VELTECH MULTI TECH DR RANGARAJAN DR SAKUNTHALA ENGINEERING COLLEGE, AVADI, CHENNAI

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

R2019 REGULATION

191MA301 C201 LINEAR ALGEBRA AND NUMERICAL METHODS

After the completion of the course, Students will be able to

SL.NO	STATEMENTS
C201.1	Analyze the vectors in R^n geometrically and algebraically
C201.2	Apply the concepts of Span, Dimension and basics to various vector spaces
C201.3	Apply Gram-Schmidt process to find linearly independent vectors
C201.4	Understand the numerical techniques to find the roots of non-linear equations and solutions for system of linear equations
C201.5	Summarize about the difference operators and use of interpolations

CORRELATION BETWEEN CO-PO

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C201.1	3	3	1	2	-	-	-	-	-	-	1	1
C201.2	3	3	1	2	-	-	-	-	-	-	-	1
C201.3	3	3	1	2	-	-	-	-	-	-	-	1
C201.4	3	3	1	2	-	-	-	-	-	-	-	1
C201.5	3	3	1	2	-	-	-	-	-	-	-	1

CORRELATION BETWEEN CO-PSO

CO	PSO1	PSO2	PSO3	PSO4
C201.1	1	-	-	-
C201.2	1	-	-	2
C201.3	1	-	-	2
C201.4	1	-	-	-
C201.5	1	-	1	1

191EE321 C202 NETWORK ANALYSIS AND SYNTHESIS

After the completion of the course, Students will be able to

SL.NO	STATEMENTS
C202.1	Outline about the network functions with poles and zero concept
C202.2	Construct two port networks along with hybrid parameters
C202.3	Illustrate the different elements of networks synthesis with positive real functions
C202.4	Infer the concept of network graph theory with primitive impedance and admittance method
C202.5	Acquire knowledge on different types of filters

CORRELATION BETWEEN CO-PO

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C202.1	3	3	1	1	-	-	-	1	1	-	3	3
C202.2	3	3	2	1	-	2	-	-	1	-	2	2
C202.3	3	3	2	2	-	2	-	-	-	-	1	1
C202.4	3	3	3	1	-	1	-	1	-	-	1	2
C202.5	3	3	3	2	-	-	1	1	1	1	3	3

CORRELATION BETWEEN CO-PSO

CO	PSO1	PSO2	PSO3	PSO4
C202.1	3	3	1	3
C202.2	3	2	1	2
C202.3	3	3	2	1
C202.4	2	3	1	2
C202.5	2	3	2	1

191EE332 C203 INTEGRATED ELECTRONICS
After the completion of the course, Students will be able to

SL.NO	STATEMENTS
C203.1	Outline about Boolean functions and TTL logic
C203.2	Design Combinational circuits
C203.3	Solve Sequential circuits
C203.4	Analyze the characteristics of op-amp and to function on applications of op-amp
C203.5	Make use of Special IC's

CORRELATION BETWEEN CO-PO

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C203.1	3	1	3	1	-	1	-	-	1	2	1	1
C203.2	2	2	3	2	-	1	1	1	2	2	2	1
C203.3	2	2	3	2	-	1	1	-	2	2	2	1
C203.4	3	3	3	3	-	1	1	1	2	2	2	2
C203.5	3	3	3	3	1	1	2	1	2	2	2	2

CORRELATION BETWEEN CO-PSO

CO	**PSO1**	**PSO2**	**PSO3**	**PSO4**
C203.1	1	1	3	3
C203.2	1	1	3	3
C203.3	2	2	3	3
C203.4	2	2	3	3
C203.5	2	2	3	3

CORRELATION BETWEEN CO-PSO

CO	PSO1	PSO2	PSO3	PSO4
C212.1	3	3	1	3
C212.2	3	2	1	1
C212.3	3	2	1	1
C212.4	2	3	1	1
C212.5	2	2	1	1

191EE323 C204 DC MACHINES AND TRANSFORMERS

After the completion of the course, Students will be able to

SL.NO	STATEMENTS
C204.1	Relate the concepts of Electromechanical Energy Conversion
C204.2	Demonstrate the working principles of DC machines and their applications
C204.3	Illustrate about speed control techniques
C204.4	Analyze about the constructional details and working principles of Transformers
C204.5	Evaluate the various losses occurring in DC machines and transformers

CORRELATION BETWEEN CO-PO

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C204.1	2	3	2	1	-	-	-	-	-	-	1	1
C204.2	3	2	1	1	-	-	-	-	1	1	1	2
C204.3	2	3	2	1	-	1	-	-	1	1	3	1
C204.4	2	2	3	1	-	-	1	-	2	2	1	2
C204.5	3	2	1	1	-	1	-	-	1	-	1	3

CORRELATION BETWEEN CO-PSO

CO	PSO1	PSO2	PSO3	PSO4
C204.1	2	2	2	2
C204.2	3	1	1	1
C204.3	2	2	1	2
C204.4	3	2	1	3
C204.5	2	2	1	3

191CS312 C205 Object Oriented Programming

After the completion of the course, Students will be able to

SL.NO	Course Outcome Statements
C205.1	Acquire knowledge in OOPS concepts and develop Java programs using object oriented features
C205.2	Summarize the concept of inheritance, interfaces and implement using Java Programs
C205.3	Design Java applications using Exceptions and I/O streams
C205.4	Analyze and evaluate the concept of threads and generic classes to develop Java applications
C205.5	Create interactive Java programs using Swings

CORRELATION BETWEEN CO-PO

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C205.1	3	2	3	1	2	-	-	-	1	-	1	1
C205.2	3	3	3	-	2	-	-	-	1	-	1	1
C205.3	3	1	3	-	2	-	-	1	1	-	1	1
C205.4	3	2	3	-	2	-	-	-	1	-	1	1
C205.5	3	3	3	1	2	1	2	-	1	-	1	1

CORRELATION BETWEEN CO-PSO

CO	PSO1	PSO2	PSO3	PSO4
C205.1	1	1	2	1
C205.2	1	-	2	1
C205.3	1	-	2	1
C205.4	1	-	2	1
C205.5	1	2	2	1

191CS31B C208 Programming Laboratory

After the completion of the course, Students will be able to

SL.NO	STATEMENTS
C208.1	Discuss on Object Oriented concepts
C208.2	Develop applications using Object Oriented Programming Concepts
C208.3	Categorize Advanced Programming Concepts

CORRELATION BETWEEN CO-PO

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C208.1	1	1	2	2	2	1	1	2	2	3	3	1
C208.2	1	1	2	2	2	1	1	2	2	3	3	1
C208.3	1	1	2	2	2	1	1	2	2	3	3	1

CORRELATION BETWEEN CO-PSO

CO	PSO1	PSO2	PSO3	PSO4
C208.1	1	1	2	-
C208.2	1	1	2	-
C208.3	1	1	2	-

191EE32A C207 DC Machines and Transformers Laboratory

After the completion of the course, Students will be able to

SL.NO	STATEMENTS
C207.1	Summarize the performance of DC generators and Motors
C207.2	Apply the speed control techniques
C207.3	Examine about regulation of transformers

CORRELATION BETWEEN CO-PO

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C207.1	3	3	2	2	-	2	1	3	3	3	3	3
C207.2	3	3	2	2	-	-	1	3	3	3	3	3
C207.3	3	3	3	2	-	3	1	3	3	3	3	3

CORRELATION BETWEEN CO-PSO

CO	**PSO1**	**PSO2**	**PSO3**	**PSO4**
C207.1	3	2	1	2
C207.2	3	2	1	2
C207.3	3	2	1	2

191EE32B C206 Integrated Circuits Laboratory

After the completion of the course, Students will be able to

SL.NO	STATEMENTS
C206.1	Design the various experimental setup circuits of combinational systems.
C206.2	Analyze an inverting and Non inverting amplifier, adder, comparator, integrator and differentiator using Op – amplifier.
C206.3	Examine the characteristics of voltage-controlled oscillator using NE/SE 566 IC and Design the variability voltage regulator using LM317 IC.

CORRELATION BETWEEN CO-PO

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C206.1	3	3	3	2	-	1	-	1	2	3	3	2
C206.2	3	3	3	2	-	1	1	1	2	3	3	2
C206.3	3	3	3	2	-	1	-	1	2	3	3	2

CORRELATION BETWEEN CO-PSO

CO	PSO1	PSO2	PSO3	PSO4
C206.1	3	2	3	2
C206.2	3	1	3	2
C206.3	3	3	3	2

191MA404 C211 FOURIER SERIES AND TRANSFORMS-

After the completion of the course, Students will be able to

SL.NO	STATEMENTS
C211.1	Construct Fourier series for different periodic functions and to evaluate infinite series
C211.2	Find Half-Range Fourier series for the given periodic function
C211.3	Determine Fourier Transform and inverse transform and understand the fundamental properties
C211.4	Apply convolution theorem to find the product of Fourier transform
C211.5	Analyze the discrete signals using Z-transform

CORRELATION BETWEEN CO-PO

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C211.1	3	3	1	2	-	-	-	-	-	-	-	1
C211.2	3	3	1	2	-	-	-	-	-	-	-	1
C211.3	3	3	1	2	-	-	-	-	-	-	2	1
C211.4	3	3	1	2	-	-	-	-	-	1	2	1
C211.5	3	3	1	2	-	-	-	-	-	1	2	1

CORRELATION BETWEEN CO-PSO

CO	PSO1	PSO2	PSO3	PSO4
C211.1	2	-	2	-
C211.2	2	-	2	-
C211.3	2	1	2	2
C211.4	2	1	2	2
C211.5	2	1	2	2

191EE421 C212 Electromagnetic Theory

After the completion of the course, Students will be able to

SL.NO	STATEMENTS
C212.1	Demonstrate the basic mathematical concepts related to electromagnetic waves and vector fields
C212.2	Apply the knowledge on the concepts of electrostatics, electrical potential, energy density and their applications
C212.3	Infer the different concepts of magneto-statics and summarize the magnetic flux density with scalar and vector potential.
C212.4	Illustrate Maxwell‘s equations in differential and integral forms.
C212.5	Enumerate the electromagnetic wave equations for the problems relating to uniform plane Plane.

CORRELATION BETWEEN CO-PO

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C212.1	3	2	3	3	1	-	1	-	1	1	3	3
C212.2	3	3	2	2	1	1	-	-	1	-	2	2
C212.3	3	2	2	2	1	1	2	-	1	-	1	2
C212.4	3	3	3	2	1	1	-	1	1	1	1	2
C212.5	3	3	3	3	-	-	-	-	1	-	1	2

CORRELATION BETWEEN CO-PSO

CO	PSO1	PSO2	PSO3	PSO4
C212.1	3	3	1	3
C212.2	3	2	1	1
C212.3	3	2	1	1
C212.4	2	3	1	1
C212.5	2	2	1	1

191EE422 C213 Control Systems
After the completion of the course, Students will be able to

SL.NO	STATEMENTS
C213.1	Discuss about Systems
C213.2	Examine time response analysis of LTI systems
C213.3	Solve frequency domain analysis of control systems
C213.4	Analyze the stability of the system in s-domain
C213.5	Develop various approach with state space representation and to solve transfer function model

CORRELATION BETWEEN CO-PO

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C213.1	3	2	3	1	-	-	-	-	2	2	2	2
C213.2	3	2	2	2	-	-	1	-	2	2	2	2
C213.3	1	2	2	2	-	-	-	1	2	2	2	1
C213.4	2	3	2	2	-	1	-	-	2	2	2	1
C213.5	2	1	2	1	-	-	1	-	1	2	-	-

CORRELATION BETWEEN CO-PSO

CO	PSO1	PSO2	PSO3	PSO4
C213.1	3	2	3	2
C213.2	3	1	2	2
C213.3	1	2	2	3
C213.4	2	1	2	2
C213.5	2	1	2	2

191EE423 C214 AC Rotating Machines

After the completion of the course, Students will be able to

SL.NO	STATEMENTS
C214.1	Explain about the fundamentals of AC rotating machine
C214.2	Demonstrate about the operating principle of Induction Motor
C214.3	Examine the performance of Synchronous Machines
C214.4	Classify the different Starting and speed control techniques
C214.5	Analyze and select machines for specific application

CORRELATION BETWEEN CO-PO

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C214.1	3	1	1	1	-	2	3	-	-	2	3	2
C214.2	3	2	3	-	-	1	1	1	1	3	3	2
C214.3	2	2	2	1	-	2	1	-	-	3	3	2
C214.4	3	3	2	1	-	-	-	1	-	3	3	2
C214.5	2	1	3	1	-	3	1	1	-	3	3	3

CORRELATION BETWEEN CO-PSO

CO	PSO1	PSO2	PSO3	PSO4
C214.1	2	1	2	3
C214.2	2	1	1	2
C214.3	1	2	1	2
C214.4	2	2	1	2
C214.5	2	1	1	2

191EE424 C215 Microprocessors and Microcontrollers

After the completion of the course, Students will be able to

SL.NO	STATEMENTS
C215.1	Apply the programming knowledge of Microprocessor and Microcontroller to perform various tasks
C215.2	Make use of techniques, skills and ability to interface microprocessor with various devices
C215.3	Analyze, linear and digital electronic circuits
C215.4	Identify and formulate the ways to effectively utilize microcontroller peripherals
C215.5	Develop the Application systems with Microprocessor and Microcontroller concepts

CORRELATION BETWEEN CO-PO

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C215.1	1	2	3	3	2	1	-	-	2	1	1	1
C215.2	1	2	3	3	2	1	1	1	2	1	3	1
C215.3	1	2	3	3	2	1	-	-	2	1	2	1
C215.4	1	2	3	3	2	1	-	1	2	1	1	1
C215.5	1	2	3	3	2	1	2	1	2	1	3	1

CORRELATION BETWEEN CO-PSO

CO	PSO1	PSO2	PSO3	PSO4
C215.1	1	2	2	2
C215.2	1	2	2	2
C215.3	1	2	2	2
C215.4	1	2	2	2
C215.5	1	2	2	2

191EE425 C216 Measurement and Instrumentation

SL.NO	STATEMENTS
C216.1	Summarize the basic blocks of Instrumentation
C216.2	Examine the operation of Voltage and current Measuring Instruments
C216.3	Infer the operation of meters to measure Power and Energy
C216.4	Select suitable bridges to measure passive elements
C216.5	Perceive digital measuring systems

CORRELATION BETWEEN CO-PO

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C216.1	1	2	1	1	-	-	1	-	1	1	1	3
C216.2	3	2	2	2	-	-	-	-	1	-	1	3
C216.3	3	3	2	2	-	-	-	1	1	2	1	3
C216.4	2	-	1	1	-	-	-	-	2	2	1	3
C216.5	2	1	1	2	1	1	1	1	1	1	1	3

CORRELATION BETWEEN CO-PSO

CO	PSO1	PSO2	PSO3	PSO4
C216.1	1	1	1	2
C216.2	2	2	2	2
C216.3	1	2	1	2
C216.4	2	1	1	2
C216.5	2	1	1	2

191EE42A C217 AC Rotating Machines Laboratory

After the completion of the course, Students will be able to

SL.NO	STATEMENTS
C217.1	Inspect, connect and run Single and Three phase Induction motors, Synchronous and Alternators
C217.2	Determine the losses of the Machines
C217.3	Select Starters

CORRELATION BETWEEN CO-PO

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C217.1	3	3	3	3	-	1	3	3	3	3	3	2
C217.2	3	3	3	3	-	1	3	3	3	3	3	1
C217.3	3	3	3	3	-	1	3	2	3	3	3	2

CORRELATION BETWEEN CO-PSO

CO	PSO1	PSO2	PSO3	PSO4
C217.1	3	2	1	2
C217.2	3	2	1	1
C217.3	3	1	-	-

191EE42B C218 Microprocessors and Microcontrollers Laboratory

After the completion of the course, Students will be able to

SL.NO	STATEMENTS
C218.1	Develop programming for basic operations
C218.2	Interface Processors with real time systems
C218.3	Apply concepts for Serial Communication

CORRELATION BETWEEN CO-PO

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C218.1	2	2	3	2	2	1	2	2	3	3	2	2
C218.2	2	2	3	2	3	1	2	2	3	3	2	2
C218.3	2	2	3	2	2	1	2	2	3	3	2	2

CORRELATION BETWEEN CO-PSO

CO	PSO1	PSO2	PSO3	PSO4
C218.1	2	2	2	1
C218.2	2	2	2	1
C218.3	2	2	2	1

191MC46A C219 Internship1

After the completion of the course, Students will be able to

SL.NO	STATEMENTS
C219.1	Elaborate about the concepts observed in Industry
C219.2	Apply the skills to the carriers
C219.3	Develop skills in teamwork

CORRELATION BETWEEN CO-PO

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C219.1	2	2	3	3	2	3	3	3	3	3	3	3
C219.2	2	2	3	3	2	3	3	3	3	3	3	3
C219.3	2	2	3	3	1	3	3	3	3	3	3	3

CORRELATION BETWEEN CO-PSO

CO	PSO1	PSO2	PSO3	PSO4
C219.1	2	2	3	3
C219.2	2	2	3	3
C219.3	2	2	3	3

191EE524 C301 Transmission & Distribution

After the completion of the course, Students will be able to

SL.NO	STATEMENTS
C301.1	Analyze the basic structure of Electric Power system
C301.2	Evaluate the computation of Transmission Line parameters
C301.3	Determine the equivalent circuit for different transmission line based on distance
C301.4	Examine the voltage distribution in Insulator string
C301.5	Summarize about the types of sub-stations

CORRELATION BETWEEN CO-PO

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C301.1	3	3	1	1	-	2	2	1	2	3	3	3
C301.2	3	3	1	1	-	1	-	-	2	1	3	3
C301.3	3	3	1	1	-	1	-	1	2	1	3	3
C301.4	3	3	1	2	-	1	-	-	2	1	3	3
C301.5	3	3	2	2	-	3	2	1	2	3	3	3

CORRELATION BETWEEN CO-PSO

CO	PSO1	PSO2	PSO3	PSO4
C301.1	2	2	2	3
C301.2	2	2	1	3
C301.3	2	2	-	3
C301.4	2	2	-	3
C301.5	2	2	3	3

191EE523 C302 Power Electronics

After the completion of the course, Students will be able to

SL.NO	STATEMENTS
C302.1	Identify the device performance based on its Characteristics
C302.2	Explain various types of Rectifiers
C302.3	Design Inverter circuits
C302.4	Construct chopper circuits for various quadrants of operation
C302.5	Enumerate about protection, commutation and Driver systems

CORRELATION BETWEEN CO-PO

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C302.1	3	3	2	1	-	-	-	1	-	1	3	3
C302.2	3	3	2	1	-	-	-	-	2	1	3	3
C302.3	3	3	1	1	-	-	-	1	2	1	3	3
C302.4	3	3	2	1	-	-	1	-	3	1	3	3
C302.5	3	3	2	1	-	-	1	-	2	1	3	3

CORRELATION BETWEEN CO-PSO

CO	PSO1	PSO2	PSO3	PSO4
C302.1	3	1	3	3
C302.2	3	3	3	3
C302.3	3	3	3	3
C302.4	3	3	3	3
C302.5	3	3	3	3

191EE522 C303 Embedded Systems

After the completion of the course, Students will be able to

SL.NO	STATEMENTS
C303.1	Tell about internal blocks of Processor
C303.2	Explain the communication buses adopted for Embedded Systems
C303.3	List the concepts of wireless technologies
C303.4	Inspect the multi-tasking ability of Processor
C303.5	Develop Embedded system applications

CORRELATION BETWEEN CO-PO

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C303.1	1	1	1	1	2	-	-	1	2	2	2	2
C303.2	1	2	2	2	2	-	2	-	1	2	2	2
C303.3	1	2	2	2	2	2		1	2	2	2	2
C303.4	1	2	2	2	2	2	2	1	2	2	2	2
C303.5	1	2	2	2	2	2	2	-	2	2	2	2

CORRELATION BETWEEN CO-PSO

CO	PSO1	PSO2	PSO3	PSO4
C303.1	1	1	2	2
C303.2	1	2	2	2
C303.3	2	2	2	2
C303.4	2	1	2	2
C303.5	2	1	2	2

191EE521 C304 Analog Electronics and Applications

After the completion of the course, Students will be able to

SL.NO	STATEMENTS
C304.1	Acquire the fundamental concepts of Analog Electronic circuits
C304.2	Design and analysis of multistage amplifiers and the effects of coupling
C304.3	Analyze frequency response of an amplifier
C304.4	Summarize the different types of power amplifiers
C305.5	Infer about various rectifiers, filters and regulators

CORRELATION BETWEEN CO-PO

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C304.1	3	3	1	1	1	-	-	-	-	-	-	3
C304.2	3	3	2	2	2	1	-	-	-	-	-	3
C304.3	3	3	2	2	2	1	-	-	-	-	-	3
C304.4	3	3	2	2	2	1	-	-	-	-	-	3
C304.5	3	3	2	2	2	1	-	-	-	-	-	3

CORRELATION BETWEEN CO-PSO

CO	PSO1	PSO2	PSO3	PSO4
C304.1	3	3	3	2
C304.2	3	3	3	2
C304.3	3	3	3	2
C304.4	3	3	3	2
C304.5	3	3	3	2

191EE534 C306 THEORIES OF POWER PLANT

After the completion of the course, Students will be able to

SL.NO	STATEMENTS
C306.1	Infer the importance and basic knowledge of various power plant.
C306.2	Demonstrate the knowledge on the concepts of thermal power plant and their applications.
C306.3	Summarize the different concepts of hydro and diesel power plant with the protection and various system for an application.
C306.4	Suggest and apply various application and concepts gas turbine plant and nuclear power plants
C306.5	Infer the different aspects on environmental impact and power plant safety with social and economical issues of power plant.

CORRELATION BETWEEN CO-PO

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C306.1	3	3	3	3	3	3	2	-	3	3	3	3
C306.2	3	3	3	3	3	3	2	-	3	3	3	3
C306.3	3	3	3	3	3	3	2	-	3	3	3	3
C306.4	3	3	3	3	3	3	2	-	2	3	3	3
C306.5	3	3	3	3	3	3	2	-	2	3	3	3

CORRELATION BETWEEN CO-PSO

CO	**PSO1**	**PSO2**	**PSO3**	**PSO4**
C306.1	3	3	3	3
C306.2	3	2	3	3
C306.3	3	2	3	3
C306.4	2	3	2	3
C306.5	2	2	2	3

191EE52A C307 Control and Instrumentation Laboratory

After the completion of the course, Students will be able to

SL.NO	STATEMENTS
C307.1	Understand control theory and apply them to electrical engineering problems
C307.2	Examine the basic concepts of bridge networks and transducers.
C307.3	Interpret the basics of signal conditioning circuits.

CORRELATION BETWEEN CO-PO

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C307.1	3	3	3	3	2	1	2	2	2	1	2	3
C307.2	3	3	3	3	2	1	2	2	2	3	2	3
C307.3	3	3	3	3	3	1	1	2	3	3	3	3

CORRELATION BETWEEN CO-PSO

CO	PSO1	PSO2	PSO3	PSO4
C307.1	3	3	3	2
C307.2	3	3	3	2
C307.3	3	3	3	2

191EE51A C308 Embedded Laboratory

After the completion of the course, Students will be able to

SL.NO	STATEMENTS
C308.1	Write programs in ARM for specific applications
C308.2	Interface various peripherals using ARM processors
C308.3	Rule on Hardware control using Embedded Softwares

CORRELATION BETWEEN CO-PO

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C308.1	3	3	3	3	3	1	1	3	3	3	3	3
C308.2	3	3	3	3	3	1	1	3	3	3	3	3
C308.3	3	3	3	3	3	1	1	3	3	3	3	3

CORRELATION BETWEEN CO-PSO

CO	PSO1	PSO2	PSO3	PSO4
C308.1	2	3	3	3
C308.2	2	3	3	3
C308.3	2	3	3	3

191MC56A C309 Circuit Simulation Laboratory

After the completion of the course, Students will be able to

SL.NO	STATEMENTS
C309.1	Recall basic law of Electric Circuits using simulation
C309.2	Inspects systems with various simulation parameters
C309.3	Interpret Circuit simplification concepts using simulation

CORRELATION BETWEEN CO-PO

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C309.1	3	3	3	3	3	-	-	1	1	3	3	3
C309.2	3	3	3	3	3	-	-	1	1	3	3	3
C309.3	3	3	3	3	3	-	-	1	1	3	3	3

CORRELATION BETWEEN CO-PSO

CO	PSO1	PSO2	PSO3	PSO4
C309.1	3	1	2	3
C309.2	3	1	2	3
C309.3	3	1	2	3

191EE521 C311 DIGITAL SIGNAL PROCESSING

After the completion of the course, Students will be able to

SL.NO	**STATEMENTS**
C311.1	Acquire knowledge on Signals and systems & their mathematical representation.
C311.2	Understand and analyze the discrete time systems.
C311.3	Analyze the transformation techniques & their computation.
C311.4	Understand the types of filters and their design for digital implementation
C311.5	Acquire knowledge on programmability digital signal processor & quantization effects

CORRELATION BETWEEN CO-PO

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C311.1	3	3	1	1	1	-	-	-	-	-	-	3
C311.2	3	3	2	2	2	1	-	-	-	-	-	3
C311.3	3	3	2	2	2	1	-	-	-	-	-	3
C311.4	3	3	2	2	2	1	-	-	-	-	-	3
C311.5	3	3	2	2	2	1	-	-	-	-	-	3

CORRELATION BETWEEN CO-PSO

CO	PSO1	PSO2	PSO3	PSO4
C311.1	3	3	3	2
C311.2	3	3	3	2
C311.3	3	3	3	2
C311.4	3	3	3	2
C311.5	3	3	3	2

191EE622 C312 POWER SYSTEM ANALYSIS

After the completion of the course, Students will be able to

SL.NO	STATEMENTS
C312.1	Develop the Y_{bus} and Z_{bus} matrices.
C312.2	Understand and apply iterative techniques for power flow analysis.
C312.3	Model and understand various power system components and carry out power flow, short circuit.
C312.4	Model and analyze stability problems in power system.
C312.5	Model the power system under steady state operating condition.

CORRELATION BETWEEN CO-PO

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C312.1	3	3	3	3	3	2	1	-	-	2	3	3
C312.2	3	3	3	3	3	2	2	-	-	2	2	3
C312.3	3	3	3	3	3	2	1	-	-	2	3	3
C312.4	3	3	3	3	3	2	2	-	-	1	3	3
C312.5	3	3	3	3	3	2	2	-	-	2	3	3

CORRELATION BETWEEN CO-PSO

CO	PSO1	PSO2	PSO3	PSO4
C312.1	3	3	2	3
C312.2	3	3	3	3
C312.3	3	2	3	3
C312.4	3	3	3	3
C312.5	2	3	3	2

191EE623 C313 SOLID STATE DRIVES

After the completion of the course, Students will be able to

SL.NO	STATEMENTS
C313.1	Illustrate the steady state operation and transient dynamics of a motor load system.
C313.2	Compare the operation of the converter/chopper fed dc drive, both qualitatively and quantitatively.
C313.3	Demonstrate the VSI fed of Induction Motor drives.
C313.4	Distinguish the different control strategies of Synchronous Motor drives.
C313.5	Analyze the current and speed controllers for a closed loop solid state DC motor Drive.

CORRELATION BETWEEN CO-PO

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C313.1	3	3	3	2	2	-	-	-	2	2	2	3
C313.2	3	3	3	3	3	-	-	-	2	2	3	3
C313.3	3	3	3	2	2	-	-	-	2	2	3	2
C313.4	3	3	3	3	3	-	-	-	2	2	3	3
C313.5	3	3	3	3	3	-	-	-	2	2	3	3

CORRELATION BETWEEN CO-PSO

CO	PSO1	PSO2	PSO3	PSO4
C313.1	2	2	3	2
C313.2	3	2	2	2
C313.3	3	2	2	2
C313.4	3	2	3	2
C313.5	3	2	2	2

191EE636 C314 SPECIAL ELECTRICAL MACHINES

After the completion of the course, Students will be able to

SL.NO	STATEMENTS
C314.1	Differentiate the types of stepper motor, compare the construction ,Associate the principle of operation, performance of stepping motor
C314.2	Compare the construction; Associate the principle of operation & performance of SRM.
C314.3	Distinguish the types of synchronous reluctance motor. Compare the principle of operation and performance of synchronous reluctance motor
C314.4	Distinguish the construction, principle of operation, performance of BLDC motor
C314.5	Distinguish the construction, principle of operation, performance of PMSM

CORRELATION BETWEEN CO-PO

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C314.1	3	3	2	1	-	-	-	1	-	1	3	3
C314.2	3	3	2	1	-	-	-	-	2	1	3	3
C314.3	3	3	1	1	-	-	-	1	2	1	3	3
C314.4	3	3	2	1	-	-	1	-	3	1	3	3
C314.5	3	3	2	1	-	-	1	-	2	1	3	3

CORRELATION BETWEEN CO-PSO

CO	PSO1	PSO2	PSO3	PSO4
C314.1	2	3	2	2
C314.2	3	2	2	2
C314.3	2	2	3	2
C314.4	2	2	3	2
C314.5	2	2	3	2

191EE62A C316 POWER SYSTEMS LABORATORY

After the completion of the course, Students will be able to

SL.NO	STATEMENTS
C316.1	Inspect Transformer operation using Medium line model.
C316.2	Analyse load flow solution using various methods.
C316.3	Deduct short circuit fault analysis.

CORRELATION BETWEEN CO-PO

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C316.1	2	2	2	2	1	1	1	-	-	2	1	3
C316.2	3	2	2	2	1	2	1	-	-	2	2	3
C316.3	3	2	2	2	1	1	1	-	-	2	2	3

CORRELATION BETWEEN CO-PSO

CO	PSO1	PSO2	PSO3	PSO4
C316.1	3	3	2	2
C316.2	3	2	3	2
C316.3	3	2	2	2

191EE62B C316 POWER ELECTRONICS LABORATORY

After the completion of the course, Students will be able to

SL.NO	STATEMENTS
C316.1	Outline about semi-conductor devices
C316.2	Design circuits, and to function effectively as an individual or in team to demonstrate the circuits
C316.3	Relate various power electronic devices with their characteristics

CORRELATION BETWEEN CO-PO

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C316.1	2	2	2	2	2	1	1	-	-	-	1	2
C316.2	3	2	2	2	2	1	1	-	-	-	1	2
C316.3	3	2	2	2	1	1	1	-	-	-	1	2

CORRELATION BETWEEN CO-PSO

CO	PSO1	PSO2	PSO3	PSO4
C316.1	1	2	1	2
C316.2	1	2	1	2
C316.3	1	2	1	2

191HS701 C401 PROFESSIONAL ETHICS IN ENGINEERING

After the completion of the course, Students will be able to

SL.NO	STATEMENTS
C401.1	Create an awareness on Engineering Ethics and Human Values
C401.2	Instill Moral , Social Values and Loyalty
C401.3	Apply ethics in society
C401.4	Appreciate the rights of others
C401.5	Discuss the ethical issues related to engineering

CORRELATION BETWEEN CO-PO

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C401.1	-	-	-	-	-	-	2	3	2	1	1	3
C401.2	-	-	-	-	-	-	2	2	2	1	1	2
C401.3	-	-	-	-	-	-	2	3	2	1	1	3
C401.4	-	-	-	-	-	-	2	3	2	1	1	3
C401.5	-	-	-	-	-	-	2	3	2	1	1	3

CORRELATION BETWEEN CO-PSO

CO	PSO1	PSO2	PSO3	PSO4
C401.1	2	1	2	1
C401.2	2	1	2	1
C401.3	2	1	2	1
C401.4	1	1	2	1
C401.5	2	1	2	1

191EE721 C402 HIGH VOLTAGE ENGINEERING

After the completion of the course, Students will be able to

SL.NO	STATEMENTS
C402.1	Classify the various types of over voltages in power system and protection methods.
C402.2	Distinguish the nature of Breakdown mechanism in solid, liquid and gaseous dielectrics.
C402.3	Describe the Generation of over voltages in laboratories
C402.4	Distinguish the various types of measurement of over voltages.
C402.5	Discuss on Testing of power apparatus.

CORRELATION BETWEEN CO-PO

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C402.1	3	3	2	2	2	1	2	-	-	-	2	2
C402.2	3	3	2	2	2	1	2	-	-	-	2	2
C402.3	3	3	2	2	2	1	2	-	-	-	2	2
C402.4	3	3	2	2	2	1	2	-	-	-	2	2
C402.5	3	3	2	2	2	1	2	-	-	-	2	2

CORRELATION BETWEEN CO-PSO

CO	PSO1	PSO2	PSO3	PSO4
C402.1	1	2	1	2
C402.2	1	2	2	1
C402.3	1	2	2	2
C402.4	1	2	2	2
C402.5	1	2	2	2

191EE722 C403 PROTECTION AND SWITCHGEAR

After the completion of the course, Students will be able to

SL.NO	STATEMENTS
C403.1	Understand the types of faults.
C403.2	Analyze the concepts of relays and its types.
C403.3	Inspect the protective schemes for power system.
C403.4	Outline the concepts of Earthing.
C403.5	Summarize the Lightning protection

CORRELATION BETWEEN CO-PO

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C403.1	3	3	3	2	2	1	1	2	2	2	2	1
C403.2	3	3	3	2	2	1	2	2	2	2	2	3
C403.3	3	3	3	2	2	1	2	2	2	2	2	3
C403.4	3	3	3	2	2	1	2	2	2	2	2	3
C403.5	3	3	3	2	2	1	1	2	2	2	2	3

CORRELATION BETWEEN CO-PSO

CO	PSO1	PSO2	PSO3	PSO4
C403.1	3	2	2	2
C403.2	3	2	2	2
C403.3	3	2	2	2
C403.4	3	1	2	2
C403.5	3	2	2	2

191EE736 C404 POWER ELECTRONICS FOR RENEWABLE ENERGY SYSTEMS

After the completion of the course, Students will be able to

SL.NO	STATEMENTS
C404.1	Understand the concepts of environmental impacts of renewable energy generation.
C404.2	Analyze the different types electrical machines used in renewable energy conversion
C404.3	Inspect the usage of power electronics in solar PV systems.
C404.4	Inspect the usage of power electronics in Wind power plants.
C404.5	Analyze the hybrid power generation

CORRELATION BETWEEN CO-PO

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C404.1	3	3	2	2	2	1	-	-	-	2	2	2
C404.2	3	3	2	2	2	1	-	-	-	2	2	2
C404.3	3	3	2	2	2	1	-	-	-	2	2	2
C404.4	3	3	2	2	2	1	-	-	-	2	2	2
C404.5	3	3	2	2	2	1	-	-	-	2	2	2

CORRELATION BETWEEN CO-PSO

CO	PSO1	PSO2	PSO3	PSO4
C404.1	2	2	1	2
C404.2	2	2	1	2
C404.3	2	2	1	2
C404.4	2	2	1	2
C404.5	2	2	1	2

191EE72A RENEWABLE ENERGY SYSTEMS LABORATORY

After the completion of the course, Students will be able to

SL.NO	STATEMENTS
C317.1	Simulate Solar PV Energy , wind energy, Hybrid system
C317.2	Analyse the performance of renewable energy systems
C317.3	Design renewable energy system

CORRELATION BETWEEN CO-PO

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C317.1	3	3	3	3	2	1	2	-	1	-	2	2
C317.2	3	3	3	3	2	1	2	-	1	-	2	2
C317.3	3	3	3	3	2	1	2	-	1	-	2	2

CORRELATION BETWEEN CO-PSO

CO	PSO1	PSO2	PSO3	PSO4
C317.1	3	1	2	2
C317.2	3	1	2	2
C317.3	3	1	2	2

191EE77A MINI PROJECT

After the completion of the course, Students will be able to

SL.NO	STATEMENTS
C317.1	Analyze the problem, formulation and solution of the selected project
C317.2	Develop solutions for contemporary problems using modern tools for sustainable development.
C317.3	Demonstrate ethical and professional sustainability while working in a team and communicate effectively for the benefit of the society.

CORRELATION BETWEEN CO-PO

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C317.1	3	2	1	1	2	2	-	-	-	2	2	1
C317.2	3	2	1	1	2	2	-	-	-	2	2	1
C317.3	3	2	1	1	2	2	-	-	-	2	2	1

CORRELATION BETWEEN CO-PSO

CO	PSO1	PSO2	PSO3	PSO4
C317.1	2	2	1	2
C317.2	2	2	1	2
C317.3	2	2	1	2

191EE834 INTELLECTUAL PROPERTY RIGHTS

After the completion of the course, Students will be able to

SL.NO	STATEMENTS
C403.1	Understand the basics of Intellectual Property Rights
C403.2	Demonstrate the registration of IPRs in India and Abroad
C403.3	Discuss the agreements and legislations of IPR
C403.4	Summarize the various IP laws
C403.5	Suggest enforcement measures of IPRs

CORRELATION BETWEEN CO-PO

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C403.1	3	1	1	1	-	2	1	2	2	2	1	2
C403.2	3	2	1	1	-	2	1	2	2	2	2	2
C403.3	3	2	1	1	-	2	1	2	2	2	2	2
C403.4	3	1	1	1	-	2	1	1	2	2	2	2
C403.5	3	2	1	1	-	2	1	2	2	2	2	2

CORRELATION BETWEEN CO-PSO

CO	PSO1	PSO2	PSO3	PSO4
C403.1	3	1	2	1
C403.2	3	2	2	2
C403.3	3	1	2	2
C403.4	3	2	1	2
C403.5	3	2	2	2

191EE837 REAL TIME SYSTEMS

After the completion of the course, Students will be able to

SL.NO	STATEMENTS
C403.1	Outline the concepts of embedded systems
C403.2	Acquire the basic concepts of real time operating system design
C403.3	Understand the concept of inter-process communication
C403.4	Analyze the database for hard real time system
C403.5	Apply the real time modeling concept in real time application

CORRELATION BETWEEN CO-PO

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C403.1	3	2	1	1	3	1	-	-	1	2	2	2
C403.2	3	2	2	1	3	1	-	-	1	2	2	2
C403.3	3	2	2	1	3	1	-	-	1	2	2	2
C403.4	3	2	1	1	3	1	-	-	1	2	2	2
C403.5	3	2	2	1	3	1	-	-	1	2	2	2

CORRELATION BETWEEN CO-PSO

CO	PSO1	PSO2	PSO3	PSO4
C403.1	3	1	1	1
C403.2	3	2	1	1
C403.3	3	2	1	1
C403.4	3	1	1	1
C403.5	3	2	1	1

191ES8310 EMBEDDED CONTROL OF ELECTRIC DRIVES

After the completion of the course, Students will be able to

SL.NO	STATEMENTS
C403.1	Understand the basics of various micro controllers
C403.2	Describe about AC and DC electric drives
C403.3	Demonstrate the MC68HC11 Micro controller in all aspects
C403.4	Design closed loop control of electrical drives
C403.5	Explain various micro controller applications

CORRELATION BETWEEN CO-PO

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C403.1	3	2	2	2	1	1	-	-	-	2	1	2
C403.2	3	2	2	2	1	1	-	-	-	2	2	1
C403.3	3	2	2	2	2	1	-	-	-	2	2	2
C403.4	3	2	2	2	2	1	-	-	-	2	2	2
C403.5	3	2	2	2	2	1	-	-	-	2	2	2

CORRELATION BETWEEN CO-PSO

CO	PSO1	PSO2	PSO3	PSO4
C403.1	3	2	1	3
C403.2	3	2	2	3
C403.3	3	1	2	3
C403.4	3	2	2	3
C403.5	3	2	2	3

191EE8313 POWER QUALITY

After the completion of the course, Students will be able to

SL.NO	STATEMENTS
C403.1	Understand and analyze power system operation, stability, control and protection.
C403.2	Discuss voltage interruptions in detail.
C403.3	Summarize various causes of over voltages.
C403.4	Explain about Harmonics in power systems.
C403.5	Suggest suitable power quality monitoring devices.

CORRELATION BETWEEN CO-PO

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C403.1	3	3	2	1	1	1	1	-	1	2	2	2
C403.2	3	3	2	2	2	1	1	-	1	2	2	2
C403.3	3	3	2	1	1	1	1	-	1	2	2	2
C403.4	3	3	2	2	2	1	1	-	1	2	2	2
C403.5	3	3	2	2	2	1	1	-	1	2	2	2

CORRELATION BETWEEN CO-PSO

CO	PSO1	PSO2	PSO3	PSO4
C403.1	3	2	2	1
C403.2	3	1	2	1
C403.3	3	2	2	1
C403.4	3	2	2	1
C403.5	3	2	2	1

191EE87A PROJECT

After the completion of the course, Students will be able to

SL.NO	STATEMENTS
C317.1	Analyze the problem, formulation and solution of the selected project
C317.2	Develop solutions for contemporary problems using modern tools for sustainable development.
C317.3	Demonstrate ethical and professional sustainability while working in a team and communicate effectively for the benefit of the society.

CORRELATION BETWEEN CO-PO

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C317.1	3	3	3	3	3	3	3	3	3	3	3	3
C317.2	3	3	3	3	3	3	3	3	3	3	3	3
C317.3	3	3	3	3	3	3	3	3	3	3	3	3

CORRELATION BETWEEN CO-PSO

CO	PSO1	PSO2	PSO3	PSO4
C317.1	3	3	3	3
C317.2	3	3	3	3
C317.3	3	3	3	3