



# VIDYAVARDHAKA COLLEGE OF ENGINEERING

P.B. No.206, Gokulam, III - Stage, Mysuru - 570 002, Karnataka, INDIA.

Phone: +91 821 4276230 / 231.

## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

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**Subject Code** : 10MAT31  
**Course Code** : C201  
**Course Name** : Engg. Mathematics III

### COURSE OUTCOMES

- CO1** : Apply Fourier series towards technical field and Solve integral equations using Fourier Transform.
- CO2** : Derive and obtain the solutions of standard PDE. Find the solutions of numerous boundary value problems of engineering such as conduction of heat, transverse vibration of a string and etc.
- CO3** : Apply least square method to fit various curves for the given data and interpret the relation, get familiar with the advent of high speed digital computers and increasing demand for numerical answers to various problems, numerical techniques.
- CO4** : Apply various numerical techniques to obtain the solution of PDE.
- CO5** : Apply Z-Transform to obtain the solution of difference equations.

### COURSE OUTCOMES MAPPING WITH POs AND PSOs

| COs        | PO1      | PO2      | PO3 | PO4      | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12     | PSO1       | PSO2     | PSO3 |
|------------|----------|----------|-----|----------|-----|-----|-----|-----|-----|------|------|----------|------------|----------|------|
| CO1        | 3        | 3        |     | 1        |     |     |     |     |     |      |      | 1        | 1          |          |      |
| CO2        | 3        | 3        |     | 1        |     |     |     |     |     |      |      | 1        | 1          |          |      |
| CO3        | 3        | 3        |     | 1        |     |     |     |     |     |      |      | 1        | 3          | 3        |      |
| CO4        | 3        | 3        |     | 1        |     |     |     |     |     |      |      | 1        | 2          |          |      |
| CO5        | 3        | 3        |     | 1        |     |     |     |     |     |      |      | 1        | 2          |          |      |
| <b>AVG</b> | <b>3</b> | <b>3</b> |     | <b>1</b> |     |     |     |     |     |      |      | <b>1</b> | <b>1.8</b> | <b>3</b> |      |



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## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Subject Code : 10CS32  
Course Code : C202  
Course Name : Electronic Circuits

### COURSE OUTCOMES

- CO1** : Design simple electronic circuits using components for given specifications
- CO2** : Interpret the various amplifier configurations and study their working principles.
- CO3** : Design the feedback amplifiers, power amplifier circuits and various optoelectronic circuits
- CO4** : Design and implement different oscillator circuits, Power supply circuits for various specifications
- CO5** : Evaluate the working of Op-Amps and its applications

### COURSE OUTCOMES MAPPING WITH POs AND PSOs

| COs | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|
| CO1 |     |     | 3   |     |     |     |     |     |     |      |      |      |      |      |      |
| CO2 |     | 2   |     |     |     |     |     |     |     |      |      |      | 3    |      |      |
| CO3 | 3   |     | 2   |     |     |     |     |     |     |      |      |      | 3    |      |      |
| CO4 |     |     | 2   |     |     |     |     |     |     |      |      |      | 3    |      |      |
| CO5 |     |     | 3   |     |     |     |     |     |     |      |      |      | 3    |      |      |
| AVG | 3   | 2   | 2.5 |     |     |     |     |     |     |      |      |      | 3    |      |      |



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## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Subject Code : 10CS33  
Course Code : C203  
Course Name : Logic Design

### COURSE OUTCOMES

- CO1 : Apply the principles of Boolean algebra to optimize digital circuits for the given parameters.
- CO2 : Analyze the applications of combinational and sequential circuits.
- CO3 : Design complex combinational and sequential circuits based on an abstract functional specification.
- CO4 : Apply analog and digital conversion techniques for the given data.
- CO5 : Implement digital circuits using Verilog HDL.

### COURSE OUTCOMES MAPPING WITH POs AND PSOs

| COs | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|
| CO1 | 3   |     |     |     |     |     |     |     |     |      |      |      | 3    |      |      |
| CO2 |     | 3   |     |     |     |     |     |     |     |      |      |      |      |      |      |
| CO3 |     |     | 2   |     |     |     |     |     |     |      |      |      |      |      |      |
| CO4 | 2   |     |     |     |     |     |     |     |     |      |      |      | 2    |      |      |
| CO5 |     |     | 2   |     | 3   |     |     |     |     |      |      |      |      |      |      |
| AVG | 2.5 | 3   | 2   |     | 3   |     |     |     |     |      |      |      | 2.5  |      |      |





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## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

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**Subject Code** : 10CS35  
**Course Code** : C205  
**Course Name** : Data Structures and C

### COURSE OUTCOMES

- CO1** : Apply the concepts of pointers, structures and unions to write the programs
- CO2** : Analyze various data structures such as Stacks, Queues, Linked list and Trees
- CO3** : Implement the applications of various Data Structures
- CO4** : Explain various types of priority queues and graphs

### COURSE OUTCOMES MAPPING WITH POs AND PSOs

| COs        | PO1      | PO2      | PO3      | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1     | PSO2 | PSO3     |
|------------|----------|----------|----------|-----|-----|-----|-----|-----|-----|------|------|------|----------|------|----------|
| CO1        | 3        |          |          |     |     |     |     |     |     |      |      |      | 3        |      | 3        |
| CO2        |          | 3        |          |     |     |     |     |     |     |      |      |      | 3        |      | 3        |
| CO3        |          |          | 3        |     |     |     |     |     |     |      |      |      | 3        |      | 3        |
| CO4        | 1        |          |          |     |     |     |     |     |     |      |      |      | 1        |      |          |
| <b>AVG</b> | <b>2</b> | <b>3</b> | <b>3</b> |     |     |     |     |     |     |      |      |      | <b>3</b> |      | <b>3</b> |



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## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

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Subject Code : 10CS36  
Course Code : C206  
Course Name : Object Oriented Programming With C++

### COURSE OUTCOMES

- CO1** : Apply the fundamental knowledge of Object Oriented Programming to solve computing problems using C++.
- CO2** : Design and develop C++ programs using concepts of inheritance and virtual functions.
- CO3** : Illustrate basic input output operations in C++ using streams and files.
- CO4** : Demonstrate exception handling to solve anomalous conditions that require special processing.

### COURSE OUTCOMES MAPPING WITH POs AND PSOs

| COs  | P01  | P02 | P03 | P04 | P05 | P06 | P07 | P08 | P09 | P010 | P011 | P012 | PS01 | PS02 | PS03 |
|------|------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|
| CO1  | 3    |     |     |     |     |     |     |     |     |      |      |      | 3    |      |      |
| CO2  |      |     | 2   |     |     |     |     |     |     |      |      |      | 3    |      |      |
| CO3  | 2    |     |     |     |     |     |     |     |     |      |      |      | 3    |      |      |
| CO4  | 3    |     |     |     |     |     |     |     |     |      |      |      | 3    |      |      |
| Avg. | 2.66 |     | 2   |     |     |     |     |     |     |      |      |      | 3    |      |      |



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## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

---

Subject Code : 10CSL37  
Course Code : C207  
Course Name : Data Structures and C Lab

### COURSE OUTCOMES

- CO1** : Apply the concepts of pointers, structures and unions to write the programs
- CO2** : Analyze various data structures such as Stacks, Queues, Linked list and Trees
- CO3** : Implement the applications of various Data Structures
- CO4** : Explain various types of priority queues and graphs

### COURSE OUTCOMES MAPPING WITH POs AND PSOs

| COs | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|
| CO1 |     |     | 3   |     |     |     |     |     |     |      |      | 3    | 3    |      | 3    |
| CO2 |     |     | 3   |     |     |     |     |     |     |      |      | 3    | 3    |      | 3    |
| CO3 |     |     | 3   |     |     |     |     |     |     |      |      | 3    | 3    |      | 3    |
| CO4 |     |     | 3   |     |     |     |     |     |     |      |      | 3    | 3    |      | 3    |
| AVG |     |     | 3   |     |     |     |     |     |     |      |      | 3    | 3    |      | 3    |



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## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

---

**Subject Code** : 10CSL38  
**Course Code** : C208  
**Course Name** : Electronic Circuits and Logic Design Lab

### COURSE OUTCOMES

- CO1** : Design simple electronic circuits using components for given specifications
- CO2** : Interpret the various amplifier configurations and study their working principles.
- CO3** : Design the feedback amplifiers, power amplifier circuits and various optoelectronic circuits
- CO4** : Design and implement different oscillator circuits, Power supply circuits for various specifications
- CO5** : Evaluate the working of Op-Amps and its applications

### COURSE OUTCOMES MAPPING WITH POs AND PSOs

| COs | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|
| CO1 |     |     | 3   |     |     |     |     |     |     |      |      |      |      |      |      |
| CO2 |     | 2   |     |     |     |     |     |     |     |      |      |      | 3    |      |      |
| CO3 | 3   |     | 2   |     |     |     |     |     |     |      |      |      | 3    |      |      |
| CO4 |     |     | 2   |     |     |     |     |     |     |      |      |      | 3    |      |      |
| CO5 |     |     | 3   |     |     |     |     |     |     |      |      |      | 3    |      |      |
| AVG | 3   | 2   | 2.5 |     |     |     |     |     |     |      |      |      | 3    |      |      |





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## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Subject Code : 10MAT41  
Course Code : C209  
Course Name : Engineering Mathematics IV

### COURSE OUTCOMES

- CO1** : Employ different numerical methods to solve the ordinary differential equations of first and second order, simultaneous ODE of first order
- CO2** : Apply the concept of function of complex variables in various fields. Develop problem solving skills using Cauchy-Riemann equation and apply of Cauchy – Riemann equation to solve flow problems in electric field. Understand Cauchy's theorem and Cauchy's integral formula to evaluate complex integrals.
- CO3** : Apply special functions like Bessel function to solve the boundary value problems with axial symmetry and Legendre polynomial to solve boundary value problems with spherical symmetry.
- CO4** : Use the knowledge of probability and be familiar with various probability distributions which enable to fit a mathematical model to the given data. Apply Baye's rule to find the posteriori probability when the apriori probability is known.
- CO5** : Employ the concept of population, sample, Sampling and to draw inference about population based on numerical data obtained from the sample using Student's t- test and Chi-square test.

### COURSE OUTCOMES MAPPING WITH POs AND PSOs

| COs | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|
| CO1 | 3   | 3   |     | 1   |     |     |     |     |     |      |      | 1    | 3    | 2    | 3    |
| CO2 | 3   | 3   |     | 1   |     |     |     |     |     |      |      | 1    |      |      | 3    |
| CO3 | 3   | 3   |     | 1   |     |     |     |     |     |      |      | 1    |      |      | 3    |
| CO4 | 3   | 3   |     | 1   |     |     |     |     |     |      |      | 1    | 3    | 3    | 3    |
| CO5 | 3   | 3   |     | 1   |     |     |     |     |     |      |      | 1    | 3    | 3    | 3    |
| AVG | 3   | 3   |     | 1   |     |     |     |     |     |      |      | 1    | 3    | 2.66 | 3    |



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## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

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**Subject Code** : 10CS42  
**Course Code** : C210  
**Course Name** : Graph Theory and Combinatorics

### COURSE OUTCOMES

**CO1** : Describe the Concept of graph theory along with the properties.

**CO2** : Apply graphs as representation tools in a network analysis.

**CO3** : Solve the Combinatory & Permutations related problems.

**CO4** : Solve Recurrence relation and Generating Functions

### COURSE OUTCOMES MAPPING WITH POs AND PSOs

| COs        | PO1        | PO2      | PO3      | PO4 | PO5      | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1     | PSO2 | PSO3 |
|------------|------------|----------|----------|-----|----------|-----|-----|-----|-----|------|------|------|----------|------|------|
| CO1        | 2          |          |          |     |          |     |     |     |     |      |      |      |          |      |      |
| CO2        | 3          |          |          |     | 2        |     |     |     |     |      |      |      | 2        |      |      |
| CO3        | 3          | 2        |          |     |          |     |     |     |     |      |      |      | 2        |      |      |
| CO4        | 2          |          | 2        |     |          |     |     |     |     |      |      |      | 2        |      |      |
| <b>Avg</b> | <b>2.5</b> | <b>2</b> | <b>2</b> |     | <b>2</b> |     |     |     |     |      |      |      | <b>2</b> |      |      |



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## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

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**Subject Code** : 10CS43  
**Course Code** : C211  
**Course Name** : Analysis and Design of Algorithms

### COURSE OUTCOMES

- CO1** : Analyze the complexity of recursive and non-recursive algorithms.
- CO2** : Design algorithmic steps to provide solution for a given problem.
- CO3** : Apply different technique to obtain optimal solution for real world problems.
- CO4** : Identify practical problem as P or NP to provide approximate solutions.
- CO5** : Design parallel algorithms for a given problem.

### COURSE OUTCOMES MAPPING WITH POs AND PSOs

| COs        | PO1      | PO2      | PO3      | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1     | PSO2 | PSO3     |
|------------|----------|----------|----------|-----|-----|-----|-----|-----|-----|------|------|------|----------|------|----------|
| CO1        |          | 3        |          |     |     |     |     |     |     |      |      |      |          |      | 3        |
| CO2        |          |          | 3        |     |     |     |     |     |     |      |      |      |          |      | 3        |
| CO3        | 3        |          |          |     |     |     |     |     |     |      |      |      | 3        |      |          |
| CO4        |          | 3        |          |     |     |     |     |     |     |      |      |      | 3        |      | 3        |
| CO5        |          |          | 3        |     |     |     |     |     |     |      |      |      | 3        |      | 3        |
| <b>AVG</b> | <b>3</b> | <b>3</b> | <b>3</b> |     |     |     |     |     |     |      |      |      | <b>3</b> |      | <b>3</b> |



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## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

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**Subject Code : 10CS44**  
**Course Code : C212**  
**Course Name : Unix And Shell Programming**

### COURSE OUTCOMES

- CO1** : Demonstrate concepts and commands in UNIX
- CO2** : Design the directory layout of a typical UNIX system , maintain, secure UNIX directories and files. And use common editors to edit files
- CO3** : Demonstrate the Knowledge of engineering to use the various shell quoting mechanism appropriately
- CO4** : Create simple regular expressions using filters to define patterns with various commands.
- CO5** : Identify, analyze and formulate simple scripts to enhance basic command output
- CO6** : Apply Advanced Filter and Master Manipulator to design and develop menu- driven scripts.

### COURSE OUTCOMES MAPPING WITH POs AND PSOs

| COs        | PO1      | PO2      | PO3      | PO4 | PO5        | PO6 | PO7 | PO8 | PO9 | PO10 | PO11     | PO12 | PSO1     | PSO2 | PSO3 |
|------------|----------|----------|----------|-----|------------|-----|-----|-----|-----|------|----------|------|----------|------|------|
| CO1        |          |          |          |     | 1          |     |     |     |     |      |          |      | 2        |      |      |
| CO2        |          |          | 3        |     |            |     |     |     |     |      | 2        |      | 2        |      |      |
| CO3        | 1        |          |          |     |            |     |     |     |     |      |          |      | 1        |      |      |
| CO4        |          |          | 3        |     |            |     |     |     |     |      | 2        |      | 2        |      |      |
| CO5        |          | 3        | 3        |     |            |     |     |     |     |      |          |      | 2        |      |      |
| CO6        | 1        | 3        | 3        |     | 2          |     |     |     |     |      |          |      | 3        |      |      |
| <b>AVG</b> | <b>1</b> | <b>3</b> | <b>3</b> |     | <b>1.5</b> |     |     |     |     |      | <b>2</b> |      | <b>2</b> |      |      |



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## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

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**Subject Code** : 10CS45  
**Course Code** : C213  
**Course Name** : Microprocessor

### COURSE OUTCOMES

- CO1** : Explain computer architecture, memory organizations and working of I/O devices.
- CO2** : Evaluate assembly level instructions with respect to syntax and semantics.
- CO3** : Design and Implement assembly level programs for a specified problem.
- CO4** : Design and Implement I/O and memory devices interfacing for a specification

### COURSE OUTCOMES MAPPING WITH POs AND PSOs

| COs        | PO1      | PO2      | PO3      | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1     | PSO2 | PSO3     |
|------------|----------|----------|----------|-----|-----|-----|-----|-----|-----|------|------|------|----------|------|----------|
| CO1        | 2        |          |          |     |     |     |     |     |     |      |      |      | 2        |      |          |
| CO2        | 2        | 2        |          |     |     |     |     |     |     |      |      |      | 2        |      |          |
| CO3        | 2        | 2        | 3        |     |     |     |     |     |     |      |      |      | 2        |      | 3        |
| CO4        | 2        | 2        | 3        |     |     |     |     |     |     |      |      |      | 2        |      | 3        |
| <b>AVG</b> | <b>2</b> | <b>2</b> | <b>3</b> |     |     |     |     |     |     |      |      |      | <b>2</b> |      | <b>3</b> |



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## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Subject Code : 10CS46  
Course Code : C214  
Course Name : Computer Organization

### COURSE OUTCOMES

- CO1** : Acquire the knowledge of
- The basic structure of computers, assembly language, machine instruction, Addressing Modes, Input/output Organization, Memory system organization and Basic Processing Unit.
  - Multiprocessors and Clusters.
- CO2** : Develop a subroutine using assembly level Instructions for a given problem.
- CO3** : Evaluate the memory systems with various performance parameters
- CO4** : Apply the appropriate algorithm to perform arithmetic operations.
- CO5** : Analyze hardware multithreading, performance of uniprocessor and multiprocessor systems.

### COURSE OUTCOMES MAPPING WITH POs AND PSOs

| COs        | PO1      | PO2        | PO3        | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1     | PSO2 | PSO3 |
|------------|----------|------------|------------|-----|-----|-----|-----|-----|-----|------|------|------|----------|------|------|
| CO1        |          |            | 1          |     |     |     |     |     |     |      |      |      |          |      |      |
| CO2        |          |            | 2          |     |     |     |     |     |     |      |      |      | 3        |      |      |
| CO3        |          | 3          |            |     |     |     |     |     |     |      |      |      | 3        |      |      |
| CO4        | 3        |            |            |     |     |     |     |     |     |      |      |      | 3        |      |      |
| CO5        |          | 2          |            |     |     |     |     |     |     |      |      |      | 3        |      |      |
| <b>AVG</b> | <b>3</b> | <b>2.5</b> | <b>1.5</b> |     |     |     |     |     |     |      |      |      | <b>3</b> |      |      |



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## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

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**Subject Code** : 10CSL47  
**Course Code** : C215  
**Course Name** : Analysis and Design of Algorithms Lab

### COURSE OUTCOMES

- CO1** : Analyze the complexity of recursive and non-recursive algorithms.
- CO2** : Design algorithmic steps to provide solution for a given problem.
- CO3** : Apply different technique to obtain optimal solution for real world problems.
- CO4** : Identify practical problem as P or NP to provide approximate solutions.
- CO5** : Design parallel algorithms for a given problem.

### COURSE OUTCOMES MAPPING WITH POs AND PSOs

| COs        | PO1 | PO2      | PO3      | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1     | PSO2 | PSO3     |
|------------|-----|----------|----------|-----|-----|-----|-----|-----|-----|------|------|------|----------|------|----------|
| CO1        |     | 3        |          |     |     |     |     |     |     |      |      |      |          |      | 3        |
| CO2        |     |          | 3        |     |     |     |     |     |     |      |      |      |          |      | 3        |
| CO3        |     |          |          |     |     |     |     |     |     |      |      |      | 3        |      |          |
| CO4        |     | 3        |          |     |     |     |     |     |     |      |      |      | 3        |      | 3        |
| CO5        |     |          | 3        |     |     |     |     |     |     |      |      |      | 3        |      | 3        |
| <b>AVG</b> |     | <b>3</b> | <b>3</b> |     |     |     |     |     |     |      |      |      | <b>3</b> |      | <b>3</b> |



# VIDYAVARDHAKA COLLEGE OF ENGINEERING

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## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

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**Subject Code** : 10CSL48  
**Course Code** : C216  
**Course Name** : Microprocessor Lab

### COURSE OUTCOMES

- CO1** : Explain computer architecture, memory organizations and working of I/O devices.
- CO2** : Evaluate assembly level instructions with respect to syntax and semantics.
- CO3** : Design and Implement assembly level programs for a specified problem.
- CO4** : Design and Implement I/O and memory devices interfacing for a specification

### COURSE OUTCOMES MAPPING WITH POs AND PSOs

| COs        | PO1      | PO2      | PO3      | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1     | PSO2 | PSO3     |
|------------|----------|----------|----------|-----|-----|-----|-----|-----|-----|------|------|------|----------|------|----------|
| CO1        | 2        |          |          |     |     |     |     |     |     |      |      |      | 2        |      |          |
| CO2        | 2        | 2        |          |     |     |     |     |     |     |      |      |      | 2        |      |          |
| CO3        | 2        | 2        | 3        |     |     |     |     |     |     |      |      |      | 2        |      | 3        |
| CO4        | 2        | 2        | 3        |     |     |     |     |     |     |      |      |      | 2        |      | 3        |
| <b>AVG</b> | <b>2</b> | <b>2</b> | <b>3</b> |     |     |     |     |     |     |      |      |      | <b>2</b> |      | <b>3</b> |





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## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

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**Subject Code** : 10IS51  
**Course Code** : C301  
**Course Name** : Software Engineering

### COURSE OUTCOMES

- CO1** : Acquire the Knowledge of
- Socio Technical Systems.
  - Professional and Ethical Responsibilities.
  - Software Maintenance in diverse environments and managing projects
- Verification, validation and assessment of Software artifacts using various testing methods.
- CO2** : Enumerate the characteristics of a simple safety critical system with its system dependability availability and reliability.
- CO3** : Apply case Tools for different types of requirement engineering process and document all the requirements.
- CO4** : Analyze different system models and software designs in software development life cycle.

### COURSE OUTCOMES MAPPING WITH POs AND PSOs

| Cos | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|
| CO1 | 2   |     |     |     |     |     |     | 2   |     |      | 2    |      | 2    |      |      |
| CO2 |     | 3   |     |     |     |     |     |     |     |      |      |      | 2    |      |      |
| CO3 |     |     |     |     | 2   |     |     |     |     |      |      |      | 2    |      | 3    |
| CO4 |     | 2   |     |     |     |     |     |     |     |      |      |      |      |      | 3    |
| AVG | 2   | 2.5 |     |     | 2   |     |     | 2   |     |      | 2    |      | 2    |      | 3    |



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## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

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Subject Code : 10CS52  
Course Code : C302  
Course Name : SYSTEM SOFTWARE

### COURSE OUTCOMES

- CO1 : Understand SIC architecture, features of utility software's such as assemblers, loaders, linkers, editors and macro processor.
- CO2 : Design simple assembler for Simple instruction computer.
- CO3 : Design linker and loaders for simple instruction computer.
- CO4 : Design elementary macro processor for simple assembly level language.
- CO5 : Design and implement simple laxer and parser using lex and yacc tools.

### COURSE OUTCOMES MAPPING WITH POs AND PSOs

| COs | PO1 | PO2 | PO3  | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|
| CO1 | 3   | 2   | 2    |     |     |     |     |     |     |      |      |      |      |      |      |
| CO2 | 3   | 2   | 1    |     |     |     |     |     |     |      |      |      | 2    |      | 1    |
| CO3 | 3   | 2   | 1    |     |     |     |     |     |     |      |      |      | 2    |      |      |
| CO4 | 3   | 2   | 1    |     |     |     |     |     |     |      |      |      | 2    |      |      |
| CO5 | 2   | 1   |      |     |     |     |     |     |     |      |      |      | 1    |      |      |
| AVG | 2.8 | 1.8 | 1.25 |     |     |     |     |     |     |      |      |      | 1.75 |      | 1    |



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## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Subject Code : 10CS53  
Course Code : C303  
Course Name : Operating System

### COURSE OUTCOMES

- CO1** : Identify the functions, structures, and history and design issues associated with the operating systems.
- CO2** : Apply various process scheduling algorithms for process management.
- CO3** : Illustrate the concepts of process synchronization and methods to handle Deadlocks.
- CO4** : Analyze virtual memory techniques and page replacement algorithms.
- CO5** : Demonstrate the design principles of Linux operating systems & file systems.

### COURSE OUTCOMES MAPPING WITH POs AND PSOs

| COs | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|
| CO1 | 3   | 2   | 3   |     |     |     |     |     |     |      |      |      | 3    |      | 1    |
| CO2 | 2   | 3   | 2   | 2   |     |     |     |     |     |      |      |      | 3    |      |      |
| CO3 | 2   | 3   | 3   | 1   |     |     |     |     |     |      |      |      | 2    |      | 1    |
| CO4 |     | 3   | 2   | 3   |     |     |     |     |     |      |      |      | 3    |      | 2    |
| CO5 | 3   | 3   |     |     |     |     |     |     |     |      |      |      | 3    |      | 2    |
| AVG | 2.5 | 2.8 | 2.5 | 2   |     |     |     |     |     |      |      |      | 2.8  |      | 2    |







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## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

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**Subject Code** : 10CS56  
**Course Code** : C306  
**Course Name** : Formal Language & Automata Theory

### COURSE OUTCOMES

- CO1** : Analyze abstract mathematical model of computing like DFA, NFA, Epsilon NFA and Turing Machines.
- CO2** : Apply the concept of regular expressions and automata in construction of programming languages.
- CO3** : Determine the type of languages using closure properties of RL, CFL and pumping lemma.
- CO4** : Design CFG and Context–Sensitive grammar for different language classes.
- CO5** : Design PDA and Turing machine to solve problems for which there is no algorithmic solution.
- CO6** : Demonstrate decidable and undecidable problems of computing.

### COURSE OUTCOMES MAPPING WITH POs AND PSOs

| COs | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|
| CO1 | 2   | 3   | 2   |     |     |     |     |     |     |      |      |      | 2    | 3    |      |
| CO2 | 3   | 1   | 2   |     |     |     |     |     |     |      |      |      | 2    |      |      |
| CO3 | 3   | 3   |     |     |     |     |     |     |     |      |      |      | 2    |      |      |
| CO4 | 3   | 1   | 3   |     |     |     |     |     |     |      |      |      | 2    | 2    |      |
| CO5 | 3   | 1   | 3   |     |     |     |     |     |     |      |      |      | 2    | 2    |      |
| CO6 | 3   | 1   | 3   |     |     |     |     |     |     |      |      |      | 2    |      |      |
| AVG | 2.8 | 1.6 | 2.6 |     |     |     |     |     |     |      |      |      | 2    | 2.3  |      |





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## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

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**Subject Code : 10CSL58**  
**Course Code : C308**  
**Course Name : System Software And Operating System Lab**

### COURSE OUTCOMES

- CO1** : Understand SIC architecture, features of utility software's such as assemblers, loaders, linkers, editors and macro processor.
- CO2** : Design simple assembler for Simple instruction computer.
- CO3** : Design linker and loaders for simple instruction computer.
- CO4** : Design elementary macro processor for simple assembly level language.
- CO5** : Design and implement simple laxer and parser using lex and yacc tools.

### COURSE OUTCOMES MAPPING WITH POs AND PSOs

| COs        | PO1        | PO2        | PO3         | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1        | PSO2 | PSO3     |
|------------|------------|------------|-------------|-----|-----|-----|-----|-----|-----|------|------|------|-------------|------|----------|
| CO1        | 3          | 2          | 2           |     |     |     |     |     |     |      |      |      |             |      |          |
| CO2        | 3          | 2          | 1           |     |     |     |     |     |     |      |      |      | 2           |      | 1        |
| CO3        | 3          | 2          | 1           |     |     |     |     |     |     |      |      |      | 2           |      |          |
| CO4        | 3          | 2          | 1           |     |     |     |     |     |     |      |      |      | 2           |      |          |
| CO5        | 2          | 1          |             |     |     |     |     |     |     |      |      |      | 1           |      |          |
| <b>AVG</b> | <b>2.8</b> | <b>1.8</b> | <b>1.25</b> |     |     |     |     |     |     |      |      |      | <b>1.75</b> |      | <b>1</b> |





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## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

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**Subject Code** : 10AL61  
**Course Code** : C309  
**Course Name** : Management and Entrepreneurship

### COURSE OUTCOMES

- CO1** : Describe the basic principles of management, different types of plans, steps in planning and importance
- CO2** : Interpret the concepts of organizing, staffing, directing and controlling.
- CO3** : Demonstrate the roles of an entrepreneur.
- CO4** : Explore the role, importance and process of setting up small scale industries

### COURSE OUTCOMES MAPPING WITH POs AND PSOs

| COs | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|
| CO1 |     |     |     |     |     |     |     |     |     |      | 1    |      |      |      |      |
| CO2 |     | 2   |     |     |     |     |     |     | 2   |      |      |      |      |      |      |
| CO3 |     |     |     |     |     |     |     | 3   |     | 2    | 3    |      |      |      |      |
| CO4 |     |     |     |     |     |     |     |     | 3   |      | 3    | 2    |      |      |      |
| AVG |     | 2   |     |     |     |     |     | 3   | 2.5 | 2    | 2.33 | 2    |      |      |      |



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## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

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**Subject Code** : 10CS62  
**Course Code** : C310  
**Course Name** : Unix System Programming

### COURSE OUTCOMES

- CO1** : Analyze the difference between various standards and compare them with Unix standard.
- CO2** : Implement program routine using various APIs to perform specific function.
- CO3** : Illustrate the Unix environment for programming and Model system calls.
- CO4** : Demonstrate applications using various IPC mechanisms.

### COURSE OUTCOMES MAPPING WITH POs AND PSOs

| COs | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|
| CO1 |     | 2   |     |     |     |     |     |     |     |      |      |      | 3    |      |      |
| CO2 |     |     | 2   |     |     |     |     |     |     |      |      |      | 3    |      |      |
| CO3 |     | 3   |     |     |     |     |     |     |     |      |      |      | 3    |      |      |
| CO4 | 3   |     |     |     |     |     |     |     |     |      |      |      | 3    |      |      |
| AVG | 3   | 2.5 | 2   |     |     |     |     |     |     |      |      |      | 3    |      |      |



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## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

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**Subject Code** : 10CS63  
**Course Code** : C311  
**Course Name** : Compiler Design

### COURSE OUTCOMES

- CO1** : Apply the concept of automata in the process of designing a compiler.
- CO2** : Analyze the various parser required for constructing a compiler.
- CO3** : Design an effective intermediate and optimized code generator.
- CO4** : Analyze the effective runtime environment required for a compiler.

### COURSE OUTCOMES MAPPING WITH POs AND PSOs

| COs        | PO1      | PO2        | PO3      | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1     | PSO2     | PSO3 |
|------------|----------|------------|----------|-----|-----|-----|-----|-----|-----|------|------|------|----------|----------|------|
| CO1        | 3        | 2          | 1        |     |     |     |     |     |     |      |      |      | 2        |          |      |
| CO2        | 3        | 3          |          |     |     |     |     |     |     |      |      |      | 2        |          |      |
| CO3        | 3        | 1          | 1        |     |     |     |     |     |     |      |      |      | 2        | 2        |      |
| CO4        | 3        | 3          |          |     |     |     |     |     |     |      |      |      | 2        |          |      |
| <b>AVG</b> | <b>3</b> | <b>2.2</b> | <b>1</b> |     |     |     |     |     |     |      |      |      | <b>2</b> | <b>2</b> |      |



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## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Subject Code : 10CS64  
Course Code : C312  
Course Name : Computer Networks II

### COURSE OUTCOMES

- CO1** : Acquire knowledge of
- Quality of Service
  - Virtual Private Networks, MPLS and Overlay networks.
  - Signaling protocols used in the transportation mechanisms.
  - Compression algorithm
  - Wireless Adhoc Networks
- CO2** : Analyze packet switching networks and traffic management techniques.
- CO3** : Apply various routing and security algorithms for wired and wireless networks.
- CO4** : Illustrate the functionalities of TCP/IP stack and its associated protocols.
- CO5** : Apply data compression algorithm for the given binary data.

### COURSE OUTCOMES MAPPING WITH POs AND PSOs

| COs        | PO1         | PO2      | PO3 | PO4 | PO5 | PO6      | PO7 | PO8      | PO9 | PO10 | PO11 | PO12     | PSO1     | PSO2 | PSO3 |
|------------|-------------|----------|-----|-----|-----|----------|-----|----------|-----|------|------|----------|----------|------|------|
| CO1        | 1           |          |     |     |     |          |     |          |     |      |      | 3        |          |      |      |
| CO2        |             | 3        |     |     |     |          |     |          |     |      |      | 3        | 3        |      |      |
| CO3        | 3           |          |     |     |     | 2        |     | 2        |     |      |      | 3        | 3        |      |      |
| CO4        |             | 3        |     |     |     |          |     |          |     |      |      | 3        | 3        |      |      |
| CO5        | 3           |          |     |     |     |          |     |          |     |      |      | 3        | 3        |      |      |
| <b>AVG</b> | <b>2.33</b> | <b>3</b> |     |     |     | <b>2</b> |     | <b>2</b> |     |      |      | <b>3</b> | <b>3</b> |      |      |



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## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Subject Code : 10CS65  
Course Code : C313  
Course Name : Computer Graphics And Visualization

### COURSE OUTCOMES

- CO1** : Analyze the performance characteristics of various applications of Computer graphics.
- CO2** : Analyze the different 2D and 3D OpenGL APIs and Control functions.
- CO3** : Analyze the major components of OpenGL used to build interactive Models.
- CO4** : Design and develop applications related interactive animation programs.
- CO5** : Design a simple Graphics package by making use of event driven inputs.
- CO6** : Build 2D and 3D programs by applying object transformation, lighting and shading.

### COURSE OUTCOMES MAPPING WITH POs AND PSOs

| COs | PO1  | PO2 | PO3 | PO4 | PO5  | PO6  | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|-----|------|-----|-----|-----|------|------|-----|-----|-----|------|------|------|------|------|------|
| CO1 | 1    |     |     |     | 1    | 1    | 1   |     | 1   | 1    |      |      | 1    |      |      |
| CO2 | 3    |     |     | 3   |      |      |     |     |     | 3    |      |      | 3    |      |      |
| CO3 |      |     |     |     | 1    | 1    |     |     | 1   | 1    |      |      | 1    |      |      |
| CO4 | 3    |     |     | 3   |      | 3    | 3   |     |     |      |      |      | 3    |      | 3    |
| CO5 |      |     |     | 3   | 3    |      |     |     |     |      |      |      | 3    |      | 3    |
| CO6 |      | 3   | 3   |     |      |      |     |     |     | 3    |      |      | 3    |      | 3    |
| AVG | 2.33 | 3   | 3   | 3   | 1.66 | 1.66 | 2   |     | 1   | 2    |      |      | 2.33 |      | 3    |



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## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Subject Code : 10CSL67  
Course Code : C315  
Course Name : Computer Graphics And Visualization Lab

### COURSE OUTCOMES

- CO1** : Analyze the performance characteristics of various applications of Computer graphics.
- CO2** : Analyze the different 2D and 3D OpenGL APIs and Control functions
- CO3** : Analyze the major components of OpenGL used to build interactive Models
- CO4** : Design and develop applications related interactive animation programs
- CO5** : Design a simple Graphics package by making use of event driven inputs
- CO6** : Build 2D and 3D programs by applying object transformation, lighting and shading

### COURSE OUTCOMES MAPPING WITH POs AND PSOs

| COs | PO1  | PO2 | PO3 | PO4 | PO5  | PO6  | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|-----|------|-----|-----|-----|------|------|-----|-----|-----|------|------|------|------|------|------|
| CO1 | 1    |     |     |     | 1    | 1    | 1   |     | 1   | 1    |      |      | 1    |      |      |
| CO2 | 3    |     |     | 3   |      |      |     |     |     | 3    |      |      | 3    |      |      |
| CO3 |      |     |     |     | 1    | 1    |     |     | 1   | 1    |      |      | 1    |      |      |
| CO4 | 3    |     |     | 3   |      | 3    | 3   |     |     |      |      |      | 3    |      | 3    |
| CO5 |      |     |     | 3   | 3    |      |     |     |     |      |      |      | 3    |      | 3    |
| CO6 |      | 3   | 3   |     |      |      |     |     |     | 3    |      |      | 3    |      | 3    |
| AVG | 2.33 | 3   | 3   | 3   | 1.66 | 1.66 | 2   |     | 1   | 2    |      |      | 2.33 |      | 3    |



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## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

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Subject Code : 10CSL68  
Course Code : C316  
Course Name : Unix System Programming Lab

### COURSE OUTCOMES

- CO1** : Analyze the difference between various standards and compare them with Unix standard
- CO2** : Implement program routine using various APIs to perform specific function
- CO3** : Illustrate the Unix environment for programming and Model system calls
- CO4** : Demonstrate applications using various IPC mechanisms

### COURSE OUTCOMES MAPPING WITH POs AND PSOs

| COs | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|
| CO1 |     | 2   |     |     |     |     |     |     |     |      |      |      |      |      |      |
| CO2 |     |     | 2   |     |     |     |     |     |     |      | 3    |      |      |      |      |
| CO3 |     | 3   |     |     |     |     |     |     |     |      | 3    |      |      |      |      |
| CO4 | 3   |     |     |     |     |     |     |     |     |      | 3    |      |      |      |      |
| AVG | 3   | 2.5 | 2   |     |     |     |     |     |     |      | 3    |      |      |      |      |



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## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Subject Code : 10CS71  
Course Code : C401  
Course Name : Object Oriented Modeling And Design

### COURSE OUTCOMES

- CO1** : Acquire knowledge of object oriented concepts and process overview
- CO2** : Design class model, state model and interaction model using UML
- CO3** : Apply domain and application knowledge on various models for a given scenario.
- CO4** : Discuss about legacy system and the stages of system and class design.
- CO5** : Categorize the various design patterns and idioms

### COURSE OUTCOMES MAPPING WITH POs AND PSOs

| COs | PO1  | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|-----|------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|
| CO1 | 1    |     |     |     |     |     |     |     |     |      |      |      |      |      |      |
| CO2 |      |     | 3   |     |     |     |     |     |     |      |      | 3    |      | 3    |      |
| CO3 | 3    |     |     |     |     | 2   |     |     |     |      |      | 3    | 3    |      |      |
| CO4 | 1    |     |     |     |     |     |     |     |     |      |      |      |      |      |      |
| CO5 |      | 3   |     |     |     |     |     |     |     |      |      |      | 3    |      |      |
| AVG | 1.66 | 3   | 3   |     |     | 2   |     |     |     |      |      | 3    | 3    | 3    |      |





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## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Subject Code : 10CS72  
Course Code : C402  
Course Name : Embedded Computing Systems

### COURSE OUTCOMES

- CO1** : Acquire the basic knowledge of embedded system, to meet desired needs with realistic constraints
- CO2** : Analyze the performance of the software and hardware of Embedded System based on theoretical knowledge
- CO3** : Analyze the performance of OS and scheduling algorithms of Embedded computing systems
- CO4** : Understand different network protocols in Embedded System
- CO5** : Apply formal method of testing, verification, validation and simulation techniques and tools on order to engineer reliable and safe embedded system

### COURSE OUTCOMES MAPPING WITH POs AND PSOs

| COs | P01 | P02 | P03 | P04 | P05 | P06 | P07 | P08 | P09 | P010 | P011 | P012 | PS01 | PS02 | PS03 |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|
| C01 |     |     |     |     |     |     |     |     |     |      |      |      | 2    |      |      |
| C02 |     | 2   |     |     |     |     |     |     |     |      |      |      | 3    |      |      |
| C03 |     | 2   |     |     |     |     |     |     |     |      |      |      | 3    |      |      |
| C04 |     |     |     |     | 2   | 2   |     |     |     |      |      |      | 3    |      |      |
| C05 | 3   | 3   |     |     | 3   | 2   | 2   |     |     |      |      |      | 2    |      | 3    |
| AVG | 3   | 2.3 |     |     | 2.5 | 2   | 2   |     |     |      |      |      | 2.6  |      | 3    |





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## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

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Subject Code : 10CS74  
Course Code : C404  
Course Name : Advanced Computer Architecture

### COURSE OUTCOMES

- CO1** : Understand the fundamentals of computer design.
- CO2** : Analyze the concept of instruction pipelining.
- CO3** : Examine parallelism at different levels in hardware and software.
- CO4** : Understand multiprocessor architecture, thread-level parallelism and memory hierarchy design.
- CO5** : Explain hardware and software support for VLIW and EPIC.

### COURSE OUTCOMES MAPPING WITH POs AND PSOs

| COs | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|
| CO1 | 1   |     |     |     |     |     |     |     |     |      |      |      | 1    |      |      |
| CO2 |     | 2   |     |     |     |     |     |     |     |      |      |      | 2    |      |      |
| CO3 |     | 2   |     |     |     |     |     |     |     |      |      |      | 2    |      |      |
| CO4 |     |     |     |     |     |     |     |     |     |      |      |      |      |      |      |
| CO5 |     |     |     |     |     |     |     |     |     |      |      |      |      |      |      |
| AVG | 1   | 2   |     |     |     |     |     |     |     |      |      |      | 1.66 |      |      |



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## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

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**Subject Code** : 10CSL77  
**Course Code** : C407  
**Course Name** : Networks Laboratory

### COURSE OUTCOMES

- CO1** : Demonstrate basic concepts of computer networks and security.
- CO2** : Design and Evaluate computer networking experiments using a simulator.
- CO3** : Design and Implement programs based on networking concepts.
- CO4** : Design and Implement programs based on Inter Process Communication.

### COURSE OUTCOMES MAPPING WITH POs AND PSOs

| COs | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|
| CO1 | 2   |     |     |     |     |     |     |     |     |      |      |      | 2    |      |      |
| CO2 | 2   | 2   | 3   |     | 2   |     |     |     |     |      |      |      | 2    |      | 3    |
| CO3 | 2   | 2   | 3   |     |     |     |     |     |     |      |      |      | 2    |      | 3    |
| CO4 | 2   | 2   | 3   |     |     |     |     |     |     |      |      |      | 2    |      | 3    |
| AVG | 2   | 2   | 3   |     | 2   |     |     |     |     |      |      |      | 2    |      | 3    |





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## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

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**Subject Code** : 10CS81  
**Course Code** : C409  
**Course Name** : Software Architecture

### COURSE OUTCOMES

- CO1** : Analyze the importance and role of software architecture in large scale software systems.
- CO2** : Apply major software architectural styles, design patterns and frameworks for developing software system.
- CO3** : Assess the quality attributes of a system and corresponding tactics at the architectural level.
- CO4** : Demonstrate the significance of Architecture in the life cycle & documentation in software architectural development.

### COURSE OUTCOMES MAPPING WITH POs AND PSOs

| COs        | PO1      | PO2      | PO3      | PO4      | PO5 | PO6      | PO7 | PO8 | PO9      | PO10     | PO11     | PO12     | PSO1     | PSO2 | PSO3 |
|------------|----------|----------|----------|----------|-----|----------|-----|-----|----------|----------|----------|----------|----------|------|------|
| CO1        | 3        | 3        |          |          |     | 1        |     |     | 3        | 3        |          |          |          |      |      |
| CO2        | 3        | 3        | 3        |          |     |          |     |     |          |          |          |          | 3        |      |      |
| CO3        | 3        | 3        | 3        | 1        |     |          |     |     | 1        | 1        |          |          | 3        |      |      |
| CO4        | 3        |          |          |          |     |          |     |     |          |          | 1        | 1        |          |      |      |
| <b>AVG</b> | <b>3</b> | <b>3</b> | <b>3</b> | <b>1</b> |     | <b>1</b> |     |     | <b>2</b> | <b>2</b> | <b>1</b> | <b>1</b> | <b>3</b> |      |      |



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## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Subject Code : 10CS82  
Course Code : C410  
Course Name : System Modeling And Simulation

### COURSE OUTCOMES

- CO1** : Create a simulation model for a given real world scenario.
- CO2** : Choose suitable statistical distribution to model complex real world phenomena
- CO3** : Generate a suitable input model for the given data.
- CO4** : Apply appropriate methods for the generation of random numbers and test them for ideal statistical properties
- CO5** : Analyze the performance of the system by examining data generated by a simulation model.
- CO6** : Test the simulation model using verification and validation methods.

### COURSE OUTCOMES MAPPING WITH POs AND PSOs

| COs | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|
| CO1 | 2   | 2   |     |     |     |     |     |     |     |      |      | 1    | 3    |      |      |
| CO2 |     |     |     | 3   |     |     |     |     |     |      |      |      | 3    |      |      |
| CO3 |     |     | 3   |     |     |     |     |     |     |      |      |      | 3    |      |      |
| CO4 |     |     |     |     | 3   |     |     |     |     |      |      |      | 3    |      |      |
| CO5 |     |     |     | 2   |     |     |     |     |     |      |      |      | 3    |      |      |
| CO6 |     |     |     |     | 2   |     |     |     |     |      |      |      | 3    |      |      |
| AVG | 2   | 2   | 3   | 2.5 | 2.5 |     |     |     |     |      |      | 1    | 3    |      |      |