

## SEMESTER I

CODE	COURSE TITLE
18CAPC101	DIGITAL COMPUTER FUNDAMENTALS

Category	CIA	ESE	L	T	P	Credit
Core Paper I	25	75	55	5	-	4

### Preamble

The course covers the building blocks of digital system and application of knowledge to understand the digital electronics circuits.

### Course Outcomes

On the successful completion of the course, Students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Understanding the basic concept of the number systems, logic gates	K1
CO2	Simplify the Boolean Functions with different methods	K2
CO3	Get awareness of combinational circuit	K2
CO4	Apply the Sequential circuits	K3
CO5	Understand the fundamental concepts of Registers, Counters and Memory unit	K2

### Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	M	M	M	M
CO2	M	S	S	M	S
CO3	S	M	S	M	M
CO4	M	M	S	S	S
CO5	S	M	S	S	M

S- Strong; M-Medium; L-Low

### Syllabus

#### UNIT I

**12 Hrs.**

Binary Systems : Digital Computers and Digital Systems – Binary Numbers – Number base conversion – Octal and Hexadecimal Numbers – Complements – Binary Codes.

Boolean algebra and Logic Gates: Basic Definitions – Axiomatic Definition of Boolean Algebra – Basic Theorems and Properties of Boolean Algebra – Boolean Functions – Canonical and Standard Forms – Other Logic Operations – Digital Logic Gates.

#### UNIT II

**12 Hrs.**

Simplification of Boolean Functions: The Map Methods – Two and Three Variable Maps – Product of Sums Simplification – NAND and NOR Implementations – Don't Care Conditions – The Tabulation Method – Determination of Prime-Implicants- Selection of Prime-Implicants.

#### UNIT III

**12 Hrs.**

Combinational Logic: Introduction – Design Procedure – Adders – Subtractors – Code Conversion – Analysis Procedure – Universal Gates – Exclusive-OR and Equivalence Functions. Combinational Logic with MSI and LSI: Introduction – Binary Parallel Adder – Decimal Adder – Magnitude Comparator – Decoders - De-multiplexers - Encoders– Multiplexers.

**UNIT IV****12 Hrs.**

Sequential Logic :Introduction – Flip-Flops – Triggering of Flip-Flops – Analysis of Clocked Sequential Circuits – State Reduction and Assignment – Flip-Flop Excitation Tables – Design Procedure - Design of Counters – Design with State Equations.

**UNIT V****12 Hrs.**

Registers, Counters and the Memory Unit:Introduction – Registers – Shift Registers – Ripple Counters – Synchronous Counters – Timing Sequences – The Memory Unit – Examples of Random Access Memories.

**Text Books**

Sl. No.	Authors	Title of the Book	Publishers	Year and Edition
1	M. Morris Mano	Digital Logic and Computer Design (Unit I, II)	PHI New Delhi	2004

**Reference Books**

Sl. No.	Authors	Title of the Book	Publishers	Year and Edition
1	Albert Paul Malvino, Donald P Leach	Digital principles and Applications	Tata McGraw Hill	2008, 6 <sup>th</sup> Edition
2	Puri .V.K.,	Digital Electronics – Circuits and Systems	Tata McGraw Hill	2013
3	Roger L. Tokheim	Schaum’s Outlines of Theory and Problems of Digital Principles	Tata McGraw Hill	2004, 3 <sup>rd</sup> Edition
4	Thomas C. Bartee	Digital Computer Fundamentals	Tata McGraw Hill	2005, Sixth Edition

**Web Resources**

1. [www.UOP.edu.jo](http://www.UOP.edu.jo)
2. [www.csd.nutn.edu.tw](http://www.csd.nutn.edu.tw)
3. [www.indiastudychannel.com](http://www.indiastudychannel.com)

**Pedagogy**

Lecture, PPT, Quiz, Assignment, Group Discussion, Seminar

## SEMESTER I

CODE	COURSE TITLE
18CAPC102	PROGRAMMING IN C

Category	CIA	ESE	L	T	P	Credit
Core Paper II	25	75	55	5	-	3

### Preamble

This course is designed to provide a comprehensive study of the C programming language, which provides students with the means of writing efficient, maintainable and portable code. The nature of C language is emphasized in the wide variety of examples and applications.

### Course Outcomes

On the successful completion of the course, Students should able to

CO Number	CO Statement	Knowledge Level
CO1	To understand the problem solving techniques using computer and basic concepts of C programming	K1
CO2	Apply conditional and iterative statements to write C programs	K3
CO3	Apply user defined functions to solve real time problems	K3
CO4	Make use of user defined data types including structures and unions to solve problems	K3
CO5	Experiment with files concept to show input and output of files and Error handling in C	K3

### Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4	PO5
CO1	S	S	M	S	L
CO2	S	M	M	M	M
CO3	S	M	S	M	M
CO4	M	S	S	M	M
CO5	M	S	S	M	L

S- Strong; M-Medium; L-Low

### Syllabus

#### UNIT I

**12 Hrs.**

Tutorial Introduction – Types, Operators and Expressions: Variable Names – Data Types and Sizes – Constants – Declarations – Arithmetic Operators – Relational and Logical Operators – Type Conversions – Increment and Decrement Operators – Bitwise Operators – Assignment Operators and Expressions – Conditional Expressions – Precedence and Order of Evaluation.

#### UNIT II

**12 Hrs.**

Input and Output: Standard Input and Output – Formatted Output – printf – Variable-Length Argument Lists – Formatted Input – Scanf. Control Flow: Statements and Blocks – if ... else – else if – switch – Loops: while, for and do while – break and continue – go to Labels.

**UNIT III****12 Hrs.**

Functions And Program Structure: Basics Of Functions – Functions Returning Non–Integers – External Variables – Scope Rules – Header Files – Static Variables – Register Variables – Block Structure – Initialization – Recursion – The C Preprocessor.

**UNIT IV****12 Hrs.**

Pointers and Arrays: Pointers and Arrays – Pointers and Function Arguments - Pointers and Arrays – Address Arithmetic – Character Pointers and Functions – Pointers Arrays; Pointers to Pointers – Multi Dimensional Arrays – Command Line Arguments – Pointers to Functions – Complicated Declarations.

**UNIT V****12 Hrs.**

Structures: Basics of Structures – Structures And Functions – Arrays of Structures – Pointers to Structures – Self–Referential Structures – Table Lookup – Typedef - Unions – Bit Fields. Files: File Access – Error Handling – Stderr and Exit – Line Input and Output – Miscellaneous Functions.

**Text Book**

Sl. No.	Authors	Title of the Book	Publishers	Year and Edition
1.	Brain W. Kernighan and Dennis M. Ritchie	The C Programming Language	Prentice Hall of India Ltd	2010, 2 <sup>nd</sup> Edition.

**Reference Books**

Sl. No.	Authors	Title of the Book	Publishers	Year and Edition
1.	Ashok N. Kamathane	C Programming with ANSI and Turbo c	Pearson Education	2006, 1 <sup>st</sup> Edition
2.	Balagurusamy E.	Programming in ANSI C	Tata McGraw Hill	2012, 6 <sup>th</sup> Edition
3.	Deitel & Deitel	C How to Program	PHI/Pearson Education Asia	2007, 5 <sup>th</sup> Edition
4.	Yeswanth Kanetkar	Let us C	BPB	2009, 9 <sup>th</sup> Edition
5.	Yeswanth Kanetkar	Understanding Pointers in C	BPB	2009, 4 <sup>th</sup> Edition
6.	Yeswanth Kanetkar	TSR through C	BPB	Illustrated 2002

**Web Resources**

1. [www.spoken-tutorial.org](http://www.spoken-tutorial.org)
2. [www.nptel.ac.in](http://www.nptel.ac.in)
3. <https://www.tutorialspoint.com/cprogramming/index.htm>

4. <https://www.slideshare.net/gauravjuneja11/c-language-ppt>
5. <https://www.w3schools.in/c-tutorial/>

## **Pedagogy**

Lecture, PPT, Quiz, Assignment, Group Discussion, Seminar

## SEMESTER I

CODE	COURSE TITLE
18CAPC103	COMPUTER ORGANIZATION AND ARCHITECTURE

Category	CIA	ESE	L	T	P	Credit
CORE	25	75	55	5	-	4

### Preamble

This course will introduce students to the fundamental concepts underlying modern computer organization and architecture. Main objective of the course is to enable the students to learn about pipeline and vector processing and gain knowledge about computer arithmetic and input output organization.

### Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Understand the basic concepts of computer architecture	K2
CO2	Ability to evaluate performance of different computer structures	K3
CO3	Analyzing the Parallel Processing, Pipelining techniques, Vector Processing and Array Processors and their impacts on performance	K4
CO4	Assess the communication and the computing possibilities of parallel system	K3
CO5	Analyze the difference between Memory Hierarchy	K4

### Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	M	S	M	L
CO2	S	S	M	M	M
CO3	S	M	M	M	M
CO4	S	S	M	S	L
CO5	M	S	S	M	M

S- Strong; M-Medium; L-Low

### Syllabus

#### UNIT I

**12 Hrs.**

Register Transfer and Microoperations: Register Transfer Language-Register Transfer- Bus and Memory Transfer-Arithmetic Microoperations – Logic Microoperations – Logic Microoperations

– Shift Microoperations – Arithmetic Logic Shift Unit. Basic Computer Organization and Design: Instruction Codes- Computer Registers – Computer Instructions – Timing and Control – Instruction Cycle.

**UNIT II**

**12 Hrs.**

Central Processing Unit: Introduction- General Register Organizations – Stack Organization – Instruction Formats – Addressing Modes- Data Transfer and Manipulation – Program Control.

**UNIT III**

**12 Hrs.**

Pipeline and Vector Processing: Parallel Processing – Pipelining- Arithmetic Pipeline – Instruction Pipeline – RISC pipeline – Vector Processing – Array Processors.Computer Arithmetic: Introduction – Addition and Subtraction.

**UNIT IV**

**12 Hrs.**

Input – output Organization: Peripheral Devices – Input- output Interface – Asynchronous Data Transfer – Modes of Transfer – Priority Interrupt – Direct Memory Access (DMA) – Input – Output Processor (IOP).

**UNIT V**

**12 Hrs.**

Memory Organization: Memory Hierarchy – Main Memory – Auxiliary Memory – Cache Memory – Virtual Memory.

**Text Book**

Sl.No.	Author Name	Title of the Book	Publisher	Year and Edition
1.	Morris M. Mano	Computer System Architecture	Pearson Education	2000, 3 <sup>rd</sup> Edition.

**Reference Books**

Sl.No.	Author Name	Title of the Book	Publisher	Year and Edition
1.	Hayes J.P.,	Computer Architecture and Organization	Tata McGraw Hill.	1998, 3 <sup>rd</sup> Edition.
2.	Nicholas Carter	Computer Architecture Schaum’s outlines	Tata McGraw Hill.	2007, 1 <sup>st</sup> Edition.
3.	William Stallings	Computer Organization and Architecture – Designing for Performance	Pearson Education	2002, 6 <sup>th</sup> Edition.

**Web Resources**

1. [www.ece.uic.edu](http://www.ece.uic.edu)
2. [www.edunotes.in](http://www.edunotes.in)
3. [www.vidyathiplus.com](http://www.vidyathiplus.com)

**Pedagogy**

- Lecture, PPT, Quiz, Assignment, Group Discussion, Seminar

## SEMESTER I

CODE	COURSE TITLE
18CAPC104	MATHEMATICAL FOUNDATIONS OF COMPUTER SCIENCE

Category	CIA	ESE	L	T	P	Credit
Core	25	75	57	3		4

### Preamble

This course provides the logical thinking and applications to computer science in basics of mathematical logic, graph theory and automata theory. The course also endeavors the students to improve their reasoning and problem solving capabilities.

### Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Classify the basic logical operations using truth table and properties of logic.	K2
CO2	Compare and construct the basic principles of graph theory, matrix representation and trees.	K3
CO3	Solve the problems related to distribution, measures of central tendency, correlation and regression.	K3
CO4	Apply the concepts and able to solve the numerical methods and linear equations.	K3
CO5	Analyze the topics of automata theory and its applications.	K4

### Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	M	S	M	L
CO2	S	S	M	M	M
CO3	S	M	M	M	M
CO4	S	S	M	S	L
CO5	M	S	S	M	M

S- Strong; M-Medium; L-Low



## Syllabus

### UNIT I

12 Hrs.

Mathematical Logic: Connectives – NAND and NOR Connectives, Functionally Complete Set of Connectives, Logical Networks, Principle Conjunctive and Disjunctive Normal Forms, Equivalence of Statements, Formulae Derivations – Conditional Proof, Indirect Method of Proof, Automatic Theorem Proving.

### UNIT II

12 Hrs.

Graph Theory: Basic Concepts of Graph Theory – Path, Reachability and Connectedness – Matrix Representation of Graphs – Trees – Storage Representation and Manipulation of Graphs.

### UNIT III

12 Hrs.

Univariate Distribution – Frequency Distribution – Grouped and Ungrouped Distributions – Measures of Central Tendency – Measure of Dispersion – Coefficient of Variation. Bivariate Distribution: Correlation - Types of Correlation – Karl Pearson's Coefficient of Correlation – Rank Correlation – Regression – Regression Equations – Methods of Solving Regression Equations.

### UNIT IV

12 Hrs.

Numerical Methods: Finding Roots, Bisection, Regula-Falsi, Newton Raphson Methods, Solutions of Simultaneous Linear Equations, Gaussian Elimination, Gauss-Siedal Methods.

### UNIT V

12 Hrs.

Introduction to Automata Theory: Finite State Automata – Deterministic and Non-Deterministic, Regular Expressions.

## Reference Books

	Author Name	Title of the Book	Publisher	Year and Edition
1.	Gupta S.P	Statistical Methods	Sultan & Chand	2009, 37 <sup>th</sup> Edition
2.	Gupta S.C and Kapoor V.K	Fundamental of Mathematics Statistics.	Sultan Chand & Sons	2005, 11 <sup>th</sup> Edition
3.	Hopcroft and Ullman	Introduction to Automata Theory, Languages and Computation	Pearson Education	2001, 2 <sup>nd</sup> Edition.
4.	Kandaswamy P, Thiakavathy K and Ganavathi K	Numerical Methods	S. C.Chand & Company Limited, New Delhi	2002, 2 <sup>nd</sup> Edition.
5.	Prof. Sunderasen. V, Ganapathy Subramanian K.S, Ganesan K	Discrete Mathematics	A.R. Publications	2001, New Revised Edition

6.	Trembley and Monohar	Discrete Mathematical Structures with Application to Computer Science	McGraw-Hill	2006,International Edition
7.	Venkataraman M.K	Numerical Methods in Science and Engineering	National Publishing Company	1999,5 <sup>th</sup> Edition.

**Pedagogy**

Lecture, PPT, Quiz, Assignment, Group Discussion, Seminar

## SEMESTER I

CODE	COURSE TITLE
18CAPCP01	C PROGRAMMING LAB

Category	CIA	ESE	L	T	P	Credit
Practical –I	40	60	-	-	75	3

### Preamble

To make the students to write C program for various problems and learn advanced concepts of C programming.

### Course Outcomes

On the successful completion of the course, Students should able to

CO Number	CO Statement	Knowledge Level
CO1	Distinguish different conditional and iterative statements in C	K3
CO2	Skills to describe arrays, strings and functions	K3
CO3	Demonstrate the concept of pointers and structures	K4
CO4	Illustrate the concept of files	K3
CO5	Apply numerical methods and statistics for various applications	K3

### Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	M	M	L
CO2	S	M	M	S	M
CO3	M	S	S	M	L
CO4	M	S	M	M	S
CO5	M	S	S	M	S

S- Strong; M-Medium; L-Low

### Syllabus

1. Program using Control structures.
2. Program using Arrays.
3. Program using Structure.
4. Program using Functions.
5. Program using Pointers.
6. Program using Files.
7. Program based on Numerical Algorithms and Statistics.

## SEMESTER I

CODE	COURSE TITLE
18CAPCP02	LINUX LAB (Script)

Category	CIA	ESE	L	T	P	Credit
Practical	40	60	-	-	75	3

### Preamble

This course provides the knowledge for students to know about Linux operating system, exercise various shell commands and it helps the students to write the simple shell scripts.

### Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Identify and use linux utilities to create and manage simple file processing operations	K2
CO2	Design shell script using filters and pipes	K3
CO3	Design shell script to exhibit programming logic	K4
CO4	Implement conditional execution and repetitive task	K3

### Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	M	S	S	M
CO2	S	S	M	M	M
CO3	M	S	S	M	S
CO4	M	S	S	M	L

S- Strong; M-Medium; L-Low

### Syllabus

- To implement the following commands in Linux.  
Banner, cal, cat, cmp, diff, grep, head, tail, echo, who.
- To implement the following commands in Linux.
  - List Linux files.
  - Display Linux files.
  - Copying and Renaming files.
  - Change the file permissions.
- Write a Shell Script to implement the following: pipes, Redirection, tee and filter commands.
- Write a shell script for displaying current date, user name, file listing and directories by getting user choice.
- Write a Shell Script to print the given string in a reverse order.
- Write a Shell Script to sort the given 5 numbers.
- Write a shell script to find the sum of the individual digits of a given number.
- Write a shell script to find the greatest among the given set of numbers using command line arguments.
- Write a shell script to print the multiplication table of the given argument using for loop.
- Write a shell script for palindrome checking.

### SEMESTER III

CODE	COURSE TITLE
18CAPC308	JAVA PROGRAMMING

Category	CIA	ESE	L	T	P	Credit
Core -VIII	25	75	55	5	-	4

#### Preamble

This course introduces computer programming using the JAVA programming language with object-oriented programming principles. It will cover the advanced concepts of java like packages, interfaces, threads, applet and Graphics. Emphasis is placed on event-driven programming methods, including creating and manipulating objects, classes, AWT and SWING.

#### Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Illustrate concepts of object-oriented programming with inheritance.	K2
CO2	Describe the concept of multithreading, packages and interfaces.	K2
CO3	Create applet and enable Multithreaded applications.	K3
CO4	Demonstrate the use of AWT with event handling.	K3
CO5	Illustrate the concepts of Layout Managers and SWING with event handling.	K3

#### Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	M	S	S	M
CO2	S	M	M	S	M
CO3	M	S	M	S	L
CO4	S	M	S	M	S
CO5	S	M	S	S	M

S- Strong; M-Medium; L-Low

#### Syllabus

**UNIT I** **12Hrs.**

Introducing classes – A closer look at methods and classes – Inheritance.

**UNIT II** **12Hrs.**

Packages and interfaces – Multithreading – I/O Applets and other Topics

**UNIT III** **12Hrs.**

Applet class – Event handling : Two event handling mechanisms – The delegation event model – Event classes – Sources of Events – Event Listener Interfaces- Using the Delegation Event Model – Adapter classes – Inner classes.

**UNIT IV** **12Hrs.**

Introducing the AWT: working with windows, graphics and text. Using AWT controls: control fundamentals – Labels – Using Buttons – Applying Check boxes – CheckboxGroup- Choice Controls – Using Lists – Managing Scroll Bars – Using a TextField – Using a Text Area.

**UNIT V****12Hrs.**

Understanding Layout managers – Menu Bars and Menus – Dialog Boxes - FileDialog – Handling Events by Extending AWT components. Introducing Swing – Exploring Swing.

**Text Book**

Sl. No.	Author Name	Title of the Book	Publisher	Year and Edition
1.	Herbert Schildt	The complete Reference Java	TMH Publishing Company Ltd., New Delhi.	2017, 10 <sup>th</sup> Edition

**Reference Books**

Sl. No.	Author Name	Title of the Book	Publisher	Year and Edition
1.	Bhave M.P., &Patekar S.A	Programming with Java	Pearson Education	2009, 1 <sup>st</sup> Edition
2.	Herbert Schildt	Swing A Beginner's guide	TMH	2007, 1 <sup>st</sup> Edition
3.	Sagayaraj, Denis, Karthik, Gajalakshmi	Java Programming for Core and Advanced Learners	University Press	2017, 1 <sup>st</sup> Edition

**Web Resources**

1. [www.javatpoint.com](http://www.javatpoint.com)
2. [www.roseindia.net](http://www.roseindia.net)
3. [www.javalearner.com](http://www.javalearner.com)
4. [www.w3resource.com](http://www.w3resource.com)
5. [www.tutorialpoint.com/java](http://www.tutorialpoint.com/java)
6. [www.spoken-tutorial.org](http://www.spoken-tutorial.org)

**Pedagogy**

Lecture, PPT, Quiz, Assignment, Group Discussion, Seminar

### SEMESTER III

CODE	COURSE TITLE
18CSPC104/ 18CAPC309	ADVANCED OPERATING SYSTEM

Category	CIA	ESE	L	T	P	Credit
Core	25	75	70	5	-	4

#### Preamble

The purpose of this course is to study, learn and understand the advanced concepts of Advanced Operating System. To learn the mechanism of operating system to handle processes and threads and their communication.

#### Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Recall various OS architectures	K2
CO2	Ability to utilize various type of architecture for Resource management.	K4
CO3	Classify the implementation process management and file system	K4
CO4	Outline the principles of various OS	K1
CO5	Construct the process according to the complexity of a problem	K3

#### Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	M	S	S
CO2	S	M	S	S	L
CO3	S	S	M	L	S
CO4	S	M	S	S	S
CO5	S	S	S	S	M

S- Strong; M-Medium; L-Low

#### Syllabus

##### UNIT I

15Hrs

**Fundamentals:** What is a Distributed Computing System? Distributed Computing System Models – What is Distributed Operating system – Issues in Designing a Distributed Operating System – Introduction to Distributed Computing Environment. Remote Procedure Calls: Introduction – The RPC Model – Transparency of RPC – Implementing RPC Mechanism – Stub Generation – RPC Messages – Server Management – Parameter Passing Semantics – Call Semantics – Communication Protocols for RPCs.

**UNIT II****15Hrs**

**Distributed Shared Memory:** Introduction – General Architecture of DSM Systems – Design and Implementation Issues of DSM – Granularity – Structure of Shared Memory Space – Consistency Models – Replacement Strategy – Thrashing – Advantages of DSM. Synchronization: Introduction – Clock Synchronization – Event Ordering – Mutual Exclusion – Deadlock.

**UNIT III****15Hrs.**

**Resource Management:** Introduction – Desirable Features of a Good Global Scheduling Algorithm – Task Assignment Approach – Load Balancing Approach – Load Sharing Approach. **Process Management:** Introduction – Process Migration – Threads – **Distributed File System :** Introduction – Desirable Features of a Good Distributed File System – File Models – File Accessing Models – File Sharing Semantics – File Caching Schemes – File Replication.

**UNIT IV****15Hrs.**

**Introduction to the Kernel :** Architecture of the Unix operating system – introduction to system concepts – kernel data structures. **Internal Representation of Files :** Inodes – structure of a regular file – directories – conversion of a path name to an inode – superblock – inode assignment to a new file – allocation of disk blocks. **The structure of processes:** process states and transitions – layout of system memory – the context of a process.

**UNIT V****15Hrs.**

**Process Control:** Process creation – process termination – awaiting process termination – invoking other programs – system boot and the init process. **Process scheduling and time:** Process scheduling – system calls for time.

**Text Books**

Sl.No.	Author Name	Title of the Book	Publisher	Year and Edition
1.	Maurice J.Bach	The Design of the Unix Operating System	PHI Private Limited	2006.
2	Pradeep K, Sinha	Disstributed Operating System – Concepts and Design	Prentice Hall of India Private Limited	2006



### Reference Books

Sl.No.	Author Name	Title of the Book	Publisher	Year and Edition
1.	Andrew S.Tanenbaum, Maarten Van Steen	Distributed Systems: Principles and Paradigms	Prentice Hall of India,	2003
2.	Colulouris, G.DollimoreTimkindberg	Distributed System: Concepts and Design	Addition Wesley,	2000
3.	Sumitabha Das	Unix Concepts and Design		3 <sup>rd</sup> edition

### Web Resources

1. <https://lecturenotes.in/subject/185/advanced-operating-system-aos>
2. <https://www.slideshare.net/ayyakathir/cs9222-advanced-operating-systems-54590096>

### Pedagogy

Lecture, PPT, Quiz, Assignment, Group Discussion, Seminar

### SEMESTER III

CODE	COURSE TITLE
18CSPC105 / 18CAPC310	ADVANCED RELATIONAL DATABASE MANAGEMENT SYSTEM

Category	CIA	ESE	L	T	P	Credit
Core	25	75	70	5	-	4

#### Preamble

This course aims at facilitating the student to understand the various functionalities of DBMS software and perform many operations related to creating, manipulating and maintaining databases for Real-world applications and to understand the various designing concepts, storage methods, querying and managing databases. Able to develop, design and construct a typical enterprise database.

#### Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Summarize the basics and fundamentals of RDBMS and concept of Entity Relationship Model in Database Applications.	K2
CO2	Make use of SQL for Database Definition and Manipulation	K3
CO3	Demonstration of various normalization techniques and data modeling	K2
CO4	Create a RDBMS package using PL/SQL	K4
CO5	Ability to classify different types of databases.	K4

#### Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	M	S
CO2	S	M	S	L	S
CO3	S	S	L	M	S
CO4	S	M	S	S	M
CO5	S	S	M	S	S

S- Strong; M-Medium; L-Low

#### Syllabus

##### UNIT I

**12 Hrs.**

**Databases and Database Users:** Introduction **Database System Concepts:** Data Models, Schemas and instances – Three schema Architecture and Data Independence – Database Languages and Interfaces – Database System Environment **Data Modeling Using ER Model:** Entity Types, Entity Sets, Attributes and Keys –Relationships, Relationship Types, Roles and Structural Constraints – Weak Entity Types – ER Diagrams, Naming Conventions and Design issues - Enhanced Entity-Relationship (EER) Modeling.

**UNIT II****12 Hrs.**

**SQL:** Data Definition Language(DDL) – Data Management and Retrieval - Working with Tables Functions and Grouping - Join and Set Operators **Advanced Features: Objects, Transactions and Data Control:** Views.

**UNIT III****12 Hrs.**

**Functional Dependencies and Normalization for Relational Databases:** Informal Design Guidelines – Functional Dependencies - Normal Forms Based on Primary Keys – Definitions for Second and Third Normal Forms – Boyce – Codd Normal Form. **Relational Database Design Algorithms and Further Dependencies :**Multivalued Dependencies and Fourth Normal Form – Join Dependencies and Fifth Normal Form. **Introduction to Transaction Processing Concepts and Theory:** Introduction to Transaction Processing – Transaction and System Concepts – Desirable Properties of Transaction – Transaction Support in SQL.

**UNIT IV****12 Hrs.**

**PL/SQL Cursors and Exceptions:** Cursors – Implicit Cursors – Explicit Cursors – Explicit Cursors Attributes - Implicit Cursors Attributes – Cursor FOR Loops – SELECT ...FOR UPDATE Cursor – WHERE CURRENT OF Clause – Cursor with Parameters – Cursor Variables: An Introduction – Exceptions – Types of Exceptions. **PL/SQL Named Blocks:** Procedures- Functions – Packages – Triggers.

**UNIT V****12 Hrs.**

**Enhanced Data Models for Advanced Applications :** Multimedia Databases- **Introduction to Deductive Databases:** Overview of deductive Databases – Prolog/Datalog Notation- Clausal form and Horn Clauses –Interpretation of Rules –Datalog Programs and their Safety. **Distributed Databases:** Distributed Database Concepts – Types of distributed Database Systems

**Text Books**

Sl.No.	Author Name	Title of the Book	Publisher	Year and Edition
1.	RamezElmasri, Shamkant B. Navathe	Fundamentals of Database Systems	Pearson Education	2005,4 <sup>th</sup> Edition.
2.	Nilesh Shah	Database Systems Using Oracle	Pearson Education	2009,2 <sup>nd</sup> Edition.

**Reference Books**

Sl.No.	Author Name	Title of the Book	Publisher	Year and Edition
1.	Abraham Silberschatz, Henry F. Korth, Sudarshan .S	Database System Concepts	MCGraw – Hill International	2014,6 <sup>th</sup> Edition.
2.	Kandare S.S	Database Management and Oracle Programming	S.Chand & Company Ltd	2004,1 <sup>st</sup> Edition.

3.	Rajesh Narang	Database Management Systems	Prentice Hall of India	2004,3 <sup>rd</sup> Edition.
4.	C.J.Date	An Introduction to Database System	Addition Wesley Publications	2002,7 <sup>th</sup> Edition.

### **Web Resources**

1. [WWW.tutorialspoint.com/sql/sql-rdbms-concepts](http://WWW.tutorialspoint.com/sql/sql-rdbms-concepts)
2. [WWW.W3Schools.com/sql](http://WWW.W3Schools.com/sql)
3. [www.intellipaat.com/tutorial/sql-tutorial/rdbms](http://www.intellipaat.com/tutorial/sql-tutorial/rdbms)

### **Pedagogy**

Lecture, PPT, Quiz, Assignment, Group Discussion, Seminar

**SEMESTER III**

CODE	COURSE TITLE
18CAPC311	SOFTWARE ENGINEERING

Category	CIA	ESE	L	T	P	Credit
Core	25	75	56	4	-	4

**Preamble**

The main objective of the course is to provide the concepts of software engineering, Analyzing, designing, testing and assuring the quality of the developed software. To enable the students to overcome the various risk factors while developing the software in an efficient manner

**Course Outcomes**

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Able to build and use a model of the application to guide choices of the many trade-offs	K2
CO2	Developing model which is used to explain the behavior of the system and its performance	K3
CO3	Ability to schedule work both of his own and that of others	K3
CO4	Develop techniques for building software that can cope with heterogeneous platforms and execution environments	K4
CO5	Distinguish the strategic Approach of Software Testing and debugging. Analyze the quality of system using various metrics	K4

**Mapping with Programme Outcomes**

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	M	S	S	S
CO2	M	S	S	M	M
CO3	S	S	M	S	M
CO4	M	S	M	M	S
CO5	M	M	S	S	L

S- Strong; M-Medium; L-Low

**Syllabus****UNIT I****12 Hrs.**

Software and Software Engineering: The nature of the software- Software Engineering-The software process- Software Engineering Practice Process Models: A Generic process model-Perspective process models-Specialized process models- Personal and Team process models-Process Technology- Product and Process.

**UNIT II****12 Hrs.**

Principles that guide Practice : Software Engineering Knowledge- Core Principles Understanding Requirements: Requirements Engineering-Establishing the Groundwork-Eliciting Requirements-developing Use Cases- Building the requirements model- Negotiating requirements- Validating requirements. Requirements Modeling :

Scenarios, Information and Analysis Classes : Requirements Analysis–Data Modeling Concepts.

**UNIT III**

**12 Hrs.**

Design Concepts : Design within the Context of Software Engineering – The Design Process- Design Concepts – The Design Model. Architectural Design : Software Architecture- Architectural Styles- Architectural Design- Architectural Mapping using Data Flow. Component-Level Design : What is a Component ? Designing Class-based Components – Conducting Component Level Design – Component Based development.

**UNIT IV**

**12 Hrs.**

User Interface Design : The Golden Rules- User Interface Analysis and Design- Interface Analysis- Interface Design Steps- Design Evaluation. Software Quality Assurance : Background Issues-Elements of Software Quality Assurance-SQA Tasks, Goals and Metrics- Formal Approaches to SQA - Software Reliability - The ISO 9000 Quality Standards- The SQA Plan.

**UNIT V**

**12 Hrs.**

Software Testing Strategies : A Strategic Approach of Software Testing- Strategic Issues - The System testing - The Art of debugging. Testing Conventional Applications : Software Testing Fundamentals-Internal and External Views of Testing-White-Box Testing-Basis Path Testing- Control Structure Testing- Black Box Testing

**Text Book**

Sl.No.	Author Name	Title of the Book	Publisher	Year and Edition
1.	Roger S. Pressman	Software Engineering A Practitioner’s Approach.	McGrw – Hill	2010, 7 <sup>th</sup> International Edition.

**Reference Books**

Sl.No.	Author Name	Title of the Book	Publisher	Year and Edition
1.	Carlo Ghezzi, Mehdi Jazayari, Dino Mandrioli.	Fundamentals of Software Engineering	Prentice Hall of India,	2003, 2 <sup>nd</sup> Edition
2.	Roger S. Pressman	Software Engineering: A Practitioners Approach	Prentice Hall	2005, 6 <sup>th</sup> Edition.
3.	Pankaj Jalote	An Integrated Approach to Software Engineering	Narosa Publishing Hous	2008, 3 <sup>rd</sup> Edition.

**Web Resources**

1. [www.ceit.aut.ir](http://www.ceit.aut.ir)
2. [www.se.rit.edu](http://www.se.rit.edu)
3. [www.engppt.com](http://www.engppt.com)

**Pedagogy**

Lecture, PPT, Quiz, Assignment, Group Discussion, Seminar

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### SEMESTER III

CODE	COURSE TITLE
18CAPCP05	JAVA PROGRAMMING LAB

Category	CIA	ESE	L	T	P	Credit
Core	40	60		5	70	3

#### Preamble

This course provides the knowledge for students to develop programming in Java. This course helps to enhance students analyzing and problem solving skills. This also enables the students to understand and implement the GUI application using AWT and SWING.

#### Course Outcomes

On the successful of this course, student will be able to

CO Number	CO Statement	Knowledge Level
CO1	Apply class and object concepts to solve real world problems.	K4
CO2	Design and develop programs using interfaces and packages.	K4
CO3	Demonstrate the concept of multithreading and applet.	K4
CO4	Implement the concept of Event Handling and AWT.	K4
CO5	Develop applications using Layout Managers and SWING.	K4

#### Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	M	S	S	M
CO2	M	S	S	M	M
CO3	S	M	M	S	L
CO4	M	S	S	M	M
CO5	S	S	M	M	S

S- Strong; M-Medium; L-Low

#### Syllabus

1. Classes and objects
2. Inheritance
3. Packages
4. Interfaces
5. Multithreading
6. Applets
7. AWT controls
8. Event handling
9. Menus
10. Layout Managers
11. Swing controls
12. Trees in Swing

### SEMESTER III

CODE	COURSE TITLE					
18CAPCP06	RDBMS LAB					
Category	CIA	ESE	L	T	P	Credit
Practical - VI	40	60	-	-	45	3

#### Preamble

This course aims at giving adequate exposure to students on the Database design and E-modelling. The course also facilitates students with hands on training on SQL and programming language extension to SQL within the RDBMS environment.

#### Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Design multiple tables and handle queries to populate a database	K2
CO2	Recognize the application of aggregate function, set operation and View.	K3
CO3	Analyze PL/SQL for Application development.	K4
CO4	Able to manage various error handling mechanisms	K5
CO5	Develop a DBMS package	K5

#### Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	M	S
CO2	S	S	M	S	L
CO3	S	L	S	M	S
CO4	S	M	S	S	M
CO5	S	M	M	S	S

S- Strong; M-Medium; L-Low

#### Syllabus

- i. SQL
  1. Table Management.
  2. Aggregate Functions.
  3. Join Operations
  4. Set Operations.
  5. Triggers.
  6. Views.
  7. Grouping
- ii. PL / SQL
  1. Functions.
  2. Procedure.
  3. Cursor.
  4. Packages.
  5. Exception Handling

#### Pedagogy

- Lecture, PPT, Assignment, Group Discussion



## SEMESTER IV

CODE	COURSE TITLE
18CAPC412	COMPUTER NETWORKS

Category	CIA	ESE	L	T	P	Credit
Core	25	75	60			4

### Preamble

The course provides insight about networks, topologies, and the key concepts. To gain comprehensive knowledge about the layered communication architectures (OSI and TCP/IP) and its functionalities. To understand the principles, key protocols, design issues, and significance of each layers in ISO and TCP/IP. To know the basic concepts of network security and its various security issues related with each layer

### Course Outcomes

CO Number	CO Statement	Knowledge Level
CO1	Outline of basic network theory and layered communication architectures.	K2
CO2	Understand the issues of Data link layer and the elementary data link protocols with its types.	K2
CO3	Classify the various Routing algorithms.	K2
CO4	Make use of TCP and UDP protocols in various applications.	K3
CO5	Categorize the Network security algorithms and its uses.	K4

### Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4	PO5
CO1	S	M	M	S	L
CO2	M	S	S	M	M
CO3	S	S	M	S	M
CO4	M	S	S	M	M
CO5	S	S	M	S	M

S- Strong; M-Medium; L-Low

### Syllabus

#### UNIT I

**12Hrs.**

Introduction: Use of Computer Networks – Network Hardware – Network Software-Reference Models .The Physical Layer: Guided Transmission Media – The PublicSwitched Telephone Network: Switching.

**UNIT II****12Hrs.**

Data Link Layer: Data Link Layer Design Issues – Error Detection and Correction –Elementary Data Link Protocols – Sliding Window Protocols – Protocol Verification.

**UNIT III****12Hrs.**

Network Layer: Network Layer Design Issues – Routing Algorithms: The optimality principle- Shortest path routing – Flooding – Distance vector routing – Link state routing– Hierarchical routing – Broadcast routing – Multicast Routing. Congestion, Control Algorithms.

**UNIT IV****12Hrs.**

Transport Layer: The Transport Service – Elements of Transport Protocol – The Internet transport Protocols: UDP

**UNIT V****12Hrs.**

Application Layer: DNS. Network Security: Cryptography - Symmetric Key Algorithms: DES – AES. Public Key Algorithms: RSA. Digital Signature: Symmetric –Key Signatures – Public-Key Signatures.

**Text Book**

Sl. No.	Author Name	Title of the Book	Publisher	Year of Edition
1	Andrew S. Tanenbaum , David J.Wetherall	Computer Networks	Pearson Education	5 <sup>th</sup> Edition, 2012.

**Reference Books**

Sl. No.	Author Name	Title of the Book	Publisher	Year of Edition
1	Behrouz A. Forouzan	Data Communications and Networking	TMH, New Delhi	2006, 2 <sup>nd</sup> Edition
2	Ed Tittel	Computer Networking	TMH, New Delhi	2007, 1 <sup>st</sup> Edition

**Web References**

1. [www.computernetworkingnotes.com](http://www.computernetworkingnotes.com)
2. [www.tutorialpoints.com](http://www.tutorialpoints.com)
3. [www.smartzworld.com](http://www.smartzworld.com)
4. [www.tutorialride.com](http://www.tutorialride.com)

**Pedagogy**

Lecture, PPT, Quiz, Assignment, Group Discussion, Seminar

## SEMESTER IV

CODE	COURSE TITLE
18CAPC413	DATA MINING TECHNIQUES

Category	CIA	ESE	L	T	P	Credit
Core XIII	25	75	55	5		4

### Preamble

The objective is to introduce the concept of data mining tasks, statistical concepts and the techniques for machine learning that are used in data mining. It explains a variety of machine learning methods for both supervised and unsupervised data. It describes the different methods for association rule mining and web mining.

### Course Outcomes

On the successful of this course, student will be able to

CO Number	CO Statement	Knowledge Level
CO1	Understand the concepts of data mining tasks , issues, metrics and its related concepts	K2
CO2	Describe the some of the statistical concepts and terminology associated with database systems and machine learning.	K2
CO3	Apply different methods for data classification and prediction algorithm.	K3
CO4	Apply different data clustering methods.	K3
CO5	Illustrate methods for mining frequent patterns, associations, and techniques for mining text documents	K3

### Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	M	S	S
CO2	M	M	S	S	M
CO3	S	S	M	S	M
CO4	M	M	S	S	M
CO5	S	S	M	M	S

S- Strong; M-Medium; L-Low

### Syllabus

#### UNIT I

**12Hrs.**

Basic Data Mining Tasks – Data Mining Vs Knowledge Discovery in Databases – Data Mining Issues – Data Mining Metrics – Social Implications of Data Mining – Data Mining from a Database Perspective – Information Retrieval – Decision Support System- Dimensional modeling – Data Warehousing – OLAP.

**UNIT II****12Hrs.**

Data Mining Techniques: Introduction – A Statistical Perspective on Data Mining – Similarity Measures – Decision Trees – Neural Networks – Genetic Algorithms.

**UNIT III****12Hrs.**

Classification: Introduction – Statistical based Algorithms – Distance based Algorithms – Decision Tree based Algorithms – Neural Network based Algorithms – Rule based Algorithms – Combination Techniques.

**UNIT IV****12Hrs.**

Clustering: Introduction – Similarity and Distance Measures– Outliers – Hierarchical Algorithms – Partitioning Algorithms- Clustering Large Databases.

**UNIT V****12Hrs.**

Association Rules: Introduction – Large Item Sets – Basic Algorithms – Parallel & Distributed Algorithms – Comparing Approaches – Incremental Rules. Web Mining: Introduction – Web Content mining: Crawlers – Harvest System – Virtual Web View – Personalization – Web Structure Mining: PageRank – Clever – Web Usage Mining: Preprocessing – Data Structures – Pattern Discovery – Pattern analysis.

**Text Book**

Sl. No.	Author Name	Title of the Book	Publisher	Year and Edition
1.	Margaret H. Dunham	Data Mining: Introductory and Advanced Topics	Pearson Education	2008, 1 <sup>st</sup> Edition

**Reference Books**

Sl. No.	Author Name	Title of the Book	Publisher	Year and Edition
1.	Jiawei Han & Micheline Kamber & Jian Pei	Data Mining: Concepts and Techniques	Elsevier India Private Limited	2012, 3 <sup>rd</sup> Edition
2.	Ian H. Witten, Eibe Frank, Mark A. Hall, Christopher J. Pal	Data Mining Practical Machine Learning Tools & Techniques	Elsevier India Private Limited	2017, 4 <sup>th</sup> Edition

**Web Resoruces**

- [www.tutorialspoint.com](http://www.tutorialspoint.com)
- [www.guru99.com](http://www.guru99.com)
- [www.tutorialride.com](http://www.tutorialride.com)
- [www.wideskills.com](http://www.wideskills.com)
- [www.slideshare.net](http://www.slideshare.net)

**Pedagogy**

Lecture, PPT, Quiz, Assignment, Group Discussion, Seminar

## SEMESTER IV

CODE	COURSE TITLE
18CAPCP07	DATA MINING LAB

Category	CIA	ESE	L	T	P	Credit
Practical – VII	40	60	-	-	60	3

### Preamble

This course provides the skills for students to different preprocessing and visualization techniques. It demonstrates a variety of machine learning methods for both supervised and unsupervised data. It illustrates the different methods for association rule mining and web mining. This also enables the students to understand and implement the different data mining techniques.

### Course Outcomes

On the successful of this course, student will be able to

CO Number	CO Statement	Knowledge Level
CO1	Analyze the different preprocessing methods.	K4
CO2	Compare the different visualization techniques.	K4
CO3	Evaluate the different classification algorithms for bench mark dataset.	K5
CO4	Evaluate the different clustering algorithms for bench mark dataset.	K5
CO5	Implement the association rule mining and frequent item set approaches for bench mark dataset.	K5

### Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	M	M	M
CO2	S	M	S	M	L
CO3	S	M	S	S	M
CO4	M	S	M	S	M
CO5	M	S	S	M	M

S- Strong; M-Medium; L-Low

### Syllabus

1. Data Preprocessing and Visualization
2. Attribute Selection
3. Association
4. Clustering
5. Classification

**SEMESTER IV**

<b>CODE</b>	<b>COURSE TITLE</b>
18CAPCP08	SOFTWARE TESTING LAB

<b>Category</b>	<b>CIA</b>	<b>ESE</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>Credit</b>
CORE	40	60	-	-	60	3

**Preamble**

This course provides the knowledge for students to work in automated testing tools Win Runner, Silk Test, SQL Robot, Load Runner, JMeter& QTP. Understanding the software test automation problems and solutions. Learning how to plan a test project, design test cases and data, conduct testing operations, manage software problems and defects and generate a testing report. This also enables the students to understand and implement the testing tools.

**Course Outcomes**

On the successful of this course, student will be able to fix the errors.

<b>CO Number</b>	<b>CO Statement</b>	<b>Knowledge Level</b>
CO1	Apply the concept of Design Phase Testing and Program Phase Testing using win runner tool	K3
CO2	Implement the concept of Debugging and Acceptance Testing using win runner tool	K4
CO3	Apply programming skills to evaluate the test results using silk test	K3
CO4	Implement the concept of Unit Testing, System Testing using silk test tool	K4
CO5	Apply stress testing using test director	K3

**Mapping with Programme Outcomes**

<b>COs</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>
<b>CO1</b>	S	S	S	M	M
<b>CO2</b>	S	M	M	S	M
<b>CO3</b>	M	M	S	S	M
<b>CO4</b>	S	S	M	M	S
<b>CO5</b>	S	M	M	S	M

S- Strong; M-Medium; L-Low

**Syllabus**

1. Design Phase Testing.
2. Program Phase Testing.
3. Debugging.
4. Acceptance Testing.
5. Evaluation of test results.
6. Unit Testing.
7. System Testing.
8. Integration Testing.

**Reference Books**

<b>Sl. No.</b>	<b>Authors</b>	<b>Title of the Book</b>	<b>Publisher</b>	<b>Year and Edition</b>
1	Prasad, K.V.K.K	Software Testing Tools: Covering winrunner, Silk test, Loadrunner, J Meter, Test Director and QTP with case studies	Dream Tech press	2005, 1 <sup>st</sup> Edition
2	Renu Rajani, Pradeep oak	Software Testing: Effective Methods, Tools and Techniques	TMH	2007, 1 <sup>st</sup> Edition

## SEMESTER V

CODE	COURSE TITLE
<b>18CSPC309/ 18CAPC514</b>	<b>ASP.NET PROGRAMMING</b>

Category	CIA	ESE	L	T	P	Credit
<b>Core</b>	25	75	<b>55</b>	5	-	4

### Preamble

Students will be able to understand the development and deployment of web applications.

### Course Outcomes

On the successful of the course the students able to

CO Number	CO Statement	Knowledge Level
CO1	Understand the framework of web programming and .NET	K1-K2
CO2	Gain knowledge of web forms and controls to create a user interface	K1-K2
CO3	Explore the knowledge on C#.NET with its applications	K1-K3
CO4	Access and manipulate data in a Microsoft SQL Server database by using Microsoft ADO.NET	K1-K3
CO5	Apply advanced controls in web applications	K2-K4

1.

### Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
<b>CO1</b>	S	S	S	M	M
<b>CO2</b>	S	M	M	S	M
<b>CO3</b>	S	M	S	S	M
<b>CO4</b>	S	S	M	M	S
<b>CO5</b>	S	M	M	S	M

S- Strong; M-Medium; L-Low



**UNIT I** **12 Hrs.**  
 ASP.NET 4.0 Essentials: Exploring the .NET Framework - Exploring the Visual Studio 2010 IDE - Exploring the ASP.NET 4.0.

**UNIT II** **12 Hrs.**  
 Application Structure and State - Web Forms: Standard Controls

**UNIT III** **12 Hrs.**  
 Introducing C# 2010 – Flow Control

**UNIT IV** **12Hrs.**  
 .NET and SQL Server – Data Access with ADO.NET

**UNIT V** **12Hrs.**  
 Validation Controls – Working with Database Controls : The SqlDataSource Control – The AccessDataSource Control – The XmlDataSource Control – The GridView Control – The DataList Control – The FormView Control - The Chart Control.

#### **Text Books**

<b>Sl.No.</b>	<b>Author Name</b>	<b>Title of the Book</b>	<b>Publisher</b>	<b>Year and Edition</b>
1.	<b>Kogent Learning Solutions Inc</b>	ASP.NET 4.0 Projects Black Book	DreamTech Press	Edition 2010.
2.	<b>Kogent Learning Solutions Inc</b>	.NET 4.0 Programming (6-in-1) Black Book	DreamTech Press	Edition 2011.

#### **Reference Books**

<b>Sl.No.</b>	<b>Author Name</b>	<b>Title of the Book</b>	<b>Publisher</b>	<b>Year and Edition</b>
1.	<b>Mattnew MacDonald</b>	Beginning ASP.NET 2.0 in VB 2005	APress	First Indian Reprint 2006
2.	<b>Adam Freeman</b>	Applied ASP.NET 4 in Context	APress	First Indian Reprint 2012.

#### **Web Resources**

1. <https://www.tutorialspoint.com/csharp/>
2. <https://www.guru99.com/asp-net-tutorial.html>

#### **Pedagogy**

Lecture, PPT, Quiz, Assignment, Group Discussion, Seminar

## SEMESTER V

CODE	COURSE TITLE
18CAPC515	DESIGN OF INFORMATION SYSTEMS

Category	CIA	ESE	L	T	P	Credit
Core	25	75	57	3		4

### Preamble

This course provides the basic concepts of analysis and design of information systems and unified modeling language.

### Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Understand the principles and tools of Information systems	K2
CO2	Understand and apply the concept of DFD and Decision Tables	K3
CO3	Create use case to capture requirements for a software system and class diagrams that model both the domain model and design model of a software system	K3
CO4	Understand and apply packages diagrams that model the dynamic aspects of a software system	K3
CO5	Understand and apply state and activity diagram for software system	K4

### Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	M	S	M	L
CO2	M	S	S	M	M
CO3	S	M	M	M	M
CO4	S	S	M	S	L
CO5	M	S	S	M	M

S- Strong; M-Medium; L-Low

**UNIT I****12 Hrs.**

Information and Management – Information systems Analysis overview – *Information gathering.*

**UNIT II****12 Hrs.**

Data Flow Diagram – Process Specification – *Decision Tables.*

**UNIT III****12 Hrs.**

Introduction - *Use Cases* – Class Diagrams: The Essentials – Interaction Diagrams.

**UNIT IV****12 Hrs.**

Class Diagrams: Advanced Concepts - Packages and *collaborations.*

**UNIT V****12Hrs.**

State Diagrams – Activity Diagrams – *Physical Diagrams.*

**Note: Self study topics are denoted in *Italics***

**Text Books**

Sl.No.	Author Name	Title of the Book	Publisher	Year and Edition
1.	<b>Rajaraman V</b>	Analysis and Design of Information System	Prentice – Hall of India	2 <sup>nd</sup> Edition , 2004
2.	<b>Martin Fowler, Kendall Scott</b>	UML Distilled	Pearson Education	2 <sup>nd</sup> Edition

**Reference Books**

Sl.No.	Author Name	Title of the Book	Publisher	Year and Edition
1.	<b>Eriksson</b>	UML TOOL Kit	Addison Wesley, New Delhi.	
2.	<b>Ivar Jacobson</b>	Object Oriented Software Engineering; A Use Case Driven Approach	Addison Wesley	1994
3.	<b>. James A Senn</b>	Analysis & Design of Information Systems	MCH International Edition	2 <sup>nd</sup> Edition, 1989
4.	<b>James Rumbough, Ivar Jacobson, Grady Booch</b>	The Unified Modeling Language Reference Manual	Addison Wesley, New Delhi	1999

## **Web Resources**

1. <https://www.geeksforgeeks.org/unified-modeling-language-uml-introduction/>
2. <https://www.tutorialspoint.com/uml/>
3. <https://nptel.ac.in/courses/106105087/14>

## **Pedagogy**

Lecture, PPT, Quiz, Assignment, Group Discussion, Seminar

## SEMESTER V

CODE	COURSE TITLE
18CSPCP04/ 18CAPCP09	ASP.NET PROGRAMMING LAB

### Preamble

Category	CIA	ESE	L	T	P	Credit
Practical IX	40	60	-	-	75	3

To make the students to develop web applications using C#.NET in .NET environment.

### Course Outcomes

On the successful completion of the course, Students should able to

CO Number	CO Statement	Knowledge Level
CO1	Implement web application using basic controls.	K3
CO2	Skills to develop application using advanced controls.	K3
CO3	Demonstrate the concept of flow control in C#.NET.	K4
CO4	Illustrate the concept of Data grid and Grid View Controls.	K3
CO5	Develop applications using XML Data Source Control.	K3

### Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	M	M	L
CO2	S	M	M	S	M
CO3	M	S	S	M	L
CO4	M	S	M	M	S
CO5	M	S	S	M	S

S- Strong; M-Medium; L-Low

### Syllabus

#### Practical List

Develop a web application using controls.

1. Develop a web application using CSS and Hyper link control.
2. Develop a web application using Bulleted List Control and Drop down list.
3. Develop an ASP.NET web page to demonstrate the use of image control and File upload control.
4. Develop an ASP.NET web application using Custom Control (User Control).
5. Develop a web application to demonstrate Flow Control using C#.NET.
6. Develop a web application using Data List, DataGrid View Controls.
7. Develop a web application using Chart Control.
8. Develop a web application using validation controls.
9. Develop a web application using XmlDataSource Control.