visualize and to project isometric and perspective sections of simple solids

Course Code: C107 Course Name:GE6161 Computer Practices Laboratory

C107.1	Prepare data using MS-word & Excel to visualize graphs, charts in MS-Excel.
C107.2	Outline the logic using flowchart for a given problem and to program using Switch case & Control structures
C107.3	Develop logic using decision making & looping statements
C107.4	Apply passing parameters using Arrays & Functions
C107.5	Construct structure and Union for a given database and to bring out the importance of Unions over structure

Course Code:C108 Course Name: GE6162 Engineering Practices Laboratory

C108.1	Ability to Fabricate carpentry components and pipe connections including plumbing works
C108.2	Ability to Use welding equipments to join the structures
C108.3	Ability to Carry out the basic machining operations
C108.4	Ability to Make the models using sheet metal works
C108.5	Ability to Illustrate on centrifugal pump, Air conditioner, operations of smithy, foundry and fittings

Course Code:C109 Course Name:GE6163 Physics and Chemistry Laboratory - I

C109.1	To provide the basic practical exposure to all the engineering and technological streams in the field of physics. .
C109.2	To provide the basic practical exposure to all the engineering and technological streams in the field of chemistry.
C109.3	The students are able to know about the water containing impurities and some physical parameters.
C109.4	To gain the knowledge about light, sound, laser, fiber optics and magnetism.
C109.5	To develop the knowledge of conductometric titration and viscometry

Course Code:C110 Course Name:HS6251 Technical English – II

C110.1	Read different genres of texts, infer implied meanings and critically analyse and evaluate them for ideas as well as for method of presentation.
C110.2	Write effectively and persuasively and produce different types of writing such as narration, description, exposition and argument as well as creative, critical, analytical and evaluative writing.
C110.3	Listen/view and comprehend different spoken excerpts critically and infer unspoken and implied meanings.
C110.4	Speak convincingly, express their opinions clearly.
C110.5	Initiate a discussion, negotiate, argue using appropriate communicative strategies.

Course Code:C111 Course Name:MA6251 Mathematics – II

C111.1	Eigen values and eigenvectors, diagonalization of a matrix, Symmetric matrices, Positive definite matrices and similar matrices.
C111.2	Gradient, divergence and curl of a vector point function and related identities.
C111.3	Evaluation of line, surface and volume integrals using Gauss, Stokes and Green's theorems and their verification.
C111.4	Analytic functions, conformal mapping and complex integration.
C111.5	Laplace transform and inverse transform of simple functions, properties, various related theorems and application to differential equations with constant coefficients.

Course Code:C112 Course Name:PH6251 Engineering Physics – II

C112.1	Electric conduction, electrical conductivity, carrier concentration of metals.
C112.2	Semiconductors, carrier concentration of semiconductors, Hall effect and semiconductor devices.
C112.3	Types of magnetic materials, ferro magnetic materials, magnetic storage devices, Super conductors and their properties and applications.
C112.4	Dielectrics, properties and its applications, ferro electricity.
C112.5	Modern engineering materials, Nano materials and Carbon nano tubes.

Course Code:C113 Course Name:CY6251 Engineering Chemistry – II

C113.1	To make the students conversant with boiler feed water requirements, related problem and water treatment techniques.
C113.2	Principles of electrochemical reactions, redox reactions in corrosion of materials and methods for corrosion prevention and protection of materials.
C113.3	Principles and generation of energy in batteries, nuclear reactors, solar cells, wind mills and fuel cells.
C113.4	Preparation, properties and applications of engineering materials.
C113.5	Types of fuels, calorific value calculations, manufacture of solid, liquid and gaseous fuels.

Course Code:C114 Course Name:GE6251 Basic Civil and Mechanical Engineering

C114.1	Ability to explain the usage of construction material and proper selection of construction materials.
C114.2	Ability to design building structures.
C114.3	Ability to identify the components use in power plant cycle.
C114.4	Ability to demonstrate working principles of petrol and diesel engine.
C114.5	Ability to explain the components of refrigeration and Air conditioning cycle.

Course Code:C115 Course Name:EE6201 Circuit Theory

C115.1	To introduce electric circuits and its analysis
C115.2	To impart knowledge on solving circuits using network theorems
C115.3	Understand the Resonance and Coupled circuits
C115.4	Ability to analyse transients response of circuits
C115.5	Ability to analyse three phase circuits

Course Code:C116 Course Name:GE6262 Physics and Chemistry Laboratory -II

C116.1	To provide the basic practical exposure to all the engineering and technological streams in the field of physics. .
C116.2	To provide the basic practical exposure to all the engineering and technological streams in the field of chemistry.
C116.3	The students are able to know about the water containing impurities and some physical parameters.
C116.4	To gain the knowledge about properties of matter, semiconductors and solar cells
C116.5	To develop the knowledge of spectrophotometry.

Course Code:C117 Course Name:GE6263 Computer Programming Laboratory

C117.1	Able to Use Shell commands
C117.2	Able to Design of Implement Unix shell scripts
C117.3	Able to Write and execute C programs on Unix

Course Code:C118 Course Name:EE6211 Electric Circuits Laboratory

C118.1	Ability to Understand the concept of Kirchhoff's law
C118.2	Ability to Understand the concept of Cicuit theorems
C118.3	Able to measure sinusoidal voltage, frequency and power factor.
C118.4	Able to design resonance cicuits
C118.5	Abilitty to Understand the three phase balanced and unbalanced star, delta networks circuits.

Course Code:C201Course Name:MA6351Transforms and Partial Differential Equations

C201.1	Understand how to solve the given standard partial differential equations.
C201.2	Solve differential equations using Fourier series analysis which plays a vital role in engineering applications.
C201.3	Appreciate the physical significance of Fourier series techniques in solving one and two dimensional heat flow problems and one dimensional wave equations.
C201.4	Understand the mathematical principles on transforms and partial differential equations would provide them the ability to formulate and solve some of the physical problems of engineering
C201.5	Use the effective mathematical tools for the solutions of partial differential equations by using Z transform techniques for discrete time systems.

Course Code:C202 Course Name:EE6301 Digital Logic Circuits

C202.1	Ability to study various number systems and digital logic families
C202.2	Ability to design combinational Circuits.
C202.3	Ability to design various synchronous circuits.
C202.4	Ability to introduce asynchronous sequential circuits and PLDs
C202.5	Ability to introduce digital simulation for development of application oriented logic circuits

Course Code:C203 Course Name:EEEE6302 Electromagnetic Theory

C203.1	Ability to understand the basic mathematical concepts related to electromagnetic vector fields
C203.2	Ability to understand the basic concepts about electrostatic fields, electrical potential, energy density and their applications.
C203.3	Ability to acquire the knowledge in magneto static fields, magnetic flux density, vector potential and its applications.
C203.4	Ability to understand the different methods of emf generation and Maxwell's equations
C203.5	Ability to understand the basic concepts electromagnetic waves and characterizing parameters

Course Code:C204 Course Name:GE6351 Environmental Science and Engineering

C204.1	Public awareness of environment at infant stage.
C204.2	Pollution controlling aids
C204.3	Development and improvement in standard of living has lead to serious environmental disasters.
C204.4	Ignorance and incomplete knowledge has lead to misconceptions. Knowledge about water conservation methods.
C204.5	World's Population related problems and AIDS

Course Code:C205 Course Name:EC6202 Electronic Devices and Circuits

C205.1	Able to analyse the characteristics of PN junction devices and its applications
C205.2	Able to Explain the structure and working operation of transistors and thyristors
C205.3	Ability to choose and adapt the required components to construct an amplifier circuit
C205.4	Ability to cdesign and analysis of Multistage and differential amplifier circuits.
C205.5	Ability to employ the acquired knowledge in design and analysis of feedback amplifiers and oscillators

Course Code:C206 Course Name:EE6303 Linear Integrated Circuits and Applications

C206.1	Ability to acquire knowledge in IC fabrication procedure
C206.2	Ability to analyze the characteristics of Op-Amp
C206.3	To understand and acquire knowledge on the Applications of Op-amp
C206.4	Functional blocks and the applications of special ICs like Timers, PLL circuits, regulator Circuits.
C206.5	Ability to understand the Application of IC.

Course Code:C207 Course Name:EC6361 Electronics Laboratory

C207.1	Ability to understand the Characteristics of Semiconductor diode and Zener diode
C207.2	Ability to understand the Characteristics of BJT,JFET,UJT,
C207.3	Able to design Common Emitter amplifier,RC phase shift and LC oscillators
C207.4	Able to design Single Phase rectifiers with inductive and capacitive filters
C207.5	Ability to understand the frequency and phase measurements using CRO

Course Code:C208 Course Name:EE6311 Linear and Digital Integrated Circuits Laboratory

C208.1	Ability to understand and implement Boolean Functions.
C208.2	Ability to understand the importance of code conversion
C208.3	Ability to Design and implement 4-bit shift registers
C208.4	Ability to acquire knowledge on Application of Op-Amp
C208.5	Ability to Design and implement counters using specific counter IC.

Course Code:C209 Course Name:MA6459 Numerical Methods

C209.1	Understand the basic concepts and techniques of solving algebraic and transcendental equations.
C209.2	Appreciate the numerical techniques of interpolation and error approximations in various intervals in real life situations.
C209.3	Apply the numerical techniques of differentiation and integration for engineering problems.
C209.4	Understand the knowledge of various techniques and methods for solving first and second order ordinary differential equations.
C209.5	Solve the partial and ordinary differential equations with initial and boundary conditions by using certain techniques with engineering applications.

Course Code:C210 Course Name:EE6401 Electrical Machines - I

C210.1	Ability to analyze the magnetic-circuits.
C210.2	Ability to acquire the knowledge in constructional details of transformers.
C210.3	Ability to understand the concepts of electromechanical energy conversion.
C210.4	Ability to acquire the knowledge in working principles of DC Generator.
C210.5	Ability to acquire the knowledge in working principles of DC Motor

Course Code:C211 Course Name:CS6456 Object Oriented Programming

C211.1	To gain the basic knowledge on overview Object Oriented concepts.
C211.2	To understand the basic characteristics of Object Oriented progrramming
C211.3	To gain the knowledge of adanced progrramming
C211.4	To gain the basic knowledge on java
C211.5	To gain the knowledge of exception handling

Course Code:C212 Course Name:EE6402 Transmission and Distribution

C212.1	Ability to understand structure of power system
C212.2	To understand the importance and the functioning of transmission line parameters.
C212.3	To acquire knowledge on the modeling and performance of Transmission lines.
C212.4	To acquire knowledge on Insulators and Underground Cables
C212.5	To acquire knowledge on the Mechanical design of over head Transmission lines.

Course Code:C213 Course Name:EEE6403 Discrete Time Systems and Signal Processing

C213.1	Ability to understand the signals,systems and quantization effects.
C213.2	Ability to understand and analyze the discrete time systems.
C213.3	Ability to analyze the discrete fourier transform & their computation.

C213.4	Ability to understand the types of filters and their design for digital implementation
C213.5	Ability to acquire knowledge on programmability digital signal processors

Course Code:C214 Course Name:EE6404 Measurements and Instrumentation

C214.1	To acquire knowledge on Basic functional elements of instrumentation
C214.2	To understand the concepts of Fundamentals of electrical and electronic instruments
C214.3	Ability to compare between various measurement techniques
C214.4	To acquire knowledge on Various storage and display devices
C214.5	To understand the concepts Various transducers and the data acquisition systems

Course Code:C215 Course Name:ECS6461 Object Oriented Programming Laboratory

C215.1	Gain the basic knowledge on Object Oriented concepts.
C215.2	Ability to develop applications using Object Oriented Programming Concepts.
C215.3	Ability to implement features of object oriented programming to solve real world problems.

Course Code:C216 Course Name:EE6411 Electrical Machines Laboratory - I

C216.1	Ability to understand and analyze DC Generator
C216.2	Ability to understand and analyze DC Motor
C216.3	Ability to understand and analyse Transformers.

Course Code:C301 Course Name:EE6501 Power System Analysis

C301.1	Ability to model and understand various power system components
C301.2	Ability to understand and apply iterative techniques for power flow analysis
C301.3	Ability to acquire knowledge on Symmetrical Fault analysis.
C301.4	Ability to acquire knowledge on UnSymmetricaFault analysis.
C301.5	Ability to understand and analyse stability

Course Code:C302 Course Name:EE6502 Microprocessors and Microcontrollers

C302.1	Ability to explain the architecture of Microprocessor and acquire knowledge on interrupts,memory and timing diagram
C302.2	Ability to acquire knowledge in Addressing modes & instruction set of 8085 and to write the assembly language programme.
C302.3	Ability to explain the architecture of Microcontroller.and acquire knowledge on interrupts,memory and timing diagram
C302.4	Ability to understand the importance of Interfacing
C302.5	Ability to understand and develop the Microcontroller based applications.

Course Code:C303 Course Name:ME6701 Power Plant Engineering

C303.1	Explain the layout, construction and working of the components inside a thermal power plant.
C303.2	Explain the layout, construction and working of the components inside a Diesel, Gas and Combined cycle power plants.
C303.3	Explain the layout, construction and working of the components inside nuclear power plants.
C303.4	Explain the layout, construction and working of the components inside Renewable energy power plants.
C303.5	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:C304 Course Name:EE6503 Power Electronics

C304.1	Ability to understand the characteristics of semiconductor devices
C304.2	Ability to analyse phase controlled converters and its applications
C304.3	Ability to analyse DC - DC converters and its applications

C304.4	Ability to analyse Inverters and its applications
C304.5	Ability to analyse AC - AC converters and its applications

Course Code:C305 Course Name:EE6504 Electrical Machines - II

C305.1	Ability to understand the construction and working principle of Synchronous Generator
C305.2	Ability to acquire knowledge on Synchronous motor.
C305.3	Ability to understand the construction and working principle of Three phase Induction Motor
C305.4	Ability to understand the starting and speed control of Three phase Induction Motor
C305.5	Ability to understand the construction and working principle of Special Machines

Course Code:C306 Course Name:IC6501 Control Systems

C306.1	Ability to develop various representations of system based on the knowledge of Mathematics, Science and Engineering fundamentals
C306.2	Ability to do time domain analysis of various models of linear system
C306.3	Ability to do frequency domain analysis of various models of linear system
C306.4	Ability to design appropriate compensator for the given specifications.
C306.5	Ability to understand the concept of state variables

Course Code:C307 Course Name:EE6511 Control and Instrumentation Laboratory

C307.1	Ability to understand and apply basic science, circuit theory, Electro-magnetic field theory,control theory and apply them to electrical engineering problems.

Course Code:C308 Course Name:GE6674 Communication and Soft Skills- Laboratory Basedy

C308.1	Able to Take international examination such as IELTS and TOEFL
C308.2	Able to Make presentations and Participate in Group Discussions.
C308.3	Able to Successfully answer questions in interviews.

Course Code:C309 Course Name:EE6512 Electrical Machines Laboratory - II

C309.1	Ability to model and analyze electrical apparatus and their application to power system

Course Code:C310 Course Name:EC6651 Communication Engineering

C310.1	Able to gain knowledge on anolog communication
C310.2	Able to gain knowledge on digital communication
C310.3	Able to undestand souce codes,line codes and error control
C310.4	Able to gain knowledge on multiple access techniques
C310.5	Able to gain knowledge on satellite and optical ffiber

Course Code:C311 Course Name:EE6601 Solid State Drives

C311.1	Ability to study about the steady state operation and transient dynamics of a motor load system
C311.2	Ability to analyze the operation of the converter/chopper fed dc drive.
C311.3	Ability to analyze the operation and performance of Induction motor drives
C311.4	Ability to analyze the operation and performance of Synchronous motor drives
C311.5	Ability to analyze and design the current and speed controllers for a closed loop solid state DC motor drive.

Course Code:C312 Course Name:EE6602 Embedded Systems

C312.1	Ability to understand and analyze Embedded systems

C312.2	Ability to study about the bus Communication in processors.
C312.3	Ability to operate various Embedded Development Strategies
C312.4	Ability to understand basics of Real time operating system.
C312.5	Ability to suggest an embedded system for a given application

Course Code:C313 Course Name:EE6603 Power System Operation and Control

C313.1	Ability to understand the significance of power system operation and control.
C313.2	Ability to acquire knowledge on real power-frequency interaction.
C313.3	Ability to understand the reactive power-voltage interaction
C313.4	Ability to understand the economic operation of power systems
C313.5	Ability to design SCADA and its application for real time operation

Course Code:C314 Course Name:EE6604 Design of Electrical Machines

C314.1	Ability understtand the considerattions in Electrical machine design
C314.2	Ability to design armature and field of DC machines.
C314.3	Ability to design single and three phase transformer.
C314.4	Ability to design stator and rotor of induction motor.
C314.5	Ability to design and analyze synchronous machines

Course Code:C315 Course Name:EE6002 Power System Transients

C315.1	Ability to understand the importance of transients
C315.2	Ability to understand the over voltages due to switching transients
C315.3	Ability to understand the lighting transients
C315.4	Ability to understand the computation of transients
C315.5	Ability to understand the transients in integrated power sytsem

Course Code:C316 Course Name:EE6611 Power Electronics and Drives Laboratory

C316.1	Ability to understand and analyse, linear and digital electronic circuits.

Course Code:C317 Course Name:EE6612 Microprocessors and Microcontrollers Laboratory

C317.1	Ability to understand and analyse, linear and digital electronic circuits.
C317.2	To understand and apply computing platform and software for engineering problems.

Course Code:C318 Course Name:EE6613 Presentation Skills and Technical Seminar

C318.1	Ability to review, prepare and present technological developments
C318.2	Ability to face the placement interviews

Course Code:C401 Course Name:EE6701 High Voltage Engineering

C401.1	Ability to understand the over voltages in electrical power system
C401.2	Ability to understand the dielectric breakdown
C401.3	Ability to understand Generation of high voltages and high currents
C401.4	Ability to measure high voltages and high currents
C401.5	Ability to test power apparatus and insulation coordination

Course Code:C402 Course Name:EE6702 Protection and Switchgear

C402.1	Ability to find the causes of abnormal operating conditions of the apparatus and system.

C402.2	Ability to understand and analyze Electromagnetic Relays.
C402.3	Ability to study about the apparatus protection
C402.4	Ability to study about the static and numerical relays.
C402.5	Ability to acquire knowledge on functioning of circuit breakers

Course Code:C403 Course Name:EE6703 Special Electrical Machines

C403.1	Ability to acquire the knowledge on construction,operation of synchronous reluctance motor
C403.2	Ability to acquire the knowledge on construction,operation of stepper motor.
C403.3	Ability to construction,operation of switched reluctance motors and design of controllers
C403.4	Ability to acquire the knowledge on construction,operation of permanent magnet brushless D.C. motors and design of controllers
C403.5	Ability to acquire the knowledge on construction,operation of permanent magnet synchronous motors.and design of controllers

Course Code:C404 Course Name:MG6851 Principles of Management

C404.1	Able to undestand the management and organizations
C404.2	Able to undestand the purpose of planning and its tools
C404.3	Able to undestand the purpose of organisation and human resource department
C404.4	Able to understand motivational techniques and process of communication
C404.5	Able to undesand the management control and performance

Course Code:C405 Course Name:EI6704 Biomedical Instrumentation

C405.1	Ability to understand the fundamentals of biomedical engineering
C405.2	Ability to understand the procedures for diagnostic and measurement of non electrical parameters
C405.3	Ability to analyse the electrical parameters and acquisition
C405.4	Ability to understand the imaging modalities and analysis of digital images
C405.5	Ability to understand the robitics devices and life assisting surgical techniques

Course Code:C406 Course Name:EE6008 Microcontroller Based System Design

C406.1	Ability to understand the basics of PIC microcontroller
C406.2	Ability to understand the need of interrupts and timers
C406.3	Ability to understand the need of interfacing
C406.4	Ability to understand the basics of ARM processorr
C406.5	Ability to understand the ARM organisations and its applications

Course Code:C407 Course Name:EE6711 Power System Simulation Laboratory

C407.1	Ability to understand and analyze power system operation, stability, control and protection.

Course Code:C408 Course Name:EE6712 Comprehension

C408.1	Ability to review, prepare and present technological developments

Course Code:C409 Course Name:EE6801 Electric Energy Generation, Utilization and Conservation

C409.1	Ability to evaluate the performance of a traction unit and understand the main aspects of Traction.
C409.2	Ability to design of illumination for residential, commercial, street lighting, factory lighting and flood lighting
C409.3	Ability to identify an appropriate method of heating for any particular industrial application.
C409.4	Ability to understand solar radiation and solar energy collectors

C409.5	Ability to gain the knowledge of wind energy

Course Code:C410 Course Name:EE6009 Power Electronics for Renewable Energy Systems

C410.1	Ability to understand the various renewable energy sources and its impacts on environment
C410.2	Ability to understand the electrical machines for enewable energy conversion
C410.3	Ability to understand the power converters for solar and wind
C410.4	Ability to analyse wind and solar PV systems
C410.5	Ability to understand the hybrid renewable energy systems

Course Code:C411 Course Name:GE6075 Professional Ethics in Engineering

C411.1	Ability to understand the human values and stress management
C411.2	Ability to understand the senses and uses of ethics
C411.3	Ability to understand the engineering as social experimentation
C411.4	Ability to understand the safety and Human rights
C411.5	Ability to understand the global issues in society

Course Code:C412 Course Name:EE6811 Project Work

C412.1	On Completion of the project work students will be in a position to take up any challenging practical problems and find solution by formulating proper methodology.