

PROGRAMME: ELECTRICAL AND ELECTRONICS ENGINEERING
JNTUK UNIVERSITY REGULATION R20
FIRST YEAR COURSES (I & II SEMESTER)
Course Outcome's (Co's)
I-I & I-II

I Year - I Semester

C101	COMMUNICATIVE ENGLISH
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Course Outcomes (Cos)

C101.1	Understand social or transactional dialogues spoken by native speakers of English and identify the context, topic, and pieces of specific information
C101.2	Ask and answer general questions on familiar topics and introduce oneself/others
C101.3	Employ suitable strategies for skimming and scanning to get the general idea of a text and locate specific information
C101.4	Recognize paragraph structure and be able to match beginnings/endings/headings with paragraphs
C101.5	Form sentences using proper grammatical structures and correct word forms

C102	MATHEMATICS-I
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Course Outcomes (Cos)

C102.1	Utilize mean value theorems to real life problems
C102.2	Solve the differential equations related to various engineering fields
C102.3	Familiarize with functions of several variables which is useful in optimization
C102.4	Apply double integration techniques in evaluating areas bounded by region
C102.5	Students will also learn important tools of calculus in higher dimensions. Students will become familiar with 2- dimensional and 3-dimensional coordinate systems

C103	Mathematics-II
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Course Outcomes (Cos)

C103.1	develop the use of matrix algebra techniques that is needed by engineers for practical applications
C103.2	solve system of linear algebraic equations using Gauss elimination, Gauss Jordan, Gauss Seidel
C103.3	evaluate the approximate roots of polynomial and transcendental equations by different algorithms
C103.4	apply Newton's forward & backward interpolation and Lagrange's formulae for equal and unequal intervals
C103.5	apply numerical integral techniques to different Engineering problems
C103 .6	apply different algorithms for approximating the solutions of ordinary differential equations with initial conditions to its analytical computations)

C104	PROGRAMMING FOR PROBLEM SOLVING USING C
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Course Outcomes (Cos)

C104.1	To write algorithms and to draw flowcharts for solving problems
C104.2	To convert flowcharts/algorithms to C Programs, compile and debug programs
C104.3	To use different operators, data types and write programs that use two-way/ multi-way selection
C104.4	To select the best loop construct for a given problem
C104.5	To design and implement programs to analyze the different pointer applications
C104.6	To decompose a problem into functions and to develop modular reusable code
C104.7	To apply file I/O operations

C105	ENGINEERING DRAWING & DESIGN
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Course Outcomes (Cos)

C105.1	The student will learn how to visualize 2D & 3D objects.
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C106	ENGLISH COMMUNICATION SKILLS LABORATORY
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Course Outcomes (Cos)

C106.1	Vowels, Consonants, Pronunciation, Phonetic Transcription
C106.2	Word stress-di-syllabic words, poly-syllabic words, weak and strong forms
C106.3	Stress in compound words, rhythm, intonation, accent neutralisation
C106.4	Listening to short audio texts and identifying the context and specific pieces of information to answer a series of questions in speakin
C106.5	Newspapers reading; Understanding and identifying key terms and structures useful for writing reports.

C107	Electrical Engineering Workshop
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Course Outcomes (Cos)

C107.1	Explain the limitations, tolerances, safety aspects of electrical systems and wiring.
C107.2	Select wires/cables and other accessories used in different types of wiring
C107.3	Make simple lighting and power circuits.
C107.4	Measure current, voltage and power in a circuit.

C108	PROGRAMMING FOR PROBLEM SOLVING USING C LAB (ES1202)
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Course Outcomes (Cos)

C108.1	Gains Knowledge on various concepts of a C language
C108.2	Draw flowcharts and write algorithms.
C108.3	Design and development of C problem solving skills.
C108.4	Design and develop modular programming skills.
C108.5	Trace and debug a program

C109	MATHEMATICS-II (Vector Calculus, Transforms and PDE)
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Course Outcomes (Cos)

C109.1	interpret the physical meaning of different operators such as gradient, curl and divergence (L5)
C109.2	estimate the work done against a field, circulation and flux using vector calculus (L5)
C109.3	apply the Laplace transform for solving differential equations (L3)
C109.4	find or compute the Fourier series of periodic signals (L3)
C109.5	know and be able to apply integral expressions for the forwards and inverse Fourier transform to a range of non-periodic waveforms (L3)
C109.6	identify solution methods for partial differential equations that model physical processes(L3)

C110	Applied Physics
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Course Outcomes (Cos)

C110.1	In the need of coherent sources and the conditions for sustained interference (L2) Identify engineering applications of interference (L3)→ Analyze the differences between interference and diffraction with applications (L4)→ Illustrate the concept of polarization of light and its applications (L2)→ Classify ordinary polarized light and extraordinary polarized light (L2)
C110.2	Understand the basic concepts of LASER light Sources (L2) Apply the concepts to learn the types of lasers (L3)→ Identifies the Engineering applications of lasers (L2)→ Explain the working principle of optical fibers (L2)→ Classify optical fibers based on refractive index profile and mode of propagation (L2)→ Identify the applications of optical fibers in various fields (L2)
C110.3	Explain the concept of dual nature of matter (L2) Understand the significance of wave function (L2)→ Interpret the concepts of classical and quantum free electron theories (L2)→ Explain the importance of K-P model→ Classify the materials based on band theory (L2)→ Apply the concept of effective mass of electron (L3)
C110.4	Explain the concept of dielectric constant and polarization in dielectric materials (L2) Summarize various types of polarization of dielectrics (L2)→ Interpret Lorentz field and Claussius-Mosotti relation in dielectrics(L2)→ Classify the magnetic materials based on susceptibility and their temperature→ dependence (L2) Explain the applications of dielectric and magnetic materials (L2)→ Apply the concept of magnetism to magnetic data storage devices (L3)→
C110.5	Classify the energy bands of semiconductors (L2) Interpret the direct and indirect band gap semiconductors (L2)→ Identify the type of semiconductor using Hall effect (L2)→ Identify applications of semiconductors in electronic devices (L2)→ Classify superconductors based on Meissonier's effect (L2)→ Explain Meissonier's effect, BCS theory→ & Josephson effect in superconductors (L2)

I Year II Semester

C111	DATA STRUCTURES THROUGH C
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Course Outcomes (Cos)

C111.1	data structures concepts with arrays, stacks, queues
C111.2	linked lists for stacks, queues and for other applications.
C111.3	traversal methods in the Trees
C111.4	various algorithms available for the graphs.
C111.5	sorting and searching in the data retrieval applications.

C112	ELECTRICAL CIRCUIT ANALYSIS -I
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Course Outcomes (Cos)

C112.1	Various electrical networks in presence of active and passive elements.
C112.2	Electrical networks with network topology concepts.
C112.3	Any magnetic circuit with various dot conventions.
C112.4	Any R, L, C network with sinusoidal excitation.
C112.5	Any R, L, network with variation of any one of the parameters i.e.,
C112.6	Electrical networks by using principles of network theorems.

C113	BASIC CIVIL AND MECHANICAL ENGINEERING
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Course Outcomes (Cos)

C113.1	Apply Shear force diagram & Bending moment diagram principles for Cantilever and Simply supported beams.
C113.2	Apply concepts of Rosette analysis for strain measurements.
C113.3	Analyze the characteristics of common building materials.
C113.4	Compare the working characteristics of Internal Combustion engines.
C113.5	Compare the differences between boiler mountings and accessories.

C114	DATA STRUCTURES THROUGH C LAB
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Course Outcomes (Cos)

C114.1	Be able to design and analyze the time and space efficiency of the data structure.
C114.2	Be capable to identify the appropriate data structure for given problem.
C114.3	Have practical knowledge on the applications of data structures.

C115	CONSTITUTION OF INDIA
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Course Outcomes (Cos)

C115.1	Understand historical background of the constitution making and its importance for building a democratic India.
C115.2	Understand the functioning of three wings of the government i.e., executive, legislative and judiciary.
C115.3	Understand the value of the fundamental rights and duties for becoming good citizen of India
C115.4	Analyze the decentralization of power between central, state and local self-government
C115.5	Apply the knowledge in strengthening of the constitutional institutions like CAG, Election Commission and UPSC for sustaining democracy. 1. Know the sources, features and principles of Indian Constitution. 2. Learn about Union Government, State government and its administration. 3. Get acquainted with Local administration and Pachayati Raj 4. Be aware of basic concepts and developments of Human Rights. 5. Gain knowledge on roles and functioning of Election Commission

PROGRAMME: ELECTRICAL AND ELECTRONICS ENGINEERING
JNTUK UNIVERSITY REGULATION R20
SECOND YEAR COURSES (I & II SEMESTER)
Course Outcome's (Co's)
II-I & II-II

II Year I Semester

C201	MATHEMATICS-IV (Complex Variables and Statistical Methods)
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Course Outcomes (Cos)

C201.1	apply Cauchy-Riemann equations to complex functions in order to determine whether a given continuous function is analytic (L3)
C201.2	find the differentiation and integration of complex functions used in engineering problems (L5)
C201.3	make use of the Cauchy residue theorem to evaluate certain integrals (L3)
C201.4	apply discrete and continuous probability distributions (L3)
C201.5	design the components of a classical hypothesis test (L6)
C201.6	infer the statistical inferential methods based on small and large sampling tests (L4)

C202	ELECTRONIC DEVICES AND CIRCUITS
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Course Outcomes (Cos)

C202.1	Understand the basic concepts of semiconductor Physics.
C202.2	Understand the formation of p-n junction and how it can be used as a p-n junction as diode in different modes of operation
C202.3	Know the construction, working principle of rectifiers with and without filters with relevant expressions and necessary comparisons.
C202.4	Understand the construction, principle of operation of transistors, BJT and FET with their V-I characteristics in different configurations.
C202.5	Know the need of transistor biasing, various biasing techniques for BJT and FET and stabilization concepts with necessary expressions.
C202.6	Perform the analysis of small signal low frequency transistor amplifier circuits using BJT and FET in different configurations.

C203	ELECTRICAL CIRCUIT ANALYSIS - II
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Course Outcomes (Cos)

C203.1	Understand the concepts of balanced and unbalanced three-phase circuits.
C203.2	Know the transient behavior of electrical networks with DC excitations
C203.3	Learn the transient behavior of electrical networks with AC excitations.
C203.4	Estimate various parameters of a two port network.
C203.5	Understand the significance of filters in electrical networks.

C204	DC MACHINES AND TRANSFORMERS
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Course Outcomes (Cos)

C204.1	Assimilate the concepts of electromechanical energy conversion.
C204.2	Mitigate the ill-effects of armature reaction and improve commutation in dc machines.
C204.3	Understand the torque production mechanism and control the speed of dc motors.
C204.4	Analyze the performance of single phase transformers
C204.5	Predetermine regulation, losses and efficiency of single phase transformers.
C204.6	Parallel transformers, control voltages with tap changing methods and achieve three-phase to two-phase transformation.

C205	ELECTRO MAGNETIC FIELDS
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Course Outcomes (Cos)

C205.1	Compute electric fields and potentials using Gauss law or solve Laplace's or Poisson's equations for various electric charge distributions.
C205.2	Calculate the magnetic field intensity due to current carrying conductor and understanding the application of Ampere's law, Maxwell's second and third law.
C205.3	Estimate self and mutual inductances and the energy stored in the magnetic field
C205.4	Understand the concepts of displacement current and Poynting theorem and Poynting vector

C206	ELECTRICAL CIRCUITS LAB
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Course Outcomes (Cos)

C206.1	Apply various theorems
C206.2	Determination of self and mutual inductances
C206.3	Two port parameters of a given electric circuits
C206.4	Draw locus diagrams
C206.5	Draw Waveforms and phasor diagrams for lagging and leading networks

C207	DC MACHINES AND TRANSFORMERS LAB
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Course Outcomes (Cos)

C207.1	Determine and predetermine the performance of DC machines and Transformers.
C207.2	Control the speed of DC motor.
C207.3	Obtain three phase to two phase transformation.

C208	ELECTRONIC DEVICES AND CIRCUITS LAB
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Course Outcomes (Cos)

C208.1	Analyze the characteristics of diodes, transistors and other devices
C208.2	Design and implement the rectifier circuits, SCR and UJT in the hardware circuits
C208.3	Design and implement the rectifier circuits, SCR and UJT in the hardware circuits
C208.4	Measure electrical quantities using CRO in the experimentation.

C2009	SKILL ORIENTED COURSE DESIGN OF ELECTRICAL CIRCUITS USING ENGINEERING SOFTWARE TOOLS
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Course Outcomes (Cos)

C209.1	write the MATLAB programs to simulate the electrical circuit problems
C209.2	simulate various circuits for electrical parameters
C209.3	simulate various wave form for determination of wave form parameters
C209.4	simulate RLC series and parallel resonance circuits for resonant parameters
C209.5	simulate magnetic circuits for determination of self and mutual inductances

C210	PROFESSIONAL ETHICS & HUMAN VALUES
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Course Outcomes (Cos)

C210.1	Identify and analyze an ethical issue in the subject matter under investigation or in a relevant field
C210.2	Identify the multiple ethical interests at stake in a real-world situation or practice
C210.3	Articulate what makes a particular course of action ethically defensible
C210.4	Assess their own ethical values and the social context of problems
C210.5	Identify ethical concerns in research and intellectual contexts, including academic integrity, use and citation of sources, the objective presentation of data, and the treatment of human subjects
C210.6	Demonstrate knowledge of ethical values in non-classroom activities, such as service learning, internships, and field work
C210.7	Integrate, synthesize, and apply knowledge of ethical dilemmas and resolutions in academic settings, including focused and interdisciplinary research.

II Year II Semester

C211	PYTHON PROGRAMMING
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Course Outcomes (Cos)

C211.1	Develop essential programming skills in computer programming concepts like data types, containers
C211.2	Apply the basics of programming in the Python language Solve coding tasks related
C211.3	conditional execution, loops
C211.4	Solve coding tasks related to the fundamental notions and techniques used in object- oriented programming

C212	DIGITAL ELECTRONICS
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Course Outcomes (Cos)

C212.1	Classify different number systems and apply to generate various codes.
C212.2	Use the concept of Boolean algebra in minimization of switching functions
C212.3	Design different types of combinational logic circuits
C212.4	Apply knowledge of flip-flops in designing of Registers and counters
C212.5	The operation and design methodology for synchronous sequential circuits and algorithmic state machines.

C213	POWER SYSTEMS - I
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Course Outcomes (Cos)

C213.1	Identify the different components of thermal power plants.
C213.2	Identify the different components of nuclear Power plants.
C213.3	Identify the different components of air and gas insulated substations.
C213.4	Identify single core and three core cables with different insulating materials.
C213.5	Analyse the different economic factors of power generation and tariffs.

C214	INDUCTION AND SYNCHRONOUS MACHINES
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Course Outcomes (Cos)

C214.1	Explain the operation and performance of three phase induction motor.
C214.2	Analyze the torque-speed relation, performance of induction motor and induction generator.
C214.3	Implement the starting of single phase induction motors
C214.4	Develop winding design and predetermine the regulation of synchronous generators
C214.5	Explain hunting phenomenon, implement methods of starting and correction of power factor with synchronous motor

C215	MANAGERIAL ECONOMICS & FINANCIAL ANALYSIS
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Course Outcomes (Cos)

C215.1	The Learner is equipped with the knowledge of estimating the Demand and demand elasticity's for a product.
C215.2	The knowledge of understanding of the Input-Output-Cost relationships and estimation of the least cost combination of inputs.
C215.3	The pupil is also ready to understand the nature of different markets and Price Output determination under various market conditions and also to have the knowledge of different Business Units.
C215.4	The Learner is able to prepare Financial Statements and the usage of various Accounting tools for Analysis.
C215.5	The Learner can able to evaluate various investment project proposals with the help of capital budgeting techniques for decision making.

C216	PYTHON PROGRAMMING LAB
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Course Outcomes (Cos)

C216.1	Write, Test and Debug Python Programs
C216.2	Use Conditionals and Loops for Python Programs
C216.3	Use functions and represent Compound data using Lists, Tuples and
C216.4	Dictionaries Use various applications using python

C217	INDUCTION AND SYNCHRONOUS MACHINES LAB
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Course Outcomes (Cos)

C217.1	Assess the performance of single phase and three phase induction motors.
C217.2	Control the speed of three phase induction motor.
C217.3	Predetermine the regulation of three-phase alternator by various methods
C217.4	Find the Ad/Ax ratio of alternator and asses the performance of three-phase synchronous motor.
C217.5	Determine the performance of single phase AC series motor.

C218	DIGITAL ELECTRONICS LAB
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Course Outcomes (Cos)

C218.1	Learn the basics of gates, filp-flops and counters.
C218.2	Construct basic combinational circuits and verify their functionalities
C218.3	Apply the design procedures to design basic sequential circuits
C218.4	To understand the basic digital circuits and to verify their operation
C218.5	Apply Boolean laws to simplify the digital circuits.

C219	SKILL ORIENTED COURSE IOT APPLICATIONS OF ELECTRICAL ENGINEERING
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Course Outcomes (Cos)

C219.1	Apply various technologies of Internet of Things to real time applications.
C219.2	Apply various communication technologies used in the Internet of Things.
C219.3	Connect the devices using web and internet in the IoT environment.
C219.4	implement IoT to study Smart Home, Smart city, etc.

PROGRAMME: ELECTRICAL AND ELECTRONICS ENGINEERING
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THIRD YEAR COURSES (I & II SEMESTER)
Course Outcome's (Co's)
III-I & III-II

III Year – I Semester

C301	POWER SYSTEMS–II
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Course Outcomes (Cos)

C301.1	Calculate parameters of transmission lines for different circuit configurations.
C301.2	Determine the performance of short, medium and long transmission lines.
C301.3	Analyse the effect of travelling waves on transmission lines.
C301.4	Analyse the various voltage control methods and effect of corona.
C301.5	Calculate sag/tension of transmission lines and performance of line insulators.

C302	POWER ELECTRONICS
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Course Outcomes (Cos)

C302.1	Illustrate the static and dynamic characteristics of SCR, Power-MOSFET and Power-IGBT.
C302.2	Analyze the operation of phase-controlled rectifiers.
C302.3	Analyze the operation of three-phase full-wave converters, AC Voltage Controllers and Cycloconverters.
C302.4	Examine the operation and design of different types of DC-DC converters.
C302.5	Analyse the operation of PWM inverters for voltage control and harmonic mitigation.

C303	CONTROL SYSTEMS
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Course Outcomes (Cos)

C303.1	Derive the transfer function of physical systems and determination of overall transfer function using block diagram algebra and signal flow graphs.
C303.2	Determine time response specifications of second order systems and absolute and relative stability of LTI systems using Routh's stability criterion and root locus method.

C303.3	Analyze the stability of LTI systems using frequency response methods.
C303.4	Design Lag, Lead, Lag-Lead compensators to improve system performance using Bode diagrams.
C303.5	Represent physical systems as state models and determine the response. Understand the concepts of controllability and observability.

C304	UTILIZATION OF ELECTRICAL ENERGY (PROFESSIONAL ELECTIVE – I)
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Course Outcomes (Cos)

C304.1	Identify various illumination methods produced by different illuminating sources.
C304.2	Identify a suitable motor for electric drives and industrial applications
C304.3	Identify most appropriate heating and welding techniques for suitable applications.
C304.4	Distinguish various traction system and determine the attractive effort and specific energy consumption
C304.5	Validate the necessity and usage of different energy storage schemes for different applications and comparisons.

C305	PRINCIPLES OF COMMUNICATIONS
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Course Outcomes (Cos)

C305.1	Analyze the performance of analog modulation schemes in time and frequency domains.
C305.2	Analyze the performance of angle modulated signals.
C305.3	Characterize analog signals in time domain as random processes and noise
C305.4	Characterize the influence of channel on analog modulated signals
C305.5	Determine the performance of analog communication systems in terms of SNR
C305.6	Analyze pulse amplitude modulation, pulse position modulation, pulse code modulation and TDM systems.

C306	POWER ELECTRONICS LABORATORY
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Course Outcomes (Cos)

C306.1	Analyse characteristics of various power electronic devices and design firing circuits for SCR.
C306.2	Analyse the performance of single-phase dual, three-phase full-wave bridge converters and dual converter with both resistive and inductive loads.
C306.3	Examine the operation of Single-phase AC voltage regulator and Cyclo converter with resistive and inductive loads
C306.4	Differentiate the working and control of Buck converter and Boost converter.
C306.5	Differentiate the working & control of Square wave inverter and PWM inverter.

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C307	CONTROL SYSTEMS LABORATORY
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Course Outcomes (Cos)

C307.1	Analyze the performance and working Magnetic amplifier, D.C and A.C. servo motors and synchros.
C307.2	Design P,PI,PD and PID controllers
C307.3	Design lag, lead and lag-lead compensators
C307.4	Evaluate temperature control of an oven using PID controller
C307.5	Determine the transfer function of D.C Motor
C307.6	Analyze the performance of D.C and A.C Servo Motor
C307.7	Test the controllability and observability.
C307.8	Judge the stability in time and frequency domain
C307.9	To examine different logic gates and Boolean expressions using PLC.

III Year – II Semester

C308	MICROPROCESSORS AND MICROCONTROLLERS
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Course Outcomes (Cos)

C308.1	Know the concepts of the Microprocessor capability in general and explore the evaluation of microprocessors.
C308.2	Analyze the instruction sets - addressing modes - minimum and maximum modes operations of 8086 Microprocessors
C308.3	Analyze the Microcontroller and interfacing capability
C308.4	Describe the architecture and interfacing of 8051 controller
C308.5	Know the concepts of PIC micro controller and its programming.

C309	ELECTRICAL MEASUREMENTS AND INSTRUMENTATION
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Course Outcomes (Cos)

C309.1	Know the construction and working of various types of analog instruments.
C309.2	Describe the construction and working of wattmeter and power factor meters
C309.3	Know the construction and working various bridges for the measurement resistance - inductance and capacitance
C309.4	Know the operational concepts of various transducers
C309.5	Know the construction and operation digital meters

C310	POWER SYSTEM ANALYSIS
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Course Outcomes (Cos)

C310.1	Draw impedance diagram for a power system network and calculate per unit quantities.
C310.2	Apply the load flow solution to a power system using different methods.
C310.3	Form Zebus for a power system networks and analyse the effect of symmetrical faults
C310.4	Find the sequence components for power system Components and analyse its effects of unsymmetrical faults.
C310.5	Analyze the stability concepts of a power system

C311	BASICS OF SIGNALS AND SYSTEMS (OE)
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Course Outcomes (Cos)

C311.1	Understand linear time invariant systems.
C311.2	Apply the concepts of Fourier series representations to analyze continuous and discrete time periodic signals.
C311.3	Understand and apply the continuous time Fourier transform, discrete time Fourier transform,
C311.4	Apply the concepts of Laplace transform, and z-Transform to the analysis and description of LTI continuous and discrete-time systems

C312	SWITCHGEAR AND PROTECTION (PROFESSIONAL ELECTIVE – II)
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Course Outcomes (Cos)

C321.1	Illustrate the principles of arc interruption for application to high voltage circuit breakers of air - oil - vacuum - SF6 gas type.
C312.2	Analyze the working principle and operation of different types of electromagnetic protective relays.
C312.3	Acquire knowledge of protective schemes for generator and transformers for different fault conditions
C312.4	Classify various types of protective schemes used for feeders and bus bar protection and Types of static relays.
C312.5	Analyze the operation of different types of over voltages protective schemes required for insulation co-ordination and types of neutral grounding.

C312	ELECTRICAL MEASUREMENTS AND INSRUMENTATION LABORATORY
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Course Outcomes (Cos)

C312.1	Know about the phantom loading.
C312.2	Learn the calibration process.
C312.3	Measure the electrical parameters voltage - current - power - energy and electrical characteristics of resistance - inductance and capacitance.
C312.4	Gain the skill knowledge of various brides and their applications.
C312.5	Learn the usage of CT's - PT's for measurement purpose.
C312.6	Know the characteristics of transducers.
C312.7	Measure the strains - frequency and phase difference

C313	MICRO PROCESSORS AND MICRO CONTROLLERS LAB
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Course Outcomes (Cos)

C313.1	Write assembly language program using 8086 microprocessor based on arithmetic - logical - number systems and shift operations.
C313.2	Write assembly language programs for numeric operations and array handling problems.
C313.3	Write a assembly program on string operations.
C313.4	Interface 8086 with I/O and other devices.
C313.5	Do parallel and serial communication using 8051 & PIC 18 micro controllers.
C313.6	Program microprocessors and microcontrollers for real world applications.

C314	POWER SYSTEMS AND SIMULATION LAB
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Course Outcomes (Cos)

C314.1	Estimate the sequence impedances of 3-phase Transformer and Alternators
C314.2	Evaluate the performance of transmission lines
C314.3	Analyze and simulate power flow methods in power systems
C314.4	Analyze and simulate the performance of PI controller for load frequency control.
C314.5	Analyze and simulate stability studies of power systems

PROGRAMME: ELECTRICAL AND ELECTRONICS ENGINEERING
JNTUK UNIVERSITY REGULATION R20
FOURTH YEAR COURSES (I & II SEMESTER)
Course Outcome's (Co's)
IV-I & IV-II

IV Year – I Semester

C401	HIGH VOLTAGE ENGINEERING (PROFESSIONAL ELECTIVE – IV)
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Course Outcomes (Cos)

C401.1	Recognize the dielectric properties of gaseous materials used in HV equipment.
C401.2	Differentiate the break down phenomenon in liquid and solid dielectric materials.
C401.3	Acquaint with the techniques of generation of high AC and DC voltages
C401.4	Acquaint with the techniques of generation of high Impulse voltages and currents.
C401.5	Getting the knowledge of measurement of high AC - DC - Impulse voltages and currents

C402	FLEXIBLE ALTERNATING CURRENT TRANSMISSION SYSTEMS (PROFESSIONAL ELECTIVE – III)
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Course Outcomes (Cos)

C402.1	Know the concepts of facts controller and power flow control in transmission line.
C402.2	Demonstrate operation and control of voltage source converter and know the concepts current source converter.
C402.3	Analyze compensation by using different compensators to improve stability and reduce power oscillations in the transmission lines.
C402.4	Know the concepts methods of compensations using series compensators.
C402.5	Analyze operation of Unified Power Flow Controller (UPFC) and Interline power flow controller (IPFC).

C403	POWER SYSTEM OPERATION AND CONTROL (PROFESSIONAL ELECTIVE –V)
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Course Outcomes (Cos)

C403.1	Compute optimal load scheduling of Generators.
C403.2	Formulate hydrothermal scheduling and unit commitment problem.
C403.3	Analyze effect of Load Frequency Control for single area systems
C403.4	Analyze effect of Load Frequency Control for two area systems
C403.5	Describe the effect of reactive power control for transmission lines.

C404	PRINCIPLES OF SIGNAL PROCESSING (OE)
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Course Outcomes (Cos)

C404.1	Use the FFT algorithm for solving the DFT of a given signal
C404.2	Design a Digital filter (FIR&IIR) from the given specifications
C404.3	Realize the FIR and IIR structures from the designed digital filter.
C404.4	Use the MultiMate Processing concepts in various applications
C404.5	Apply the Adaptive signal processing concepts to various signal processing applications

C405	UNIVERSAL HUMAN VALUES-2: UNDERSTANDING HARMONY
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Course Outcomes (Cos)

C405.1	Students will be able to discuss a holistic perspective based on self-exploration about themselves (human being), family, society and nature/existence, to explain (or developing clarity) of the harmony in the human being, family, society and nature/existence, to strengthen self-reflection and to judge the commitment and courage to act.
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C406	GREEN TECHNOLOGY OPEN ELECTIVE
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Course Outcomes (Cos)

C406.1	Enlist different concepts of green technologies in a project
C406.2	Understand the principles of Energy efficient technologies
C406.3	Estimate the carbon credits of various activities
C406.4	Identify the importance of life cycle assessment
C406.5	Recognize the benefits of green fuels with respect to sustainable development.

C407	SKILL ADVANCED COURSE MACHINE LEARNING WITH PYTHON LAB
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Course Outcomes (Cos)

C407.1	Implement procedures for the machine learning algorithms
C407.2	Design and Develop Python programs for various Learning algorithms
C407.3	Apply appropriate data sets to the Machine Learning algorithms
C407.4	Develop Machine Learning algorithms to solve real world problems

IV Year – II Semester

C408	PROJECT WORK
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Course Outcomes (Cos)

C408.1	On the completion of project work students will be in a position to take up any challenging practical problems and find solution by formulating proper methodology
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