DEPARTMENT OF COMPUTER SCIENCE

B.Sc., COMPUTER SCIENCE

(Students admitted during 2021 – 2022 Onwards)

(Under CBCS with Outcome Based Education (OBE) Pattern)

Programme Outcomes and Course Outcomes

H.H. THE RAJAH'S COLLEGE
(Government Autonomous Co-educational Institution
Affiliated to Bharathidasan University, Trichy)
PUDUKKOTTAI – 622 001.

B.Sc. Computer Science [2018 -2019 Onwards]

S.NO	SEM	PAPER	SUB.CODE	Subject	HOURS/ WEEK	CREDIT	EXAM HOURS	MARKS		
								IE	EX	TOT
1	I	LC-I	18ULT1/ 18ULH1	Language Paper - I	6	3	3	25	75	100
2	I	ELC-I	18ULE1	English Paper – I	6	3	3	25	75	100
3	I	CC-I	18UCS1	Office Automation and Web Design	6	5	3	25	75	100
4	I	CP-II	18UCS2P	MS-Office & HTML Lab.	3	3	3	40	60	100
5	I	AC-I	18UCMA1	Applied Maths Paper - I	5	5	3	25	75	100
	I	SBE-I	18USBE1	Soft Skills - Paper - I	2	-	-	-	-	-
6	I	EVS	18UES	Environmental Studies	2	2	3	25	75	100
					30	**21**				**600**
7	II	LC-II	18ULT2 /18ULH2	Language Paper - II	6	3	3	25	75	100
8	II	ELC-II	18ULE2	English Paper – II	6	3	3	25	75	100
9	II	CC-III	18UCS3	Programming in C	6	5	3	25	75	100
10	II	CP-IV	18UCS4P	Programming in C Lab	3	3	3	40	60	100
11	II	AC-II	18UCMA2	Applied Maths Paper - II	5	5	3	25	75	100
12	II	VE	18UVE	Value Education	2	2	3	25	75	100
13	II	SBE-I	18USBE1	Soft Skills - Paper - I	2	4	3	25	75	100
					30	**25**				**700**
14	III	LC-III	18ULT3/ 18ULH3	Language Paper - III	6	3	3	25	75	100
15	III	ELC-III	18ULE3	English Paper – III	6	3	3	25	75	100
16	III	CC-V	18UCS5	Programming in Java	5	5	3	25	75	100
17	III	CP-VI	18UCS6P	Programming in Java Lab.	3	3	3	40	60	100
	III		18UCPA3	Applied Physics	3		-	-	-	-
			18UCPA4P	Applied Physics Lab.	3					
18	III	NME-I	18UCSN1	Pinciples of Management	4	2	3	25	75	100
				Management Information System	**OBJECTIVE TYPE**					
					30	**16**				**500**
19	IV	LC-IV	18ULT4/ 18ULH4	Language Paper - IV	6	3	3	25	75	100
20	IV	ELC-IV	18ULE4	English Paper – IV	6	3	3	25	75	100

21	IV	CC-VII	18UCS7	Programming in C#	5	5	3	25	75	100
22	IV	CP-VIII	18UCS8P	Programming in C# Lab.	3	3	3	40	60	100
23	IV	AC-III	18UCPA3	Applied Physics	3	5	3	25	75	100
24	IV	AP-IV	18UCPA4P	Applied Physics Lab.	3	5	3	40	60	100
25	IV	SBE-II	18USBE2	Soft Skills - Paper - II	4	4	3	25	75	100
					30	**28**				**700**
26	V	CC-IX	18UCS9	Programming in VB.Net	6	5	3	25	75	100
27	V	CP-X	18UCS10P	Programming in VB.Net Lab	4	4	3	25	75	100
28	V	CC-XI	18UCS11	Operating Systems	6	5	3	40	60	100
29	V	EC-I	18UCSE1	Data Communication and Networks(OR) E-commerce	6	5	3	25	75	100
30	V	NME-II	18UCSN2	General Health and Fitness (OR) Introduction to Office Management	4	2	3	25	75	100
31	V	SBE-III	18USBE3	Soft Skills - Paper - III	4	4	3	25	75	100
					30	**25**				**600**
32	VI	CC-XII	18UCS12	Database Systems	6	5	3	25	75	100
33	VI	CP-XIII	18UCS13P	RDBMS Lab.	4	4	3	40	60	100
34	VI	CC-XIV	18UCS14	Microprocessor and Its Applications	6	5	3	25	75	100
35	VI	EC-II	18UCSE2	Fundamentals of Data Structures (OR) Software Engineering	6	5	3	25	75	100
36	VI	EC-III	18UCSE3	Data Mining (OR) System Analysis and Design	6	4	3	25	75	100
37	VI	GS	18UGS	Gender Studies	2	1	3	25	75	100
38	VI			Extension Activity		1				
					30	**25**				**600**
			TOTAL		**180**	**140**				**3700**

B.Sc. (Computer Science) - Course Structure under CBCS
(For the Candidates Admitted from the academic year 2018- 2019 onwards)
Core Courses (14)

Sl. No	Sub. Code	Code	Title of the Paper	Credit
1	18UCS1	CC-I	Office Automation and Web Design	5
2	18UCS2P	CP-II	MS-Office & HTML Lab.	3
3	18UCS3	CC-III	Programming in C	5
4	18UCS4P	CP-IV	Programming in C Lab	3
5	18UCS5	CC-V	Programming in Java	5
6	18UCS6P	CP-VI	Programming in Java Lab.	3
7	18UCS7	CC-VII	Programming in C#	5
8	18UCS8P	CP-VIII	Programming in C# Lab.	3
9	18UCS9	CC-IX	Programming in VB.Net	5
10	18UCS10P	CP-X	Programming in VB.Net Lab	4
11	18UCS11	CC-XI	Operating Systems	5
12	18UCS12	CC-XII	Database Systems	5
13	18UCS13P	CP-XIII	RDBMS Lab.	4
14	18UCS14	CC-XIV	Microprocessor and Its Applications	5
				60
Elective Courses (3)				
1	18UCSE1	EC-I	Data Communication and Networks(OR)	5
			E-Commerce	
2	18UCSE2	EC-II	Software Engineering (OR)	5
			Fundamentals of Data Structures (OR)	
3	18UCSE3	EC-III	Data Mining (OR)	4
			System Analysis and Design	
				14
Skill Based Elective Courses (3)				
1	18USBE1	SBE-I	Soft Skills - Paper - I	4
2	18USBE2	SBE-II	Soft Skills - Paper - II	4
3	18USBE3	SBE-III	Soft Skills - Paper - III	4
				12
Allied Courses (4)				
1	18UCMA1	AC-I	Applied Maths Paper - I	5
2	18UCMA2	AC-II	Applied Maths Paper - II	5
3	18UCPA3	AC-III	Applied Physics	5
4	18UCPA4P	AP-IV	Applied Physics Lab.	5
				20
Non-Major Elective Courses (2)				
1	18UCSN1	NME-I	Principles of Management	2
			Management Information System	
2	18UCSN2	NME-II	General Health and Fitness	2
			Introduction to Office Management	
				4
1	18UES	EVS	Environmental Studies	2
2	18UVE	VE	Value Education	2

3	18UGS	GS	Gender Studies	1
Total Credits				**115**
Part - V : Extra Curicular Activity				1
Part - I & Part - II				24
Over all Credits				**140**

B.Sc. Computer Science [2018 -2019 Onwards]

S.NO	SEM	PAPER	SUB.CODE	Subject	PAPER		
					NEW	REVISED	RETAINED
1	I	CC-I	18UCS1	Office Automation and Web Design	✓		
2	I	CP-II	18UCS2P	MS-Office & HTML Lab.	✓		
3	II	CC-III	18UCS3	Programming in C	✓		
4	II	CP-IV	18UCS4P	Programming in C Lab	✓		
5	III	CC-V	18UCS5	Programming in Java			✓
6	III	CP-VI	18UCS6P	Programming in Java Lab.			✓
7	III	NME-I	18UCSN1	Pinciples of Management			✓
8				Management Information System	✓		
9	IV	CC-VII	18UCS7	Programming in C#			✓
10	IV	CP-VIII	18UCS8P	Programming in C# Lab.			✓
11	V	CC-IX	18UCS9	Programming in VB.Net	✓		
12	V	CP-X	18UCS10P	Programming in VB.Net Lab	✓		
13	V	CC-XI	18UCS11	Operating Systems		✓	
14	V	EC-I	18UCSE1	Data Communication and Networks(OR)		✓	
15				E-commerce	✓		
16	V	NME-II	18UCSN2	General Health and Fitness (OR)			✓
17				Introduction to Office Management	✓		
18	VI	CC-XII	18UCS12	Database Systems		✓	
19	VI	CP-XIII	18UCS13P	RDBMS Lab.		✓	
20	VI	CC-XIV	18UCS14	Microprocessor and Its Applications			✓
21	VI	EC-II	18UCSE2	Fundamentals of Data Structures (OR)			✓

22				Software Engineering			✓
23	VI	EC-III	18UCSE3	Data Mining (OR)			✓
24				System Analysis and Design	✓		
% of Change					**42**	**17**	**41**

Program Outcomes (POs):

PO1: Capable of demonstrating comprehensive knowledge and understanding of one or more disciplines that form a part of an undergraduate programme of study.

PO2: Acquire sound knowledge in computer science including theory, programming, algorithms, databases and web development.

PO3: A sense of inquiry and capability for asking relevant/appropriate questions; ability to recognize cause-and-effect relationships, define problems, formulate and test hypotheses, analyses, interpret and draw conclusions from data; ability to plan, execute and report the results of an experiment or investigation.

PO4: Ability to work effectively and respectfully with diverse teams; facilitate cooperative or coordinated effort on the part of a group, and act together as a group or a team in the interests of a common cause and work efficiently as a member of a team.

PO5: Capability to use ICT in a variety of learning situations; ability to work independently, identify appropriate resources required for a project; ability to acquire knowledge and skills, through self-paced and self-directed learning aimed at personal development.

Subject Code: 18UCS1

CC- I - OFFICE AUTOMATION AND WEB DESIGN

Objectives:
- Able to explain the fundamentals of Word and Excel
- Able to explain the various tags of HTML

Unit – I Ms-Word Basics : Starting word, Creating a new document, Opening prexisting document, Undo, Redo, Repeat, Inserting text, Replacing text, Formatting text, Cut , Copy, Paste – Formatting Text and Documents : Auto format, Line spacing, Margins, Borders and Shading. Headers and Footers. Table manipulation. Graphics: Importing graphics, Clipart, Insert picture, Clip Art Gallery, using word's drawing features, Mail Merge

Unit - II : MS EXCEL BASICS: The usual spread sheet features, entering and formatting numbers, entering and editing formulas, referencing cells, order of evaluation in formulas, Rearranging worksheets: Moving cells, copying cells, sorting cell data, inserting rows, inserting columns, inserting cells, inserting as you paste, deleting parts of a worksheet, clearing parts of a worksheet, Excel's chart.

Unit - III : Introduction to HTML: Head and Body Section – Header Section – Prologue – Body Section : Colorful webpage – Heading - Printing – Aligning – Horizontal Ruler – Anchor tag – Hyperlink – Comment .

Unit IV : **Paragraph – Tab Setting** : Formatting Characters – Physical Style Format – Colorful Web Pages - Font tag – Base Font – Pre Formatting Text – Special Characters.

UNIT V: Images and Pictures – List : Ordered List – Unordered List – Nested List – Table handling : Table Creation – Width of tables and Cells – Cell's Spanning - Coloring Cells – Column Specification

TEXT BOOK
1. Ran Mansfield, working in Microsoft Office, Tata McGraw Hill 2008).
   Unit-I : Chapters : 4 to 8,12.
   Unit – II : 13,14,18.
2. World Wide Web Designing, C.Xavier, Tata McGraw Hill, 2000.
   UNIT III: Chapter 4, 5,4.6, 5.1, 5.2, 5.3, 5.5, 5.6, 6.1 6.2, 6.3
   Unit - IV: Chapter 6.4, 6.5
   Unit – V : Chapter 6.6, 6.7, 8.1 – 8.6.

- **https://www.gcflearnfree.org/topics/office2010/**
- **https://www.w3schools.com/Html/**

Outcomes:
   CO1: Able to get exposure in Word and Excell
   CO2: Able to design the webpages using HTML
   CO3: Differentiate between different Web Extensions and Web Services.
   CO4: Able to Design the Web Pages using HTML
   CO5: Define the email functioning and basics of HTML.

Part – A Answer all the Questions 10 X 2 = 20 Marks	Part – B Internal Choice Type 5 X 5 = 25 Marks	Part – C Answer any 3 Questions 3 X 10 = 30 Marks
Question 1,2 – 1 Unit 3,4 – II Unit 5,6 – III Unit 7,8 – IV Unit 9,10 – V Unit	11a (or) 11b – 1 Unit 12a (or) 12b – II Unit 13a (or) 13b – III Unit 14a (or) 14b – IV Unit 15a (or) 15b – V Unit	16 – I Unit 17 – II Unit 18 – III Unit 19 – IV Unit 20 – V Unit

Mapping Course Outcomes with Programme Outcomes:

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

S: Strong; M: Medium; L: Low

CP - II – MS-Office and HTML LAB

MS-WORD

1. Bio-Data Preparation
2. Letter writing (Using all Formats)
3. Table Manipulations
4. Newspaper Design with Multiple Columns
5. Borders, Shadings and Watermark
6. Mail Merge

MS-EXCEL

7. Formatting the cell in MS-Excel.
8. Preparing a **chart**
9. Preparing a Student Mark List
10. Built-in Functions

HTML

11. Text, Marquee, Heading and Paragraph
12. HYPERLINK
13. Ordered and Unordered List.
14. Table
15. Forms

Outcomes:

CO1: Able to get exposure in Word and Excell
CO2: Able to design the webpages using HTML
CO3: Differentiate between different Web Extensions and Web Services.
CO4: Able to Design the Web Pages using HTML
CO5: Define the email functioning and basics of HTML.

Subject Code: 18UCS3

CC - III – PROGRAMMING IN C

Objective:
- To impart basic knowledge of programming skills in C.
- Enable to write the basic programmes

Unit I

Overview of C: History of C – Importance of C – Constants, Variables and Data Types: Introduction – Character set – C Tokens – Keywords and Identifiers – Constants – Variables – Data Types – Declaration of Variables – Operator and Expressions.

Unit II

Managing Input and Output Operations: Introduction – Reading a Character – Writing a Character – Formatted input and Output. Decision Making and Branching: Decision making if Statement – Simple if Statement – if else Statement – Nesting of if…else Statement – else if ladder – switch statement – goto Statement – Decision Making Looping: while, do while & for Statement.

Unit III

Arrays: One Dimensional Arrays – Declaration of One Dimensional arrays – Initialization of one Dimension arrays – Two Dimensional arrays – Initialization of two Dimension arrays – Multi Dimensional Arrays.

Unit – IV

User – Defined Functions: Need for user Defined Functions – A multi function Program – Elements of user defined functions – Return value and their types – Function calls and Declaration - Nesting of Function – Recursion.

Unit V

Structure and Unions: Introduction – Defining a Structure – Declaration of structure variables – Accessing structure members – Structure Initializations. File Management: Defining and Opening a File – Closing a File – I/O Operation on File.

Outcomes:

CO1: Understood the programming techniques
CO2: Acquired the basics of the C Programming
CO3: Understood the sequence control and data control.
CO4: Would have learnt the various Concept using C
CO5: Apply the concepts of storage management.

TEXT BOOKS

Programming in ANSI C – E.BALAGRUSAMY _ Fourth Edition – Tata McGraw Hill.

Unit I: Chapter 1.1, 1.2, 2.1to 2.8, 3.1 – 3.12   Unit II: Chapter 4.5, 6.1 – 6.5
Unit III: Chapter 7.1 – 7.7,   Unit IV Chapter 9.1 – 9.8, 9.15, 9.16
Unit V: Chapter 10.1 – 10.5, 12.2 –12.4

REFERENCE BOOKS:

Programming with C – Byron S Gottfried – Schaum's Outline Series, Tata McGraw Hill, 1996.
- https://www.programiz.com/c-programming

Part – A Answer all the Questions 10 X 2 = 20 Marks	Part – B Internal Choice Type 5 X 5 = 25 Marks	Part – C Answer any 3 Questions 3 X 10 = 30 Marks

Question	1,2 – 1 Unit	11a (or) 11b – 1 Unit	16 – I Unit
	3,4 – II Unit	12a (or) 12b – II Unit	17 – II Unit
	5,6 – III Unit	13a (or) 13b – III Unit	18 – III Unit
	7,8 – IV Unit	14a (or) 14b – IV Unit	19 – IV Unit
	9,10 – V Unit	15a (or) 15b – V Unit	20 – V Unit

Mapping Course Outcomes with Programme Outcomes:

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

S: Strong; M: Medium; L: Low

Subject Code: 18UCS4P

CP - IV – PROGRAMMING IN C LAB

1. Write a Program to convert temperature from degree Centigrade to Fahrenheit.

2. Write a Program to find whether given number is Even or Odd.

3. Write a Program to find greatest of Three numbers.

4. Write a Program to using switch statement to display Monday to Sunday.

5. Write a Program to display first Ten Natural Numbers and their sum.

6. Write a Program to find Multiplication of Two Matrices.

7. Write a Program to solve Quadratic Equation using functions.

8. Write a Program to find factorial of a number using Recursion.

9. Write a Program to show Call by Value and Call by Reference.

10. Write a Program to create a file containing Student Details.

11. Write a Program to update the details of student's information using various file modes.

Outcomes:

CO1: Understood the programming techniques
CO2: Acquired the basics of the C Programming
CO3: Understood the sequence control and data control.
CO4: Would have learnt the various Concept using C
CO5: Apply the concepts of storage management.

Subject Code: 18UCS5

CC – V – PROGRAMMING IN JAVA

Objective:
- To understand the basic concepts of Object Oriented Programming with Java language
- Enable to write the basic programmes

UNIT I

Fundamentals of Object Oriented Programming – Java Evolution – Overview of Java Language – Data Types , Variables , Arrays – Operators – Control Statements.

UNIT II
Introduction to Classes – Class fundamentals – Declaring Objects – Constructors – Methods – Overloading Methods – Nested and Inner Classes – String Handling.

UNIT III
Inheritance – Method Overriding – Abstract Class – Packages – Interfaces – Exception Handling – Types Of Exception – Try And Catch – Nested Try Statements.

UNIT IV
Multithreaded Programming – Stream I/O and Files: Java I/O Classes and Interfaces – File – Stream Classes – Byte Streams – Character Streams – Using Stream I/O – Serialization – Stream Benefits.

UNIT V
Applets and Graphics: Fundamentals of Applets – Graphics – AWT and Event Handling: AWT Components and Event Handlers – AWT Controls and Event Handling Types and Examples.

Outcome:

CO1: Would have learnt the fundamentals of Java
CO2: Would have learnt the usage of Exception handling
CO3: Implement polymorphism and overloading of operators
CO4: Apply the I/O operations to handle backup system using files.
CO5: Would have learnt Applets and Graphics.

TEXT BOOK
Programming With Java A Primer 3/E E. Balaguruswamy

UNIT I: Chapter 1 to 7
UNIT II: Chapter 8, 9
UNIT III: Chapter 10, 11, 13
UNIT IV: Chapter 12, 16
UNIT V: Chapter 14, 15

REFERENCE BOOK
Programming With Java – C. Muthu

- http://www.learnjavaonline.org/

Part – A Answer all the Questions 10 X 2 = 20 Marks	Part – B Internal Choice Type 5 X 5 = 25 Marks	Part – C Answer any 3 Questions 3 X 10 = 30 Marks

Question	1,2 – 1 Unit	11a (or) 11b – 1 Unit	16 – I Unit
	3,4 – II Unit	12a (or) 12b – II Unit	17 – II Unit
	5,6 – III Unit	13a (or) 13b – III Unit	18 – III Unit
	7,8 – IV Unit	14a (or) 14b – IV Unit	19 – IV Unit
	9,10 – V Unit	15a (or) 15b – V Unit	20 – V Unit

Mapping Course Outcomes with Programme Outcomes:

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

S: Strong; M: Medium; L: Low

CP - VI – PROGRAMMING IN JAVA LAB

1. Classes and Objects

2. Control Statements

3. Constructors

4. Method Overloading and Overriding

5. String Handling

6. Inheritance

7. Packages

8. Interfaces

9. Exception Handling

10. Threads

11. File Processing

12. Graphics Methods

13. AWT controls

14. AWT Event Handling

Outcome:

CO1: Would have learnt the fundamentals of Java
CO2: Would have learnt the usage of Exception handling
CO3: Implement polymorphism and overloading of operators
CO4: Apply the I/O operations to handle backup system using files.
CO5: Would have learnt Applets and Graphics.

Subject Code: 18UCSN1
NME - I– PRINCIPLES OF MANAGEMENT

OBJECTIVE:
- To make students acquainted with fundamentals of management
- Able to acquire various practices, theories and concept related with management

Unit I

Introduction: Meaning and Definition of Management – Features and Functions of Management – Importance of Management – Functions and Role of Manager – Responsibilities of Professional Manager – Elements of Management – Principle of Management – Scientific Management – Principle of Scientific Management.

Unit II

Planning: Approaches of Management: System Approach – Situational Approach – Policy: Meaning –Features – Importance – Types of Policies – Merits and Demerits of Policy – Planning: Meaning – Definition – Characteristics – Objectives – Nature – Importance – Advantage – Steps in Planning Process – Methods of Planning – Limitation of Planning,

Unit III

Organization: Meaning – Definition – Function – Principles –Characteristics – Advantages – Classification: Formal Organization – Informal Organization – Types of Organization: Line Organization – Functional Organization – Line and Staff Organization – Committee Organization – Project Organization – Matrix Organization – Free Form Organization.

Unit IV

Staffing: Definition – Elements – Functions – Processing – Proper Staffing – Recruitment – Sources – Merits and Demerits – Selection – Importance – Stages of Selection Procedure – Kinds of Interviews – Principles of Interview – Process of Interview – Promotion – Training: Meaning – Definition – Elements – Importance and Need – Types of Training – Characteristics of Good Training.

Unit V

Leadership: Types of Leadership: Importance – Approaches – Functions – Types of Leaders – Characteristics of Leadership Styles. Co–Ordination: Definition – Characteristics of Importance – Essential and Effective – Techniques – Types – Steps for Effective Co–Ordination – Co–Ordination and Co –Operation.

Outcome:

CO1: Would have learnt the various Management Techniques
CO2: To recall and identify the relevance of management concepts
CO3: Would have learnt the Various Levels of Management
CO4: To apply management techniques for meeting current and future management challenges faced by the organization
CO5: To apply principles of management in order to execute the role as a manager

TEXT BOOK

Principles of Management – T. Ramasamy Himalaya Publishing House, 8th Revised Edition

Unit I: Chapter 1, 2   Unit II: Chapter 3, 4, 5

Unit III: Chapter 9, 13   Unit IV: Chapter 15, 17

Unit V: Chapter 21, 25.

REFERENCE BOOKS

Principles of Management – C.M Prasad

Principles of Management – Dinkarpagare

- http://open.lib.umn.edu/principlesmanagement/

Mapping Course Outcomes with Programme Outcomes:

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

S: Strong; M: Medium; L: Low

Subject Code: 18UCSN1

NME-I - MANAGEMENT INFORMATION SYSTEMS

OBJECTIVE:
- It is expected that students are able to understand the usage of Information Systems in management
- The student would be aware of various Information System solutions like ERP, CRM etc.

UNIT I

Foundations of Information Systems in Business: Foundation Concepts – Components of Information Systems

UNIT II

Competing with Information Technology: Fundamentals of Strategic Advantage – Using Information Technology for Strategic Advantage

UNIT III

Data Resource Management: Technical Foundations of Database Management – Managing Data Resources.

UNIT IV

Telecommunications and Networks: The Networked Enterprise – Telecommunications Network Alternatives

UNIT V

Decision Support Systems: Decision Support in Business – Artificial Intelligence Technology in Business – Developing Business / IT Solutions

Outcome:

CO1: Relate the basic concepts and technologies used in the field of management information systems

CO2: Compare the processes of developing and implementing information systems.

CO3: Outline the role of the ethical, social, and security issues of information systems.

CO4: Translate the role of information systems in organizations, the strategic management processes, with the implications for the management.

CO5: Apply the understanding of how various information systems like DBMS work together to accomplish the information objectives of an organization.

TEXT BOOK

"Management Information Systems", James A. O'brien, Fourth Edition, Galgotia Publications, 1999.
        UNIT I: Chapter 1
        UNIT II: Chapter 2
        UNIT III: Chapter 5
        UNIT IV: Chapter 6
        UNIT V: Chapter 9, 10

REFERENCE BOOK

"Management Information Systems", Gordon B. Davis Margrethe H. Olson, 2nd Edition, McGraw Hill.

- https://www.tutorialspoint.com/management_information_system/index.htm

Mapping Course Outcomes with Programme Outcomes:

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

S: Strong; M: Medium; L: Low

Subject Code: 18UCS7

CC - VII – PROGRAMMING IN C#

Objective:
- To impart basic knowledge of programming skills in C#
- Enable to write the basic programmes

UNIT I

Introduction to C # : Evolution of C# – Characteristics of C# – Application of C# –Difference Between C++ and C# – Difference Between Java and C# – The C# Environment – Overview of C#.

UNIT II

Literal, Variables and Data Types : Literals – Variables – Data Types – Value Types – Reference Type – Declaration of Variables – Initialization of Variables – Default Values – Constant Variables – Scope of Variables – Boxing And Unboxing – **Operators and Expression:** Various Operators.

UNIT III

Decision Making And Branching: If Statement – – Switch Statement – The ?: Operator – **Decision Making And Looping:** While Statement – Do Statement – For Statement – Jumps in Loops.

UNIT IV

Methods in C#: Declaring Methods – The Main Method – Methods Parameters – Pass by Value – Pass by Reference – Variable Arguments List – Method Overloading – **Handling Arrays** – **Manipulating String** – **Classes and Objects:** Class – Objects – Constructors – Destructors**.**

UNIT V

Inheritance and Polymorphism: Classical Inheritance – Overriding Methods – Polymorphism – **Interfaces:** Multiple Inheritances and Interface. **Operator Overloading.**

Outcome:

CO1:   Explain the concepts of programming language, the general problems and methods related to syntax and semantics.
CO2:   Interpret the structured data objects, sub programs and programmer defined data type.
CO3:   Outline the sequence control and data control.
CO4:   Apply the concepts of storage management using programming languages.
CO5:   Implementing the subprogram call and return

TEXT BOOK

Programming in C#, E. Balagurusamy, Tata McGraw Hill, 2004.

UNIT I: Chapter 1, 2, 3
UNIT II: Chapter 4, 5
UNIT III: Chapter 6, 7
UNIT IV: Chapter 8, 9, 10, 12(12.1 – 12.15)
UNIT V: Chapter 13, 14, 15

REFERENCE BOOK
Fundamentals of Computer Programming with C# - Svetlin Nakov , Kindle Edition

- http://www.learncs.org/

Part – A Answer all the Questions 10 X 2 = 20 Marks	Part – B Internal Choice Type 5 X 5 = 25 Marks	Part – C Answer any 3 Questions 3 X 10 = 30 Marks
Question 1,2 – 1 Unit 3,4 – II Unit 5,6 – III Unit 7,8 – IV Unit 9,10 – V Unit	11a (or) 11b – 1 Unit 12a (or) 12b – II Unit 13a (or) 13b – III Unit 14a (or) 14b – IV Unit 15a (or) 15b – V Unit	16 – I Unit 17 – II Unit 18 – III Unit 19 – IV Unit 20 – V Unit

Mapping Course Outcomes with Programme Outcomes:

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

S: Strong; M: Medium; L: Low

CP - VIII – PROGRAMMING IN C# LAB

1. Simple Programs

2. Command Line Arguments

3. Boxing And Unboxing

4. Control Structure

5. Branching And Looping

6. Methods

7. Arrays

8. String Handling

9. Class and Objects

10. Constructors and Destructors

11. Inheritance

12. Polymorphism

13. Operator Overloading

14. Implementing Interface

Outcome:

CO1:   Explain the concepts of programming language, the general problems and methods related to syntax and semantics.

CO2:   Interpret the structured data objects, sub programs and programmer defined data type.

CO3:   Outline the sequence control and data control.

CO4:   Apply the concepts of storage management using programming languages.

CO5:   Implementing the subprogram call and return

Subject Code: 18UCS9

CC- IX – PROGRAMMING IN VB.NET

Objective:
- To understand the concepts of Visual Basic
- To develop simple applications

UNIT I : Introduction to Microsoft.Net Framework: Introduction – Start Page – IDE Main Window – Class View Window – Object Browser – Code Window – Compiling the Code – Code Debugging – Developing a Simple VB.NET Console Application – Developing Simple VB.NET Project through Visual Studio IDE.

UNIT II : Variables Constants and Expressions: Value Types and Reference Types – variable Declaration and Initialization – Value Data Types – Reference Data Types – Boxing and Unboxing – Arithmetic Operators and expressions – Text Box Control – Label Control – Button Control – Control Statements – IF Statement – Radio Buttons – Check Box – Group Box – List Box – Checked Listbox – Combo Box Control – Select ... Case – While – Do – For Statements.

UNIT III: Methods and Arrays – Types of Methods – Arrays – One Dimensional – Multidimensional Arrays – Jagged Arrays – Classes Properties and Indexes: Definition and Usage of Class – Constructor Overloading – Copy Constructor – Instance and Shared Class Members – Shared Constructor – Properties – Indexes, Inheritance and Polymorphism.

UNIT IV: Definition and Usage of Interfaces – Namespaces – Delegates – Events – Default Exception Handling Mechanism – User Defined Exception Handling Mechanism – Back Tracking – Throw Statement – Custom Exception – Usage of Thread – Thread Class – Start() , Abort(), Join(), Sleep(), Suspend() and Resume Methods.

UNIT V: Database Connectivity: Advantages of ADO.NET – Managed Data Providers – Developing Simple Application – Creation of a Data Table – Retrieving Data from Tables – Table Updating.

Outcome:

   CO1: Would have learnt the fundamentals of VB.Net
   CO2: Outline the sequence control and data control.
   CO3: Understand .NET Framework architecture, its components and basics of Visual Studio.
   CO4: Analyze the problem and create window based program with Visual Basic.
   CO5: Develop and implement window based application using Visual Basic.

TEXT Book

   Visual Basic. Net, C. Muthu, Vijay Nicole Imprints Private Limited
UNIT I: Chapter 2
UNIT II: Chapter 3, 4
UNIT III: Chapter 5, 6, 7
UNIT IV: Chapter 8, 9, 10, 11
UNIT V: Chapter 12, 15

REFERENCE Book

   The Complete Reference – Visual Basic . NET – Jefrey R.Shapiro , Tata McGraw Hill, 2002.
- https://www.tutorialspoint.com/vb.net/

Part – A Answer all the Questions 10 X 2 = 20 Marks	Part – B Internal Choice Type 5 X 5 = 25 Marks	Part – C Answer any 3 Questions 3 X 10 = 30 Marks
Question 1,2 – 1 Unit 3,4 – II Unit 5,6 – III Unit 7,8 – IV Unit	11a (or) 11b – 1 Unit 12a (or) 12b – II Unit 13a (or) 13b – III Unit 14a (or) 14b – IV Unit	16 – I Unit 17 – II Unit 18 – III Unit 19 – IV Unit

9,10 – V Unit	15a (or) 15b – V Unit	20 – V Unit

Mapping Course Outcomes with Programme Outcomes:

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

S: Strong; M: Medium; L: Low

CP - X – PROGRAMMING IN VB.NET LAB

1. Console Applications.

2. Boxing and Unboxing

3. Control Structure

4. Controls

5. Arrays

6. Constructor

7. Inheritance

8. Polymorphism.

9. Events

10. Exception Handling

11. Thread

12. Database Connectivity

Outcome:

CO1: Would have learnt the fundamentals of VB.Net
CO2: Outline the sequence control and data control.
CO3: Understand .NET Framework architecture, its components and basics of Visual Studio.
CO4: Analyze the problem and create window based program with Visual Basic.
CO5: Develop and implement window based application using Visual Basic.

Subject Code: 18UCS11

CC – XI – OPERATING SYSTEMS

Objective:
- **To provide fundamental concepts of operating system**
- **To provide various managements in an operating system**

UNIT I
Evolution of Operating Systems – Types of Operating System – Different Views of OS – Design and Implementation of Operating Systems – I/O Programming Concepts.

UNIT II
Memory Management – Single Contiguous Allocation – Partitioned Allocation – Relocatable Partitions Allocations – Paged and Demand Paged Memory Management – Segmented Memory Management – Segmented and Demand Paged Memory Management – Overlay Techniques – Swapping.

UNIT III
Processor Management – Job Scheduling – Process Scheduling – Functions And Policies – Evolution of Round Robin Multiprogramming Performance – Process Synchronisation – Race Condition – Synchronization Mechanism – Deadly Embrace – Synchronisation Performance Considerations.

UNIT IV
Device Management: Techniques for Device Management – Device Characteristics – I/O Traffic Controller, I/O Scheduler, I/O Device Handlers – Virtual Devices – Spooling.

UNIT V
File Management: Simple File System – General Model of a File System – Physical and Logical File System.

Outcome:

CO1: Explain the structure and functions of Operating system.
CO2: Illustrate the concept of concurrency.
CO3: Outline the concepts of deadlock.
CO4: Distinguish between various memory management scheme.
CO5: Explain I/O management and file system, concepts of protection and security.

TEXT BOOK
"Operating Systems" – E. Madnick & John J.Donavan, Tata McGraw Hill Publishing Co., Limited. 1997 Edition.

UNIT I: Chapter 1, 2

UNIT II: Chapter 3

UNIT III: Chapter 4

UNIT IV: Chapter 5

UNIT V: Chapter 6

REFERENCE BOOK
"System Programming and Operating Systems" – D.M. Dhamdhere, Tata Mcgraw Hill Publishing Co., Limited.
- **https://www.tutorialspoint.com/operating_system/index.htm**

Part – A Answer all the Questions 10 X 2 = 20 Marks	Part – B Internal Choice Type 5 X 5 = 25 Marks	Part – C Answer any 3 Questions 3 X 10 = 30 Marks

Question 1,2 – 1 Unit	11a (or) 11b – 1 Unit	16 – I Unit
3,4 – II Unit	12a (or) 12b – II Unit	17 – II Unit
5,6 – III Unit	13a (or) 13b – III Unit	18 – III Unit
7,8 – IV Unit	14a (or) 14b – IV Unit	19 – IV Unit
9,10 – V Unit	15a (or) 15b – V Unit	20 – V Unit

Mapping Course Outcomes with Programme Outcomes:

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

S: Strong; M: Medium; L: Low

EC – II - FUNDAMENTALS OF DATASTRUCTURES

Objective:
- To understand the basic concepts
- To understand the types of data structures

UNIT I

Basic Terminology – Data Structure Operations – Algorithms: Complexity, Time Space Tradeoff – Arrays: Linear Array – Representation of Linear Array – Inserting and Deleting – Bubble Sort – Linear Search- Binary Search

UNIT II

Linked List: Representation – Traversing – searching – Insertion – Deletion- Two Way List

UNIT III

Stack: Array Representation – Linked Representation – Arithmetic Expression – Quick Sort – Queue - Linked Representation

UNIT IV

Trees: Binary Tree Representation – Traversing – Traversal Algorithms Using Stack – Threads - Binary Search Trees - Insertion – Deletion in Binary Search Trees – Heap Sort

UNIT V

Graph: Terminology – Sequential Representation of Graph – Linked Representation of Graph- Operations on Graphs – Sorting: Insertion Sort – Selection Sort – Merge Sort

Outcome:

CO1: Would have learnt the various Data Structure
CO2: Would have learnt the Various Operations of Data Structures
CO3: Compare various searching and sorting techniques
CO4: Identify the asymptotic notations
CO5: Choose appropriate data structure while designing the algorithms.

TEXT BOOK

Data Structures – Lipschuta, Tata Mcgraw Hill, Schaum's Outline Series.

UNIT I: Chapter 1.2, 1.4, 1.5, 4.2 – 4.8

UNIT II: Chapter 5.2 – 5.5, 5.7,5.8, 5.10

UNIT III: Chapter 6.2 – 6.6, 6.10, 6.11

UNIT IV: Chapter 7.2 – 7.5, 7.7 – 7.9, 7.17

UNIT V: Chapter 8.2 – 8.3,8.5,8.6,9.3-9.5

REFERENCE BOOK

Fundamentals Of Data Structure – Ellis Horowitz And Sartaj Sahini

- https://www.studytonight.com/data-structures/

Part – A Answer all the Questions 10 X 2 = 20 Marks	Part – B Internal Choice Type 5 X 5 = 25 Marks	Part – C Answer any 3 Questions 3 X 10 = 30 Marks

Question	1,2 – 1 Unit	11a (or) 11b – 1 Unit	16 – I Unit
	3,4 – II Unit	12a (or) 12b – II Unit	17 – II Unit
	5,6 – III Unit	13a (or) 13b – III Unit	18 – III Unit
	7,8 – IV Unit	14a (or) 14b – IV Unit	19 – IV Unit
	9,10 – V Unit	15a (or) 15b – V Unit	20 – V Unit

Mapping Course Outcomes with Programme Outcomes:

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

S: Strong; M: Medium; L: Low

NME - II – GENERAL HEALTH AND FITNESS

UNIT I
INTRODUCTION
  A. Health – Meaning and Definition
  B. Aspects of Health – Physical – Mental – Social – Spiritual Health
  C. Importance of Health
  D. Factors Influencing Health
  E. Need and Importance of Health

UNIT II
HEALTH PROBLEMS
  A. Disease – Communicable Disease – Types – Modes of Transmission – Causes – Symptoms – Prevention and Control – Malaria – Small Box – Tuberculosis – AIDS.
  B. Non – Communicable Disease – Hypertension – Stroke – Obesity – Coronary Heart Disease – Diabetes – Leukaemia – Epilepsy.
  C. Immunity – Meaning and Definition – Types – Immunization.
  D. BMI – Calculation and BMI Table – Hip / Waist Ratio.

UNIT III
HEALTH ORGANISATIONS AND AGENCIES
  A. Structure and Functions of National and International Agencies.
  B. WHO, UNICEF, IRCS, UNDP, World Bank, JRC, IMA, Family Planning Association of India, RRC.

UNIT IV
FITNESS AND WELLNESS
  A. Meaning and Definition of Fitness – Physical Fitness.
  B. Types of Physical Fitness – Health Related Physical Fitness – Skill Related Physical Fitness.
  C. Meaning and Definition of Fitness and Wellness.
  D. Physical Fitness Activities – Aerobic Exercise – Walking – Jogging – Running – Cycling – Swimming – Anaerobic Exercise – Slow and Fast Continuous Running – Resistance Training.
  E. Simple Physical Exercise Programme for Computer Users.

UNIT V
YOGIC SCIENCE
  A. Meaning and Definition of Yoga.
  B. Aim and Objectives of Yoga – Limbs of Yoga.
  C. Guidelines for Practicing Asana.
  D. Suryanamaskar and its Benefits.
  E. Pranayama and its Benefits – Nadi Suddhi – Nadi Sodhana – Surya Bhedana – Chandra Bhedana – Kapalabathi.
  F. Difference between Physical Exercise and Yoga Asana.

Outcome:
  CO1: Would have learnt the various Health Problems.
  CO2: Would have learnt the Various Fitness and Wellness Techniques.
  CO3: Understand the role of health organisations and agencies.
  CO4: Explain the components of physical fitness and steps to achieve each.
  CO5: Demonstrate an understanding of the various health issues currently facing today's society.

TEXT BOOKS :
  1. Williams H.Melvin (1995), Life time fitness and wellness, Brow Pub. Dubugue.
  2. Greenberg / Pargman – Physical Fitness (A wellness management)
  3. A.K.Uppal – Physical Fitness (How to develop)
  4. Swami Kuvalayananda, Asanas, Kaivalyadhama Lomavala, Pune.
  5. B.K.S. Iyankar, Light on Yoga Harper Collins Pub. , Delhi.

Question Pattern
Answer any 5 out of 8 Questions
5 X 15 = 75 Marks

Mapping Course Outcomes with Programme Outcomes:

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

S: Strong; M: Medium; L: Low

Subject Code: 18UCSN2

NME - II – INTRODUCTION TO OFFICE MANAGEMENT

Objective:
- **To understand the concepts of an organisation**
- **Able to know about the record management, communication etc/**

UNIT I

Office Management – Meaning – Elements of Office Management – Functions of Office Management

UNIT II

Office Organization – Definition, Characteristics and Steps – Types of Organizations – Functions of an Office Administrator

UNIT III

Office Record Management - Importance –Filing Essentials - Classification and Arrangement of Files – Modern Methods of Filing – Modern Filing Devices

UNIT IV

Office Communication –Correspondence and Report Writing – Meaning of Office Communication and Mailing

UNIT V

Form Letters – Meaning, Principles and Factors to be considered in Designing Office Forms – Types of Report Writing

Outcome:

CO1: Would have learnt the Fundamentals of Office Management.
CO2: Would have learnt the Various Techniques of Office Management.
CO3: Understand the concepts, need and importance of Office management
CO4: Critically analyse and understand the process of management
CO5: Understand adopt and integrate Communication skills

TEXT BOOKS

1. Fundamentals of Office Management – by J.P. Mahajan

2. Office Management by S.P. Arrora

3. Office Management - R.S.N. Pillai and Bagavathi –S. Chand

Question Pattern
Answer any 5 out of 8 Questions
5 X 15 = 75 Marks

Mapping Course Outcomes with Programme Outcomes:

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

S: Strong; M: Medium; L: Low

Subject Code: 18UCS12

CC - XII – DATABASE SYSTEMS

Objective:
- To provide the basic concepts of the database systems
- To provide information about data models, storage structure, normalization and SQL

UNIT I
Introduction – File and Database System – Data Abstraction – Instances and Schemas – Database Languages – Database System Structure – Database Administrator.

UNIT II
Data Models – E –R – Diagram – Key Constraints – Extended ER Features – ER Diagram with Relationships – Aggregate Functions – Relational Algebra: Fundamental Operations.

UNIT III
SQL – Data Definition – Queries in SQL – Nested Sub Queries – Modification of the Database – Views – Joined Relations – Data Definition Language – Embedded SQL .

UNIT IV
Normalization – Types of Normalization – File Organization – Organization of Records in Files – Storage Structure of Object Oriented Database – Hashing Techniques: Static Hashing – Dynamic Hashing

UNIT V
Concurrency Control – Lock Based Protocols – Time Stamp Based Protocols – Validation Based Protocols – Multiple Granularity – Deadlock Handling – Object Oriented Database – Object Oriented Data Model – Inheritance.

Outcome:

CO1: Would have learnt the various DBMS Techniques
CO2: Illustrate the concept of Database Management System.
CO3: Explain Entity Relationship Diagrams.
CO4: Illustrate concept of functional dependencies and determine normalization.
CO5: Would have learnt the Various Queries using ORACLE

TEXT Book
Henry F. Korth Abraham Silberschatz , Database System Concepts , Fourth Edition McGraw Hill International Editions 2002.

UNIT I: Chapter 1
UNIT II: Chapter 2, 3
UNIT III: Chapter 4
UNIT IV: Chapter 7, 10, 11
UNIT V: Chapter 14, 8

REFERENCE Book
1. James Martin , Computer Data Base Organization , Second Edition Prentice Hall.
2. C.J. Date, An Introduction to Database System, Seventh Edition, Pearson Education, New Delhi, 2002.
- https://www.tutorialspoint.com/dbms/index.htm

Part – A Answer all the Questions 10 X 2 = 20 Marks	Part – B Internal Choice Type 5 X 5 = 25 Marks	Part – C Answer any 3 Questions 3 X 10 = 30 Marks

Question	1,2 – 1 Unit	11a (or) 11b – 1 Unit	16 – I Unit
	3,4 – II Unit	12a (or) 12b – II Unit	17 – II Unit
	5,6 – III Unit	13a (or) 13b – III Unit	18 – III Unit
	7,8 – IV Unit	14a (or) 14b – IV Unit	19 – IV Unit
	9,10 – V Unit	15a (or) 15b – V Unit	20 – V Unit

Mapping Course Outcomes with Programme Outcomes:

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

S: Strong; M: Medium; L: Low

CP - XIII – RDBMS LAB

1. To Implement Data Definition Language

    1.1. Create, Alter, Drop, Truncate a table.

    1.2. To Implement Constraints.

        1.2.1. (A) Primary Key, (B) Foreign Key, (C) Check, (D) Unique, (E) Null, (F) Not Null, (G) Default, (H).Enable Constraints, (I) Disable Constraints, (J) Drop Constraints.

2. To Implementation On DML, TCL And DRL

    2.1. (A) Insert, (B) Select, (C) Update, (D) Delete, (E) Commit, (F) Rollback, (G) Save Point, (I) Like'%', (J) Relational Operator.

3. To Implement Nested Queries & Join Queries

    3.1. (A) Implementation of Nested Queries.

    3.2. (B) (A) Inner Join, (B) Left Join, (C) Right Join (D) Full Join.

4. To Implement Views

    4.1. (A) View, (B) Joint View, (C) Force View, (D) View With Check Option.

5. Control Structure

    5.1. To Write a PL/SQL Block for Addition of Two Numbers.

    5.2. To Write a PL/SQL Block for If Condition.

    5.3. To Write a PL/SQL Block for If and Else Condition.

    5.4. To Write a PL/SQL Block for Greatest of Three Numbers Using If and Else if.

    5.5. To Write a PL/SQL Block for Summation of Odd Numbers Using For Loop.

Outcome:

    CO1: Would have learnt the various DBMS Techniques

    CO2: Illustrate the concept of Database Management System.

    CO3: Explain Entity Relationship Diagrams.

    CO4: Illustrate concept of functional dependencies and determine normalization.

              CO5: Would have learnt the Various Queries using ORACLE

Subject Code: 18UCS14

CC - XIV – MICROPROCESSOR AND ITS APPLICATIONS

Objective:
- To understand the basic principles of microprocessor architecture & its pin configuration.
- To write simple assembly language programs and Know the concepts of memory & I/O interfacing.

UNIT I

Evolution of microprocessors – single chip microcomputers – Microprocessor applications – Programming Digital computers – Memory – Buses – Memory addressing capacity and CPU – microcomputers – Processor architecture – Intel 8085 – Instruction cycle – Timing diagram.

UNIT II

Instruction set of Intel 8085 – Instruction and data formats – Addressing modes – status flags – Intel 8085 instructions – Programming of microprocessors – Assembly language – Assemblers – stacks and subroutines – Macro.

UNIT III

Assembly language programming – Simple examples – Addition and subtraction of binary and decimal numbers – complement – shift – masking – Finding the largest and smallest numbers in a array – Arraigning a series of numbers – Sum of series of numbers – Multiplication – Division.

UNIT IV

Peripheral devices and interfacing – Address space partitioning – memory and I/O interfacing – Data transfer schemes – Interrupts of Intel 8085 – Interfacing memory and I/O devices – I/O ports – Programmable peripheral interface – Programmable counter / interval time

UNIT V

Microprocessor applications – Delay subroutines – Interfacing of 7 segment displays – Frequency measurement – Temperature measurement and control – Water level indicator – Microprocessor based traffic control.

Outcome:

CO1: Understanding the Architecture, Instruction set and addressing modes of 8086 microprocessor.
CO2: Analyze the instruction set of 8085 microprocessor.
CO3: Implement the assembly language programming of 8085 microprocessor.
CO4: Design the memory (RAM/ROM) interfacing with 8085 microprocessor.
CO5: Design and implement the interfacing of interrupts, basic I/O and DMA with 8085 Microprocessor.

TEXT BOOK

Fundamental of Microprocessors and Microcomputers – Badri Ram – fourth revised edition – Dhanpat Rai and sons – 1993.

UNIT I: Chapter 1,3
UNIT II: Chapter 4,5
UNIT III: Chapter 6
UNIT IV: Chapter 7
UNIT V: Chapter 9

REFERENCE BOOK

Microprocessor Architecture, Programming and applications with the 8085/8080A – Ramesh S. Gaonkar – Wiley Eastern – 1990.

- https://www.tutorialspoint.com/microprocessor/index.htm
- http://nptel.ac.in/courses/108107029/

Part – A	Part – B	Part – C
Answer all the Questions	Internal Choice Type	Answer any 3

10 X 2 = 20 Marks	5 X 5 = 25 Marks	Questions 3 X 10 = 30 Marks
Question 1,2 – 1 Unit	11a (or) 11b – 1 Unit	16 – I Unit
3,4 – II Unit	12a (or) 12b – II Unit	17 – II Unit
5,6 – III Unit	13a (or) 13b – III Unit	18 – III Unit
7,8 – IV Unit	14a (or) 14b – IV Unit	19 – IV Unit
9,10 – V Unit	15a (or) 15b – V Unit	20 – V Unit

Mapping Course Outcomes with Programme Outcomes:

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

S: Strong; M: Medium; L: Low

Subject Code: 18UCSE2

EC- II – SOFTWARE ENGINEERING

Objective:
- To provide fundamental concepts of software engineering
- To Understand the concepts of Cost estimation, design etc.

UNIT I

Introduction – Definitions – Size Factors – Quality and Productivity Factors – Managerial Issues – Planning a Software Project – Introduction – Defining the Problem – Developing a Solution Strategy – Planning the Development Process – Planning an Organizational Structure – Other Planning activities.

UNIT II

Software Cost Estimation: Software – Cost Factors – Software Cost Estimation Techniques – Specification Techniques Staffing – Level Estimation: Estimating Maintenance Costs.

UNIT III

Software Requirements Definition – Software Requirement Specification – Formal Specification Techniques – Languages and Processors for Requirements.

UNIT IV

Software Design – Fundamental Design Concepts – Modules And Modularization Criteria – Design Notations – Design Techniques: Stepwise Refinement, Levels of Abstraction, Structured Design, Integration Top Down Development and Jackson Structured Program – Test Plans – Milestones, Walkthroughs and Inspections – Design Guidelines.

UNIT V

Verification and Validation Techniques – Quality Assurance – Walkthroughs and Inspections – Static Analysis – Symbolic Execution – Unit Testing and Debugging – System Testing – Formal Verification.

Outcome:

CO1: Would have learnt the various phases of Software Engineering.
CO2: Able to apply the concepts of software engineering
CO3: Understand the concept of system and able to analyse its feasibility study.
CO4: Understand software process framework , requirement modeling approaches, software design, software quality.
CO5: Would have learnt the various Testing Criteria.

TEXT BOOK
 "Software Engineering Concepts" – Richard Fairley.
UNIT I: Chapter 1, 2   UNIT II: Chapter 3
UNIT III: Chapter 4   UNIT IV: Chapter 5
UNIT V: Chapter 7

REFERENCE BOOK
"Software Engineering: A practitioners approach" by Roger, S. Pressman McGraw Hill International Book Company.

- https://www.tutorialspoint.com/software_engineering/index.htm

Part – A Answer all the Questions 10 X 2 = 20 Marks	Part – B Internal Choice Type 5 X 5 = 25 Marks	Part – C Answer any 3 Questions 3 X 10 = 30 Marks

Question	1,2 – 1 Unit	11a (or) 11b – 1 Unit	16 – I Unit
	3,4 – II Unit	12a (or) 12b – II Unit	17 – II Unit
	5,6 – III Unit	13a (or) 13b – III Unit	18 – III Unit
	7,8 – IV Unit	14a (or) 14b – IV Unit	19 – IV Unit
	9,10 – V Unit	15a (or) 15b – V Unit	20 – V Unit

Mapping Course Outcomes with Programme Outcomes:

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

S: Strong; M: Medium; L: Low

Subject Code: 18UCSE1

EC- I - DATA COMMUNICATION AND NETWORKS

Objective:
- Learn how computer network hardware and software operate
- Investigate the fundamental issues driving network design
- Learn about dominant network technologies

UNIT I

Data Communication – Networks – Protocols And Standard – Line Configuration – Topology – Transmission Mode – Categories Of Networks – Internet Works

UNIT II

The OSI Model – Functions Of The Layers – TCP/IP Protocols Suite – Signals – Analog And Digital Signal – Data Transmission – Data Terminal Equipment – Data Circuit Terminals Equipment – Modems

UNIT III

Transmission Of Media – Guided Media – Unguided Media – Transmission Impairments – Media Comparison - Error Detection – Types of Errors – Detection – Vertical Redundancy Check (VRC) – Longitudinal Redundancy Check (LRC) – Cyclic Redundancy Check (CRC) - Check Sum

UNIT IV

Switching – Circuit Switching – Packet Switching – Message Switching - Networking And Internetworking Devices – Repeaters – Bridges – Routers – Gateways. Routing Algorithm – Distance Vector Routing – Link State Routing

UNIT V

Internet Working: TCP/IP Protocol Suite – Client Server Model – Domain Name System – File Transfer Protocol (FTP) – Simple Mail Transfer Protocol (SMTP) – World Wide Web (WWW) – Hyper Text Transfer Protocol (HTTP)

Outcome:

CO1: Would have learnt the fundamentals of Communication Networks
CO2: Would have learnt the Various Techniques of Data Communication Networks.
CO3: Student will be able to understand network communication using the layered concept
CO4: Student will be able to understand the concept of flow control, error control and LAN protocols
CO5: Student shall understand the functions performed by a Network Management System

TEXT BOOK
"Data Communications and Networking" –2nd Edition- Behrouz A Forouzan.
UNIT I: Chapter 1, 2(2.1 To 2.4) UNIT I: Chapter 3(3.1to3.3), 4(4.1 To 4.6)
UNIT III: Chapter 7(7.1 To 7.3), 9(9.1 To 9.6)
UNIT IV: Chapter 14(14.1 To 14.3), 21(21.1 To 21.8)
UNIT V: Chapter 25(25.1, 25.3, 25.5, 25.7, 25.9, 25.10)
REFERENCE BOOK
1. Computer Networks- Tanenbaum
2. Computer Networks –William Stallings
- https://www.tutorialspoint.com/data_communication_computer_network/index.htm

Part – A	Part – B	Part – C
Answer all the Questions	Internal Choice Type	Answer any 3 Questions
10 X 2 = 20 Marks	5 X 5 = 25 Marks	3 X 10 = 30 Marks

Question	1,2 – 1 Unit	11a (or) 11b – 1 Unit	16 – I Unit
	3,4 – II Unit	12a (or) 12b – II Unit	17 – II Unit
	5,6 – III Unit	13a (or) 13b – III Unit	18 – III Unit
	7,8 – IV Unit	14a (or) 14b – IV Unit	19 – IV Unit
	9,10 – V Unit	15a (or) 15b – V Unit	20 – V Unit

Mapping Course Outcomes with Programme Outcomes:

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

S: Strong; M: Medium; L: Low

EC- I - E - COMMERCE

Objective:
- To acquire the knowledge in Electronic Commerce, Electronic Payment Systems
- To understand the concepts of security systems, online advertising and marketing

UNIT I

Introduction: Electronic Commerce Frame Work: The Anatomy of E-Commerce Applications- Electronic Commerce Consumer Applications – Electronic Commerce Organisation Applications – The Network Infrastructure for E-Commerce: Components of Highway – Network Access Equipment – Global Information Distribution Networks

UNIT II

The Internet as Network Infrastructure: The Internet Terminology/Chronological History Of The Internet- The Business Of Internet Commercialization: Telco/Cable/Online Companies –National Independents ISPs – Regional Level ISPs – Local Level ISPs

UNIT III

Network Security And Firewalls: Client Server Network Security – Firewalls And Network Security – Data And Message Security – Challenge Response System – Encrypted Documents And Electronic Mail – Electronic Commerce And World Wide Web: Architectural Framework For E-Commerce- Technology Behind The Web – Security And The Web

UNIT IV

Inter Organisational Commerce and Edi: Electronic Data Interchange – Edi Application in Business – EDI Implementation, Mime and Value Added Networks: EDI Software Implementation – EDI Envelope for Message Transport- Value-Added Networks (VANs) –Internet – Based EDI

UNIT V

Advertising And Marketing On The Internet: The New Age Of Information Based Marketing – Advertising On The Internet – Charting The Online Marketing Process – Software Agents – Characteristics And Properties Of Agents – The Technology Behind Software Agents – Applets, Browsers And Software Agents

Outcome:

CO1: Would have learnt the Concepts of E-Commerce.

CO2: Understand different Knowledge base systems.

CO3: Understand the application of tools and services to the development of small scale E - Commerce applications

CO4: Would have learnt the Applications of E- Commerce.

CO5: Understand designing of knowledge base Systems to improve the efficiency of organizations based on their need.

TEXT BOOK

Ravikalakola & Andrew Whinston, "Frontiers of Electronic Commerce", Addison Wesley, 2000.

UNIT I: Chapter 1, 2

UNIT II: Chapter 3, 4

UNIT III: Chapter 5, 6

UNIT IV: Chapter 9, 10

UNIT V: Chapter 13, 16

REFERENCE BOOK

Electronic Commerce – Rary P. Schneider and James T. Parry.

- https://www.tutorialspoint.com/e_commerce/index.htm

art – A Answer all the Questions 10 X 2 = 20 Marks	Part – B Internal Choice Type 5 X 5 = 25 Marks	Part – C Answer any 3 Questions 3 X 10 = 30 Marks

Question	1,2 – 1 Unit	11a (or) 11b – 1 Unit	16 – I Unit
	3,4 – II Unit	12a (or) 12b – II Unit	17 – II Unit
	5,6 – III Unit	13a (or) 13b – III Unit	18 – III Unit
	7,8 – IV Unit	14a (or) 14b – IV Unit	19 – IV Unit
	9,10 – V Unit	15a (or) 15b – V Unit	20 – V Unit

Mapping Course Outcomes with Programme Outcomes:

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

S: Strong; M: Medium; L: Low

Subject Code: 18UCSE3

EC - III – DATA MINING

Objective:
- To understand the basic concept of data mining process
- To understand the association rule mining,classification, cluster analysis and web data mining

UNIT I
Introduction: Data mining applications – Data mining techniques – Data mining case studies – The future of data mining – Data mining software

UNIT II
Classification: Introduction – Decision tree – Over fitting and pruning – Decision Tree rules – – Naïve bayes method – Estimation predictive accuracy of classification methods

UNIT III
Cluster analysis: Cluster analysis – Types of data – Computing distances–Types of cluster analysis methods – Partitioned methods–Dealing with large databases – Quality and Validity of cluster analysis methods – Cluster analysis software.

UNIT IV
Association rules mining: Introduction– Basics– Task and a naïve algorithm– Apriori algorithm – Mining frequent pattern without candidate generation (FP–growth) – Performance evaluation of algorithms.

UNIT V
Online Analytical Processing(OLAP): Introduction – OLAP – Characteristics of OLAP Systems – Motivations for Using OLAP – Multidimensional View and Data Cube – Data Cube Implementations – Data Cube Operations– Guidelines for OLAP Implementation – OLAP Software.

Outcome:

CO1: Explain basic aspect of data mining.
CO2: Apply data pre- processing techniques on different datasets.
CO3: Evaluate the performance of different association rules and classification techniques.
CO4: Study basics of business intelligence and data warehousing.
CO5: Identify different advance data mining techniques and big data.

TEXT BOOK

"**Introduction to Data mining with case studies**", G.K. Gupta, PHI Private limited, New Delhi, 2008.
UNIT I: Chapter 1
UNIT II: Chapter 3
UNIT III: Chapter 4
UNIT IV: Chapter 2
UNIT V: Chapter 8
Reference
REFERENCE BOOK

"Data warehousing and Data Mining" - B.S. Charulatha, S. Poonkuzhali, C.Saravanakumar, Charulatha Publications.

- https://www.tutorialspoint.com/data_mining/index.htm

Part – A Answer all the Questions 10 X 2 = 20 Marks	Part – B Internal Choice Type 5 X 5 = 25 Marks	Part – C Answer any 3 Questions 3 X 10 = 30 Marks

Question	1,2 – 1 Unit	11a (or) 11b – 1 Unit	16 – I Unit
	3,4 – II Unit	12a (or) 12b – II Unit	17 – II Unit
	5,6 – III Unit	13a (or) 13b – III Unit	18 – III Unit
	7,8 – IV Unit	14a (or) 14b – IV Unit	19 – IV Unit
	9,10 – V Unit	15a (or) 15b – V Unit	20 – V Unit

Mapping Course Outcomes with Programme Outcomes:

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

S: Strong; M: Medium; L: Low

EC-III –SYSTEM ANALYSIS AND DESIGN

Objective:
- To learn the concepts of system analysis
- To learn the concepts of MIS

Unit I
Overview: Introduction - The System Development Life Cycle (SDLC) - System Development - Methodologies - Project Team Roles and Skills - Planning Phase: Identifying business value - Feasibility Analysis - Creating the work plan, staffing the project, Controlling and directing the project.

Unit II
Analysis Phase: System Analysis - analysis process, business process automation, business process improvement, business process reengineering, developing the analysis plan. Gathering Information – interviews, joint application design, questionnaires, document analysis, observation, selecting the appropriate technique. Process Modelling – data flow diagrams, use cases. Data Modelling – ER diagram.

Unit III
Design Phase: System Design – design strategies, developing the design plan, moving from logical to physical model. Architecture Design – computing architectures, infrastructure design, global issues, security, User Interface (UI) – principles of UI design, UI design process, navigation design, input design, output design. Data Storage Design – data storage formats, optimizing data storage. Program Design – structure chart, program specification.

Unit IV
Implementation Phase: Construction - managing programming, system testing, developing documentation. Installation – conversion, change management, post implementation activities & maintenance, concept of PERT and GANTT Charts.

Unit V
Management Information System: Concept of Management, organization & System approach to management, MIS Planning, Designing and implementation, Role of DSS, Decision making & MIS, DSS and Knowledge Management System.

Outcome:

CO1: Would have learnt the various phases of System Development
CO2: Understand how projects are initiated and selected, define a business problem and determine the feasibility of a proposed project.
CO3: Apply information gathering methods effectively to elicit human information requirement.
CO4: Understand prototyping and develop logical DFD's that illustrate the proposed system.
CO5: Would have learnt the MIS Techniques.

Text Book: 1. System Analysis and Design, Kenneth E Kendall Julie, PHI, 2012

Reference Book: 1. Modern Systems Analysis and Design, Jeffrey A. Hoffer, Pearson India, 2011
- http://www.w3computing.com/systemsanalysis/

Part – A Answer all the Questions 10 X 2 = 20 Marks	Part – B Internal Choice Type 5 X 5 = 25 Marks	Part – C Answer any 3 Questions 3 X 10 = 30 Marks

Question	1,2 – 1 Unit	11a (or) 11b – 1 Unit	16 – I Unit
	3,4 – II Unit	12a (or) 12b – II Unit	17 – II Unit
	5,6 – III Unit	13a (or) 13b – III Unit	18 – III Unit
	7,8 – IV Unit	14a (or) 14b – IV Unit	19 – IV Unit
	9,10 – V Unit	15a (or) 15b – V Unit	20 – V Unit

Mapping Course Outcomes with Programme Outcomes:

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

S: Strong; M: Medium; L: Low