



# 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

Subject Code : 15CS32  
Course Code : C202  
Course Name : ANALOG AND ELECTRONIC CIRCUITS

### COURSE OUTCOMES

- CO1** : Acquire knowledge of
- JFETs and MOSFETs , Operational Amplifier circuits and their applications
  - Combinational Logic, Simplification Techniques using Karnaugh Maps, Quine McClusky technique.
  - Operation of Decoders, Encoders, Multiplexers, Adders and Subtractors.
  - Working of Latches, Flip-Flops, Designing Registers, Counters, A/D and D/A Converters
- CO2** : Analyze the performance of
- JFETs and MOSFETs , Operational Amplifier circuits
  - Simplification Techniques using Karnaugh Maps, Quine McClusky Technique. Synchronous and Asynchronous Sequential Circuits.
- CO3** : Apply the knowledge gained in the design of Counters, Registers and A/D & D/A converters

COURSE OUTCOMES MAPPING WITH POs AND PSOs															
CO'S	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PSO1	PSO2	PSO3
CO1	2		2										3		
CO2		3													
CO3			3	2									3		
Avg.	2	3	2.5	2									3		



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## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Subject Code : 15CS33  
Course Code : C203  
Course Name : DATA STRUCTURES AND APPLICATIONS

### COURSE OUTCOMES

- CO1 : Apply basic concepts such as pointers, structures and unions to write efficient programs.
- CO2 : Design program using stacks and queue data structures.
- CO3 : Implement various linked list operations.
- CO4 : Design appropriate functionalities like traversing, sorting and searching using tree data structures.
- CO5 : Explain types of sorting, hashing, types of traversal techniques in graphs, file & its organization.

COURSE OUTCOMES MAPPING WITH POs AND PSOs															
CO'S	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3											2	2		2
CO2			3									2	3		2
CO3			3									2	3		2
CO4		2										2	2		2
Avg.	3	2	3									2	2.5		2



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## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Subject Code : 15CS34  
Course Code : C204  
Course Name : COMPUTER ORGANIZATION

**CO 1:** Acquire the knowledge of

- The basic structure of computers, basic arithmetic operations, assembly language, machine instruction, Addressing Modes, Input/output Organization, Memory system organization and Basic Processing Unit.
- Multiprocessors and Clusters.

**CO 2:** Develop a subroutine using assembly level instructions for a given problem.

**CO 3:** Evaluate the memory systems with various performance parameters.

**CO 4:** Apply the appropriate algorithm to perform arithmetic operations.

**CO 5:** Analyze hardware multithreading, performance of uniprocessor  
And multiprocessor systems.

COURSE OUTCOMES MAPPING WITH POs AND PSOs															
CO'S	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1														
CO2		3											2		
CO3	3												3		
CO4			2										3		
CO5												3			
Avg.	2	3	2									3	3		



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## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Subject Code : 15CS35  
Course Code : C205  
Course Name : UNIX AND SHELL PROGRAMMING

### COURSE OUTCOMES

- CO1 : Explain multi user OS UNIX and its basic features.
- CO2 : Interpret UNIX Commands, Shell basics, and shell environments.
- CO3 : Work flexibly in vi editor and able to apply pattern matching and searching techniques in UNIX.
- CO4 : Design and develop shell programming, communication, System calls and terminology.
- CO5 : Design and develop UNIX File I/O and UNIX Processes and able to write Perl scripts.

COURSE OUTCOMES MAPPING WITH POs AND PSOs															
CO'S	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PSO1	PSO2	PSO3
CO1	2														
CO2	2														
CO3		2													
CO4			2										2		
CO5			2										2		
Avg.	2	2	2										2		



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## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Subject Code : 15CS36  
Course Code : C206  
Course Name : DISCRETE MATHEMATICAL STRUCTURES

### COURSE OUTCOMES

- CO1** : Verify the correctness of an argument using propositional and predicate logic and truth tables.
- CO2** : Demonstrate the ability to solve problems using counting techniques and combinatorics in the Context of discrete probability.
- CO3** : Solve problems involving recurrence relations and generating functions.
- CO4** : Construct proofs using direct proof, proof by contraposition, proof by contradiction, proof by cases, and mathematical induction.
- CO5** : Explain and differentiate graphs and trees

COURSE OUTCOMES MAPPING WITH POs AND PSOs															
CO'S	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
CO1	2	2											2		
CO2	2	2		2									2		
CO3	2	2		2									2		
CO4	2	2											2		
CO5	2	2											2		
Avg.	2	2		2									2		



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## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Subject Code : 15CSL37  
Course Code : C207  
Course Name : ANALOG AND DIGITAL ELECTRONICS LABORATORY

### COURSE OUTCOMES

- CO1** : Use various Electronic Devices like Cathode ray Oscilloscope, Signal generators, Digital Trainer Kit, Multimeters and components like Resistors, Capacitors, Op amp and Integrated Circuit.
- CO2** : Design and demonstrate various combinational logic circuits.
- CO3** : Design and demonstrate various types of counters and Registers using Flip-flops
- CO4** : Use simulation package to design circuits.
- CO5** : Understand the working and implementation of ALU.

COURSE OUTCOMES MAPPING WITH POs AND PSOs															
CO'S	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
CO1	3	2											3		
CO2		3	2										3		
CO3			2										3		
CO4					3								3		
CO5				2									3		
Avg.	3	2.5	2	2	3								3		



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## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Subject Code : 15CSL38  
Course Code : C208  
Course Name : DATA STRUCTURES LABORATORY

### COURSE OUTCOMES

- CO1 : Analyze and Compare various linear and non-linear data structures
- CO2 : Code, debug and demonstrate the working nature of different types of data structures and their applications
- CO3 : Implement, analyze and evaluate the searching and sorting algorithms
- CO4 : Choose the appropriate data structure for solving real world problems

COURSE OUTCOMES MAPPING WITH POs AND PSOs															
CO'S	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
CO1	3											2	2		2
CO2		2	3									2			2
CO3		2	3									2	2		2
CO4	2		3		3							2	3		2
Avg.	2.5	2	3		3							2	2.3		2



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## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Subject Code : 15CS42  
Course Code : C210  
Course Name : SOFTWARE ENGINEERING

### COURSE OUTCOMES

- CO1** : Design a software system, component, or process to meet desired needs within realistic constraints.
- CO2** : Assess professional and ethical responsibility
- CO3** : Function on multi-disciplinary teams
- CO4** : Use the techniques, skills, and modern engineering tools necessary for engineering practice
- CO5** : Analyze, design, implement, verify, validate, implement, apply, and maintain software systems or parts of software systems

COURSE OUTCOMES MAPPING WITH POs AND PSOs															
CO'S	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
CO1			2												2
CO2						3	3	3							2
CO3									2						2
CO4	2				2										2
CO5	2	2	2	2									2		3
<b>Avg.</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>2</b>				<b>2</b>		<b>2.2</b>

Subject Code : 15CS43  
Course Code : C211





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## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Course Name : DESIGN AND ANALYSIS OF ALGORITHMS

### COURSE OUTCOMES

- CO1 : Describe computational solution to well-known problems like searching, sorting etc.
- CO2 : Estimate the computational complexity of different algorithms.
- CO3 : Devise an algorithm using appropriate design strategies for problem solving.

COURSE OUTCOMES MAPPING WITH POs AND PSOs															
CO'S	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2											2	2		
CO2		2		3								2	2		2
CO3			3									2	3		2
Avg.	2	2	3	3								2	2.33		2

Subject Code : 15CS44  
Course Code : C212



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## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Course Name : MICROPROCESSOR AND MICROCONTROLLER

### COURSE OUTCOMES

- CO1 : Differentiate between microprocessors and microcontrollers
- CO2 : Design and develop assembly language code to solve problems
- CO3 : Gain the knowledge for interfacing various devices to x86 family and ARM processor
- CO4 : Demonstrate design of interrupt routines for interfacing devices

COURSE OUTCOMES MAPPING WITH POs AND PSOs															
CO'S	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
CO1	2												2		
CO2	2												2		
CO3	2	2	2										2		2
CO4	2	2	2										2		2
Avg.	2	2	2										2		2

Subject Code : 15CS46

Course Code : C213



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## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Course Name : OOPS WITH JAVA

### COURSE OUTCOMES

CO1 : Explain the object- oriented concepts and JAVA

CO2 : Design and develop assembly language code to solve problems

CO3 : Develop simple GUI interfaces for a computer program to interact with users, and to understand the event-based GUI handling principles using Applets and Swings

COURSE OUTCOMES MAPPING WITH POs AND PSOs															
CO'S	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3				2				1			3	3		
CO2	3	2	2		2				1			3	3		
CO3	2	2	2		3				1			1	3		
Avg.	2.66	2	2		2.33				1			2.33	3		

Subject Code : 15CS46

Course Code : C214



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## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Course Name : Data Communication

### COURSE OUTCOMES

- CO1 : Illustrate basic computer network technology.
- CO2 : Identify the different types of network topologies and protocols.
- CO3 : Enumerate the layers of the OSI model and TCP/IP functions of each layer.
- CO4 : Make out the different types of network devices and their functions within a network
- CO5 : Demonstrate the skills of subnetting and routing mechanisms.

COURSE OUTCOMES MAPPING WITH POs AND PSOs															
CO'S	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
CO1		2											3		
CO2		2													
CO3	2														
CO4			2												
CO5		2											3		
Avg.	2	2	2										3		2



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## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Subject Code : 15CSL47  
Course Code : C215  
Course Name : DESIGN AND ANALYSIS OF ALGORITHMS LABORATORY

### COURSE OUTCOMES

- CO1 : Design algorithms using appropriate design techniques (greedy, dynamic programming etc.,)
- CO2 : Implement a variety of algorithms such as sorting, graph related, etc., in a high level language.
- CO3 : Analyze and compare the performance of algorithms using language features.
- CO4 : Apply and implement learned algorithms design techniques and data structures solve real-world problems.
- CO5 : Implement the Object Oriented Concepts, Exceptions and Multithreading using Java Programming

COURSE OUTCOMES MAPPING WITH POs AND PSOs															
CO'S	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PSO1	PSO2	PSO3
CO1	1		2									3		3	
CO2	2	1	3									3		3	3
CO3	2	1	3									3		3	3
CO4	1	1	2									3		3	3
CO5	1	1	2									3		3	3
Avg.	1.4	1	2.4									3		3	3

Subject Code : 15CSL48



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## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Course Code : C216  
Course Name : MICROPROCESSOR AND MICROCONTROLLER  
LABORATORY

### COURSE OUTCOMES

CO1 : Learn 80x86 instruction sets and gains the knowledge of how assembly language works

CO2 : Design and implement programs written in 80x86 assembly language

CO3 : Know functioning of hardware devices and interfacing them to x86 family

CO4 : Choose processors for various kinds of applications

COURSE OUTCOMES MAPPING WITH POs AND PSOs															
CO'S	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1		2									3		3	
CO2	2	1	3									3		3	3
CO3	2	1	3									3		3	3
CO4	1	1	2									3		3	3
Avg.	1.50	1.00	2.50									3.00		3.00	3.00



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## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Subject Code : 15CS51  
Course Code : C301  
Course Name : Management and Entrepreneurship for IT Industry

### COURSE OUTCOMES

- CO1** : Define management, organization, entrepreneur, planning, staffing, ERP and outline their importance in entrepreneurship
- CO2** : Utilize the resources available effectively through ERP
- CO3** : Make use of IPRs and institutional support in entrepreneurship

COURSE OUTCOMES MAPPING WITH POs AND PSOs															
CO'S	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1		2							2		1				
CO2									2	2	2				
CO3			3					3			3	2			
Avg.		2	3					3	2	2	2	2			



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## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Subject Code : 15CS52  
Course Code : C302  
Course Name : COMPUTER NETWORKS

### COURSE OUTCOMES

- CO1 : Demonstration of application layer protocols.
- CO2 : Discuss transport layer services and understand UDP and TCP protocols.
- CO3 : Explain routers, IP and routing algorithms in network layer.
- CO4 : Disseminate the wireless and mobile networks covering IEEE 802.11 standard.
- CO5 : Illustrate concepts of multimedia networking, security and network management.

COURSE OUTCOMES MAPPING WITH POs AND PSOs															
CO'S	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
CO1	3												3		
CO2	3	3											3		
CO3	3	3	2										3		
CO4	2	2											2		
CO5	2												2		
Avg.	2.6	2.6	2										2.6		





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## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Subject Code : 15CS53  
Course Code : C303  
Course Name : Database Management System

### COURSE OUTCOMES

- CO1** : Identify, analyze and define database objects, enforce integrity constraints on a database using RDBMS.
- CO2** : Use Structured Query Language (SQL) for database manipulation.
- CO3** : Design and build simple database systems
- CO4** : Develop application to interact with databases.

### 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	3		3				1			1		3	
CO2	2	3	3		3				1			1		3	
CO3	3	3	3	2	3				3			2		3	3
CO4	3	3	3	2	3				3			2		3	3
AVG	2.5	3	3	2	3				2			3		3	3



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## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Subject Code : 15CS54  
Course Code : C304  
Course Name : Automata Theory and Computability

### COURSE OUTCOMES

- CO1** : Acquire fundamental understanding of the core concepts in automata theory and Theory of Computation
- CO2** : Learn how to translate between different models of Computation (e.g., Deterministic and Non-deterministic and Software models).
- CO3** : Design Grammars and Automata (recognizers) for different language classes and become knowledgeable about restricted models of Computation (Regular, Context Free) and their relative powers.
- CO4** : Develop skills in formal reasoning and reduction of a problem to a formal Model, with an emphasis on semantic precision and conciseness.
- CO5** : Classify a problem with respect to different models of Computation

### 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			3										2		
CO3		2	3										2		
CO4			3										2		
CO5			3										2		
AVG	2	2	3										2		



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## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Subject Code : 15CS553  
Course Code : C305(1)  
Course Name : Advanced Java and J2EE

### CO Course Outcome

- CO1** Interpret the need for advanced Java concepts like enumerations and collections in developing modular and efficient programs
- CO2** Build client-server applications and TCP/IP socket programs
- CO3** Illustrate database access and details for managing information using the JDBC API
- CO4** Describe how servlets fit into Java-based web application architecture
- CO5** Develop reusable software components using Java Beans

COURSE OUTCOMES MAPPING WITH POs AND PSOs															
CO'S	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
CO1	3				2				1			3	3		
CO2	3	2	2		2				1			3	3		
CO3	2	2	2		3				1			1	3		
CO4	3	2	2		2				1			3	3		
CO5	2	2	2		3				1			1	3		
Avg.	2.6	2	2		2.3				1			2.2	3		



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## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Subject Code : 15CS554  
Course Code : C305(2)  
Course Name : Advanced algorithms

### COURSE OUTCOMES

- CO1 : Apply the principles of algorithms analysis approaches.
- CO2 : Apply different theoretic based strategies to solve problems.
- CO3 : Illustrate the complex signals and data flow in networks with usage of tools.
- CO4 : Describe the computational geometry criteria.

### 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								2	3		
CO2	3	3	3	2								1	2		
CO3	3	3	3	3									2		
CO4	3	2	2	2								2	2		
AVG	3	2.75	2.75	2.5								1.25	2.75		



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## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Subject Code : 15CS564  
Course Code : C306(4)  
Course Name : DOT NET FRAMEWORK FOR APPLICATION DEVELOPMENT

### COURSE OUTCOMES

- CO1 : Build applications on Visual Studio .NET platform by understanding the syntax and semantics of C#.
- CO2 : Demonstrate Object Oriented Programming concepts in C# programming language.
- CO3 : Design custom interfaces for applications and leverage the available built-in interfaces in building complex applications.
- CO4 : Illustrate the use of generics and collections in C#.

### 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								3		
CO2	3		3		3									2	
CO3	3		3		3									2	3
CO4			2		3										3
AVG	3	2	2.75		3								3	2	3



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## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Subject Code : 15CS565  
Course Code : C306(5)  
Course Name : Cloud Computing

### COURSE OUTCOMES

CO1 : Explain the concepts and terminologies of cloud computing

CO2 : Demonstrate cloud frameworks and technologies

CO3 : Define data intensive computing

CO4 : Demonstrate cloud applications

### COURSE OUTCOMES MAPPING WITH POs AND PSOs

COs	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
CO1	2	2											2		
CO2	2	2	3										2		
CO3	2	2											2		2
CO4	2	2		3									2		
AVG	2	2	3	3									2		2



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## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Subject Code : 15CSL67  
Course Code : C307  
Course Name : COMPUTER NETWORKS LABORATORY

### COURSE OUTCOMES

- CO1** : Analyze and Compare various networking protocols.
- CO2** : Demonstrate the working of different concepts of networking.
- CO3** : Implement, analyze and evaluate networking protocols in NS2 / NS3

### 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			3								3		
CO2	2	2	3		3								3		
CO3	2		3		3								3		
AVG	2.00	2.00	3.00		3.00								3.00		



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## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

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**Subject Code : 15CSL58**  
**Course Code : C308**  
**Course Name : DBMS Laboratory with mini project**

### COURSE OUTCOMES

- CO1** : Create, Update and query on the database.
- CO2** : Demonstrate the working of different concepts of DBMS
- CO3** : Implement, analyze and evaluate the project developed for an application.

### 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				2		2	3		3	
CO2			3		3				2		2	3		3	
CO3	2	2	3	2	3				3		3	3		3	2
AVG	2	2	3	2	3				2.33		2.33	3		3	2





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## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Subject Code : 15CS61  
Course Code : C309  
Course Name : CRYPTOGRAPHY, NETWORK SECURITY AND CYBER LAW

### COURSE OUTCOMES

CO1 : Discuss cryptography and its need to various applications.

CO2 : Design and develop simple cryptography algorithms

CO3 : Understand cyber security and need cyber Law

### 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		1										1		
CO2	1	2	2	1									2	1	1
CO3		1				1		1							
AVG	1.5	1.5	1.5	1		1		1					1.5	1	1



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## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Subject Code : 15CS62  
Course Code : C310  
Course Name : COMPUTER GRAPHICS AND VISUALIZATION

### COURSE OUTCOMES

- CO1 : Design and implement algorithms for 2D graphics primitives and attributes..
- CO2 : Illustrate Geometric transformations on both 2D and 3D objects.
- CO3 : Apply concepts of clipping and visible surface detection in 2D and 3D viewing, and Illumination Models.
- CO4 : Decide suitable hardware and software for developing graphics packages using OpenGL.

### 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								1		
CO2	2	2			3								3		
CO3	3				3								2		
CO4		1													
AVG	2.66	1.66			3								2		



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## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Subject Code : 15CS63  
Course Code : C311  
Course Name : SYSTEM SOFTWARE AND COMPILER DESIGN

### COURSE OUTCOMES

- CO1 : Explain system software such as assemblers, loaders, linkers and macroprocessors
- CO2 : Design and develop lexical analyzers, parsers and code generators
- CO3 : Utilize lex and yacc tools for implementing different concepts of system software

### 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								1		
CO2	2	2			3								3		
CO3	3				3								2		
AVG	2.66	1.66			3								2		



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## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Subject Code : 15CS64  
Course Code : C312  
Course Name : OPERATING SYSTEM

### COURSE OUTCOMES

- CO1 : Demonstrate need for OS and different types of OS
- CO2 : Apply suitable techniques for management of different resources
- CO3 : Use processor, memory, storage and file system commands
- CO4 : Realize the different concepts of OS in platform of usage through case studies

### 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								2		
CO2	3	2	3		3								2		
CO3	3	2	3		3								2		
CO4	3	2	3										2		
AVG	3	2	3		3								2		



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## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

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Subject Code : 15CS651  
Course Code : C313  
Course Name : DATA MINING

### COURSE OUTCOMES

- CO1 : Identify data mining problems and implement the data warehouse
- CO2 : Write association rules for a given data pattern.
- CO3 : Choose between classification and clustering solution.

### 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										2	2	
CO2	3	2	2										2	2	
CO3	3	2											2		
AVG	3	2.33	2.5										2	2	



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## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Subject Code : 15CS664  
Course Code : C314  
Course Name : PYTHON APPLICATION PROGRAMMING

### COURSE OUTCOMES

- CO1** : Examine Python syntax and semantics and be fluent in the use of Python flow control and functions.
- CO2** : Demonstrate proficiency in handling Strings and File Systems.
- CO3** : Create, run and manipulate Python Programs using core data structures like Lists, Dictionaries and use Regular Expressions.
- CO4** : Interpret the concepts of Object-Oriented Programming as used in Python
- CO5** : Implement exemplary applications related to Network Programming, Web Services and Databases in Python.

### 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	3		3							2	2		2
CO2	2	2	3		3							2	3		1
CO3	3	3	3	1	3							2	3		3
CO4	2	2	3	1	3							2	3		3
CO5	2	3.0	3	2	3							2	3		3
AVG	2.2	2.4	3	1.33	3							2	2.8		2.4



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## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Subject Code : 15CSL67  
Course Code : C315  
Course Name : SYSTEM SOFTWARE AND OPERATING SYSTEM LABORATORY

### COURSE OUTCOMES

- CO1** : Implement and demonstrate Lexer's and Parser's
- CO2** : Evaluate different algorithms required for management, scheduling, allocation and communication used in operating system.

### 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	3		3							2	2		2
CO2	2	2	3		3							2	3		1
<b>AVG</b>	<b>2</b>	<b>2</b>	<b>3</b>		<b>3</b>							<b>2</b>	<b>2.5</b>		<b>1.5</b>



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## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

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**Subject Code** : 15CSL68  
**Course Code** : C316  
**Course Name** : COMPUTER GRAPHICS LABORATORY WITH MINI PROJECT

### COURSE OUTCOMES

- CO1** : Apply the concepts of computer graphics
- CO2** : Implement computer graphics applications using OpenGL.
- CO3** : Animate real world problems using OpenGL

### 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	3		3							2	2		2
CO2	2	2	3		3							2	3		1
CO3	3	3	3	1	3							2	3		3
AVG	2.3	2.3	3	1	3							2	2.6		2