

BHARATHIYAR INSTITUTE OF ENGINEERING FOR WOMEN

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

CO-PO MAPPING-2017 REGULATION

Course code & Name: HS8151&COMMUNICATIVE ENGINEERING

Semester : I

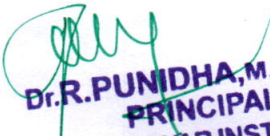
COURSE OUTCOMES:

After the course, the student should be able to:

| | |
|---------------|---|
| C101.1 | Listen and recognize main ideas from different discourses in different accents. |
| C101.2 | Speak clearly, confidently, comprehensively, and communicate with one or many listeners using appropriate communicative strategies. |
| C101.3 | Read different genres of text adopting various reading strategies. |
| C101.4 | Write cohesively and coherently by using a wide range of vocabulary and organize ideas logically on a topic without grammatical errors. |
| C101.5 | Determine the main and subordinate ideas, draw conclusions and summarize information from written material. |
| C101.6 | Write short essays of a general kind and personal letters and emails in English. |

MAPPING WITH PROGRAM OUTCOMES:

| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|-------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|
| C101.1 | - | - | - | - | - | - | - | - | 3 | 3 | - | 2 | - | - | - |
| C101.2 | - | - | - | - | - | - | - | - | 3 | 3 | - | 2 | - | - | - |
| C101.3 | - | - | - | - | - | - | - | - | 3 | 3 | - | 2 | - | - | - |
| C101.4 | - | - | - | - | - | - | - | - | 3 | 3 | - | 2 | - | - | - |
| C101.5 | - | - | - | - | - | - | - | - | 3 | 3 | - | 2 | - | - | - |
| C101.6 | - | - | - | - | - | - | - | - | 3 | 3 | - | 2 | - | - | - |
| C101 | - | - | - | - | - | - | - | - | 3 | 3 | - | 2 | - | - | - |


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Course code & Name: MA8151 & ENGINEERING MATHEMATICS – I

Semester : I


COURSE OUTCOMES:

After the course, the student should be able to:

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|--------|---|
| C102.1 | Diagonalize symmetric matrices and similar matrices using Eigen values and Eigen vectors |
| C102.2 | Explain gradients, potential functions, and directional derivatives of functions of several variables |
| C102.3 | Compute line, surface and volume integral using Gauss divergence, Green's and stoke's theorem. |
| C102.4 | Discuss analytic functions in heat and fluid flow. |
| C102.5 | Extend the concept of contour integrals in evaluating Real integrals. |
| C102.6 | Discuss Laplace Transform methods to solve initial value problems for constant coefficient linear ODEs. |

MAPPING WITH PROGRAM OUTCOMES :

| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|
| C102.1 | 3 | 3 | 3 | - | - | - | - | - | - | - | - | 2 | - | - | - |
| C102.2 | 3 | 3 | 3 | - | - | - | - | - | - | - | - | 2 | - | - | - |
| C102.3 | 3 | 3 | 3 | - | - | - | - | - | - | - | - | 2 | - | - | - |
| C102.4 | 3 | 3 | 3 | - | - | - | - | - | - | - | - | 2 | - | - | - |
| C102.5 | 3 | 3 | 3 | - | - | - | - | - | - | - | - | 2 | - | - | - |
| C102.6 | 3 | 3 | 3 | - | - | - | - | - | - | - | - | 2 | - | - | - |
| C102 | 3 | 3 | 3 | - | - | - | - | - | - | - | - | 2 | - | - | - |


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Course code & Name: PH8151 & ENGINEERING PHYSICS

Semester : I


COURSE OUTCOMES:

After the course, the student should be able to:

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|---------------|--|
| C103.1 | Demonstrate the properties of elasticity and measure the different moduli of elasticity. |
| C103.2 | Examine the characteristics of waves, Laser and optical fiber. |
| C103.3 | Illustrate different modes of heat transfer through objects. |
| C103.4 | Explain the black body radiation, properties of matter waves and schrodinger equations. |
| C103.5 | Classify the bravais lattices and different types of crystal structures. |
| C103.6 | Elucidate the principles of quantum physics and its application. |

MAPPING WITH PROGRAM OUTCOMES:

| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|-------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|
| C103.1 | 3 | 2 | 1 | - | 1 | - | 1 | - | - | - | - | 1 | 2 | 1 | 1 |
| C103.2 | 3 | 2 | 1 | - | 1 | - | 1 | - | - | - | - | 1 | 2 | 1 | 1 |
| C103.3 | 3 | 2 | 1 | - | 1 | - | 1 | - | - | - | - | 1 | 2 | 1 | 1 |
| C103.4 | 3 | 2 | 1 | - | 1 | - | 1 | - | - | - | - | 1 | 2 | 1 | 1 |
| C103.5 | 3 | 2 | 1 | - | 1 | - | 1 | - | - | - | - | 1 | 2 | 1 | 1 |
| C103.6 | 3 | 2 | 1 | - | 1 | - | 1 | - | - | - | - | 1 | 2 | - | - |
| C103 | 3 | 2 | 1 | - | 1 | - | 1 | - | - | - | - | 1 | 2 | 1 | 1 |


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Course code &Name: CY8151& ENGINEERING CHEMISTRY

Semester : I


COURSE OUTCOMES:

After the course, the student should be able to:

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|---------------|--|
| C104.1 | Explain the hardness of water, its types and estimation, boiler troubles and treatment of boiler feed water. |
| C104.2 | Explain adsorption, types and theories of adsorption isotherm and its application in pollution abatement, theories of catalysis and applications. |
| C104.3 | Remember the basic concepts of phase rule and its application to one and two component systems, properties, significance and applications of alloys. |
| C104.4 | Relate the significance of solid, liquid and gaseous fuels and to calculate the calorific value of fuels. |
| C104.5 | Illustrate the methods of harvesting energy from non-conventional energy sources. |
| C104.6 | State the principles and methods of generation of energy in batteries, nuclear reactors, solar cells, wind mills and fuel cells. |

MAPPING WITH PROGRAM OUTCOMES:

| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|-------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| C104.1 | 3 | 2 | 1 | 1 | 1 | 1 | 2 | 2 | - | - | - | 2 | - | - | - |
| C104.2 | 3 | 2 | 1 | - | - | - | 2 | 2 | - | - | - | 2 | - | - | - |
| C104.3 | 3 | 2 | - | - | - | - | - | 2 | - | - | - | 2 | - | - | - |
| C104.4 | 3 | 2 | 1 | - | - | - | - | 2 | - | - | - | 2 | - | - | - |
| C104.5 | 3 | 2 | 1 | 1 | - | 1 | - | 2 | - | - | - | 2 | - | - | - |
| C104.6 | 3 | 2 | 1 | - | 1 | - | 2 | 2 | - | 2 | - | 2 | - | - | - |
| C104 | 3 | 2 | 1 | 1 | 1 | 1 | 2 | 2 | - | 2 | - | 2 | - | - | - |


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Course code &Name: GE8151& PROBLEM SOLVING AND PYTHON PROGRAMMING

Semester : I


COURSE OUTCOMES:

After the course, the student should be able to:

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|---------------|---|
| C105.1 | Develop algorithmic solutions to simple computational problems. |
| C105.2 | Demonstrate programs using simple Python statements and expressions. |
| C105.3 | Explain control flow and functions concept in Python for solving problems. |
| C105.4 | Use Python data structures – lists, tuples & dictionaries for representing compound data. |
| C105.5 | Explain files, exception, modules and packages in Python for solving problems. |
| C105.6 | Illustrate programs for word count, file copy, merge operations and exception handling. |

MAPPING WITH PROGRAM OUTCOMES:

| Course | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|-------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| C105.1 | 3 | 2 | 1 | - | - | 1 | - | - | - | - | - | 1 | 2 | 1 | 1 |
| C105.2 | 3 | 2 | 1 | - | 2 | 1 | - | - | - | - | - | 1 | 2 | 1 | 1 |
| C105.3 | 3 | 2 | 1 | - | 2 | 1 | - | - | - | - | - | 1 | 2 | 1 | 1 |
| C105.4 | 3 | 2 | 1 | - | 2 | 1 | - | - | - | - | - | 1 | 2 | 1 | 1 |
| C105.5 | 3 | 2 | 1 | 1 | 2 | 1 | - | - | - | - | - | 1 | 2 | 1 | 1 |
| C105.6 | 3 | 2 | 1 | - | - | 1 | - | - | - | - | - | 1 | 2 | 1 | 1 |
| C105 | 3 | 2 | 1 | 1 | 2 | 1 | - | - | - | - | - | 1 | 2 | 1 | 1 |


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Course code &Name: GE8152&ENGINEERING GRAPHICS

Semester : I


COURSE OUTCOMES:

After the course, the student should be able to:

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|---------------|---|
| C106.1 | Familiarize the fundamentals and standards of engineering graphics |
| C106.2 | Perform free hand sketching of basic construction and machine equipments. |
| C106.3 | Project orthographic projection of lines and plane surfaces |
| C106.4 | Draw the projection of solids and development of solid. |
| C106.5 | Visualize and project isometric perspective section of solids and surfaces. |
| C106.6 | Draw the free hand sketching of simple objects. |

MAPPING WITH PROGRAM OUTCOMES:

| Course | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|-------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| C106.1 | 2 | 1 | - | - | 1 | - | - | - | 1 | - | - | - | 1 | 1 | 1 |
| C106.2 | 2 | 1 | - | - | 1 | - | - | - | 1 | - | - | - | 1 | 1 | 1 |
| C106.3 | 2 | 1 | - | - | 1 | - | - | - | 1 | - | - | - | 1 | 1 | 1 |
| C106.4 | 2 | 1 | - | - | 1 | - | - | - | 1 | - | - | - | 1 | 1 | 1 |
| C106.5 | 2 | 1 | - | - | 1 | - | - | - | 1 | - | - | - | 1 | 1 | 1 |
| C106.6 | 2 | 1 | - | - | 1 | - | - | - | 1 | - | - | - | 1 | 1 | 1 |
| C106 | 2 | 1 | - | - | 1 | - | - | - | 1 | - | - | - | 1 | 1 | 1 |


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Course code &Name: GE8161&PROBLEM SOLVING AND PYTHON

PROGRAMMING LABORATORY

Semester : I


COURSE OUTCOMES:

After the course, the student should be able to:

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|---------------|---|
| C107.1 | Develop solutions to simple computational problems using Python programs. |
| C107.2 | Solve problems using conditionals and loops in Python. |
| C107.3 | Develop Python programs by defining functions and calling them. |
| C107.4 | Use Python lists, tuples and dictionaries for representing compound data. |
| C107.5 | Develop Python programs to implement file handling. |
| C107.6 | Develop Python programs to implement matrix operations. |

MAPPING WITH PROGRAM OUTCOMES:

| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|-------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|
| C107.1 | 3 | 2 | 1 | - | 2 | 1 | - | - | 2 | - | - | 1 | 2 | 2 | 1 |
| C107.2 | 3 | 2 | 1 | - | 2 | 1 | - | - | 2 | - | - | 1 | 2 | 2 | 1 |
| C107.3 | 3 | 3 | 1 | - | 2 | 1 | - | - | 2 | - | - | 1 | 2 | 2 | 1 |
| C107.4 | 3 | 2 | 1 | - | 2 | 1 | - | - | 2 | - | - | 1 | 2 | 2 | 1 |
| C107.5 | 3 | 2 | 1 | - | 2 | 1 | - | - | 2 | - | - | 1 | 2 | 2 | 1 |
| C107.6 | 3 | 2 | 1 | 1 | 2 | 1 | - | - | 2 | - | - | 1 | 2 | 2 | 1 |
| C107 | 3 | 2 | 1 | 1 | 2 | 1 | - | - | 2 | - | - | 1 | 2 | 2 | 1 |


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Course code & Name: BS8161 & PHYSICS AND CHEMISTRY LABORATORY

Semester : I

COURSE OUTCOMES:

After the course, the student should be able to:

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|--------|---|
| C108.1 | Determine and estimate the types of alkalinity & hardness of given water sample & Evaluate moment of inertia of disc and rigidity modulus for thin wire using torsion pendulum. |
| C108.2 | Estimate the amount of copper content present in a given sample & Appraise Young's modulus of the beam by Non - Uniform bending method. |
| C108.3 | Determine the strength of an acid by using pH meter & Measure the wavelength of laser, particle size and basic parameters of optical fiber using semiconductor diode laser. |
| C108.4 | Determine the strength of a pure acid and mixture of acids by using conductivity meter. & Examine the thermal conductivity of bad conductors using Lee's disc apparatus. |
| C108.5 | Estimate the amount of iron content present in a given solution by means of potentiometric titration & Determine the wavelength of the prominent spectral lines. |
| C108.6 | Determine the molecular weight of polymer by Ostwald viscometer & Utilize experiment kits for useful applications. |

MAPPING WITH PROGRAM OUTCOMES:

| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|
| C108.1 | 2 | - | - | - | - | 1 | - | 2 | 2 | 1 | - | 1 | - | - | - |
| C108.2 | 2 | 1 | - | - | 1 | 1 | - | 2 | 2 | 1 | - | 1 | - | - | - |
| C108.3 | 2 | - | - | - | 1 | 1 | - | 2 | 2 | 1 | - | 1 | - | - | - |
| C108.4 | 2 | - | - | - | 1 | 1 | - | 2 | 2 | 1 | - | 1 | - | - | - |
| C108.5 | 2 | - | - | - | 1 | 1 | - | 2 | 2 | 1 | - | 1 | - | - | - |
| C108.6 | 2 | - | - | - | 1 | 1 | - | - | 2 | 1 | - | 1 | - | - | - |
| C108 | 2 | 1 | - | - | 1 | 1 | - | 2 | 2 | 1 | - | 1 | - | - | - |

Course code &Name: HS8251&TECHNICAL ENGLISH

Semester : I

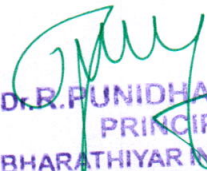
COURSE OUTCOMES:

After the course, the student should be able to:

| | |
|--------|--|
| C109.1 | Read technical texts and write area- specific texts effortlessly |
| C109.2 | Listen and comprehend lectures and talks in their area of specialization successfully |
| C109.3 | Speak appropriately and effectively in varied formal and informal contexts |
| C109.4 | Write reports and winning job applications. |
| C109.5 | Use appropriate technologies to organize, present, and communicate information to address a range of audiences, purposes, genres |
| C109.6 | Execute the method of participation in group discussion. |

MAPPING WITH PROGRAM OUTCOMES:

| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|-------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|
| C109.1 | - | - | - | - | - | - | - | - | 3 | 3 | - | 2 | - | - | - |
| C109.2 | - | - | - | - | - | - | - | - | 3 | 3 | - | 2 | - | - | - |
| C109.3 | - | - | - | - | - | - | - | - | 3 | 3 | - | 2 | - | - | - |
| C109.4 | - | - | - | - | - | - | - | - | 3 | 3 | - | 2 | - | - | - |
| C109.5 | - | - | - | - | - | - | - | - | 3 | 3 | - | 2 | - | - | - |
| C109.6 | - | - | - | - | - | - | - | - | 3 | 3 | - | 2 | - | - | - |
| C109 | - | - | - | - | - | - | - | - | 3 | 3 | - | 2 | - | - | - |


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Course code &Name: MA8251& ENGINEERING MATHEMATICS – II

Semester : II


COURSE OUTCOMES:

After the course, the student should be able to:

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|---------------|--|
| C110.1 | Calculate the eigen values and eigenvectors, diagonalization of a matrix, Symmetric matrices, Positive definite matrices and similar matrices |
| C110.2 | Evaluate the line, surface and volume integrals using Gauss, Stokes and Green's theorems and their verification. |
| C110.3 | Determine Analytic functions, conformal mapping and Bilinear transformation. |
| C110.4 | Evaluate the Cauchy's integrals, Taylor's and Laurent's and residue theorem for evaluation for real integrals using circular and semicircular, contour |
| C110.5 | Solve the Laurent expansions and contours problems |
| C110.6 | Define Laplace transform, unit step function and impulse functions. |

MAPPING WITH PROGRAM OUTCOMES:

| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|-------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|
| C110.1 | 3 | 2 | 1 | - | - | - | - | - | - | - | - | - | 3 | - | - |
| C110.2 | 3 | 2 | 1 | - | - | - | - | - | - | - | - | - | 3 | - | - |
| C110.3 | 3 | 2 | 1 | - | - | - | - | - | - | - | - | - | 3 | - | - |
| C110.4 | 3 | 2 | 1 | - | - | - | - | - | - | - | - | - | 3 | - | - |
| C110.5 | 3 | 2 | 1 | - | - | - | - | - | - | - | - | - | 3 | - | - |
| C110.6 | 3 | 2 | 1 | - | - | - | - | - | - | - | - | - | 3 | - | - |
| C110 | 3 | 2 | 1 | - | - | - | - | - | - | - | - | - | 3 | - | - |


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Course code &Name: PH8253&PHYSICS FOR ELECTRONICS ENGINEERING

Semester : II

COURSE OUTCOMES:

After the course, the student should be able to:

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|--------|--|
| C111.1 | Gain knowledge on classical and quantum electron theories and energy band structures. |
| C111.2 | Acquire knowledge on basis of semiconductor physics and its applications in various devices. |
| C111.3 | Get knowledge on magnetic and dielectric properties of materials. |
| C111.4 | Have the necessary understanding on the functioning of optical materials for upto electronics. |
| C111.5 | Illustrate the basics of quantum structures and their applications in spintronics. |
| C111.6 | Introduction to Carbon nanotubes and explain its properties and applications |

MAPPING WITH PROGRAM OUTCOMES:

| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|-------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| C111.1 | 3 | 2 | 2 | - | 2 | - | 1 | - | - | - | - | 2 | 2 | 1 | - |
| C111.2 | 3 | 2 | 2 | - | 2 | - | 1 | - | - | - | - | 2 | 2 | 1 | - |
| C111.3 | 3 | 2 | 2 | - | 2 | - | 1 | - | - | - | - | 2 | 2 | 1 | - |
| C111.4 | 3 | 2 | 2 | - | 2 | - | 1 | - | - | - | - | 2 | 2 | 1 | - |
| C111.5 | 3 | 2 | 2 | - | 2 | - | 1 | - | - | - | - | 2 | 2 | 1 | - |
| C111.6 | 3 | 2 | 2 | - | 2 | - | 1 | - | - | - | - | 2 | 2 | 1 | - |
| C111 | 3 | 2 | 2 | - | 2 | - | 1 | - | - | - | - | 2 | 2 | 1 | - |

Course code &Name: BE8252 BASIC CIVIL AND MECHANICAL ENGINEERING

Semester : II

COURSE OUTCOMES:

After the course, the student should be able to:

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|---------------|---|
| C112.1 | State the scope of civil Engineering and Overview of Civil Engineering and Explain the scope of Mechanical Engineering and Overview of Mechanical Engineering. |
| C112.2 | State the functions of IC engine and differentiate the working principle of 2stroke, 4 stroke petrol and diesel engine, Types of power plant and classify the various types of boilers and conclude the use of boiler in power plant. |
| C112.3 | Apply the principles of vapour absorption and compression systems and Explain the Operation and type of air conditioner. |
| C112.4 | Apply the principles of surveying and use various measurements for surveying and Explain about various engineering materials and leveling instruments. |
| C112.5 | Classify the types of bridges, foundation, floorings, roofs, plasters R.C.C structural members and state the purpose of dam. |
| C112.6 | Elaborate the components of refrigeration and Air conditioning cycle. |

MAPPING WITH PROGRAM OUTCOMES:

| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|-------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| C112.1 | 3 | 2 | 2 | 2 | - | - | - | - | - | - | - | - | 2 | - | - |
| C112.2 | 3 | 2 | 2 | 2 | - | - | - | - | - | - | - | - | 2 | - | - |
| C112.3 | 3 | 2 | 2 | 2 | - | - | - | - | - | - | - | - | 2 | - | - |
| C112.4 | 3 | 2 | 2 | 2 | - | - | - | - | - | - | - | - | 2 | - | - |
| C112.5 | 3 | 2 | 2 | 2 | - | - | - | - | - | - | - | - | 2 | - | - |
| C112.6 | 3 | 2 | 2 | 2 | - | - | - | - | - | - | - | - | 2 | - | - |
| C112 | 3 | 2 | 2 | 2 | - | - | - | - | - | - | - | - | 2 | - | - |

Course code & Name: EE8251&CIRCUIT THEORY

Semester : II


COURSE OUTCOMES:

After the course, the student should be able to:

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|---------------|---|
| C113.1 | Apply Kirchoff's current and voltage laws to simple circuits and Solve complex circuits using Mesh & Nodal Methods. |
| C113.2 | Apply Network theorems to linear circuits and to solve simple and complex problems. |
| C113.3 | Analyze the Transient response of RLC circuits under DC and AC excitation using Laplace Transform |
| C113.4 | Analyze three phase balanced and unbalanced star, delta network |
| C113.5 | Compute the frequency response of Series and Parallel resonance and to know about quality factor and band width. |
| C113.6 | Ability to analyze the transients and tuned circuits. |

MAPPING WITH PROGRAM OUTCOMES :

| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|-------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|
| C113.1 | 3 | 2 | 1 | 1 | 1 | - | - | - | - | - | - | 1 | 1 | - | - |
| C113.2 | 3 | 2 | 1 | 1 | 1 | - | - | - | - | - | - | 1 | 1 | - | - |
| C113.3 | 3 | 2 | 1 | 1 | 1 | - | - | - | - | - | - | 1 | 1 | - | - |
| C113.4 | 3 | 2 | 1 | 1 | 1 | - | - | - | - | - | - | 1 | 1 | - | - |
| C113.5 | 3 | 2 | 1 | 1 | 1 | - | - | - | - | - | - | 1 | 1 | - | - |
| C113.6 | 3 | 2 | 1 | 1 | 1 | - | - | - | - | - | - | 1 | 1 | - | - |
| C113 | 3 | 2 | 1 | 1 | 1 | - | - | - | - | - | - | 1 | 1 | - | - |


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Course code &Name: GE8291& ENVIRONMENTAL SCIENCE AND ENGINEERING

Semester : II

COURSE OUTCOMES:

After the course, the student should be able to:

| | |
|---------------|---|
| C114.1 | Explain the values, threats and conservation of biodiversity and classify various ecosystems. |
| C114.2 | Identify and implement technological and economical solution to environmental pollution. |
| C114.3 | Develop the knowledge on various natural resources, their causes and their effects. |
| C114.4 | Explain various environmental acts and to explain various disaster management. |
| C114.5 | Relate population growth and environment and describes population explosion. |
| C114.6 | Appreciate the role of IT in environment and human health. |

MAPPING WITH PROGRAM OUTCOMES:

| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|-------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|
| C114.1 | - | - | 3 | 1 | - | 1 | 2 | 2 | - | 1 | - | 2 | - | - | - |
| C114.2 | - | - | 3 | 1 | - | 1 | 2 | 2 | - | 1 | - | 2 | - | - | - |
| C114.3 | - | - | 3 | 1 | - | 1 | 2 | 2 | - | 1 | - | 2 | - | - | - |
| C114.4 | - | - | 3 | 1 | - | 1 | 2 | 2 | - | 1 | - | 2 | - | - | - |
| C114.5 | - | - | 3 | 1 | - | 1 | 2 | 2 | - | 1 | - | 2 | - | - | - |
| C114.6 | - | - | 3 | 1 | - | 1 | 2 | 2 | - | 1 | - | 2 | - | - | - |
| C114 | - | - | 3 | 1 | - | 1 | 2 | 2 | - | 1 | - | 2 | - | - | - |

Course code &Name: GE8261&ENGINEERING PRACTICES LABORATORY

Semester : II

COURSE OUTCOMES:

After the course, the student should be able to:

| | |
|---------------|---|
| C115.1 | Demonstrate wiring for a simple residential house; identify the ratings of various appliances like fluorescent tube |
| C115.2 | Calculate the different electrical quantities |
| C115.3 | Measure the resistance to earth of electrical equipment |
| C115.4 | Verify the truth tables of logic gates AND |
| C115.5 | Develop soldering in a PCB |
| C115.6 | Measurement of ripple factor of HWR and FWR |

MAPPING WITH PROGRAM OUTCOMES:

| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|-------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|
| C115.1 | 1 | 1 | 1 | - | 1 | - | - | 2 | 1 | - | - | 2 | 1 | 1 | - |
| C115.2 | 1 | 1 | 1 | - | 1 | - | - | 2 | 1 | - | - | 2 | 1 | 1 | - |
| C115.3 | 1 | 1 | - | - | 1 | - | - | 2 | 1 | - | - | - | 1 | 1 | - |
| C115.4 | 1 | - | 1 | - | 1 | - | - | 2 | 1 | - | - | 2 | 1 | 1 | - |
| C115.5 | 1 | 1 | 1 | - | 1 | - | - | 2 | 1 | - | - | 2 | 1 | 1 | - |
| C115.6 | 1 | 1 | 1 | - | 1 | - | - | 2 | 1 | - | - | 2 | 1 | 1 | - |
| C115 | 1 | 1 | 1 | - | 1 | - | - | 2 | 1 | - | - | 2 | 1 | 1 | - |

Course code &Name: EE8261 & ELECTRIC CIRCUITS LABORATORY

Semester : II

COURSE OUTCOMES:

After the course, the student should be able to:

| | |
|---------------|--|
| C116.1 | Apply Kirchoff's voltage and current laws to solve simple and complex circuits. |
| C116.2 | Apply network theorems to solve simple and complex circuits. |
| C116.3 | Demonstrate the working of Analog and digital storage oscilloscopes. |
| C116.4 | Determine frequency response of RLC circuits and Use MATLAB to simulate series, parallel resonant circuit. |
| C116.5 | Design and simulate parallel resonance circuits |
| C116.6 | Apply MATLAB tool to simulate three phase balanced and unbalanced star, delta network circuit. |

MAPPING WITH PROGRAM OUTCOMES:

| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|-------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|
| C116.1 | 3 | 2 | - | 1 | 1 | 1 | - | 2 | 2 | 2 | - | 1 | 1 | 1 | - |
| C116.2 | 3 | 2 | - | 1 | 1 | 1 | - | 2 | 2 | 2 | - | 1 | 1 | 1 | - |
| C116.3 | 3 | 2 | - | 1 | 1 | 1 | - | 2 | 2 | 2 | - | 1 | 1 | 1 | - |
| C116.4 | 3 | 2 | - | 1 | 1 | 1 | - | 2 | 2 | 2 | - | 1 | 1 | 1 | - |
| C116.5 | 3 | 2 | - | 1 | 1 | 1 | - | 2 | 2 | 2 | - | 1 | 1 | 1 | - |
| C116.6 | 3 | 2 | - | 1 | 1 | 1 | - | 2 | 2 | 2 | - | 1 | 1 | 1 | - |
| C116 | 3 | 2 | - | 1 | 1 | 1 | - | 2 | 2 | 2 | - | 1 | 1 | 1 | - |

**Course code &Name : MA8353 &TRANSFORMS PARTIAL AND
DIFFERENTIAL EQUATIONS**

Semester : III

COURSE OUTCOMES:

After the course, the student should be able to:

| | |
|---------------|---|
| C201.1 | The fundamental concepts of PDE and various solution procedures for solving first nonlinear PDE. |
| C201.2 | Analytical methods for solving higher order PDE. |
| C201.3 | To analyze the Dirichlet's conditions, basic concepts in FS, analyze their properties such as parseval's identity its problems. |
| C201.4 | The apply of FS for solving the initial BVP in 1-D wave and heat equations and BVPs in elliptic equations. |
| C201.5 | Apply, evaluate and analyze the concepts of FT and mathematical concepts which are applied in vary field of Engineering. |
| C201.6 | The mathematical techniques of Z-transforms applied in various topics in engineering discipline. |

MAPPING WITH PROGRAM OUTCOMES:

| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|-------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|
| C201.1 | 3 | 2 | - | - | 1 | - | - | - | - | - | - | 1 | 1 | 1 | 1 |
| C201.2 | 3 | 2 | - | - | 1 | - | - | - | - | - | - | 1 | 1 | 1 | - |
| C201.3 | 3 | 2 | - | - | 1 | - | - | - | - | - | - | - | - | - | 1 |
| C201.4 | 3 | 2 | - | - | 1 | - | - | - | - | - | - | 1 | 1 | 1 | 1 |
| C201.5 | 3 | 2 | - | - | 1 | - | - | - | - | - | - | 1 | 1 | - | - |
| C201.6 | 3 | 2 | - | - | 1 | - | - | - | - | - | - | 1 | - | 1 | 1 |
| C201 | 3 | 2 | - | - | 1 | - | - | - | - | - | - | 1 | 1 | 1 | 1 |

Course code & Name : EE8351& DIGITAL LOGIC CIRCUITS

Semester : III


COURSE OUTCOMES:

After the course, the student should be able to:

| | |
|--------|---|
| C202.1 | Explain the various number systems and compare the characteristics and operation of digital logic families. Describe the various types of number system, binary codes and examine the digital logic families. |
| C202.2 | Use K-map for simplification and implementation of combinational logic circuit. |
| C202.3 | Design various synchronous sequential circuit. |
| C202.4 | Design various asynchronous sequential circuit. |
| C202.5 | Analyze the programmability logic devices. |
| C202.6 | Discuss digital simulation for development of application oriented logic circuits. |

MAPPING WITH PROGRAM OUTCOMES:

| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|-------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| C202.1 | 2 | 2 | 1 | 1 | - | - | - | - | - | - | - | - | 2 | 1 | 1 |
| C202.2 | 2 | 2 | 1 | 1 | - | - | - | - | - | - | - | - | 2 | 1 | - |
| C202.3 | 2 | 2 | 1 | 1 | - | - | - | - | - | - | - | - | 2 | 1 | 1 |
| C202.4 | 2 | 2 | 1 | 1 | - | - | - | - | - | - | - | - | 2 | 1 | 1 |
| C202.5 | 2 | 2 | 1 | 1 | - | - | - | - | - | - | - | - | 2 | 1 | - |
| C202.6 | 2 | 2 | 1 | 1 | - | - | - | - | - | - | - | - | 2 | 1 | 1 |
| C202 | 2 | 2 | 1 | 1 | - | - | - | - | - | - | - | - | 2 | 1 | 1 |


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Course code &Name : EE8391& ELECTROMAGNETIC THEORY

Semester : III


COURSE OUTCOMES:

After the course, the student should be able to:

| | |
|--------|---|
| C303.1 | Explain the basic mathematical concepts related to electromagnetic vector fields |
| C303.2 | Understand and apply the basic laws related to electrostatics |
| C303.3 | Understand the concepts of electrostatics, electrical potential, energy density and their applications. |
| C303.4 | Understand the concepts of magnetostatics, magnetic flux density, scalar and vector potential and its applications. |
| C303.5 | Understand the concepts of Faradays law, induced emf and Maxwells equations |
| C303.6 | Understand and illustrate the concepts of electromagnetic waves and poynting vector. |

MAPPING WITH PROGRAM OUTCOMES:

| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|-------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|
| C203.1 | 3 | 1 | - | - | - | - | - | - | - | - | - | - | 3 | 1 | 1 |
| C203.2 | 3 | 1 | - | - | - | - | - | - | - | - | - | - | 3 | 1 | - |
| C203.3 | 3 | 1 | - | - | - | - | - | - | - | - | - | - | 3 | 1 | 1 |
| C203.4 | 3 | 1 | - | - | - | - | - | - | - | - | - | - | 3 | 1 | 1 |
| C203.5 | 3 | 1 | - | - | - | - | - | - | - | - | - | - | 3 | 1 | 1 |
| C203.6 | 3 | 1 | - | - | - | - | - | - | - | - | - | - | 3 | 1 | 1 |
| C203 | 3 | 1 | - | - | - | - | - | - | - | - | - | - | 3 | 1 | 1 |


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Course code &Name : EE8301 &ELECTRICAL MACHINES-I

Semester : III

COURSE OUTCOMES:

After the course, the student should be able to:

| | |
|--------|--|
| C204.1 | Explain the basic concept of magnetic materials and circuits used in electric machines. |
| C204.2 | Explain the construction, working principle of single and three phase transformers and analyze their performance for different loading conditions. |
| C204.3 | Examine the diversified parameters of single phase transformer through various testing methods. |
| C204.4 | Illustrate the concepts of electromechanical energy conversion principles and formulate the expressions for voltage and torque in all rotating machines. |
| C204.5 | Explain the construction, working principle, types, characteristics and applications of DC generators. |
| C204.6 | Explain the working principle, speed control methods of DC motor and estimate the performance of DC motors through various testing methodologies. |

MAPPING WITH PROGRAM OUTCOMES:

| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|
| C204.1 | 3 | 2 | - | - | 1 | - | - | - | - | - | - | - | 1 | 1 | 1 |
| C204.2 | 3 | 2 | - | 1 | 1 | - | - | - | - | - | - | - | 1 | 1 | - |
| C204.3 | 3 | 2 | - | - | 1 | - | - | - | - | - | - | - | 1 | 1 | 1 |
| C204.4 | 3 | 2 | - | - | 1 | - | - | - | - | - | - | - | 1 | 1 | 1 |
| C204.5 | 3 | 2 | - | 1 | 1 | - | - | - | - | - | - | - | 1 | 1 | - |
| C204.6 | 3 | 2 | - | 1 | 1 | - | - | - | - | - | - | - | 1 | 1 | 1 |
| C204 | 3 | 2 | - | 1 | 1 | - | - | - | - | - | - | - | 1 | 1 | 1 |

Course code &Name: EC8353 & ELECTRON DEVICES AND CIRCUITS

Semester : III

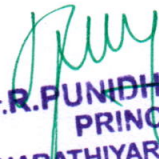
COURSE OUTCOMES:

After the course, the student should be able to:

| | |
|---------------|--|
| C205.1 | Explain the operation and characteristics of PN junction diode, operation of Rectifiers with its classifications and also operations of Display devices. |
| C205.2 | Draw and explain the Structure, operation and characteristics of BJT, JFET, MOSFET, UJT, Thyristor and also IGBT. |
| C205.3 | Differentiate the CE, CB, CC amplifiers. |
| C205.4 | Discuss about the Multistage and Differential amplifiers. |
| C205.5 | Describe about the Negative and Positive feedback. |
| C205.6 | Explain about the oscillators and its types |

MAPPING WITH PROGRAM OUTCOMES:

| CO | PO1 | PO3 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|-------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|
| C205.1 | 2 | 2 | - | - | - | - | - | - | - | - | - | - | 2 | 2 | 1 |
| C205.2 | 2 | 2 | - | - | - | - | - | - | - | - | - | - | 2 | 2 | - |
| C205.3 | 2 | 2 | - | - | - | - | - | - | - | - | - | - | 2 | 2 | 1 |
| C205.4 | 2 | 2 | - | - | - | - | - | - | - | - | - | - | 2 | 2 | 1 |
| C205.5 | 2 | 2 | - | - | - | - | - | - | - | - | - | - | 2 | 2 | - |
| C205.6 | 2 | 2 | - | - | - | - | - | - | - | - | - | - | 2 | 2 | 1 |
| C205 | 2 | 2 | - | - | - | - | - | - | - | - | - | - | 2 | 2 | 1 |


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Course code & Name: ME8792 & POWER PLANT ENGINEERING

Semester : III

COURSE OUTCOMES:

After the course, the student should be able to:

| | |
|--------|--|
| C206.1 | Explain the layout, construction and working of the components inside a thermal power plant. |
| C206.2 | Explain the layout, construction and working of the components inside a Diesel, Gas and Combined cycle power plants. |
| C206.3 | Explain the layout, construction and working of the components inside nuclear power plants. |
| C206.4 | Explain the layout, construction and working of the components inside Renewable energy power plants. |
| C206.5 | Explain the applications of power plants while extend their knowledge to power plant economics. |
| C206.6 | Environmental hazards and estimate the costs of electrical energy production. |

MAPPING WITH PROGRAM OUTCOMES:

| COURSE | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|-------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|
| C206.1 | 2 | 2 | - | - | - | 2 | 2 | 2 | - | - | - | - | 2 | 2 | 1 |
| C206.2 | 2 | 2 | - | - | - | 2 | 2 | 2 | - | - | - | - | 2 | 2 | - |
| C206.3 | 2 | 2 | - | - | - | 2 | 2 | 2 | - | - | - | - | 2 | 2 | 1 |
| C206.4 | 2 | 2 | - | - | - | 2 | 2 | 2 | - | - | - | - | 2 | 2 | 1 |
| C206.5 | 2 | 2 | - | - | - | 2 | 2 | 2 | - | - | - | - | 2 | 2 | - |
| C206.6 | 2 | 2 | - | - | - | 2 | 2 | 2 | - | - | - | - | 2 | 2 | 1 |
| C206 | 2 | 2 | - | - | - | 2 | 2 | 2 | - | - | - | - | 2 | 2 | 1 |

Course code &Name : EC8311 & ELECTRONICS LABORATORY

Semester : III


COURSE OUTCOMES:

After the course, the student should be able to:

| | |
|--------|--|
| C207.1 | Study the Characteristics of Semiconductor diode, BJT configuration through experimentation |
| C207.2 | Study the behavior of JFET and UJT through experimentation |
| C207.3 | Study and understand behavior of photo diode and photo transistor through experimentation |
| C207.4 | Apply diode for rectification purpose in half wave and full wave operation |
| C207.5 | Study the working operation of oscillators RC phase shift and LC filters through experimentation |
| C207.6 | Apply and study the operation of FET as differential operation through experimentation |

MAPPING WITH PROGRAM OUTCOMES:

| COURSE | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|-------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|
| C207.1 | 2 | 2 | 2 | 1 | - | - | - | - | 2 | - | - | - | 2 | 2 | 1 |
| C207.2 | 2 | 2 | 2 | 1 | - | - | - | - | 2 | - | - | - | 2 | 2 | - |
| C207.3 | 2 | 2 | 2 | 1 | - | - | - | - | 2 | - | - | - | 2 | 2 | 1 |
| C207.4 | 2 | 2 | 2 | 1 | - | - | - | - | 2 | - | - | - | 2 | 2 | 1 |
| C207.5 | 2 | 2 | 2 | 1 | - | - | - | - | 2 | - | - | - | 2 | 2 | - |
| C207.6 | 2 | 2 | 2 | 1 | - | - | - | - | 2 | - | - | - | 2 | 2 | 1 |
| C207 | 2 | 2 | 2 | 1 | - | - | - | - | 2 | - | - | - | 2 | 2 | 1 |


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Course code & Name: EE8311 & ELECTRICAL MACHINES LABORATORY-I

Semester : III

COURSE OUTCOMES:

After the course, the student should be able to:

| | |
|--------|--|
| C208.1 | Ability to choose the rating of the protective device and measuring instruments required for a given experiment/machine |
| C208.2 | Analyse different types of DC generators and Experimentally obtain the different characteristics of various dc generators. |
| C208.3 | Experimentally obtain the different characteristics of dc motors and ability to conduct different types of speed control, testing in DC motors. |
| C208.4 | To analyze the concept of efficiency and the short circuit impedance of a three-phase transformer from no-load test, winding resistance, short circuit test, and load test. |
| C208.5 | To apply the concept of various losses in transformer and Analyse different types of losses by conducting suitable test. |
| C208.6 | To apply the starting methods of dc motors and Understand the effect of unbalanced loading on a three-phase transformer with different connections, and the effects and limitations of each connection |

MAPPING WITH PROGRAM OUTCOMES:

| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|-------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|
| C209.1 | 3 | 3 | 3 | - | - | - | - | - | - | - | - | 2 | - | - | 1 |
| C209.2 | 3 | 3 | 3 | - | - | - | - | - | - | - | - | 2 | - | - | - |
| C209.3 | 3 | 3 | 3 | - | - | - | - | - | - | - | - | 2 | - | - | 1 |
| C209.4 | 3 | 3 | 3 | - | - | - | - | - | - | - | - | 2 | - | - | 1 |
| C209.5 | 3 | 3 | 3 | - | - | - | - | - | - | - | - | 2 | - | - | - |
| C209.6 | 3 | 3 | 3 | - | - | - | - | - | - | - | - | 2 | - | - | 1 |
| C209 | 3 | 3 | 3 | - | - | - | - | - | - | - | - | 2 | - | - | 1 |

Course code &Name : MA8491 & NUMERICAL METHODS

Semester : IV


COURSE OUTCOMES:

After the course, the student should be able to:

| | |
|--------|--|
| C209.1 | Solve algebraic and transcendental equations by various methods. Simultaneous linear equations using direct and indirect methods. Compute eigen values of a matrix by power method and by Jacobi method of symmetric matrix. |
| C209.2 | Interpret the data using interpolation using various methods, cubic spline approximation and difference operators and relations. |
| C209.3 | Compute the numerical differentiation using various methods and integration using trapezoidal and Simpsons rules to solve single and double integration. |
| C209.4 | Solving first order and second order differential equations using various types of single step. |
| C209.5 | Solving first order and second order differential equations using various types of multi step methods. |
| C209.6 | Applying finite difference methods for solving two point linear boundary value problems. Solving one dimensional heat flow equation and wave equation by explicit and implicit methods solve two dimensional heat equation. |

MAPPING WITH PROGRAM OUTCOMES:

| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|-------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| C209.1 | 3 | 2 | 1 | - | - | - | - | - | - | - | - | 1 | 1 | 1 | - |
| C209.2 | 3 | 2 | 1 | - | - | - | - | - | - | - | - | 1 | 1 | 1 | 1 |
| C209.3 | 3 | 2 | 1 | - | - | - | - | - | - | - | - | 1 | 1 | - | 1 |
| C209.4 | 3 | 2 | 1 | - | - | - | - | - | - | - | - | 1 | - | 1 | 1 |
| C209.5 | 3 | 2 | 1 | - | - | - | - | - | - | - | - | 1 | - | 1 | 1 |
| C209.6 | 3 | 2 | 1 | - | - | - | - | - | - | - | - | 1 | 1 | - | 1 |
| C209 | 3 | 2 | 1 | - | - | - | - | - | - | - | - | 1 | 1 | 1 | 1 |


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Course code &Name : EE8401 & ELECTRICAL MACHINES-II

Semester : IV

COURSE OUTCOMES:

After the course, the student should be able to:

| | |
|---------------|---|
| C210.1 | Draw the constructional details and explain the performance of salient and non salient type synchronous generators. |
| C210.2 | Draw and explain the principle of operation and performance of synchronous motor. |
| C210.3 | Draw and describe the construction, principle of operation and performance of induction machines. |
| C210.4 | Describe the starting and speed control of three-phase induction motors. |
| C210.5 | Explain the construction, principle of operation and performance of single phase induction motors. |
| C210.6 | Explain the construction, principle of operation and performance of special machines |

MAPPING WITH PROGRAM OUTCOMES:

| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|-------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| C210.1 | 3 | 2 | 1 | 1 | 1 | - | 1 | - | - | - | - | 1 | 2 | 1 | 1 |
| C210.2 | 3 | 2 | 1 | 1 | 1 | - | 1 | - | - | - | - | 1 | 2 | 1 | 1 |
| C210.3 | 3 | 2 | 1 | 1 | 1 | - | 1 | - | - | - | - | 1 | 2 | 1 | 1 |
| C210.4 | 3 | 2 | 1 | 1 | 1 | - | 1 | - | - | - | - | 1 | 2 | 1 | 1 |
| C210.5 | 3 | 2 | 1 | 1 | 1 | - | 1 | - | - | - | - | 1 | 2 | 1 | 1 |
| C210.6 | 3 | 2 | 1 | 1 | 1 | - | 1 | - | - | - | - | 1 | 2 | 1 | 1 |
| C210 | 3 | 2 | 1 | 1 | 1 | - | 1 | - | - | - | - | 1 | 2 | 1 | 1 |

Course code &Name : EE8402 &TRANSMISSION AND DISTRIBUTION

Semester : IV

COURSE OUTCOMES:

After the course, the student should be able to:

| | |
|--------|---|
| C211.1 | Analyse the inductance and capacitance for different conductor configurations |
| C211.2 | Compute the efficiency, regulation and ABCD parameters of different transmission lines |
| C211.3 | Analyse the different environmental effects on sag in transmission lines |
| C211.4 | Construct electrical equivalent representation of insulators, calculate the potential distribution and explain the methods of improving the string efficiency |
| C211.5 | Analyse the dielectric stress of graded and ungraded underground cables |
| C211.6 | Compute the distributor voltage drops for different distribution system and loads, Explain the structure and components of power system and method of improving the reliability of AC transmission. |

MAPPING WITH PROGRAM OUTCOMES:

| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|-------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| C211.1 | 3 | 2 | 1 | 1 | 1 | - | - | - | - | - | - | 1 | 1 | 1 | - |
| C211.2 | 3 | 2 | 1 | 1 | 1 | - | - | - | - | - | - | 1 | 1 | 1 | 1 |
| C211.3 | 3 | 2 | 1 | 1 | 1 | - | - | - | - | - | - | 1 | 1 | 1 | 1 |
| C211.4 | 3 | 2 | 1 | 1 | 1 | - | - | - | - | - | - | 1 | 1 | 1 | 1 |
| C211.5 | 3 | 2 | 1 | 1 | 1 | - | - | - | - | - | - | 1 | 1 | - | 1 |
| C211.6 | 3 | 2 | 1 | 1 | 1 | - | - | - | - | - | - | 1 | 1 | 1 | 1 |
| C211 | 3 | 2 | 1 | 1 | 1 | - | - | - | - | - | - | 1 | 1 | 1 | 1 |

Course code & Name: EE8403 & MEASUREMENTS AND INSTRUMENTATION

Semester : IV


COURSE OUTCOMES:

After the course, the student should be able to:

| | |
|---------------|---|
| C212.1 | Define units and standards, their conversions and describe the characteristics, error analysis and basic functional elements of measurement systems. |
| C212.2 | Describe the working of various electrical and electronic meters |
| C212.3 | Select the suitable instrument for measuring different magnetic parameters |
| C212.4 | Design a suitable Bridge circuit to determine the values of various resistor, inductor and capacitor |
| C212.5 | Explain the construction and working principle of various types of storage and display devices and compare them |
| C212.6 | Describe resistive, inductive and capacitive transducers which are used for measuring various parameters like displacement, temperature and explain the function of different blocks involved in data acquisition systems |

MAPPING WITH PROGRAM OUTCOMES:

| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|-------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| C212.1 | 3 | 2 | 1 | 1 | 1 | - | - | - | - | - | - | 1 | 1 | 1 | 1 |
| C212.2 | 3 | 2 | 1 | 1 | 1 | - | - | - | - | - | - | 1 | 1 | 1 | 1 |
| C212.3 | 3 | 2 | 1 | 1 | 1 | - | - | - | - | - | - | 1 | 1 | 1 | 1 |
| C212.4 | 3 | 2 | 1 | 1 | 1 | - | - | - | - | - | - | 1 | 1 | 1 | 1 |
| C212.5 | 3 | 2 | 1 | 1 | 1 | - | - | - | - | - | - | 1 | 1 | 1 | 1 |
| C212.6 | 3 | 2 | 1 | 1 | 1 | - | - | - | - | - | - | 1 | 1 | 1 | 1 |
| C212 | 3 | 2 | 1 | 1 | 1 | - | - | - | - | - | - | 1 | 1 | 1 | 1 |


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Course code &Name: EE8451 & LINEAR INTEGRATED CIRCUITS AND APPLICATIONS

Semester : IV

COURSE OUTCOMES:

After the course, the student should be able to:

| | |
|---------------|--|
| C213.1 | Explain the fundamentals, Classification, procedures for the realization of monolithic ICs and discuss the fabrication of diodes, capacitance, resistance, FETs. |
| C213.2 | Describe the characteristics of operational amplifier and explain the basic applications of op-amps. |
| C213.3 | Explain the concepts of amplifiers, filters, comparators, multivibrators, waveform generators, peak detectors, s/H circuit, A/D and D/A converters using op-amp. |
| C213.4 | Describe the internal functional blocks, characteristics and applications of timer, voltage controlled oscillator, phase lock loop and analog multiplier ICs. |
| C213.5 | Discuss the internal functional blocks, working principle and applications of voltage regulators and SMPS. |
| C213.6 | Describe the internal functional blocks, Characteristics and application of power amplifier and function generator IC. |

MAPPING WITH PROGRAM OUTCOMES:

| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|-------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|
| C213.1 | 3 | 2 | 1 | - | 1 | - | - | - | - | - | - | 1 | - | 1 | 1 |
| C213.2 | 3 | 2 | 1 | - | 1 | - | - | - | - | - | - | 1 | 1 | - | - |
| C213.3 | 3 | 2 | 1 | - | 1 | - | - | - | - | - | - | 1 | 1 | 1 | 1 |
| C213.4 | 3 | 2 | 1 | - | 1 | - | - | - | - | - | - | 1 | 1 | 1 | - |
| C213.5 | 3 | 2 | 1 | - | 1 | - | - | - | - | - | - | 1 | 1 | - | 1 |
| C213.6 | 3 | 2 | 1 | - | 1 | - | - | - | - | - | - | 1 | 1 | 1 | - |
| C213 | 3 | 2 | 1 | - | 1 | - | - | - | - | - | - | 1 | 1 | 1 | 1 |

Course code &Name : IC8451& CONTROL SYSTEMS

Semester : IV


COURSE OUTCOMES:

After the course, the student should be able to:

| | |
|---------------|---|
| C214.1 | Derive the transfer function of electrical and mechanical systems using various reduction techniques. |
| C214.2 | Analyse the response of the control system by investigating steady state error and time domain specifications. |
| C214.3 | Construct the root locus to find the stability of the system and explain the effects of different types of controller. |
| C214.4 | Construct the frequency response of the system using various plots and correlate the time domain specifications and the effect of compensation. |
| C214.5 | Design the different types of compensators using frequency response plots to stabilize the control system. |
| C214.6 | Explain the state variable representation of physical systems with the effects of state feedback. |

MAPPING WITH PROGRAM OUTCOMES:

| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|-------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| C214.1 | 3 | 2 | 1 | 1 | 1 | - | - | - | - | - | - | 1 | 1 | 1 | 1 |
| C214.2 | 3 | 2 | 1 | 1 | 1 | - | - | - | - | - | - | 1 | 1 | 1 | 1 |
| C214.3 | 3 | 2 | 1 | 1 | 1 | - | - | - | - | - | - | 1 | 1 | 1 | 1 |
| C214.4 | 3 | 2 | 1 | 1 | 1 | - | - | - | - | - | - | 1 | 1 | 1 | 1 |
| C214.5 | 3 | 2 | 1 | 1 | 1 | - | - | - | - | - | - | 1 | 1 | 1 | 1 |
| C214.6 | 3 | 2 | 1 | 1 | 1 | - | - | - | - | - | - | 1 | 1 | 1 | 1 |
| C214 | 3 | 2 | 1 | 1 | 1 | - | - | - | - | - | - | 1 | 1 | 1 | 1 |


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Course code &Name : EC8411 &ELECTRICAL MACHINES LABORATORY-II

Semester : IV

COURSE OUTCOMES:

After the course, the student should be able to:

| | |
|--------|---|
| C215.1 | Compare the different indirect testing methods to predetermine the voltage regulation of three phase salient and non-salient pole alternator. |
| C215.2 | Determine the positive, negative and zero sequence impedance of alternators. |
| C215.3 | Analyze the operation of synchronous motor on infinite bus for different excitation condition. |
| C215.4 | Assess the performance of three phase induction motor by conducting direct and indirect testing. |
| C215.5 | Assess the performance of single phase induction motor by conducting direct and indirect testing. |
| C215.6 | Choose the appropriate induction motor starter for various industrial and commercial applications. |

MAPPING WITH PROGRAM OUTCOMES:

| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|-------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| C215.1 | 3 | 2 | 1 | 1 | 1 | - | - | - | - | - | - | 1 | 2 | 1 | 1 |
| C215.2 | 3 | 2 | 1 | 1 | 1 | - | - | - | - | - | - | 1 | 2 | 1 | 1 |
| C215.3 | 3 | 2 | 1 | 1 | 1 | - | - | - | - | - | - | 1 | 2 | 1 | 1 |
| C215.4 | 3 | 2 | 1 | 1 | 1 | - | - | - | - | - | - | 1 | 2 | 1 | 1 |
| C215.5 | 3 | 2 | 1 | 1 | 1 | - | - | - | - | - | - | 1 | 2 | 1 | 1 |
| C215.6 | 3 | 2 | 1 | 1 | 1 | - | - | - | - | - | - | 1 | 2 | 1 | 1 |
| C215 | 3 | 2 | 1 | 1 | 1 | - | - | - | - | - | - | 1 | 2 | 1 | 1 |

Course code & Name : EE8461 & LINEAR AND DIGITAL INTEGRATED
CIRCUITS LABORATORY

Semester : IV


COURSE OUTCOMES:

After the course, the student should be able to:

| | |
|---------------|---|
| C216.1 | Apply Boolean functions to implement adder, subtractor circuits and convert Excess 3 to BCD, Binary to Gray code and vice versa |
| C216.2 | Design parity generator, parity checker, encoder and decoder circuits |
| C216.3 | Design and implement 4-bit modulo synchronous, Asynchronous counters and implement 4-bit shift registers in SISO, SIPO, PISO, PIPO modes |
| C216.4 | Explain multiplexer, demultiplexer circuits and demonstrate 555 timer in Monostable and Astable operation |
| C216.5 | Design and demonstrate inverting amplifier, non-inverting amplifier, adder, comparator, integrator and differentiator circuits using Op-Amp |
| C216.6 | Explain voltage to frequency characteristics of NE/ SE 566 IC and frequency multiplication using NE/SE 565 PLL IC |

MAPPING WITH PROGRAM OUTCOMES:

| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|-------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| C216.1 | 3 | 2 | 2 | 1 | 1 | - | - | - | - | 1 | 1 | 1 | 1 | 1 | - |
| C216.2 | 3 | 2 | 2 | 1 | 1 | - | - | - | - | 1 | 1 | 1 | 1 | 1 | 1 |
| C216.3 | 3 | 2 | 2 | 1 | 1 | - | - | - | - | 1 | 1 | 1 | 1 | 1 | 1 |
| C216.4 | 3 | 2 | 2 | 1 | 1 | - | - | - | - | 1 | 1 | 1 | 1 | - | - |
| C216.5 | 3 | 2 | 2 | 1 | 1 | - | - | - | - | 1 | 1 | 1 | 1 | 1 | 1 |
| C216.6 | 3 | 2 | 2 | 1 | 1 | - | - | - | - | 1 | 1 | 1 | 1 | 1 | - |
| C216 | 3 | 2 | 2 | 1 | 1 | - | - | - | - | 1 | 1 | 1 | 1 | 1 | 1 |


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Course code &Name : EE8412 & TECHNICAL SEMINAR

Semester : IV


COURSE OUTCOMES:

After the course, the student should be able to:

| | |
|--------|--|
| C217.1 | Review, prepare and present seminar in the field of electrical and electronics engineering subjects studied and groom as a professional. |
| C217.2 | Listen and comprehend lectures and talks in their area of specialization successfully. |
| C217.3 | Enhance career skills and solve objective type questions in the field of electrical and electronics engineering. |
| C217.4 | Enhance career skills and solve objective type questions in the field of electrical and electronics engineering. |
| C217.5 | Speak appropriately and effectively, the modern trends in the field of electrical and electronics engineering. |
| C217.6 | Develop their confidence and help them to attend and answer effectively during technical interviews. |

MAPPING WITH PROGRAM OUTCOMES:

| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|
| C217.1 | 2 | 2 | - | - | - | - | - | - | 2 | 2 | - | - | 1 | 1 | - |
| C217.2 | 2 | 2 | - | - | - | - | - | - | 2 | 2 | - | - | 1 | 1 | 1 |
| C217.3 | 2 | 2 | - | - | - | - | - | - | 2 | 2 | - | - | 1 | 1 | 1 |
| C217.4 | 2 | 2 | - | - | - | - | - | - | 2 | - | - | - | - | - | - |
| C217.5 | 2 | 2 | - | - | - | - | - | - | 2 | 2 | - | - | 1 | 1 | 1 |
| C217.6 | 2 | 2 | - | - | - | - | - | - | 2 | - | - | - | 1 | 1 | - |
| C217 | 2 | 2 | - | - | - | - | - | - | 2 | 2 | - | - | 1 | 1 | 1 |


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Course code &Name : EE8501 & POWER SYSTEM ANALYSIS

Semester : V


COURSE OUTCOMES:

After the course, the student should be able to:

| | |
|---------------|--|
| C301.1 | Explain the operation of various power system components. Draw the per unit diagram from the Y bus matrix for the power system. |
| C301.2 | Develop the power flow equation for power system problem and determine the power flows using various algorithms. |
| C301.3 | Illustrate the types of faults and their effects. Calculate the fault currents for symmetrical fault condition. |
| C301.4 | Draw the sequence network for L-G, L-L and L-L-G fault of the power system and determine the fault current in case of L-G, L-L, and L-L-G fault. |
| C301.5 | Explain the concept of power system stability. |
| C301.6 | Analyze the stability of single machine infinite bus system. |

MAPPING WITH PROGRAM OUTCOMES:

| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|-------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| C301.1 | 3 | - | - | - | - | - | - | - | - | - | - | - | 3 | 2 | 1 |
| C301.2 | 3 | 3 | - | - | 3 | - | - | - | - | - | - | - | 3 | 2 | 1 |
| C301.3 | 3 | 3 | - | - | - | - | - | - | - | - | - | - | 3 | 2 | 1 |
| C301.4 | 3 | 3 | - | - | - | - | - | - | - | - | - | - | 3 | 2 | 1 |
| C301.5 | 3 | 3 | - | - | - | - | - | - | - | - | - | - | 3 | 2 | 1 |
| C301.6 | 3 | - | - | - | - | - | - | - | - | - | - | - | 3 | 2 | 1 |
| C301 | 3 | 3 | - | - | 3 | - | - | - | - | - | - | - | 3 | 2 | 1 |


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Course code &Name : EE8551 &MICROPROCESSORS AND MICROCONTROLLERS

Semester : V


COURSE OUTCOMES:

After the course, the student should be able to:

| | |
|--------|---|
| C302.1 | Explain about the architecture of 8085 microprocessor, pin configuration, interrupts and the timing diagram of 8085 |
| C302.2 | Develop the assembly language program using mnemonics and corresponding machine code based on architecture of 8085 microprocessor |
| C302.3 | Define the 8051 microcontroller with its architecture, pin-outs, memory organization, interrupts and compare the programming concepts with 8085 |
| C302.4 | Illustrate the interfacing of 8085 with various peripheral devices for transmission, reception and control of data |
| C302.5 | Make use of the data conversion technique such as ADC and DAC and to interface with 8085 processor and 8051 microcontroller |
| C302.6 | Develop the microcontroller assembly language program for various real time applications |

MAPPING WITH PROGRAM OUTCOMES:

| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|-------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|
| C302.1 | 2 | 2 | - | - | - | 2 | 2 | 2 | - | - | - | - | 2 | 1 | 1 |
| C302.2 | 2 | 2 | - | - | - | 2 | 2 | 2 | - | - | - | - | 2 | 1 | 1 |
| C302.3 | 2 | 2 | - | - | - | 2 | 2 | 2 | - | - | - | - | 2 | 1 | 1 |
| C302.4 | 2 | 2 | - | - | - | 2 | 2 | 2 | - | - | - | - | 2 | 1 | 1 |
| C302.5 | 2 | 2 | - | - | - | 2 | 2 | 2 | - | - | - | - | 2 | 1 | 1 |
| C302.6 | 2 | 2 | - | - | - | 2 | 2 | 2 | - | - | - | - | 2 | 1 | 1 |
| C302 | 2 | 2 | - | - | - | 2 | 2 | 2 | - | - | - | - | 2 | 1 | 1 |


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Course code &Name : EE8552 & POWER ELECTRONICS

Semester : V

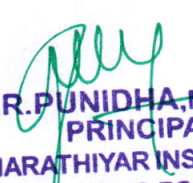
COURSE OUTCOMES:

After the course, the student should be able to:

| | |
|---------------|---|
| C303.1 | Achieve clear understanding by the students on the characteristics of different power electronic switching devices SCR, TRIAC, GTO, BJT, MOSFET, IGBT, and IGCT along with its driver and protection snubber circuits |
| C303.2 | Understand the operation and characteristics of different phase controlled rectifiers and its performance parameters |
| C303.3 | Achieve Knowledge on different firing schemes for converter, understanding of working of dual converters and its characteristics and to develop application knowledge on implementing phase controlled converters |
| C303.4 | Analysis and study of different DC-DC converters, its design, control strategies and its applications in real time. |
| C303.5 | Acquire knowledge in design and analysis of single and three phase inverters, its control schemes, and its applications in real time |
| C303.6 | Develop the microcontroller assembly language program for various real time applications |

MAPPING WITH PROGRAM OUTCOMES:

| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|-------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| C303.1 | 3 | 2 | 2 | 2 | - | - | 1 | - | - | - | - | - | 2 | 1 | 1 |
| C303.2 | 3 | 2 | 2 | 2 | - | - | 1 | - | - | - | - | - | 2 | 1 | 1 |
| C303.3 | 3 | 2 | 2 | 2 | - | - | 1 | - | - | - | - | - | 2 | 1 | 1 |
| C303.4 | 3 | 2 | 2 | 2 | 1 | - | 1 | - | - | - | - | - | 2 | 1 | 1 |
| C303.5 | 3 | 2 | 2 | 2 | - | - | 1 | - | - | - | - | - | 2 | 1 | 1 |
| C303.6 | 3 | 2 | 2 | 2 | - | - | 1 | - | - | - | - | - | 2 | 1 | 1 |
| C303 | 3 | 2 | 2 | 2 | 1 | - | 1 | - | - | - | - | - | 2 | 1 | 1 |


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Course code &Name : EE8591 & DIGITAL SIGNAL PROCESSING

Semester : V

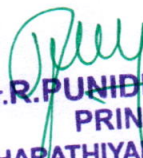
COURSE OUTCOMES:

After the course, the student should be able to:

| CO | Course Outcomes |
|--------|---|
| C304.1 | Classify the different types of signals and systems and Explain the sampling process of continuous time signal. |
| C304.2 | Apply z-transform and inverse Z transform and analyze discrete time systems. |
| C304.3 | Apply Radix-2 Decimation in Time (DIT) and Decimation in Frequency (DIF) FFT Algorithm to Compute Discrete Fourier Transform. |
| C304.4 | Explain different types of Infinite Impulse Response (IIR) filters and Finite Impulse Response (FIR) filters |
| C304.5 | Explain the digital design using impulse invariant and bilinear transformation |
| C304.6 | Explain various architectures of Digital signal processors. |

MAPPING WITH PROGRAM OUTCOMES:

| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|
| C304.1 | 3 | 2 | - | - | 1 | - | - | 3 | - | - | - | 1 | 2 | 1 | 1 |
| C304.2 | 3 | 2 | - | 1 | 1 | - | - | 3 | - | - | - | 1 | 2 | 1 | 1 |
| C304.3 | 3 | 2 | - | 1 | 1 | - | - | 3 | - | - | - | 1 | 2 | 1 | 1 |
| C304.4 | 3 | 2 | 2 | - | 1 | - | - | 3 | - | - | - | 1 | 2 | 1 | 1 |
| C304.5 | 3 | 2 | - | - | 1 | - | - | 3 | - | - | - | 1 | 2 | 1 | 1 |
| C304.6 | 3 | 2 | 2 | - | 1 | - | - | 3 | - | - | - | 1 | 2 | 1 | 1 |
| C304 | 3 | 2 | 2 | 1 | 1 | - | - | 3 | - | - | - | 1 | 2 | 1 | 1 |


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Course code &Name : CS8392&OBJECT ORIENTED PROGRAMMING

Semester : V

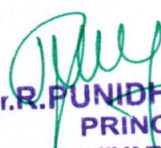
COURSE OUTCOMES:

After the course, the student should be able to:

| | |
|--------|---|
| C305.1 | Classify the different types of signals and systems and Explain the sampling process of continuous time signal. |
| C305.2 | Apply z-transform and inverse Z transform and analyze discrete time systems. |
| C305.3 | Apply Radix-2 Decimation in Time (DIT) and Decimation in Frequency (DIF) FFT Algorithm to Compute Discrete Fourier Transform. |
| C305.4 | Explain different types of Infinite Impulse Response (IIR) filters and Finite Impulse Response (FIR) filters |
| C305.5 | Explain the digital design using impulse invariant and bilinear transformation |
| C305.6 | Explain various architectures of Digital signal processors. |

MAPPING WITH PROGRAM OUTCOMES:

| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|-------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| C305.1 | 2 | 1 | 1 | 1 | 1 | - | 1 | - | - | - | - | - | 1 | 1 | 1 |
| C305.2 | 2 | 1 | 1 | 1 | 1 | - | 1 | - | - | - | - | - | 1 | 1 | 1 |
| C305.3 | 2 | 1 | 1 | 1 | 1 | - | 1 | - | - | - | - | - | 1 | 1 | 1 |
| C305.4 | 2 | 1 | 1 | 1 | 1 | - | 1 | - | - | - | - | - | 1 | 1 | 1 |
| C305.5 | 2 | 1 | 1 | 1 | 1 | - | 1 | - | - | - | - | - | 1 | 1 | 1 |
| C305.6 | 2 | 1 | 1 | 1 | 1 | - | 1 | - | - | - | - | - | 1 | 1 | 1 |
| C305 | 2 | 1 | 1 | 1 | 1 | - | 1 | - | - | - | - | - | 1 | 1 | 1 |


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Course code &Name: OAN551 & SENSORS AND TRANSDUCERS

Semester : V


COURSE OUTCOMES:

After the course, the student should be able to:

| | |
|---------------|---|
| C306.1 | Understand the concepts of measurement technology, classification of transducers & Expertise in various calibration techniques and signal types for sensors |
| C306.2 | Understand the working of various motion, proximity and ranging sensors |
| C306.3 | Learn the various sensors used to measure various physical parameters like force, magnetic and heading Sensors |
| C306.4 | Study the basic principles of optical, pressure, temperature sensors & smart sensors |
| C306.5 | Apply the various sensors in the Automotive and Mechatronics applications |
| C306.6 | Implement the DAQ systems with different sensors for real time applications |

MAPPING WITH PROGRAM OUTCOMES:

| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|-------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|
| C306.1 | 2 | 2 | 2 | 1 | - | - | 1 | - | - | - | - | - | 2 | 1 | 1 |
| C306.2 | 2 | 2 | 2 | 1 | - | - | 1 | - | - | - | - | - | 2 | 1 | 1 |
| C306.3 | 2 | 2 | 2 | 1 | - | - | 1 | - | - | - | - | - | 2 | 1 | 1 |
| C306.4 | 2 | 2 | 2 | 1 | - | - | 1 | - | - | - | - | - | 2 | 1 | 1 |
| C306.5 | 2 | 2 | 2 | 1 | - | - | 1 | - | - | - | - | - | 2 | 1 | 1 |
| C306.6 | 2 | 2 | 2 | 1 | - | - | 1 | - | - | - | - | - | 2 | 1 | 1 |
| C306 | 2 | 2 | 2 | 1 | - | - | 1 | - | - | - | - | - | 2 | 1 | 1 |


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Course code & Name : EE8511 & CONTROL AND INSTRUMENTATION LABORATORY

Semester : V

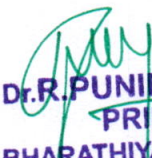
COURSE OUTCOMES:

After the course, the student should be able to:

| | |
|--------|---|
| C307.1 | Design and simulate the different types of controllers and compensators and analyse the stability of the given system |
| C307.2 | Examine the stability response of Machines, Sensors and Transducers. |
| C307.3 | Explain the concept of position control systems, synchro and analyse its characteristics. |
| C307.4 | Identify the various parameters such as R,L and C using bridge circuits and also measure the power and energy of Electrical circuits. |
| C307.5 | Illustrate the concept of sensors/transducers and signal conditioning elements. |
| C307.6 | Design and simulate the characteristics, response and stability of the given system. |

MAPPING WITH PROGRAM OUTCOMES:

| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|
| C307.1 | 3 | 1 | 1 | 1 | - | - | 1 | - | 2 | 2 | 2 | 2 | 2 | 1 | 1 |
| C307.2 | 3 | 1 | 1 | 1 | - | - | 1 | - | 2 | 2 | 2 | 2 | 2 | 1 | 1 |
| C307.3 | 3 | 1 | 1 | 1 | - | - | 1 | - | 2 | 2 | 2 | 2 | 2 | 1 | 1 |
| C307.4 | 3 | 1 | 1 | 1 | - | - | 1 | - | 2 | 2 | 2 | 2 | 2 | 1 | 1 |
| C307.5 | 3 | 1 | 1 | 1 | - | - | 1 | - | 2 | 2 | 2 | 2 | 2 | 1 | 1 |
| C307.6 | 3 | 1 | 1 | 1 | - | - | 1 | - | 2 | 2 | 2 | 2 | 2 | 1 | 1 |
| C307 | 3 | 1 | 1 | 1 | - | - | 1 | - | 2 | 2 | 2 | 2 | 2 | 1 | 1 |


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Course code &Name : HS8581&PROFESSIONAL COMMUNICATION

Semester : V

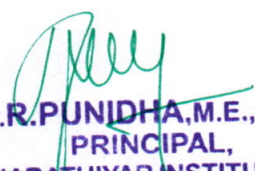
COURSE OUTCOMES:

After the course, the student should be able to:

| | |
|--------|--|
| C308.1 | To enhance the learners speaking skill through various activities like group discussion, telephonic conversation, presentation skill etc., |
| C308.2 | Develop listening and speaking skills through communicative functions |
| C308.3 | Enhance the Employability and Career Skills of student |
| C308.4 | Orient the students towards grooming as a professional |
| C308.5 | Make them Employability Graduates |
| C308.6 | Develop their confidence and help them attend interviews successfully. |

MAPPING WITH PROGRAM OUTCOMES:

| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|-------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|
| C308.1 | - | - | - | - | 3 | - | - | 3 | 3 | 3 | - | 3 | 1 | 2 | 1 |
| C308.2 | - | - | - | - | 3 | - | - | 3 | 3 | 3 | - | 3 | 1 | 2 | 1 |
| C308.3 | - | - | - | - | 3 | - | - | 3 | 3 | 3 | - | 3 | 1 | 2 | 1 |
| C308.4 | - | - | - | - | 3 | - | - | 3 | 3 | 3 | - | 3 | 1 | 2 | 1 |
| C308.5 | - | - | - | - | 3 | - | - | 3 | 3 | 3 | - | 3 | 1 | 2 | 1 |
| C308.6 | - | - | - | - | 3 | - | - | 3 | 3 | 3 | - | 3 | 1 | 2 | 1 |
| C308 | - | - | - | - | 3 | - | - | 3 | 3 | 3 | - | 3 | 1 | 2 | 1 |


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Course code &Name : CS8383 & OBJECT ORIENTED PROGRAMMING

LABORATORY

Semester : V

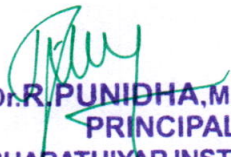
COURSE OUTCOMES:

After the course, the student should be able to:

| | |
|---------------|--|
| C309.1 | Develop and implement Java programs to develop simple applications. |
| C309.2 | Learn Features of Object oriented programming by developing programs using Classes, Packages and Interfaces. |
| C309.3 | Design and implement java programs using Exceptions, Generics. |
| C309.4 | Develop java applications using multi threading. |
| C309.5 | Design and implement java programs using I/O Streams. |
| C309.6 | Learn to develop GUI programming and event handling using swing and awt classes. |

MAPPING WITH PROGRAM OUTCOMES:

| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|-------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|
| C309.1 | 2 | 2 | 2 | 2 | - | - | - | - | 1 | - | - | - | 2 | 1 | 1 |
| C309.2 | 2 | 2 | 2 | 2 | - | - | - | - | 1 | - | - | - | 2 | 1 | 1 |
| C309.3 | 2 | 2 | 2 | 2 | 1 | - | - | - | 1 | - | - | - | 2 | 1 | - |
| C309.4 | 2 | 2 | 2 | 2 | 1 | - | - | - | 1 | - | - | - | 2 | 1 | 1 |
| C309.5 | 2 | 2 | 2 | 2 | 1 | - | - | - | 1 | - | - | - | 2 | 1 | - |
| C309.6 | 2 | 2 | 2 | 2 | 1 | - | - | - | 1 | - | - | - | 2 | 1 | 1 |
| C309 | 2 | 2 | 2 | 2 | 1 | - | - | - | 1 | - | - | - | 2 | 1 | 1 |


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Course code &Name : EE8601 & SOLID STATE DRIVES

Semester : VI

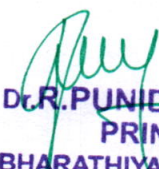
COURSE OUTCOMES:

After the course, the student should be able to:

| | |
|--------|---|
| C310.1 | Analyze the Classification of the various types of drives and load torque characteristics and Apply the multi quadrant dynamics in hoist load system. |
| C310.2 | Analyze the operation of steady state analysis of single phase and three phase fully controlled converter and Chopper fed separately excited dc motor drives and discuss the various control strategies of converter. |
| C310.3 | Analyze the operation and characteristics of various methods of solid state speed control of induction motor. |
| C310.4 | Analyze the operation of various modes of V/f control of synchronous motor drives and different types of permanent magnet synchronous motor drives. |
| C310.5 | Analyze and design a current and speed controller and develop the transfer function for DC motor, load and converter, closed loop control with current and speed feedback. |
| C310.6 | Develop the design procedure of controllers for DC drives. |

MAPPING WITH PROGRAM OUTCOMES:

| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|
| C310.1 | 3 | 2 | 2 | 1 | - | - | - | - | - | - | - | - | 1 | 1 | 1 |
| C310.2 | 3 | 2 | 2 | 1 | - | - | - | - | - | - | - | - | 1 | 1 | 1 |
| C310.3 | 3 | 2 | 2 | 1 | - | - | - | - | - | - | - | - | 1 | 1 | 1 |
| C310.4 | 3 | 2 | 2 | 1 | - | - | - | - | - | - | - | - | 1 | 1 | 1 |
| C310.5 | 3 | 2 | 2 | 1 | - | - | - | - | - | - | - | - | 1 | 1 | 1 |
| C310.6 | 3 | 2 | 2 | 1 | - | - | - | - | - | - | - | - | 1 | 1 | 1 |
| C310 | 3 | 2 | 2 | 1 | - | - | - | - | - | - | - | - | 1 | 1 | 1 |


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Course code & Name : EE8602 & PROTECTION AND SWITCHGEAR

Semester : VI

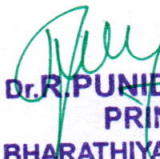
COURSE OUTCOMES:

After the course, the student should be able to:

| | |
|--------|---|
| C311.1 | Identify the causes and effects of faults and ungrounded system |
| C311.2 | Analyze the characteristics and functions of Electromagnetic type protective relays |
| C311.3 | Analyze the various abnormal conditions in power system apparatus and to select a suitable protection scheme. |
| C311.4 | Synthesize the static relays using comparators and explain numerical relays. |
| C311.5 | Analyze arc interruption and to select a suitable circuit breaker |
| C311.6 | Explain the construction details, working of various types of circuit breakers. |

MAPPING WITH PROGRAM OUTCOMES:

| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|
| C311.1 | 3 | 3 | 2 | 1 | 1 | - | - | - | - | - | - | - | 2 | 1 | 1 |
| C311.2 | 3 | 3 | 2 | 1 | 1 | - | - | - | - | - | - | - | 2 | - | 1 |
| C311.3 | 3 | 3 | 2 | 1 | - | - | - | - | - | - | - | - | 2 | 1 | 1 |
| C311.4 | 3 | 3 | 2 | 1 | 1 | - | - | - | - | - | - | - | 2 | 1 | 1 |
| C311.5 | 3 | 3 | 2 | 1 | 1 | - | - | - | - | - | - | - | 2 | - | 1 |
| C311.6 | 3 | 3 | 2 | 1 | 1 | - | - | - | - | - | - | - | 2 | - | 1 |
| C311 | 3 | 3 | 2 | 1 | 1 | - | - | - | - | - | - | - | 2 | 1 | 1 |


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Course code & Name : EE8691 & EMBEDDED SYSTEMS

Semester : VI

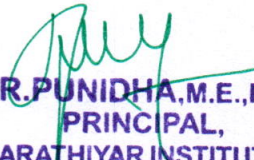
COURSE OUTCOMES:

After the course, the student should be able to:

| | |
|--------|--|
| C312.1 | Analyze the basic build process of embedded systems, structural units in embedded processor and selection of processor and memory devices depending upon the applications |
| C312.2 | Analyze the different types of I/O device ports, buses and different interfaces for data transfer in embedded networking. |
| C312.3 | Apply the different techniques like state machine model, sequential program model and concurrent model in Embedded Product Development Life Cycle (EDLC). |
| C312.4 | Analyze about the basic concept of Real Time Operating Systems and plan to scheduling of different task and compare the features of different types of Real Time Operating Systems |
| C312.5 | Apply the knowledge of programming concepts of Embedded Systems for various applications like Washing Machine automotive and Smart Card System applications |
| C312.6 | apply knowledge and concept of digital camera and ATM machine |

MAPPING WITH PROGRAM OUTCOMES:

| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|-------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| C312.1 | 2 | 2 | 1 | 1 | 1 | - | - | - | - | - | - | - | 1 | 1 | 1 |
| C312.2 | 2 | 2 | 1 | 1 | 1 | - | - | - | - | - | - | - | 1 | - | 1 |
| C312.3 | 2 | 2 | 1 | 1 | 1 | - | 1 | - | - | - | - | - | 1 | - | - |
| C312.4 | 2 | 2 | 1 | 1 | 1 | 1 | - | - | - | - | - | - | 1 | 1 | - |
| C312.5 | 2 | 2 | 1 | 1 | - | 1 | 1 | - | - | - | - | - | 1 | - | 1 |
| C312.6 | 2 | 2 | 1 | 1 | - | - | - | - | - | - | - | - | 1 | 1 | - |
| C312 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | - | - | - | - | - | 1 | 1 | 1 |


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THALAIVASAL (TK), SALEM (DT).

Course code &Name : EE8002 & DESIGN OF ELECTRICAL APPARATUS

Semester : VI

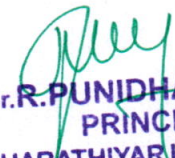
COURSE OUTCOMES:

After the course, the student should be able to:

| | |
|--------|---|
| C313.1 | Apply the Knowledge of Engineering fundamentals to the solutions of magnetic circuits |
| C313.2 | Apply the Knowledge of Engineering fundamentals to the design solutions of transformers |
| C313.3 | Design the core, yoke, windings and cooling system of Transformer. |
| C313.4 | Apply the Knowledge of Engineering fundamentals to the design solutions of induction motors |
| C313.5 | Apply the Knowledge of Engineering fundamentals to the design solutions of synchronous machines |
| C313.6 | Design the stator and rotor of synchronous machine and explain the thermal their behavior. |

MAPPING WITH PROGRAM OUTCOMES:

| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|
| C313.1 | 3 | 3 | 2 | 2 | - | - | - | - | - | - | - | - | 2 | 1 | 1 |
| C313.2 | 3 | 3 | 2 | 2 | - | - | - | - | - | - | - | - | 2 | 1 | 1 |
| C313.3 | 3 | 3 | 2 | 2 | - | - | - | - | - | - | - | - | 2 | 1 | 1 |
| C313.4 | 3 | 3 | 2 | 2 | - | - | - | - | - | - | - | - | 2 | 1 | 1 |
| C313.5 | 3 | 3 | 2 | 2 | - | - | - | - | - | - | - | - | 2 | 1 | 1 |
| C313.6 | 3 | 3 | 2 | 2 | - | - | - | - | - | - | - | - | 2 | 1 | 1 |
| C313 | 3 | 3 | 2 | 2 | - | - | - | - | - | - | - | - | 2 | 1 | 1 |


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Course code & Name: EE8005 & SPECIAL ELECTRICAL MACHINES

Semester : VI


COURSE OUTCOMES:

After the course, the student should be able to:

| | |
|--------|---|
| C314.1 | Apply the magnetic circuit concept to increase the saliency ratio of synchronous reluctance motor and compare improvement of the saliency ratio for the different rotor constructions |
| C314.2 | Apply the magnetic circuit concept in stepper motor for various methods of excitation and compare its static and dynamic performance |
| C314.3 | Apply basic engineering knowledge to compare the performance of switched reluctance motor with and without sensors |
| C314.4 | Explain the operating principle and performance of square wave BLDC motor |
| C314.5 | Apply basic engineering knowledge in permanent magnet synchronous motor to design power controller for permanent magnet synchronous motors. |
| C314.6 | Explain the construction and operating principle of other special Electrical Machines. |

MAPPING WITH PROGRAM OUTCOMES:

| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|
| C314.1 | 3 | 2 | 2 | - | 1 | - | - | - | - | - | - | - | 1 | 1 | 1 |
| C314.2 | 3 | 2 | 2 | - | 1 | - | - | - | - | - | - | - | 1 | - | - |
| C314.3 | 3 | 2 | 2 | - | 1 | - | - | - | - | - | - | - | 1 | - | - |
| C314.4 | 3 | 2 | 2 | - | 1 | - | - | - | - | - | - | - | 1 | - | 1 |
| C314.5 | 3 | 2 | 2 | - | 1 | - | - | - | - | - | - | - | 1 | 1 | 1 |
| C314.6 | 3 | 2 | 2 | - | 1 | - | - | - | - | - | - | - | 1 | - | 1 |
| C314 | 3 | 2 | 2 | - | 1 | - | - | - | - | - | - | - | 1 | 1 | 1 |


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Course code &Name: EE8661 &POWER ELECTRONICS AND DRIVES LABORATORY

Semester : VI

COURSE OUTCOMES:

After the course, the student should be able to:

| | |
|---------------|---|
| C315.1 | Analyze the VI characteristics of SCR, TRIAC and Generation of Gate Pulse using R, RC and UJT. |
| C315.2 | Obtain VI characteristics of power switching devices |
| C315.3 | Design a single phase AC to DC half controlled converter, AC to DC fully controlled converter, step down chopper and step up MOSFET, Switched Mode Power Converter and analyze the output response. |
| C315.4 | Analyze the output waveforms of single phase and three phase IGBT based PWM inverter, AC Voltage controller and the characteristic of PMSM motor. |
| C315.5 | Simulate power electronic converter in MATLAB |
| C315.6 | Analyze the Simulation of output waveform PE circuits (1 Φ & 3 Φ semi converters, 1 Φ & 3 Φ full converters, DC-DC converters, AC voltage controllers). |

MAPPING WITH PROGRAM OUTCOMES:

| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|-------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| C315.1 | 2 | 2 | 1 | 1 | 1 | - | - | 1 | 2 | 1 | - | 1 | 1 | 1 | 1 |
| C315.2 | 2 | 2 | 1 | 1 | - | - | - | 1 | 2 | 1 | - | 1 | 1 | - | - |
| C315.3 | 2 | 2 | 1 | 1 | - | - | - | 1 | 2 | 1 | - | 1 | 1 | - | - |
| C315.4 | 2 | 2 | 1 | 1 | 1 | - | - | 1 | 2 | 1 | - | 1 | 1 | - | 1 |
| C315.5 | 2 | 2 | 1 | 1 | 1 | - | - | 1 | 2 | 1 | - | 1 | 1 | - | 1 |
| C315.6 | 2 | 2 | 1 | 1 | 1 | - | - | 1 | 2 | 1 | - | 1 | 1 | 1 | 1 |
| C315 | 2 | 2 | 1 | 1 | 1 | - | - | 1 | 2 | 1 | - | 1 | 1 | 1 | 1 |


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Course code &Name: EE8681& MICROPROCESSORS AND MICROCONTROLLERS

LABORATORY

Semester : VI

COURSE OUTCOMES:

After the course, the student should be able to:

| | |
|--------|---|
| C316.1 | Design a program for arithmetic operation, Ascending/ Descending order, finding Maximum/Minimum numbers, rotate instruction and code conversions and execute using 8085 processor |
| C316.2 | Identify and convert Analog to Digital , Digital to Analog numbers and implement the traffic light controller with 8085 |
| C316.3 | Acquire knowledge on A/D and D/A |
| C316.4 | Analyze a program using read key to interface with display units and demonstrate conditional jumps ,loops and calling subroutines with 8051 Microcontroller . |
| C316.5 | Create program using I/O port ,8051 timer , A/D & D/A interface with DC & AC motors and develop a program for hardware application using embedded processors |
| C316.6 | Analyze the basics of software simulators |

MAPPING WITH PROGRAM OUTCOMES:

| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|-------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|
| C316.1 | 2 | 2 | 2 | 1 | 1 | - | - | - | 1 | - | - | - | 2 | 1 | 1 |
| C316.2 | 2 | 2 | 2 | 1 | 1 | - | - | - | 1 | - | - | - | 2 | 1 | - |
| C316.3 | 2 | 2 | 2 | 1 | 1 | - | - | - | 1 | - | - | - | 2 | - | - |
| C316.4 | 2 | 2 | 2 | 1 | 1 | - | - | - | 1 | - | - | - | 2 | - | 1 |
| C316.5 | 2 | 2 | 2 | 1 | 1 | - | - | - | 1 | - | - | - | 2 | - | - |
| C316.6 | 2 | 2 | 2 | 1 | 1 | - | - | - | 1 | - | - | - | 2 | 1 | 1 |
| C316 | 2 | 2 | 2 | 1 | 1 | - | - | - | 1 | - | - | - | 2 | 1 | 1 |

Course code &Name: EE8611& MINI PROJECT

Semester : VI

COURSE OUTCOMES:

After the course, the student should be able to:

| | |
|---------------|--|
| C317.1 | Apply practical knowledge within the chosen area of expertise for project development |
| C317.2 | Plan the project work schedule and prepare budget for experimentation |
| C317.3 | Identify and design the circuits with necessary components, simulation tools and accessories for the specific problem |
| C317.4 | Develop effective communication skills for presentation of project related activities and prepare mini project reports and examination |
| C317.5 | Explain the project work orally among the team members and also in review presentation |
| C317.6 | Write the project report and face viva voce examination |

MAPPING WITH PROGRAM OUTCOMES:

| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|-------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|
| C317.1 | 2 | 2 | 2 | 1 | - | - | - | - | - | 2 | 2 | 2 | 2 | 2 | 1 |
| C317.2 | 2 | 2 | 2 | 1 | - | - | - | - | - | 2 | 2 | 2 | 2 | - | - |
| C317.3 | 2 | 2 | 2 | 1 | - | - | - | - | - | 2 | 2 | 2 | 2 | - | - |
| C317.4 | 2 | 2 | 2 | 1 | - | - | - | - | - | 2 | 2 | 2 | 2 | - | 1 |
| C317.5 | 2 | 2 | 2 | 1 | - | - | - | - | - | 2 | 2 | 2 | 2 | 2 | 1 |
| C317.6 | 2 | 2 | 2 | 1 | - | - | - | - | - | 2 | 2 | 2 | 2 | - | 1 |
| C317 | 2 | 2 | 2 | 1 | - | - | - | - | - | 2 | 2 | 2 | 2 | 2 | 1 |

Course code &Name: EE8701 &HIGH VOLTAGE ENGINEERING

Semester : VII

COURSE OUTCOMES:

After the course, the student should be able to:

| | |
|---------------|---|
| C401.1 | An ability to apply the knowledge of over voltages and its protective methods in power system. |
| C401.2 | Skilled to understand the behaviour of travelling wave on different load condition using Bewleys latticediagram. |
| C401.3 | An ability to use the concepts and methods of electrical breakdown in different medium. |
| C401.4 | An ability to design various AC and DC high voltage generating techniques for testing the power apparatus. |
| C401.5 | An ability to apply the various AC and DC high voltage and current measuring techniques in power system. |
| C401.6 | An ability to apply the knowledge of testing the various power apparatus to provide safety and protection for the individual. |

MAPPING WITH PROGRAM OUTCOMES:

| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|-------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|
| C401.1 | 3 | 2 | 2 | - | 1 | - | 1 | - | - | - | - | - | 1 | - | - |
| C401.2 | 3 | 2 | 2 | - | 1 | - | - | - | - | - | - | - | 1 | - | - |
| C401.3 | 3 | 2 | 2 | - | 1 | - | - | - | - | - | - | - | 1 | - | - |
| C401.4 | 3 | 2 | 2 | - | 1 | - | 1 | - | - | - | - | - | 1 | - | - |
| C401.5 | 3 | 2 | 2 | - | 1 | - | 1 | - | - | - | - | - | 1 | - | - |
| C401.6 | 3 | 2 | 2 | - | 1 | - | 1 | - | - | - | - | - | 1 | - | - |
| C401 | 3 | 2 | 2 | - | 1 | - | 1 | - | - | - | - | - | 1 | - | - |

Course code &Name: EE8702 & POWER SYSTEM OPERATION AND CONTROL

Semester : VII

COURSE OUTCOMES:

After the course, the student should be able to:

| | |
|---------------|--|
| C402.1 | Illustrate the concept of day-to-day operation of power system on varying system load demand |
| C402.2 | Infer the control actions on the power system to meet the minute-to-minute variation of system load demand |
| C402.3 | Explain the basic concepts and methods of reactive power control |
| C402.4 | Interpret the basic concepts, types and modelling of excitation systems |
| C402.5 | Formulate the mathematical model of economic load dispatch for any power system |
| C402.6 | Explain the role of computers in the power system operation and control |

MAPPING WITH PROGRAM OUTCOMES:

| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|-------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|
| C402.1 | 3 | 3 | - | - | - | - | - | - | - | - | - | - | 1 | - | 1 |
| C402.2 | 3 | 3 | - | - | - | - | - | - | - | - | - | - | 1 | - | 1 |
| C402.3 | 3 | 3 | - | - | - | - | - | - | - | - | - | - | 1 | - | 1 |
| C402.4 | 3 | 3 | 2 | - | - | - | - | - | - | - | - | - | 1 | - | 1 |
| C402.5 | 3 | 3 | 2 | - | - | - | - | - | - | - | - | - | 1 | - | 1 |
| C402.6 | 3 | 3 | 2 | - | - | - | - | - | - | - | - | - | 1 | - | 1 |
| C402 | 3 | 3 | 2 | - | - | - | - | - | - | - | - | - | 1 | - | 1 |

Course code &Name: EE8703 & RENEWABLE ENERGY SYSTEMS

Semester : VII

COURSE OUTCOMES:

After the course, the student should be able to:

| | |
|---------------|--|
| C403.1 | Illustrate the concept of day-to-day operation of power system on varying system load demand |
| C403.2 | Infer the control actions on the power system to meet the minute-to-minute variation of system load demand |
| C403.3 | Explain the basic concepts and methods of reactive power control |
| C403.4 | Interpret the basic concepts, types and modelling of excitation systems |
| C403.5 | Formulate the mathematical model of economic load dispatch for any power system |
| C403.6 | Explain the role of computers in the power system operation and control |

MAPPING WITH PROGRAM OUTCOMES:

| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|-------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| C403.1 | 3 | 3 | - | - | - | - | 3 | 3 | - | - | - | 2 | 3 | 3 | 3 |
| C403.2 | 3 | 3 | - | - | - | - | 3 | 3 | - | - | - | 2 | 3 | 3 | 3 |
| C403.3 | 3 | 2 | - | - | - | - | 3 | 3 | - | - | - | 2 | 3 | 3 | 3 |
| C403.4 | 3 | 2 | - | - | - | - | 3 | 3 | - | - | - | 2 | 3 | 3 | 3 |
| C403.5 | 3 | 1 | - | - | - | - | 3 | 3 | - | - | - | 2 | 3 | 3 | 3 |
| C403.6 | 3 | 1 | - | - | - | - | 3 | 3 | - | - | - | 2 | 3 | 3 | 3 |
| C403 | 3 | 2 | - | - | - | - | 3 | 3 | - | - | - | 2 | 3 | 3 | 3 |

Course code & Name: OCS752 & INTRODUCTION TO C

Semester : VII

COURSE OUTCOMES:

After the course, the student should be able to:

| | |
|---------------|--|
| C404.1 | Explain the syntax for C programming |
| C404.2 | Associate the programs in 'C' for real world situation |
| C404.3 | Apply the concepts of Arrays, Strings in 'C' language for user defined problems. |
| C404.4 | Apply the concept of functions and pointers |
| C404.5 | Associate the programs with structure using 'C' language. |
| C404.6 | Discuss to read and write data from/to files in 'C' Programs. |

MAPPING WITH PROGRAM OUTCOMES:

| COURSE | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|-------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|
| C404.1 | 2 | 1 | - | - | - | - | - | - | - | - | - | - | 1 | - | - |
| C404.2 | 2 | 1 | - | - | - | - | - | - | - | - | - | - | 1 | - | - |
| C404.3 | 2 | 1 | - | - | - | - | - | - | - | - | - | - | 1 | - | - |
| C404.4 | 2 | 1 | - | - | - | - | - | - | - | - | - | - | 1 | - | - |
| C404.5 | 2 | 1 | - | - | - | - | - | - | - | - | - | - | 1 | - | - |
| C404.6 | 2 | 1 | - | - | - | - | - | - | - | - | - | - | 1 | - | - |
| C404 | 2 | 1 | - | - | - | - | - | - | - | - | - | - | 1 | - | - |

Course code &Name: GE8071 & DISASTER MANAGEMENT

Semester : VII

COURSE OUTCOMES:

After the course, the student should be able to:

| | |
|---------------|---|
| C405.1 | Obtain knowledge about various types of Disasters and it impacts. |
| C405.2 | Students are capable of explaining Disaster cycle, and gain knowledge about various approaches to disaster risk reduction |
| C405.3 | Students have got enough knowledge about the concept of Inter –Relationship between disasters and development. |
| C405.4 | Students gain knowledge about Disaster risk management in India. |
| C405.5 | Students have got enough knowledge about the field work sand case studies related to Disaster management. |
| C405.6 | Students will be able to understand the type of disaster and its impacts, and disaster management. |

MAPPING WITH PROGRAM OUTCOMES:

| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|-------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|
| C405.1 | - | - | - | - | - | 3 | 2 | - | - | - | - | - | 1 | 1 | 1 |
| C405.2 | - | - | - | - | - | 3 | 2 | - | - | - | - | - | 1 | 1 | 1 |
| C405.3 | - | - | - | - | - | 3 | 2 | - | - | - | - | - | 1 | 1 | 1 |
| C405.4 | - | - | - | - | - | 3 | 2 | - | - | - | - | - | 1 | 1 | 1 |
| C405.5 | - | - | - | - | - | 3 | 2 | - | - | - | - | - | 1 | 1 | 1 |
| C405.6 | - | - | - | - | - | 3 | 2 | - | - | - | - | - | 1 | 1 | 1 |
| C401 | - | - | - | - | - | 3 | 2 | - | - | - | - | - | 1 | 1 | 1 |

Course code &Name: EE8010 & POWER SYSTEM TRANSIENTS

Semester : VII

COURSE OUTCOMES:

After the course, the student should be able to:

| | |
|---------------|---|
| C406.1 | Apply engineering fundamentals to compute the solution of transient current equation for RL and RLC circuits. |
| C406.2 | Identify the importance of switching transients and illustrate the concept of resistance switching, load switching and capacitance switching. |
| C406.3 | Recall the concept of lightning mechanism and analyze the interaction between lightning and power system |
| C406.4 | Apply the concept of reflection and refraction and determine the Bewley Lattice diagram for different systems. |
| C406.5 | Analyze transients in integrated power system and apply IT tools for transient computation |
| C406.6 | Analyze transients in the integrated power system |

MAPPING WITH PROGRAM OUTCOMES:

| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|-------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|
| C406.1 | 3 | 2 | - | - | - | - | - | - | - | - | - | - | 2 | 1 | 1 |
| C406.2 | 3 | 2 | - | - | - | - | 1 | - | - | - | - | - | 2 | 1 | 1 |
| C406.3 | 3 | 2 | - | - | - | 1 | 1 | - | - | - | - | - | 2 | 1 | 1 |
| C406.4 | 3 | 2 | - | - | - | - | - | - | - | - | - | - | 2 | 1 | 1 |
| C406.5 | 3 | 2 | - | - | - | - | - | - | - | - | - | - | 2 | 1 | 1 |
| C406.6 | 3 | 2 | - | - | - | - | - | - | - | - | - | - | 2 | 1 | 1 |
| C401 | 3 | 2 | - | - | - | 1 | 1 | - | - | - | - | - | 2 | 1 | 1 |

Course code &Name: EE8711& POWER SYSTEM SIMULATION LABORATORY**Semester : VII****COURSE OUTCOMES:**

After the course, the student should be able to:

| | |
|---------------|---|
| C407.1 | Analyze the various parameters and model a transmission line networks |
| C407.2 | Apply load flow analysis to an electrical power network and interpret the results using Gauss-Seidel and Newton Raphson Methods |
| C407.3 | Analyze a network under balanced, unbalanced fault conditions and interpret the results |
| C407.4 | Explain the transient stability analysis of single and multi machine infinite bus system |
| C407.5 | Examine the electromagnetic transients and its impact in power system studies |
| C407.6 | Evaluate the frequency dynamics, economic dispatch of single and two area power systems |

MAPPING WITH PROGRAM OUTCOMES:

| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|-------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| C407.1 | 3 | 2 | 2 | 1 | 1 | - | - | - | 1 | - | - | 1 | 2 | 1 | 1 |
| C407.2 | 3 | 2 | 2 | - | - | - | - | - | 1 | - | - | 1 | 2 | 1 | 1 |
| C407.3 | 3 | 2 | 2 | 1 | 1 | - | - | - | 1 | - | - | 1 | 2 | 1 | 1 |
| C407.4 | 3 | 2 | 2 | 1 | 1 | - | - | - | 1 | - | - | 1 | 2 | 1 | 1 |
| C407.5 | 3 | 2 | 2 | 1 | 1 | - | - | - | 1 | - | - | 1 | 2 | 1 | 1 |
| C407.6 | 3 | 2 | 2 | 1 | 1 | - | - | - | 1 | - | - | 1 | 2 | 1 | 1 |
| C407 | 3 | 2 | 2 | 1 | 1 | - | - | - | 1 | - | - | 1 | 2 | 1 | 1 |

Course code & Name: EE8712& RENEWABLE ENERGYSYSTEMS LABORATORY

Semester : VII

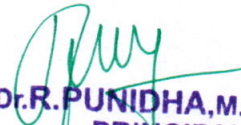
COURSE OUTCOMES:

After the course, the student should be able to:

| | |
|--------|---|
| C408.1 | Analyze the V-I characteristics and efficiency of 1 KW solar PV system with stand alone and grid connected by conducting experiment and simulation using MATLAB Simulink. |
| C408.2 | Analyze the performance and assessment of micro wind energy generator by conducting experiment and simulation using MATLAB Simulink. |
| C408.3 | Analyze the performance and assessment of solar-wind hybrid system by conducting experiment and simulation using MATLAB Simulink. |
| C408.4 | Analyze the Hydel power using MATLAB Simulink. |
| C408.5 | Analyze the performance and assessment of Fuel cell by conducting experiment and simulation using MATLAB Simulink |
| C408.6 | Analyze the various types of intelligent controller for hybrid system using MATLAB Simulink |

MAPPING WITH PROGRAM OUTCOMES:

| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|
| C408.1 | 3 | 3 | 3 | 3 | 3 | 1 | 3 | 3 | 3 | - | - | 3 | 3 | 3 | 3 |
| C408.2 | 3 | 3 | 3 | 3 | 3 | 1 | 3 | 3 | 3 | - | - | 3 | 3 | 3 | 3 |
| C408.3 | 3 | 3 | 3 | 3 | 3 | 1 | 3 | 3 | 3 | - | - | 3 | 3 | 3 | 3 |
| C408.4 | 3 | 3 | 3 | 3 | 3 | 1 | 3 | 3 | 3 | - | - | 3 | 3 | 3 | 3 |
| C408.5 | 3 | 3 | 3 | 3 | 3 | 1 | 3 | 3 | 3 | - | - | 3 | 3 | 3 | 3 |
| C408.6 | 3 | 3 | 3 | 3 | 3 | 1 | 3 | 3 | 3 | - | - | 3 | 3 | 3 | 3 |
| C408 | 3 | 3 | 3 | 3 | 3 | 1 | 3 | 3 | 3 | - | - | 3 | 3 | 3 | 3 |


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Course code &Name: EE8015 & ELECTRIC ENERGY GENERATION, UTILIZATION AND CONSERVATION

Semester : VIII

COURSE OUTCOMES:

After the course, the student should be able to:

| | |
|--------|---|
| C409.1 | Interpret the basics of electric traction and their performance |
| C409.2 | Explain the types of lamps and design the illumination systems for various lighting schemes |
| C409.3 | Discuss the types of electric heating and welding |
| C409.4 | Infer the phenomenon of solar radiation and explain the types of solar energy collectors |
| C409.5 | Explain the basic principles, components of wind energy conversion systems |
| C409.6 | Discuss the types of wind turbines and analyze the aerodynamic force acting on the blades |

MAPPING WITH PROGRAM OUTCOMES:

| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|-------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| C409.1 | 2 | 2 | - | - | 1 | - | - | - | - | - | - | - | 1 | 1 | - |
| C409.2 | 2 | 2 | - | - | 1 | - | - | - | - | - | - | - | 1 | 1 | - |
| C409.3 | 2 | 2 | - | - | 1 | - | - | - | - | - | - | - | 1 | 1 | - |
| C409.4 | 2 | 2 | - | - | 1 | - | 1 | - | - | - | - | - | 1 | 1 | - |
| C409.5 | 2 | 2 | - | - | 1 | - | 1 | - | - | - | - | - | 1 | 1 | - |
| C409.6 | 2 | 2 | - | - | 1 | - | 1 | - | - | - | - | - | 1 | 1 | - |
| C409 | 2 | 2 | - | - | 1 | - | 1 | - | - | - | - | - | 1 | 1 | - |

Course code & Name: EE8017 & HIGH VOLTAGE DIRECT CURRENT TRANSMISSION

Semester : VIII

COURSE OUTCOMES:

After the course, the student should be able to:

| | |
|--------|--|
| C410.1 | Discuss the planning of DC power transmission and compare with AC power transmission |
| C410.2 | Analyze the effect of various HVDC converters in transmission lines |
| C410.3 | Evaluate the various types of compounding and regulation methods for power system stability |
| C410.4 | Explain the effects of harmonics and design suitable filters for power system control and protection |
| C410.5 | Infer the basic physical phenomenon arising in DC insulation and dielectric stress consideration |
| C410.6 | Interpret the modeling of HVDC Systems for digital dynamic simulation by using suitable philosophy and tools |

MAPPING WITH PROGRAM OUTCOMES:

| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|
| C410.1 | 3 | 2 | 2 | 1 | 1 | - | - | - | - | - | - | - | 2 | 1 | 1 |
| C410.2 | 3 | 2 | 2 | 1 | 1 | - | - | - | - | - | - | - | 2 | 1 | 1 |
| C410.3 | 3 | 2 | 2 | 1 | 1 | - | - | - | - | - | - | - | 2 | 1 | 1 |
| C410.4 | 3 | 2 | 2 | 1 | 1 | - | - | - | - | - | - | - | 2 | 1 | 1 |
| C410.5 | 3 | 2 | 2 | 1 | 1 | - | - | - | - | - | - | - | 2 | 1 | 1 |
| C410.6 | 3 | 2 | 2 | 1 | 1 | - | - | - | - | - | - | - | 2 | 1 | 1 |
| C410 | 3 | 2 | 2 | 1 | 1 | - | - | - | - | - | - | - | 2 | 1 | 1 |

Course code &Name: EE8811& PROJECT WORK

Semester : VIII

COURSE OUTCOMES:

After the course, the student should be able to:

| | |
|--------|--|
| C411.1 | Develop the ability to solve a specific problem right from its identification |
| C411.2 | Plan the project work schedule and prepare budget for experimentation |
| C411.3 | Design the circuits with necessary components, simulation tools and accessories for the specific problem |
| C411.4 | Demonstrate the system model and also analyze the parameters in various parts of the system using simulation tools |
| C411.5 | Explain the project work orally among the team members and also in review presentation |
| C411.6 | Write the project report and face viva voce examination |

MAPPING WITH PROGRAM OUTCOMES:

| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|
| C411.1 | 3 | 2 | 2 | 1 | 1 | 1 | 1 | - | 3 | 2 | 2 | 2 | 3 | 3 | 2 |
| C411.2 | 3 | 2 | 2 | 1 | 1 | 1 | 1 | - | 3 | 2 | 2 | 2 | 3 | 3 | 2 |
| C411.3 | 3 | 2 | 2 | 1 | 1 | 1 | 1 | - | 3 | 2 | 2 | 2 | 3 | 3 | 2 |
| C411.4 | 3 | 2 | 2 | 1 | 1 | 1 | 1 | - | 3 | 2 | 2 | 2 | 3 | 3 | 2 |
| C411.5 | 3 | 2 | 2 | 1 | 1 | 1 | 1 | - | 3 | 2 | 2 | 2 | 3 | 3 | 2 |
| C411.6 | 3 | 2 | 2 | 1 | 1 | 1 | 1 | - | 3 | 2 | 2 | 2 | 3 | 3 | 2 |
| C411 | 3 | 2 | 2 | 1 | 1 | 1 | 1 | - | 3 | 2 | 2 | 2 | 3 | 3 | 2 |