COURSE OUTCOME

Electrical Engineering Department

THIRD SEMESTER

SUBJECT NAME: MATHEMATICS – III

SUBJECT CODE: 3EE01

COURSE OUTCOME:

Students will be able to:

1. Solve higher order differential equations.
2. Find Laplace transform of function and how solve diff. equations using L.T.
3. Solve Fourier integral.
4. Solve differential eq. using Z – transform.
5. Gain the knowledge of vector calculus.
6. Find curl and divergence of vector field function.

SUBJECT NAME: NETWORK ANALUSIS

SUBJECT CODE: 3EE02

COURSE OUTCOME

Students will be able to :

1. To analyze behavior of basic circuit elements and to apply concept of mesh and node analysis in circuit theory.
2. Apply various network theorems to determine the circuit response / behavior.
3. To apply transformation of a network to analyze time domain , differential eq.
4. To study necessary conditions for driving point functions , transfer function for their application to a given network for analyzing circuit design.
5. To analyze the sinusoidal steady state for different electric network and apply concepts of Fourier series for analyzing non sinusoidal periodic waveforms.

SUBJECT NAME: ENERGY RESOURCES AND GENERATION

SUBJECT CODE: 3EE03

COURSE OUTCOME:

1. To impart knowledge on arrangement, construction and working of thermal and hydro power plant.
2. To impart knowledge on arrangement , construction and working of nuclear and diesel power plant.
3. Students will be able to estimation of solar radiation and their constants for power generation in different technologies.
4. Students will be able to understand the principles of electrical generation with wind energy and terminology.
5. Students will be able to learn to different technique of conversion of biomass. biofuels, geothermal energy and MHD power generation.

SUBJECT NAME: ELECTRONIC DEVICES & CIRCUITS

SUBJECT CODE: 3EE04

COURSE OUTCOME:

Students will be able to,

1. Verify the working of diode, transistors and their applications.
2. Study and analyse the rectifier and regulated circuits.
3. Set up a bias point in a transistor.
4. Build a common emitter / base / collector amplifier and measure its voltage gain.
5. Study and analyze the performance of FETs on the basis of their operation and working

SUBJECT NAME: ELECTRICAL MEASUREMENT AND INSTRUMENTATIONS.

SUBJECT CODE: 3EE05

COURSE OUTCOME:

Students will be able to,

1. Get ability use, measure and analysis the instruments.
2. Calculate all the parameters related to measurements.
3. Understand about different instruments that are used for measurement purpose.

4. Identify the appropriate instruments for measurement of different quantities.
5. Understand various transducer and sensor.
6. Understand measurement of various parameters of frequency.

FOURTH SEMESTER

SUBJECT NAME: ELECTRICAL MACHINE - I

SUBJECT CODE: 4EE01

COURSE OUTCOME:

Students will be able to:

1. Understand electrical principle, laws, and working of DC machines.
2. Analyze the construction and characteristics and application of various type of DC generators.
3. Analyze the construction and characteristics and application of various type of DC motors and testing of motors according to Indian standard.
4. Understand electrical principle , laws, and working of 1 phase transformer and losses . and also conduct various test on the transformer.
5. Understand electrical principle , laws, and working of 3 phase transformer and losses . and also conduct various test on the transformer.
6. Analyze the transformer and convert 3 phase transformer to multi phase transformer.

SUBJECT NAME: ELECTROMAGNETIC THEORY

SUBJECT CODE: 4EE02

COURSE OUTCOME:

1. Apply vector calculus in orthogonal coordinate system.
2. Analyze behavior of static electric fields in standard configurations.
3. Analyze behavior of dynamic electric fields in standard configurations.
4. Analyze behavior of static magnetic fields in standard configurations
5. Analyze behavior of dynamic magnetic fields in standard configurations
6. Describe and analyze electromagnetic wave propagation in free space

SUBJECT NAME: ANALOG AND DIGITAL CIRCUIT

SUBJECT CODE: 4 EE 03

COURSE OUTCOME:

Students will be able to :

1. Understand the basics of opamp and its characteristics.
2. Apply the basic knowledge of opamp in developing various linear , non linear application of opamp.
3. Learn about the other linear IC's like 723,78**,79**,555 timer, 565 PLL and their applications.
4. Understand the digital characteristics of various logic circuits like NMOS,CMOS,TTL,ECL.
5. Design various combinational circuits and hence can develop more complicated once.
6. Analyze sequential circuit and can apply the knowledge of flip flops in designing more complicated circuits.

SUBJECT NAME: MATHEMATICS - IV

SUBJECT CODE: 4EE 04

COURSE OUTCOME:

Students will be able to :

1. Gain the knowledge how to find the harmonic function.
2. Gain the knowledge how to solve complex integration along closed curve.
3. Solve partial diff. eq.
4. Solve special function.(Legendre's and Bessel's)
5. Find the probability.
6. Find the correlation coefficient and regression between variables.

SUBJECT NAME: NUMERICAL METHODS AND COMPUTER PROGRAMMING

SUBJECT CODE: 4EE 05

COURSE OUTCOME:

Students will be able to :

1. Understand errors , accuracy, and stability of algebraic eq.

2. Solve algebraic eq. with various methods.
3. Find root of algebraic eq. using various Gaussian methods
4. Find out the differential & integral value of data.
5. Solve differential method.
6. Develop the program for numerical methods using C,C++.

FIFTH SEMESTER

SUBJECT NAME: CONTROL SYSTEM – I

SUBJECT CODE: 5EE 01

COURSE OUTCOME

1. Students will be able to learn the basics of various types of control systems and automatic systems.
2. Students will be able to build the mathematical model of system from differential equation and vice versa and shall know the better effects of feedback due to parameter variations.
3. Students will be able to apply the basic knowledge to formulate the input output relationship of various component used in control system and their applications in building control system.
4. Students will be able to perform and study a time domain analysis of control system and different performance measures and finally know about behavior of the system.
5. Students will be able to learn the concept of stability , poles and zeros , using routh Hurwitz criteria and relative stability by bode plot, polar plot, Nyquist plot and be able to design and analyze the given system in frequency domain.
6. Students will be able to build state space model of system in different forms.

SUBJECT NAME: MICRO PROCESSOR AND MICROCONTROLLER

SUBJECT CODE: 5EE 02

COURSE OUTCOME:

Students will be able to:

1. Learn internal organization of some popular microprossor / microcontroller.
2. Impart the knowledge about the instruction set.

3. Understand the basic idea about data transfer schemes and its applications.
4. Learn hardware and software interaction and integration .
5. Learn the design of microprocessor / microcontroller base system.

SUBJECT NAME: ELECTRICAL MACHINE – II

SUBJECT CODE: 5EE 03

COURSE OUTCOME

1. To impart the knowledge on fundamental of AC rotating machine
2. To impart the knowledge on constructional details, principle of operation of 3 phase alternator and synchronous motor
3. To impart the knowledge on constructional details, principle of operation, performance, starter, speed control and braking of 3 phase induction motor.
4. To impart the knowledge on constructional details, principle of operation, type of 1 phase induction motor and special machine.

SUBJECT NAME: SIGNAL AND SYSTEM

SUBJECT CODE: 5EE 04

COURSE OUTCOME:

After successfully completing the course students will be able to:

1. Classify systems based on their properties and determine the response of LSI system using convolution.
2. Examine system properties based on impulse response the Fourier analysis.
3. Use the fourier transform to analyse continuous and discrete time signal and system.
4. Understand the process of sampling and the effects of aliasing.
5. Apply the Z – transform to analyze the discrete – time signals and systems.

SUBJECT NAME: Electrical Drives

SUBJECT CODE: 5FEEE05

COURSE OUTCOME:

1. Students will be able to understand definition, scope, objectives, and limitation of electric drives, power transistor and SCR.

2. Student will be analyze the construction and characteristics and application of D.C. motor .
3. Students will be able to analyze the construction and characteristics and application of three phase induction motor .
4. Students will be able to analyze the speed control methods of A.C. and D.C. motor .
5. Students will be able to analyze the construction and characteristics and application of sensor, transducer and switches. Students will be able to analyze the industrial applications of electric drives.

SUBJECT NAME: COMMUNICATIONS SKILLS

SUBJECT CODE: 5EE 06

COURSE OUTCOME:

1. To understand basic of communications and different barriers related to it.
2. Improving listening and speaking abilities.
3. To understand different reading techniques and technical writing techniques.

SIXTH SEMESTER

SUBJECT NAME: ELECTRICAL POWER –I

SUBJECT CODE: 6EE 01

COURSE OUTCOMES

1. Students will be able to learn the basics of various fundamentals of electrical power generation , transmission & distribution.
2. Students will be able to learn transmission line parameters, their calculations also the effects on transmission lines & its effects on the communication system.
3. Students will be able to learn electrical characteristics of transmission line such as types of transmission lines, various effects on transmission & per unit representation of power system.
4. Students will be able to learn load flow studies and its equation, Comparison of various methods like GS & NR.

5. Students will be able to learn Mechanical design along with the types of insulators also the knowledge of voltage distribution across the string and introduction to HV, LV and EHV.
6. Students will be able to learn information regarding conductors and insulation, different types of underground cable parameters.

SUBJECT NAME: OPTIMIZATION TECHNIQUES

SUBJECT CODE: 6EE 02

COURSE OUTCOMES

1. Students will be able to learn the applications of optimization, optimization problems and its techniques.
2. Students will be able to learn linear programming through theorems, graphical methods, solution of system using various methods.
3. Students will be able to learn advanced linear programming through duality theorem, dual simplex method and transportation problems.
4. Students will be able to learn non linear programming through unimodal function, fibonanacci search method and folden section method, non constraints optimization.
5. Students will be able to learn CPM and PERT introduction through network representation of project and crashing of project.
6. Students will be able to learn dynamic programming through multi stage decision processes, sub optimization and various solution methods.

SUBJECT NAME: POWER ELECTRONICS

SUBJECT CODE: 6EE 03

COURSE OUTCOMES:

1. To illustrate the construction, characteristics of thyristor family and understand the basic principle of operation of SCR.
2. To illustrate the operation of various triggering circuits for series and parallel operation of SCR's and various protection circuits of thyristors.
3. To analysis and design AC/DC rectifier circuit.
4. To analysis and design DC/AC inverter circuit.

5. To analysis and design DC/DC converter circuit.
6. To examine different applications of power converters.

SUBJECT NAME: COMPUTER AIDED MACHINE DESIGN

SUBJECT CODE: 6EE 04

COURSE OUTCOMES:

1. Students will be able to learn the applications of transformer and induction motor and application regarding representation using piece wise linearization and least square error method.
2. Students will be able to formulate the mathematical modelling of transformer design, output equation, design dimension of core and yoke.
3. Students will be able to learn the fundamentals of electrical circuits and thermal circuits of cooling method.
4. Students will be able to learn the basics of induction motor stator design, electrical and magnetic loading, types and design of winding.
5. Students will be able to learn the concept of air-gap length design, mmf calculations, magnetizing components, etc.
6. Students will be able to learn the mathematical modelling of core loss from design data, winding resistance and leakage reactance from designed data also parameters effect on performance.

SUBJECT NAME: COMPUTER AIDED MACHINE DESIGN

SUBJECT CODE: 6FEEE05

COURSE OUTCOMES:

1. Students will be able to understand complete structure of Power System and working of steam power plant.
2. Students will learn the total working principle and various procedures involved in Gas Turbine and Nuclear Power plants.
3. Students will get proficient knowledge about Hydroelectric stations. Students will also be able to learn coordination of different power plants to increase the efficiency of plants.
4. Students will get acquainted with all technical knowledge of Electrical Substations

5. Student will be able to design economical feeders for electrical distribution systems.
6. Students will get acquainted with the installation of Electrical wiring in domestic, commercial and industrial areas.

SUBJECT NAME: ELECTRICAL ENERGY UTILIZATION

SUBJECT CODE: 6EE 06

COURSE OUTCOMES:

1. Students will be able to maintain electric drives used in an industries
2. Students will be able to identify a heating/ welding scheme for a given application
3. Students will be able to maintain/ Trouble shoot various lamps and fittings in use
4. Students will be able to figure-out the different schemes of traction schemes and its main components
5. Students will be able to design a suitable scheme of speed control for the traction systems
6. Students will be able to identify the job/higher education / research opportunities in Electric Utilization industry.

SEVENTH SEMESTER

SUBJECT NAME: CONTROL SYSTEMS -II

SUBJECT CODE: 7EE 01

COURSE OUTCOME:

1. Students will be able to Compensated Performance Analysis of Lead, Lag and Lag-lead Compensators in time & frequency domain.
2. Students will be able to Analyze the practical system for the desired specifications through classical and state variable approach.
3. Students will be able to Design the optimal control with and without constraints
4. Students will be able to Analyze non-linear and work with digital system and their further research.
5. Students will be able to Understand Controllability & observability of discrete time systems.
6. Students will be able to Analyze Performance Index. Desirability of single P.I.Integral Square Error (ISE).

SUBJECT NAME: POWER SYSTEM OPERATION AND CONTROL

SUBJECT CODE: 7EE 02

COURSE OUTCOME:

1. Students will be able to make students express Economic operation of power system and importance of LFC control.
2. Students will be able to allow students discuss about thermal and power plants operation in meeting the load demand optimally. (State and central wide installation).Also expressing importance of reactive power control through seminars.
3. Students will be able to improve student's ability in solving problems (numerical problems at present) by posing different problem models related to Economic Load Dispatch, Load Frequency Control and reactive power control.
4. Students will be able to apply their knowledge in PSOC for competitive exams like GATE, IES, and Public sector etc.
5. Students will be able to discuss single area load frequency control and two area load frequency control.
6. Students will be able to model and design turbine and Automatic controller.
7. Students will be able to express variation of frequency in the power system with varying load.

SUBJECT NAME: ELECTRICAL POWER -II

SUBJECT CODE: 7EE 03

COURSE OUTCOME:

1. Student shall able to understand the basics of power system.
2. Student shall able to Analyze and solve problems on symmetrical & unsymmetrical fault, stability.
3. Student shall able to Understand economy of operation and get familiar with types of grounding.
4. Student shall able to understand the concepts of High Voltage DC Transmission.
5. Student shall able to understand the concepts of Flexible AC Transmission System.
6. Student shall able to understand and analyze the economic aspects of both conventional transmission and FACTS.

SUBJECT NAME: SWITCHGEAR AND PROTECTION

SUBJECT CODE: 7EE 04

COURSE OUTCOME:

Students shall be able to understand

1. Theory & application of main components used in power system protection
2. Protection systems used for electric machines, transformers, bus bars, transmission lines.
3. Theory, construction, and applications of main types of circuit breakers.
4. Design the protection systems needed for each main part of a power system
5. Theory and construction of static relay with application

SUBJECT NAME: PROCESS CONTROL SYSTEM

SUBJECT CODE: 7EE 05 (Elective)

COURSE OUTCOME:

1. Introduces the analog computer; analysis of linear systems; second order system; effects of poles and zeros on the transient response; compensation; Implementation.
2. Introduction to analog computer and simulation of a dynamical first order system.
3. Effect of poles and zeros location on the transient and steady state behavior of a second order system.
4. Students will be able to learn the basics of various types of process control system and automatic system.
5. Students will be able to apply mathematical models of system from different equations and effect of feedback due to various parameters.
6. To implement the electronics based knowledge in the models of the system in different forms.

EIGHT SEMESTER

SUBJECT NAME: POWER SYSTEM STABILITY

SUBJECT CODE: 8EE 01

COURSE OUTCOME:

Student will be able to

1. Explain the various power system instabilities and dynamics in power systems.
2. Apply and explain different methods for analyzing power system stability.
3. Create mathematical models for dynamic and stability analysis of power systems.
4. Explain different power system controls, and their impact on the system stability.
5. Demonstrate how the transient stability of a power system can be analyzed by using equal area criterion.
6. Analyze electromechanical modes in power systems.

SUBJECT NAME: HIGH VOLTAGE ENGINEERING

SUBJECT CODE: 8EE 02

COURSE OUTCOMES:

1. The students get the knowledge about breakdown mechanism in solid, liquid and gaseous insulation along with related theories.
2. The students got the knowledge about lightning and switching overvoltage phenomenon in power system and their protection.
3. Able to understand behavior of travelling waves on transmission lines.
4. The students got the knowledge about different generation techniques of high voltage for testing purpose.
5. The students got the knowledge about different measurement mechanism of high voltage for testing purpose.
6. The students got the knowledge about non-destructive and high voltage testing of Electrical equipment’s

SUBJECT NAME: DIGITAL SIGNAL PROCEESING

SUBJECT CODE: 8EE 03

COURSE OUTCOMES

By the end of the course the student will be able to:

1. Represent discrete-time signals analytically and visualize them in the time domain.
2. Understand the meaning and implications of the properties of systems and signals.
3. Understand the Transform domain and its significance and problems related to computational complexity.
4. Specify and design any digital filters using MATLAB

SUBJECT NAME: ELECTRICAL DRIVES & CONTROL

SUBJECT CODE: 8EE 04

COURSE OUTCOMES

The student will develop an ability

1. To solve numerical on starting, speed control and braking.
2. To solve numerical on heating and cooling of motors.
3. To work on the drives used in the Industry
4. To work with PLC's in the Industry.
5. To gain an insight in the working of drives used in traction.