SADAKATHULLAH APPA COLLEGE

(AUTONOMOUS)

(Reaccredited by NAAC at an 'A' Grade. An ISO 9001:2015 Certified Institution)

RAHMATH NAGAR, TIRUNELVELI- 11.

Tamilnadu

MY LORD
VOUCHSAFE ME WISDOM

CBCS SYLLABUS

For

BCA

(Applicable for students admitted in June 2021 and onwards)

(As per the Resolutions of the Academic Council Meeting

2021 held on)

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3	Communicative English II (Prose, Poetry and Grammar – I)		
4	English for Communication		
5	Principles of Programming in C		
6	Digital Computer Fundamentals		
7	Principles of Programming in C(P)		
8	Office Automation		
9	Office Automation (P)		
10	Value Education – I		
11	Value Education – II		
12	rkaj; jkpo;		
13	Applied Grammar and Translation – II		
14	Communicative English II(Prose, Poetry and Grammar – II)		
15	C++ Programming		
16	Data Structures and algorithms		
17	C++ Programming –Practical		
18	Multimedia Tools		
19	Multimedia Tools –Practical		
20	Environmental Studies		
21	Java Programming		
22	Operating Systems		
23	RDBMS with Oracle		
24	Java ProgrammingPractical		
25	RDBMS with Oracle Practical		
26	GUI Programming		

COURSE STRUCTURE

CBCS SYLLABUS FOR B.Sc. CS/IT/BCA

(Applicable for students admitted in June 2021 and onwards)

Part	SUB	COURSE	S.CODE	H/W	C
I SEMESTER					
I	TA 1	,f;fhyj; jkpo;		6	3
	AR 1	Applied Grammar and Translation – I			
II	EN 1	Communicative English II (Prose, Poetry and Grammar – I)			
		English for Communication		6	3
III	Core I	Principles of Programming in C		4	4
	Core II	Digital Computer Fundamentals		4	4
	P-I	Principles of Programming in C(P)		2	1
	Allied-I/1	Office Automation		4	3
	Allied-I/1P	Office Automation (P)		2	1
IV	AECC I	Value Education – I			
		Value Education – II		2	2
		TOTAL		**30**	**21**

Part	SUB	COURSE	S.CODE	H/W	C
II SEMESTER					
I	TA 2	rkaj; jkpo;		6	3
	AR 2	Applied Grammar and Translation – II			
II	EN 2	Communicative English II(Prose, Poetry and Grammar – II)		6	3

		Core III	C++ Programming		4	4
III		Core IV	Data Structures and algorithms		4	4
		P-II	C++ Programming –Practical		2	1
		Allied-I/2	Multimedia Tools		4	3
		Allied-I/2P	Multimedia Tools –Practical		2	1
IV		AECC II	Environmental Studies		2	2
			TOTAL		**30**	**21**

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III SEMESTER

</div>

Part	SUB	COURSE	S.CODE	H/W	C
I	Core V	Operating Systems		4	4
II	Core VI	Java Programming		4	4
III	Core VII	RDBMS with Oracle		4	4
	P-III	Java ProgrammingPractical		4	2
	P-IV	RDBMS with Oracle Practical		2	1
	Allied-II/1	GUI Programming		4	3
	Allied-II/1P	GUI Programming Practical		2	1
IV	SEC-I	Introduction to Computers		2	2
	SEC-II	MOOC-NPTEL Course		2	2
	Non Major Elective-I	Introduction to Photo Editing		2	2
		TOTAL		**30**	**25**

<div align="center">

IV SEMESTER

</div>

Part	SUB	COURSE	S.CODE	H/W	C

I	Core VIII	Computer Networks		4	4
II	Core IX	ASP.NET		4	4
III	Core X	Linux Programming		4	4
	P-V	ASP.NET Practical		4	2
	P-VI	Linux Programming Practical		2	1
	Allied-II/2	Web Designing using HTML & CSS		4	3
	Allied-II/2P	Web Designing using HTML & CSS Practical		2	1
IV	SEC-III	(Soft Skills)		2	2
	SEC-IV	(Subject Oriented) Logical Reasoning		2	2
	Non Major Elective-II	Introduction to internet and Web Designing		2	2
V		ECA			1
		SOP			1
VI		Field work/ Internship Trg.			2
		TOTAL		**30**	**29**
		V SEMESTER			
Part	**SUB**	**COURSE**	**S.CODE**	**H/W**	**C**
I	Core XI	Software Engineering			
II	Core XII	Computer Graphics			
III	Core XIII	Python Programming			
	P-VII	Computer Graphics using C++ Practical			
	P-VIII	Python Programming Practical			

Part	SUB	COURSE	S.CODE	H/W	C
IV	DSE I	(A).Mobile Computing OR (B).Cloud Computing			
	DSE II	(A).Network Security OR (B).Introduction to Block Chain Technology			
		Library Reading Hour			

<table>
<tr><td colspan="6" align="center">VI SEMESTER</td></tr>
</table>

Part	SUB	COURSE	S.CODE	H/W	C
I	Core XIV	Data Mining & Data Warehousing			
II	Core XV	PHP With MYSQL			
III	CoreXVI	MongoDB Programming			
	P-IX	PHP With MYSQL Practical			
	P-X	MongoDB Programming Practical			
IV	DSE III	(A).IOT Design and ApplicationsOR (B).R-Programming with Data Science			
	DSE IV	(A).ProjectOR (B).Android App Development			
V	SEC-V	Software Testing			

Programme Learning Outcomes (PLO)

Bachelor of Computer Applications (B.C.A)

The students graduating with the Degree B.Sc / B.C.A will be able to:

PLO 1: Disciplinary Knowledge

- Acquire scientific knowledge and the understanding of major concepts and theoretical principles.

PLO 2:Creative Thinking and Practical Skills / Problem Solving Skills

- Enrich skills of observation / research related skills to draw logical inferences from scientific experiments/ programming and skills of creative thinking to develop novel ideas.
- Hone problem solving skills in theoretical, experimental and computational areas and to apply them in research fields and in real life situations.

PLO 3: Sense of inquiry and Skilled Communicator

- Develop the capability for raising appropriate questions relating to the current/emerging issues encountered in the scientific field and to plan, execute and express the results of experiments / investigations through technical writings as well as through oral presentations.

PLO 4: Ethical Awareness / Team Work / Environmental Conservation and

   Sustainability

- Equip them for conducting work as an individual / as a member, or as a leader in diverse teams upholding values such as honesty and precision and thus preventing unethical behaviors such as fabrication, falsification, misrepresentation of data, plagiarism etc. To ensure academic integrity.
- Realize that environment and humans are dependent on one another and to know about the responsible management of our ecosystem for survival, and for the well-being of the future generation as well.

PLO 5: Usage of ICT/ Lifelong Learning / Self-Directed Learning

- Inculcate the habit of learning continuously through the effective adoption of ICT to update knowledge in the emerging areas in Sciences for inventions/discoveries and also to engage in remote / independent learning.

Programme Specific Outcomes (PSO)

PSO No.	Upon completion of B.C.A Degree programme, the students will be able to:	PLO Addressed
PSO-1	Understand the basic concepts and fundamentals of digital computer, logical reasoning, Object Oriented Programming, databases, data structures, data mining andapplications of Operating System.	PLO1,PLO2,PLO5
PSO-2	Apply standard software engineering, testing methods and project management concepts in software development.	PLO1,PLO3,PLO4
PSO-3	Analyze computer programs in the areas of algorithms, multimedia, big data analytics, IoT,R-Programming and networking to design computer based systems of varying complexity.	PLO1,PLO2,PLO5
PSO-4	Experiment their knowledge in general programming to develop small applications, animation programs and mobile applications includingandroid apps.	PLO2,PLO3,PLO4,PLO5
PSO-5	Develop their skills to solve problems in the broad area of programming concepts besides creatingweb pages using the knowledge of various web technologies.	PLO2,PLO4,PLO5

PART III

<table>
<tr><td colspan="9" align="center">Part III DSC, DSE, Project and SEC</td></tr>
<tr><td rowspan="2">SEM</td><td rowspan="2">No.</td><td rowspan="2">TITLE OF THE PAPER</td><td rowspan="2">S.CODE</td><td rowspan="2">H/W</td><td rowspan="2">C</td><td colspan="3" align="center">MARKS</td></tr>
<tr><td>I</td><td>E</td><td>T</td></tr>
<tr><td rowspan="3">I</td><td>CORE I</td><td>Principles of Programming in C</td><td></td><td>4</td><td>4</td><td>25</td><td>75</td><td>100</td></tr>
<tr><td>CORE II</td><td>Digital Computer Fundamentals</td><td></td><td>4</td><td>4</td><td>25</td><td>75</td><td>100</td></tr>
<tr><td>P 1</td><td>Principles of Programming in C(P)</td><td></td><td>2</td><td>1</td><td>20</td><td>30</td><td>50</td></tr>
<tr><td rowspan="3">II</td><td>CORE III</td><td>C++ Programming</td><td></td><td>4</td><td>4</td><td>25</td><td>75</td><td>100</td></tr>
<tr><td>CORE IV</td><td>Data Structures and algorithms</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>P 2</td><td>C++ Programming – Practical</td><td></td><td>2</td><td>1</td><td>20</td><td>30</td><td>50</td></tr>
<tr><td rowspan="5">III</td><td>CORE V</td><td>JAVA Programming</td><td></td><td>4</td><td>4</td><td>25</td><td>75</td><td>100</td></tr>
<tr><td>CORE VI</td><td>Operating Systems</td><td></td><td>4</td><td>4</td><td>25</td><td>75</td><td>100</td></tr>
<tr><td>CORE VII</td><td>RDBMS with Oracle</td><td></td><td>4</td><td>4</td><td>25</td><td>75</td><td>100</td></tr>
<tr><td>P 3</td><td>Java Programming (P)</td><td></td><td>4</td><td>2</td><td>40</td><td>60</td><td>100</td></tr>
<tr><td>P 4</td><td>RDBMS with Oracle(P)</td><td></td><td>2</td><td>1</td><td>20</td><td>30</td><td>50</td></tr>
<tr><td rowspan="4">IV</td><td>CORE VIII</td><td>Linux Programming</td><td></td><td>4</td><td>4</td><td>25</td><td>75</td><td>100</td></tr>
<tr><td>CORE IX</td><td>ASP.NET</td><td></td><td>4</td><td>4</td><td>25</td><td>75</td><td>100</td></tr>
<tr><td>CORE X</td><td>Computer Networks</td><td></td><td>4</td><td>4</td><td>25</td><td>75</td><td>100</td></tr>
<tr><td>P 5</td><td>Linux ProgrammingPractical</td><td></td><td>4</td><td>2</td><td>40</td><td>60</td><td>100</td></tr>
</table>

	P 6	ASP.NET Practical		2	1	20	30	50
V	CORE XI	Computer Graphics		6	4	25	75	100
	CORE XII	Python Programming		5	4	25	75	100
	CORE XIII	Software Engineering		5	4	25	75	100
	P 7	Computer Graphics using C++ Practical		4	2	40	60	100
	P 8	Python Programming Practical		4	2	40	60	100
	DSE-I	A.Mobile Computing		4	4	25	75	100
		B.Cloud Computing						
	DSE-II	A. Network Security		2	2	25	75	100
		B.Introduction to Block Chain Technology						
VI	CORE XIV	MongoDB Programming		4	4	25	75	100
	CORE XV	PHP With MYSQL		4	4	25	75	100
	CORE XVI	Data Mining & Data Warehousing		6	6	25	75	100
	P 9	MongoDB Programming Practical		4	2	40	60	100
	P 10	PHP With MYSQL Practical		4	2	40	60	100
	DSE-III	A.IOT Design and Applications		4	4	25	75	100
		B.R-Programming with Data Science						
	DSE-IV	A. Project		2	2	25	75	100

		B.Android App Development							
	SEC-V	Software Testing							
			TOTAL	**124**	**102**				**3000**

PART III – CORE , CORE ELECTIVE & PROJECT

SEMESTER – I

Course Title	PRINCIPLES OF PROGRAMMING IN C
Total Hrs.	60
Hrs./Week	4
Sub Code	
Course Type	Core I
Credits	4
Marks	

General Objective:

To teach programming in solving problems by familiarizing the students with the basic concepts of C programming language.

Course Objectives: The learners will be able to:

CO No.	Course Objectives
CO-1	Understand data representation and its types in C programming.
CO-2	Comprehend arrays,functions and pointers besides its concepts.
CO-3	Examine the types of variables and functions besides recursion.
CO-4	Analyze the concepts of macros, typedef and enumeration.
CO-5	Evaluate the structures and files of C programming.

UNIT I:
Identifiers & Keyword – Data types – Constants– Variables – Input statement – Output Statement –Operators – Expressions – Assignment statement – Conditional Statement – Looping Statements - Break and Go To Statement.

UNIT II

Array Notation – Array Declaration – Initialization – Processing with Array – Array and Functions – Multidimensional array character array – Pointer declaration – Pointer Arithmetic – Array of Pointers – Pointers & Functions.

UNIT III

Function & Program Structure – Defining Function – Return Statement – Types of Function – Argument – Local & Global Variable – Scope of the Variable – Recursion-string functions

UNIT IV:

Preprocessors – preprocessor operators - Macros – parameterized macros - Header Files – Standard Functions –Structures– Union– Bit fields – Type def – Enumeration.

UNIT V:

Structures – Declaration of structure – Members – Accessing the members of a structure – Arrays of structures – Pointer to structure-File Handling - File operations - Creating and accessing a data file

TEXTBOOK:

C Programming By Balagurusamy 6th Edition, ANSI C, TMH

REFERENCE BOOKS:

1.Programming with C by ThamaraiSelvi.
2.AshokKamthane, "Programming with ANSI & Turbo C", Pearson, 2011.

Course Outcomes

CO No.	Course Outcomes	PSO Addressed	Cognitive Level
CO-1	Identify various data types besides understanding the use of different looping statements in C programming.	PSO-1,PSO3	Understanding
CO-2	Apply their knowledge to use arrays and pointers efficiently.	PSO1,PSO3	Applying
CO-3	Analyze the structures of functions, variables and recursion to implement in programs.	PSO1,PSO3, PSO4,PSO5	Analyzing
CO-4	Analyze the concept of macros, typedef and enumerations to execute programs.	PSO1,PSO3,PSO4	Analyzing
CO-5	Evaluate the structures and files to write programs.	PSO1,PSO3,PSO4, PSO5	Evaluating

Relationship Matrix

Semester	Course Code	Title of the Course		Hours	Credit
I	---	PRINCIPLES OF PROGRAMMING IN C		60	4

Course Outcomes (COs)	Programme Learning Outcomes (PLOs)					Programme Specific Outcomes (PSOs)				
	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO-1	✔	✔			✔	✔		✔		
CO-2	✔	✔			✔	✔		✔		
CO-3	✔	✔	✔	✔	✔	✔		✔	✔	✔
CO-4	✔	✔	✔	✔	✔	✔		✔	✔	
CO-5	✔	✔	✔	✔	✔	✔		✔	✔	✔
	Number of matches (✓) = 36 Relationship = High									

Prepared by   Checked by

Name :M.H.Ibrahim   Head of the Department

Signature :

Course Title	Digital Computer Fundamentals
Total Hrs.	60
Hrs./Week	4
Sub.Code	
Course Type	Core II
Credits	
Marks	

General Objective:

To familiarize students with the fundamental concepts associated with digital logic, laws of Boolean algebra and digital circuits besides training them to acquire the basics of structure and functions of computer systems.

Course Objectives: The learners will be able to:

CO No.	Course Objectives
CO-1	Understand the various number systems and their conversions among them.
CO-2	Identify the functions of logic gates and comprehend the basic concepts of Boolean algebra.
CO-3	Choose the concept of K-map to simplify the digital circuits.
CO-4	List the fundamentals of computer system organization.
CO-5	Distinguish the types of addressing modes and stack organization.

UNIT I

Number system: Binary Addition and Subtraction – Binary Multiplication and Division Converting Decimal numbers to Binary-Negative numbers – Use of Complements to Negative numbers – Binary number complements – BCD – Octal and Hexadecimal number systems.

UNIT II

Boolean algebra and Gate networks: Fundamental concepts of Boolean algebra – Logical multiplication – AND and OR gates – Basic laws of Boolean Algebra – De Morgan's theorem - Boolean Algebra – Sum of Products(SOP) and Product of Sums(POS) – Map Simplification using Karnaugh Maps – Don't care conditions

UNIT III

Map Simplification using Karnaugh Maps – Don't care conditions- Logic Design : Flip–Flop – Gated flip flops – Master- Slave flip flops – SR flip-flop – D flip-flop

UNIT IV

Basic Computer Organization: Instruction codes - Computer Registers-Computer Instructions - Memory Addresses - Instruction cycle - Timing Signals- Control Signals- Bus organization

UNIT V

Stack Organization: Register Stack, Memory Stack, Reverse Polish Notation. Instruction Formats, Three- Address Instructions, Two – Address Instructions, One - Address Instructions, Zero - Address Instructions, Addressing Modes.

TEXT BOOKS:

1. Digital computer Fundamentals – Thomas C.Bartee, sixth Edition , McGraw – Hill Publications

2. M. Morris Mano - Computer System Architecture -Third Edition

REFERENCE BOOKS:

1. Malvino, Paul Albert and Leach, Donald P: "Digital Principles and Applications" 4th Edition, 2000. TMH.

2. Malvino, Paul Albert and Leach, Donald P: "Digital Computer Fundamentals" 3rd Edition, 1995. TMH.

Course Outcomes

CO No.	Course Outcomes	PSO Addressed	Cognitive Level
CO-1	Understand various number systems for the effective conversion	PSO1,PSO5	Understanding
CO-2	Classify different gates such as AND, OR, XOR and XNOR.	PSO1, PSO4	Understanding
CO-3	Apply the concept of K-Map for the simplification of circuits.	PSO1, PSO4	Applying
CO-4	Analyze the fundamentals of computer system organization	PSO1 ,PSO3, PSO4	Analyzing
CO-5	Explain the types of addressing modes and various stack organization.	PSO1, PSO3, PSO5	Analyzing

Relationship Matrix

Semester	Course Code	Title of the Course	Hours	Credit
I	---	Digital Computer Fundamentals	60	4

Course Outcomes (COs)	Programme Learning Outcomes (PLOs)					Programme Specific Outcomes (PSOs)				
	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO-1	✓	✓		✓	✓	✓				✓
CO-2	✓	✓	✓	✓	✓	✓			✓	
CO-3	✓	✓	✓	✓	✓	✓			✓	
CO-4	✓	✓	✓	✓	✓	✓		✓	✓	
CO-5	✓	✓		✓	✓	✓		✓		✓

Number of matches (✓) = 35
Relationship = Medium

Prepared by   Checked by

R.FathimaSyreen   Head of the Department

Course Title	PRINCIPLES OF PROGRAMMING IN C PRACTICALS
Total Hrs.	30
Hrs./Week	2
Sub.Code	
Course Type	
Credits	
Marks	

General Objective:

To teach problem-solving through C-programming.. This course involves a lab component which is designed to give the student hands-on experience with the concepts.

Course Objectives: The learner will be able to:

CO No.	Course Objectives
CO-1	understand the branching and looping Statement
CO-2	Examine two-Dimensional arrays and functions in C
CO-3	Experiment with string and pointers
CO-4	Examine the typedef and structure pointers
CO-5	List the various files in C

1. Program using branching statement.
a. write a c program to display a number if it is negative using if Statement
b. write a c program to check whether an integer is odd or even using if else Statement
c. write a c program to display grade of a student using Switch case
2. Program using looping statement.
a. write a c program to find the Fibonacci series using while loop
b. write a c program to find the factorial of given number using Do-While
c. write a c program to calculate the sum of first n natural numbers using For loop
3. Program using two dimensional arrays.
    a. Matrix Addition
    b. Matrix Multiplication
4. Program using functions.
5. Program using Recursions.   a. Factorial

6. Program using strings.
7. Program using pointer.
8. Programs using Structure pointer.
9. Program using typedef
10.Program using Files.

Co No	Upon Completion of this course, students will be able to	PSO Addressed	Cognitive level
CO-1	Understand different looping and branching statements in C programming.	PSO1,PSO3,PSO4	Understanding
CO-2	Identify knowledge to use arrays and functions efficiently.	PSO1,PSO3	Applying
CO-3	Analyze the strings and recursion to implement in programs.	PSO1,PSO3,PSO5	Analyzing
CO-4	Analyze the concept pointer and structure to execute programs.	PSO1,PSO3,PSO4,PSO5	Analyzing
CO-5	Evaluate the typedef and files to write programs.	PSO1,PSO2,PSO3,PSO5	Evaluating

Relationship Matrix

Semester	Code	Title of the course		Hours	Credit
I		Principles Of Programming in C Practicals		2	

Course Outcomes (COS)	ProgrammeLearning Outcomes (PLO)					Programme Specific Outcomes (PSOs)				
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO-1	✔	✔	✔	✔	✔	✔		✔	✔	
CO-2	✔	✔			✔	✔		✔		
CO-3	✔	✔		✔	✔	✔		✔		✔
CO-4	✔	✔	✔	✔	✔	✔		✔	✔	✔
CO-5	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
	Number of matches (✓) = 39 Relationship = Medium									

Prepared by

Name :M.H.Ibrahim   Head of the Department

Signature :

Semester – I

Course Title	**Office Automation**
Total Hrs.	60
Hrs./Week	4
Sub.Code	18UACA11
Course Type	AI-1
Credits	3
Marks	

General Objective:

To learn the basics and most of the features in the Word, Excel, Power point, Access in Microsoft Office package.

Course Objectives: The learner will be able to:

CONo.	Course Objectives
CO-1	Explain the basic features in Microsoft office interface
CO-2	Prepare professional word documents with advanced formatting options.
CO-3	Experiment worksheets by applying cell manipulation and formatting features in Excel.
CO-4	Evaluate different types of financial and statistical functions to create chart with custom and special effects.
CO-5	Choose the ways to create and manipulate database using queries in MS access and prepare professional presentations using PowerPoint.

UNIT I

Explore Office 2010: Working the program environment – changing program settings – customizing the ribbon – customizing the quick

UNIT II

Word: Introduction –What's new in word 2010 – Components of MS Word Environment – Working with word document -Applying advanced formatting techniques – Page Formatting - Working with Columns - Constructing high quality tables - Creating outlines in Word.

UNIT III

Creating customized Merge Documents, Adding reference to documents - Working with complex documents – Preparing a document for preparation

Excel: Introduction –Creating Excel Worksheet - Entering and editing Cell entries - Working with numbers – Inserting and deleting of cells, rows and columns – moving, copying, inserting and deleting worksheets - changing worksheet layout - other formatting options

UNIT IV

Printing in Excel - using functions and references - naming ranges – Working and entering a formula - creating charts - using custom and special effects – Elements of an Excel chart - Using financial and statistical functions. Tracking and analyzing data with Excel - auditing Worksheet.

UNIT V

Access: Introduction – Objectives of Access Database – Part of Access windows – Creating a new database – Creating table through design window – Queries – Creating a Form

Power Point: Creating Power Point presentation: Creating a Basic Presentation, building presentations, modifying visual elements, formatting and checking text, adding objects, applying transitions, animations effects and linking, preparing handouts, taking the show on the road.

TEXT BOOK:
Office Automation, Rizwan Ahmed, Margham Publications
REFERENCE BOOKS:
Step by Step Microsoft Office Professional 2010, Joyce cox, Joan Lambert and Curtis Frye, Microsoft Press.

Course Outcomes

CO	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Identify the features to create and manipulate files in MS Office package.	PSO1, PSO3 & PSO4	Understanding
CO-2	Apply advanced formatting techniques in MS Word to produce an attractive document.	PSO1, PSO3 & PSO4	Applying
CO-3	Manipulate worksheets containing numbers along with formatting options in Excel.	PSO1, PSO3 & PSO4	Applying
CO-4	Analyze Excel functions and references by creating charts.	PSO1, PSO3 & PSO4	Analyzing
CO-5	Test queries against the database in MS Access and enrich presentations with transition and animation effects in PowerPoint.	PSO1, PSO2, PSO3, PSO4 & PSO5	Evaluating

Relationship Matrix

Semester	Course Code	Title of the Course		Hours		Credit
I	18UACA11	Office Automation		60		3

Course Outcomes (COs)	Programme Learning Outcomes (PLOs)					Programme Specific Outcomes (PSOs)				
	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO-1	✔	✔	✔	✔	✔	✔		✔	✔	
CO-2	✔	✔	✔	✔	✔	✔		✔	✔	
CO-3	✔	✔	✔	✔	✔	✔		✔	✔	
CO-4	✔	✔	✔	✔	✔	✔		✔	✔	
CO-5	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔

Number of matches (✓) = 42
Relationship = High

Prepared by   Checked by

Name :MohideenPillai S   Head of the Department

Signature :

Course Title	Office Automation Practical
Total Hrs.	30
Hrs./Week	2
Sub.Code	18UACA1P1
Course Type	AI-P1
Credits	1
Marks	

General Objective:

To create word documents, spreadsheets in excel, database in access and presentations in PowerPoint in a professional way by applying features in MS Office package..

Course Objectives: The learner will be able to:

CONo.	Course Objectives
CO-1	Construct word documents with word art and spell check features.
CO-2	Manipulate word documents using formatting options and applying mailmerge.
CO-3	Experiment spreadsheets using formulas, charts and macros in Excel.
CO-4	Illustrate presentations with different formatting features in PowerPoint.
CO-5	Decide methods to manipulate database and reports in Access,

MS WORD 2019

1. Prepare, Edit and Print a document.
2. Using Spell Check and Thesaurus.
3. Designing a cover page with word art.

4. Using Header, Footer Bookmark, Foot notes.
5. Mailmerge a letter to an address file.
6. Typing 5 Mathematical equations and symbols.

EXCEL 2019

1. Entering spread sheets with formula.
2. Creation of spreadsheet with statistical calculations.
3. Printing of Graphs and charts for the given data.
4. Creating and using macros.

POWER POINT 2019

1. Creation of presentation with different styles on a given topic of current interest.
2. Preparing Presentation for a topic in the study of all courses.
3. Preparing presentation with different transitions and animation effects

ACCESS 2019

1. Creation of database with a table and querying the database
2. Manipulation of data in a report

Course Outcomes

CO	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Prepare word documents with word art and without spelling mistakes.	PSO1, PSO3 & PSO4	Applying
CO-2	Employ formatting options and mailmerge feature to deliver an attractive, professional word document.	PSO1, PSO3 & PSO4	Applying
CO-3	Analyze formulas and macros in spreadsheets to produce graphs and charts in Excel.	PSO1, PSO3 & PSO4	Analyzing
CO-4	Organize PowerPoint presentations with different styles, transition and animation effects.	PSO1, PSO3 & PSO4	Analyzing
CO-5	Select database manipulation methods using queries and prepare reports from database.	PSO1, PSO2, PSO3, PSO4 & PSO5	Evaluating

Relationship Matrix

Semester	Course Code	Title of the Course		Hours	Credit
I		Office Automation Practical		30	1

Course Outcomes (COs)	Programme Learning Outcomes (PLOs)					Programme Specific Outcomes (PSOs)				
	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO-1	✔	✔	✔	✔	✔	✔		✔	✔	
CO-2	✔	✔	✔	✔	✔	✔		✔	✔	
CO-3	✔	✔	✔	✔	✔	✔		✔	✔	
CO-4	✔	✔	✔	✔	✔	✔		✔	✔	
CO-5	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
	Number of matches (✓) = 42 Relationship = High									

Prepared by   Checked by

Name :MohideenPillai S   Head of the Department

Signature :

I SEMESTER			
AECC1	**VALUE EDUCATION – I**		
Hrs/ Week: 2	**Hrs/ Sem: 30**	**Hrs/ Unit: 6**	**Credits:**

Objectives:
- To inculcate moral values in the minds of students.
- To teach ethical practices to be adopted by students in their life.
- To make students honest and upright in their life.

UNIT I

Islam – Meaning – Importance – A complete Religion – The religion accepted by God – Five Pillars of Islam – Kalima – Prayers – Fasting – Zakat – Haj.

Iman – Monotheism – Angels – Books – Prophets – Dooms Day – Life after death – Heaven and Hell.

UNIT II

Quran – The Book of Allah – Wahi – Revelation to Prophet Muhammad(sal) – Compilation – Preservance – Structure – Content – Purpose – Source of Islamic Law– SuraFathiha , Kafirun, Iqlas, Falakh and Nas.

UNIT III

Hadith – SihaSitha – Buhari – Muslim – Tirmithi – Abu Dawood – Nasai – IbnMaja – Collection of Hadith – Meaning of 40 Hadith.

UNIT IV

Life History of Prophet Muhammad (sal) – AiamulJahiliya – Prophet's Childhood and Marriage – Prophethood – Life at Mecca – Life at Medinah – Farewell Address – Seal of Prophethood.

UNIT V

Good character – Etiquettes – Halal and Haram – Duties towards Allah – Duties towards fellow beings – MasnoonDuas.

REFERENCE BOOKS:
1. V.A. MoahmedAshrof – Islamic Dimensions – Reflection and Review on Quranic Themes.
2. The Presidency of Islamic Researchers – Revised & Edited – The Holy Quran.
3. M. ManzoorNomani – Islamic Faith & Practice.

4. Abdul Hasan Ali Nadvi – Muhammad Rasulullah.
5. K. Ali – A Study of Islamic History.
6. Abdul Rahuman Abdullah – Islamic Dress code for Women.
7. Dr. MunirAhamed Mughal – Code For Believers.
8. Abdul Malik Mujahid – Gems and Jewels.

I SEMESTER			
AECC1	**VALUE EDUCATION – II**		
Hrs/ Week: 2	**Hrs/ Sem: 30**	**Hrs/ Unit: 6**	**Credits:**

UNIT I

Individual Morality – Objective of Moral life – Living in accordance with the code of Morality – the goodness of Morality – Morality and *Thirukural*- The need for faith.

UNIT II

Adherence to higher code of Morality – Fear of God – Good Moral Values – Duty to Parents – Teacher, respecting elders – Moral Etiquettes – Right-minded Principle – High Principles for Proper conduct.

UNIT III

Inculcating good attitudes – Open mindedness – Morale – analysing the pros and cons of good and bad – Service to others – Mind Power, tolerance, respecting others, showing love to others, patience – tranquility – Modesty, kindness and forgiveness.

UNIT IV

Quotations and moral Stories expressing Good characters of Great personalities – Life History of Great people: Mahatma Gandhi, Abraham Lincoln, Dr. A.P.J. Abdul Kalam.

UNIT V

Truth, the importance of uprightness, integrity, friendship – Health awareness on Alcohol and drug abuse – inculcating reading habit – reading good books – Hygiene – Dowry – Corruption.

TEXTBOOK:

Publication of SadakathullahAppa College.

Semester – II

Course Title	C++ Programming
Total Hrs.	60
Hrs./Week	4
Sub.Code	
Course Type	
Credits	
Marks	

General Objective:

To teach programming in solving problems by familiarizing the students with the basic concepts of C++ programming language.

Course Objectives: The learner will be able to:

CO No.	Course Objectives
CO-1	Understand object-oriented programming and advanced C++ concepts.
CO-2	List the constructor and its types
CO-3	Analyze the operator overloading and inheritance
CO-4	Examine of virtual function and file implementation
CO-5	Distinguish templates and algorithm in C++

UNIT I: Classes and objects

Introduction – structures in C – structures in C++ – declaring objects – The public Keyword – defining member functions – characteristics of member function – outside member function inline – Rules for inline functions – data hiding or encapsulation – classes, objects and memory – static variable and functions – static object – Array of objects.

UNIT II: Constructors and Destructors

Introduction – Constructors and destructors – Characteristics of constructors and destructors – Types of constructors – calling constructors and destructors – qualifier and nested classes.

UNIT III: Operator overloading and Inheritance

Introduction – the keyword operator – overloading unary operator – overloading binary operators – overloading with friend function – type conversion – Rules for overloading operators - Inheritance – access specifiers and simple inheritance – Protected data with private inheritance – types of inheritance.

UNIT IV: Virtual functions and files

Virtual function – rules for virtual function – pure virtual functions – virtual functions in derived classes – file stream classes – steps of file operations – Checking for errors – finding end of a file – file opening modes – file pointers and manipulators – manipulators with arguments – sequential read and write operators – binary and ASCII files – random access operation.

UNIT V: Templates and object oriented system development

Templates –class template –function template- standard template library –component of STL-Containers-Algorithms-Iterators- Object Oriented Systems Development-procedure oriented paradigm-procedure oriented development tools-object oriented paradigm-object oriented notations and graph-.

TEXTBOOK:

Object-Oriented Programming with C++ | 8th Edition by E. Balagurusamy.

REFERENCE BOOKS:
1. C++ Programming by Ravichandran.
2.C++: The Complete Reference, 4th Editionby Herbert Schildt

Co No	Upon Completion of this course, students will be able to	PSO Addressed	Cognitive level
CO-1	Understand inside and outside the functions besides understanding the use of array of object in C++ programming.	PSO1,PSO3	Understanding
CO-2	Identify the constructors and its types implement in programs.	PSO1,PSO3, PSO4	Understanding
CO-3	Apply their knowledge to use operator overloading and types of inheritance.	PSO1,PSO3, PSO4	Applying
CO-4	Analyze the concept of virtual functions and implement file concept in programs	PSO1,PSO3, PSO4,PSO5	Analyzing
CO-5	Analyze the templates and object oriented system development	PSO1,PSO2	Analyzing

Relationship Matrix

Semester	Code	Title of the	Hours	Credit

Course Outcomes (COS)	Programme Out Come (POS)					Programme Specific Outcomes (PSOs)				
IV			C++ Programming		4					
	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO-1	✔	✔			✔	✔			✔	
CO-2	✔	✔	✔	✔	✔	✔		✔	✔	
CO-3	✔	✔	✔	✔	✔	✔		✔	✔	
CO-4	✔	✔	✔	✔	✔	✔		✔	✔	✔
CO-5	✔	✔	✔	✔	✔	✔	✔			
	Number of matches (✓) = 37 Relationship = High									

Prepared by   Checked by

Name :M.H.Ibrahim   Head of the Department

Signature :

Course Title	Data Structures And Algorithms
Total Hrs.	60
Hrs./Week	4
Sub.Code	
Course Type	Core III
Credits	
Marks	

General Objective:

To teach the basic concepts of data structures and algorithms and train the students to choose appropriate data structures and algorithms design method for a specified application

Course Objectives: The learner will be able to:

CO No.	Course Objectives
CO-1	Identify the concepts of various data structures besides sparse matrix and its transpose.
CO-2	Discuss the ideas of adding elements in stacks and queues
CO-3	Explain the types and representation of linked lists
CO-4	Develop the representations of tree, binary tree and its traversals.
CO-5	Focus graph data structure for solving problems like sorting and searching

UNIT-I ARRAYS AND STRUCTURES

Arrays-Dynamically Allocated Arrays-Structures and Unions--Sparse Matrices : The Abstract Data Type,Sparse matrix representation,transpose a sparse matrix-Representation of Multidimensional Arrays-

UNIT-II STACKS AND QUEUES

Stacks-Abstract data type Stack-add,delete elements from stack-Queues-Abstract data type queue-add, delete elements from queue-Evaluation of Expressions-Evaluating postfix expressions-infix to postfix-Multiple stacks and Queues

UNIT-III LINKED LISTS

Singly linked lists and Chains-Representing chains in C - create a two node list-insert an element in a list-delete an element from a list-display the elements in a list-add and delete an element using linked stack and queue- polynomial representation using linked list--doubly linked list-add and delete an element using doubly linked list

UNIT-IV TREES

Terminology-Representation of trees-binary tree : abstract data type-properties of binary trees-Binary tree representations-binary tree traversals-in-order,pre-order and post-order traversal-additional binary tree operations: copying and testing equality.

UNIT-V GRAPHS

Abstract data type –Definitions –Graph Representations –Adjacency Matrix,AdjacencyLists,AdjacencyMultilists-Elementary Graph operations-Depth First Search,Breadth First Search,ConnectedComponents,Spanning Trees-Minimum Cost spanning trees-Kruskal'sAlgorithm,Prim's Algorithm.

TEXT BOOK:

"Fundamental of Data Structures" Ellis Horowitz and SartajSahni, Galgotia Publications

REFERENCE BOOKS :

1. "Fundamentals of Data Structures in C"-Horowitz,Sahni and Anderson-Freed,Secondedition,University Press(India) private limited
2. Data Structures and Algorithms, 2008, G. A. V. Pai, TMH

Course Outcomes

Co No	Upon Completion of this course, students will be able to	PSO Addressed	Cognitive level
Co-1	Understand the strength and weakness of different data structures and the operations of sparse matrix.	PSO1,PSO3	Understanding
Co-2	Compute postfix expressions and their conversions from infix to postfix using stacks	PSO1,PSO3,PSO5	Applying
Co-3	Construct linked list data structure,its types, operation and polynomial representation.	PSO1,PSO3,PSO4	Applying
Co-4	Analyze tree data structure, binary tree and traversal	PSO1,PSO3,PSO5	Analyzing

Co-5	Evaluate graph data structure , its operation and to find shortest path using different algorithms	PSO1,PSO3,PSO5	Evaluating

Relationship Matrix

Semester	Code		Title of the course		Hours		Credit		
II			Data Structures And Algorithms		4				

Course Outcomes (COS)	Programme Learning Out Come (PLO)					Programme Specific Outcomes (PSOs)				
	PO 1	PO 2	PO3	PO 4	PO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO-1	✓	✓			✓	✓		✓		
CO-2	✓	✓		✓	✓	✓		✓		✓
CO-3	✓	✓	✓	✓	✓	✓		✓	✓	
CO-4	✓	✓		✓	✓	✓		✓		✓
CO-5	✓	✓		✓	✓	✓		✓		✓

Number of matches (✓) = 34

Relationship = High

Prepared by   Checked by

R.FathimaSyreen   Head of the Department

Course Title	C++ Programming Practical
Total Hrs.	30
Hrs./Week	2
Sub.Code	
Course Type	
Credits	1
Marks	

General Objective:

The objective of course is to develop programming skills of students, using object oriented programming concepts, learn the concept of class and object using C++ programs.

Course Objectives: The learner will be able to:

CO No.	Course Objectives
CO-1	Understand the class, pointer and inline concept
CO-2	List the method overloading, constructor and its types
CO-3	Analyze the inheritance and operator overloading
CO-4	Examine virtual function
CO-5	Distinguish file concept in C++

1. Write a c++ program using class.

2. Write a c++ program using pointers.

3. Write a c++ program using Inline.

4. Write a c++ program using method overloading.

5. Write a c++ program using constructor and destructor.

6. Write a c++ program using multiple inheritance

7. Write a c++ program using operator overloading.

8. Write a c++ program using multi-level inheritance.

9. Write a c++ program using virtual function.

10. Write a c++ program using file concept.

Co No	Upon Completion of this course, students will be able to	PSO Addressed	Cognitive level
CO-1	Describe Class, Pointers and Inline Function in programs	PSO1,PSO3	Understanding
CO-2	Developmethod overloading, constructor and destructor concept in C++.	PSO1,PSO3,PSO4	Applying
CO-3	Experiment with multiple inheritance and unary and binary operator overloading	PSO1,PSO2,PSO3,PSO4	Analyzing
CO-4	Analyze virtual function	PSO1,PSO3,	Analyzing
CO-5	Evaluate the various file concepts	PSO1,PSO3,PSO4	Evaluating

Relationship Matrix

Semester	Code	Title of the course	Hours	Credit
IV		C++ Programming Practicals	2	

Course Outcomes (COS)	Programme Out Come (POS)					Programme Specific Outcomes (PSOs)				
	PO 1	PO 2	PO 3	PO4	PO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO-1	✔	✔			✔	✔		✔		
CO-2	✔	✔	✔	✔	✔	✔		✔	✔	
CO-3	✔	✔	✔	✔	✔	✔	✔	✔	✔	
CO-4	✔	✔			✔	✔		✔		
CO-5	✔	✔	✔	✔	✔	✔		✔	✔	

| Prepared by | Checked by |

Name :M.H.Ibrahim   Head of the Department

Signature :

Semester – II

Course Title	**Multimedia Tools**
Total Hrs.	**60**
Hrs./Week	**4**
Sub.Code	18UACA21
Course Type	**AI-2**
Credits	3
Marks	

General Objective:

To learn the fundamentals and applications of multimedia and create flash applications using a tool like macromedia flash

Course Objectives: The learner will be able to:

CONo.	Course Objectives
CO-1	Identify the most important features in Flash layout to create animation.
CO-2	Examine the various types of selection tools and the tools used to create graphics.
CO-3	Practice with different types of graphics, objects and text related options to apply them to animation.
CO-4	Illustrate animation using timeline effects and Tweening techniques.
CO-5	Summarize the masking effects, behaviours panel and Action Script concepts to develop effective, programmable animation.

UNIT I

How flash works – Uses of flash – Timeline – Stage –Property Inspector – Panels-Creating a New Flash Document-Scenes-Layers-concept of Frames- Frames and keyframes – inserting frames, keyframes or blank keyframes – deleting frames – deleting keyframes - Saving & Testing a Document.

UNIT II

Vector& Bitmap graphics - drawing model - selecting objects - selection Tool – Subselection Tool- Lasso Tool-creating graphics- The Pencil Tool – The Pen Tool – Painting with the Brush Tool - Fill and Outline fills-color palette-color swatches-color Mixer panel

UNIT III

Transformation and Aligning graphics-grouping-breakup part-grouping object-working with text- static text – input text – dynamic text – understanding the font display - text attributes-spell checker-transforming text

UNIT IV

Creating symbols-buttons-editing and modifying symbols-Timeline effect- working with timeline effects in the transform/transition category - working with timeline effects in the assistants category - working with timeline effects in the effects category -Frame by Frame Animation-Tweening-Motion Tweening-Shape Tweening

UNIT V

Using the Onion Skin Features – Creating an animation using Motion Tweening and Shape Tweening - Masking Effects – Masking a text using Motion Tweening - – Behaviours-Action script-Movie Clip-Color Transform-Get URL Action.

TEXT BOOKS:

1. Macromedia Flash MX: Training from the source by Chrissy Rey.
2. Flash 8 – Shalini Gupta and Adity Gupta.

REFERENCE BOOK:

The Essential Guide to Flash CS4 with ActionScript, Paul Milbourne, Chris Kaplan and Micheal Oliver with Serge Jespers.

Course Outcomes

CO	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Understand the fundamentals of multimedia and the features in flash interface.	PSO1, PSO3, PSO4 & PSO5	Understanding
CO-2	Explain various types of graphics and tools available in flash to create animation effects.	PSO3, PSO4 & PSO5	Applying
CO-3	Manipulate input and dynamic text with multiple text attributes for text based animation.	PSO3, PSO4 & PSO5	Applying
CO-4	Differentiate the application of timeline effects, Frame by Frame animation and Tweening techniques.	PSO3, PSO4 & PSO5	Analyzing
CO-5	Evaluate the features in Action Script to produce animations controlled by Action Script.	PSO2, PSO3, PSO4 & PSO5	Evaluating

Relationship Matrix

Semester	Course Code	Title of the Course		Hours		Credit			
II		Multimedia Tools		60		3			
Course Outcomes (COs)	Programme Learning Outcomes (PLOs)					Programme Specific Outcomes (PSOs)				
	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO-1	✔	✔	✔	✔	✔	✔		✔	✔	✔
CO-2	✔	✔	✔	✔	✔			✔	✔	✔
CO-3	✔	✔	✔	✔	✔			✔	✔	✔
CO-4	✔	✔	✔	✔	✔			✔	✔	✔
CO-5	✔	✔	✔	✔	✔		✔	✔	✔	✔
	Number of matches (✓) = 42 Relationship = High									

Prepared by   Checked by

Name :MohideenPillai S   Head of the Department

Signature :

Semester – II

Course Title	Multimedia Tools Practical
Total Hrs.	30
Hrs./Week	2
Sub.Code	18UACA2P1
Course Type	AI-P-2
Credits	1
Marks	

General Objective:

- To make the students to be familiar with the features available in Flash interface and to create multimedia applications.

Course Objectives: The learner will be able to:

CONo.	Course Objectives
CO-1	Manipulate objects by moving it in the flash screen.
CO-2	Employ tweening techniques to objects and symbols
CO-3	Analyze built-in functions in flash by using different types of symbols.
CO-4	Create text oriented animation using different types of timeline effects
CO-5	Test masking effects and behaviours panel options to objects to create animation.

1. Make an object move across the screen.
2. Draw a path an object should follow.
3. Change the color of an object.
4. Using Shape Tweening to can change one object into another.
5. Create your own button and add a URL to it so it becomes a link.
6. Create a draggable movie clip in Flash.

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7. Create animation using dynamic and input text

8. Create animation using timeline effects

9. Create animation using masking effects

10. Load external image files into a movie clip with the Behaviors Panel

Course Outcomes

CO	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Apply options to move objects along with a path or across screen.	PSO1, PSO3 & PSO5	Applying
CO-2	Change the colour and shape of the objects.	PSO2, PSO3 & PSO5	Applying
CO-3	Select tools to make a button as link to a document and movie as draggable.	PSO3 & PSO5	Analyzing
CO-4	Experiment animation effects to objects using timeline control action and different types of texts.	PSO3, PSO4 & PSO5	Analyzing
CO-5	Evaluate animation using masking effects and options in behaviours panel.	PSO3 & PSO5	Evaluating

Relationship Matrix

Semester	Course Code	Title of the Course	Hours	Credit
II		Multimedia Tools Practical	30	1

Course Outcomes (COs)	Programme Learning Outcomes (PLOs)					Programme Specific Outcomes (PSOs)				
	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO-1	✔	✔		✔	✔	✔		✔		✔
CO-2	✔	✔	✔	✔	✔		✔	✔		✔
CO-3	✔	✔		✔	✔			✔		✔
CO-4	✔	✔	✔	✔	✔			✔	✔	✔
CO-5	✔	✔		✔	✔			✔		✔
	Number of matches (✓) = 35 Relationship = High									

Prepared by   Checked by

Name :MohideenPillai S   Head of the Department

Signature :

SEMESTER – III

Course Title	JAVA PROGRAMMING
Total Hrs.	60
Hrs./Week	4
Sub.Code	
Course Type	
Credits	
Marks	

General Objective:

Understand the fundamentals of object-oriented programming in Java, including managing classes, objects, invoking methods etc and exception handling mechanisms and also the Concepts of inheritance, packages, interfaces and multithreading are introduced.

Course Objectives: The learner will be able to:

CO No.	Course Objectives
CO-1	Understand the history, features of java, data types, operators and branching statements.
CO-2	Identify the classes, objects, passing and returning objects.
CO-3	Comprehend the OOPs Concepts like inheritance, packages and interfaces.
CO-4	Analyze the exception handling and multiple thread in java
CO-5	Distinguish input/output operations and perform Applet graphics.

UNIT I

Features of Java: History – Characteristics of Java - Developing and Running a Java Program – Structure of a java program – Variables – Features of java – Data types – Type Conversion and casting – arrays – operators. Branching and Looping Statements - continue and return statement.

UNIT II

Classes methods and objects examples-declaring objects – methods in classes – constructors –this keyword- class structure- Extension to classes and methods: Methods overloading – passing objects to methods- passing arguments – returning objects – recursion – nested classes – string handling – command line execution.

UNIT III

Inheritance: basic concepts – multilevel hierarchy – method overriding – abstract classes – Packages and Interfaces.

UNIT IV

Errors and Exception Handling: Compile time, runtime errors – exceptions – try and catch multiple catch- throw – java's built-in-exceptions. Multiple thread programming: java threads creating several threads – controls on threads.

UNIT V

Input Output Operations: reading characters, sentences, writing to console, file processing, copying files. Applets: Introduction - Graphics and Text: lines, rectangles, ellipse, arcs, polygons, paint mode, fonts, text.

TEXT BOOK:

1. Programming in java2 – R. Rajaram, SCITECH Publications (India) Pvt Ltd, Chennai 2001
2. Java2 – Complete Reference, Tata McGraw Hill Publications

REFERENCE BOOKS:

1. Thomaswu – An Introduction to Object Oriented Programming with Java, Tata McGraw Publications, 2001

Co No	Upon Completion of this course, students will be able to	PSO Addressed	Cognitive level
CO-1	Understand the history, data types, operators and branching statements implement in java programs.	PSO1,PSO3	Understanding
CO-2	Apply the classes, objects, passing and returning objects using in java programs	PSO1,PSO3	
CO-3	Apply inheritance, packages and interfaces concept to execute programs	PSO1,PSO2,PSO3,PSO5	Applying
CO-4	Analyze the exception handling and multiple thread in java	PSO1,PSO2,PSO4,PSO5	Analyzing
CO-5	Evaluate input output operations and perform Applet graphics.	PSO1,PSO4,PSO5	Evaluating

Relationship Matrix

Semester	Code		Title of the course		Hours		Credit	
			Java Programming		4			
Course Outcomes (COS)	Programme Learning Outcomes (PLOs)				Programme Specific Outcomes (PSOs)				
	PL O1	PL O2	PL O3	PL O4	PL O5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO-1	✔	✔			✔	✔		✔		
CO-2	✔	✔			✔	✔		✔		
CO-3	✔	✔	✔	✔	✔	✔	✔	✔		
CO-4	✔	✔	✔	✔	✔	✔	✔		✔	✔
CO-5	✔	✔	✔	✔	✔	✔			✔	✔
	Number of matches (✓) = 35 Relationship = High									

Prepared by   Checked by

Name :M.H.Ibrahim   Head of the Department

Signature :

Semester – III

Course Title	OPERATING SYSTEMS
Total Hrs.	60
Hrs./Week	4
Sub.Code	
Course Type	CORE VI
Credits	4
Marks	

General Objective:

To make the students to learn what an operating system does, management of the CPU, memory, processes and file system

Course Objectives: The learner will be able to:

CO No.	Course Objectives
CO-1	List the different types of operating systems and their services.
CO-2	Understand the concept of process and its scheduling.
CO-3	Illustrate deadlocks, its prevention and avoidance
CO-4	Analyze the different approaches to memory management.
CO-5	Choose various disk scheduling algorithms for disk management.

UNIT I
Introduction - History of operating system- Different kinds of operating system – Operating system concepts - System calls-Operating system structure.

UNIT II

Processes : Basic concepts - threads –Scheduling – Types of Scheduling, Scheduling Algorithms, Scheduling Criteria, FIFO, Round Robin, Shortest Process Next, Shortest Remaining Time and Priority Scheduling

UNIT III

Deadlocks: Introduction to deadlocks –deadlock characterization-methods of handling deadlocks-deadlock prevention - deadlocks avoidance -deadlock detection and recovery.

UNIT IV

Memory Management: Memory Management Strategies - swapping–contiguous memory allocation-Paging-Segmentation-Virtual memory Management–Demand Paging-Page Replacement

UNIT V

Files systems: Files - directories - files systems implementation - File System Structure –Allocation methods-Disk Scheduling: Types of Disk Scheduling Algorithms. First Come – First Serve (FCFS) Shortest Seek Time First (SSTF) Elevator (SCAN) Circular SCAN (C – SCAN) LOOK. C – LOOK.

TEXT BOOK

1. Andrew S. Tanenbaum, "Modern Operating Systems", 2nd Edition, PHI private Limited, New Delhi, 2008.
2. Silberschatz A. Peterson J.L.,Galvan P.-Operating System Concepts. Sixth Edition

REFERENCE BOOKS

1. William Stallings, "Operating Systems - Internals & Design Principles",5thEdition, Prentice - Hall of India private Ltd, New Delhi, 2004.
2. Sridhar Vaidyanathan, "Operating System", 1st Edition,Vijay Nicole Publications, 2014.

Co No	Upon Completion of this course, students will be able to	PSO Addressed	Cognitive level
Co- 1	Understand the functions, structures, and history of operating systems	PSO1,PSO4	Understanding
Co- 2	Infer process management concepts and various scheduling algorithms	PSO1,PSO3, PS04	Understanding
Co- 3	Solve and prevent deadlocks besides recovering from deadlocks	PSO1,PSO3, PSO4	Applying
Co- 4	Analyze paging , segmentation for the allocation of memory.	PSO1,PSO3	Analyzing
Co- 5	Evaluate various disk scheduling algorithms for better utilization of external memory.	PSO1,PSO3, PSO5	Evaluating

Relationship Matrix

Semester	Code		Title of the course		Hours		Credit		
III			Operating systems		4				
Course Outcomes (COS)	**Programme Learning Outcome (PLO)**					**Programme Specific Outcomes (PSOs)**				
	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO-1	✓	✓	✓	✓	✓	✓			✓	
CO-2	✓	✓	✓	✓	✓	✓		✓	✓	
CO-3	✓	✓	✓	✓	✓	✓		✓	✓	
CO-4	✓	✓			✓	✓		✓		
CO-5	✓	✓		✓	✓	✓		✓		✓
	Number of matches (✓) = 35 Relationship = High									

Prepared by   Checked by

Name :R.FathimaSyreen   Head of the Department

Course Title	RDBMS WITH ORACLE
Total Hrs.	60
Hrs./Week	4
Sub.Code	
Course Type	Core VII
Credits	4
Marks	

General Objective:

To teach the students various advanced PL/SQL techniques and train them to build and maintain database structures and query language.

Course Objectives: The learner will be able to:

CO No.	Course Objectives
CO-1	Illustrate the architecture of the oracle database management System besides the concepts of operators, oracle commands.
CO-2	Identify various built in functions for data manipulation.
CO-3	Explain the concepts of oracle joins, views, indexes, users privileges, roles and synonyms.
CO-4	Focus the basics concepts of PL/SQL
CO-5	Explain cursors,triggers,functions and packages.

UNIT I

Introduction to oracle server - Data types –constraints-creating and maintaining tables –DDL –DML – arithmetic operators-logical operators-relational operators-other comparison operators.

UNIT II

Working with tables: function and grouping-built-in functions-character functions – numeric functions – data functions – other functions – conversion functions – nested function – group function-grouping data-having clause.

UNIT III

Multiple tables: joins-set operations. Index – sequence – view -Users – privileges and roles – synonyms

UNIT IV

PL/SQL: Introduction-basic syntax-data types-variables-constants and literals-operators-conditions-loops-strings-arrays

UNIT V

PL/SQL: PL / SQL – triggers – stored procedures and functions – packages – cursors –implicit cursor-Explicit cursor-Declaring the cursors-Exceptions

TEXT BOOK:

1. Jose. A. Ramalho – Learn Oracle, B.P.B Publications.(Unit 1 to 4)\
2. http://docs.oracle.com/cd/B19306_01/server.102/b14220/security. htm(Unit 5)

REFERENCE BOOK :

1. Database system using oracle – Nileshshah

Course Outcomes

CO No.	Course Outcomes	PSO Adressed	Cognitive Level
CO-1	Understand the logical and physical structure and execute the DDL and DML commands.	**PSO1,PSO3**	**Understanding**
CO-2	Apply various functions such as numeric, character, date and group functions to retrieve data from tables.	**PSO1,PSO5**	**Applying**
CO-3	Compute the data from a single or multiple tables using joins and views.	**PSO1,PSO 3&PSO4**	**Applying**

CO-4	Develop efficient PL/SQL programs to access oracle databases.	**PSO1,4&5**	**Applying**
CO-5	Evaluate packages ,triggers and cursors to retrieve data	**PSO1,4 & 5**	**Analyzing**

Relationship Matrix

Semester	Course Code	Title of the Course		Hours	Credit
III	Core VII	RDBMS WITH ORACLE		60	4

Course Outcomes (COs)	Programme Learning Outcomes (PLOs)					Programme Specific Outcomes (PSOs)				
	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO-1	✓	✓	✓	✓	✓	✓	✓			
CO-2	✓	✓		✓	✓	✓	✓	✓		
CO-3	✓	✓		✓	✓	✓				✓
CO-4	✓	✓	✓	✓	✓	✓			✓	✓
CO-5	✓	✓	✓	✓	✓	✓			✓	✓
	Number of matches (✓) = 37 Relationship = High									

Prepared by   Checked by

Name : W.FATHIMA FARSANA   Head of the Department

Signature :

Course Title	JAVA PROGRAMMING PRACTICALS
Total Hrs.	60
Hrs./Week	4
Sub.Code	
Course Type	
Credits	
Marks	

General Objective:

To teach the fundamentals of object-oriented programming in Java, including defining classes, objects, invoking methods etc and exception handling mechanisms. Understand the principles of inheritance, packages ,interfaces and input/output operations and applet

Course Objectives: The learner will be able to:

CO No.	Course Objectives
CO-1	Understand the branching statements and classes
CO-2	Identify the method overloading and inheritance concept
CO-3	Examine interface and packages
CO-4	Analyze user defined exception and multiple thread
CO-5	Experiment the applet programs and file concept

1 Write a Java Program to make a simple calculator using switch case

2. Write a java program using class

3. Write a Java Program using method overloading

4. Write a java program using inheritance

5. Write a java program using interfaces

6. Write a java program using packages

7. Write a java program to create a user defined exception

8. Write a program using threads

9. Create an applet program to draw multiple shapes

10. Create a java programming using Files

Co No	Upon Completion of this course, students will be able to	PSO Addressed	Cognitive level
CO-1	Identify the branching statements and classes in java programs	PSO1,PSO3	Understanding
CO-2	Apply the method overloading and inheritance	PSO1,PSO3,PSO4,PSO5	Applying
CO-3	Examine interface and packages the files access from different folders to execute programs	PSO1,PSO3,PSO5	Applying
CO-4	Analyze user defined exception and multiple thread implement in java programs.	PSO1,PSO2,PSO3,PSO4	Analyzing
CO-5	Evaluate the applet programs and file programs in java	PSO1,PSO2,PSO3,PSO4	Evaluating

Relationship Matrix

Semester	Code		Title of the course		Hours		Credit	
			Java Programming Practical		2			
Course Outcomes (COS)	Programme Learning Outcomes (PLOs)					Programme Specific Outcomes (PSOs)			
	PLO1	PLO2	PLO3	PLO4	PLO5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO-1	✔	✔			✔	✔		✔		
CO-2	✔	✔	✔	✔	✔	✔		✔	✔	✔
CO-3	✔	✔	✔	✔	✔	✔		✔	✔	✔
CO-4	✔	✔	✔	✔	✔	✔	✔	✔		
CO-5	✔	✔	✔	✔	✔	✔	✔	✔	✔	
	Number of matches (✓) = 40 Relationship = High									

Prepared by   Checked by

1. M.H.Ibrahim   1. ....

Course Title	RDBMS with Oracle Practical
Total Hrs.	30
Hrs./Week	2
Sub.Code	
Course Type	P-IV
Credits	1
Marks	

General Objective:

To teach PL/SQL programming language to the students by giving practical knowledge, utilizing the services provided by Oracle database in a stored procedure perspective.

.**Course Objectives: The learner will be able to:**

CO No.	Course Objectives
CO-1	Explain DDL and DML commands.
CO-2	Illustrate various operators and functions
CO-3	Compute group functions and joins.
CO-4	Experiment PL/SQL programs using control structures and exception handling.
CO-5	Focus the concepts of cursors and trigger in PL/SQL.

1. Creating, modifying and dropping tables using constraints

2. Inserting, modifying, deleting rows in database.

3. Retrieving rows with operators in where clause.

4. Retrieving rows with Character, Number and Date functions.

5. Retrieving row with Group functions and HAVING.

6. Joining Tables (Inner and Outer)

7. Program using control structures

8. Program using Exception Handling

9. Create triggers on DDL statements

10. <mark>Declare and control explicit cursors, use simple loops and cursor FOR loops to fetch data</mark>

11. Create a simple function that accepts a parameter

Co No	Upon Completion of this course, students will be able to	PSO Addressed	Cognitive level
Co-1	Understand DDL and DML command to create and modify table using constraints.	PSO1,PSO3	Understanding
Co-2	Apply operators and functions to retrieve rows	PSO1&PSO3	Applying
Co-3	Evaluate group functions and joins for data manipulation on tables.	PSO1, PSO3&PSO5	Analyzing
Co-4	Compare various control structures besides exception handling in PL/SQL.	PSO1,PSO3,PSO4 &PSO5	Evaluating
Co-5	Select rows in tables based on cursors and triggers	PSO1,PSO3 PSO4&PSO5	Evaluating

Relationship Matrix

Semester	Code	Title of the course	Hours	Credit
III	P-IV	RDBMS with Oracle Practical	2	1

Course Outcomes (COS)	Programme Learning Outcomes (PLOs)					Programme Specific Outcomes (PSOs)				
	PL O1	PL O2	PL O3	PL O4	PLO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO-1	✓	✓			✓	✓		✓		
CO-2	✓	✓			✓	✓		✓		
CO-3	✓	✓		✓	✓	✓		✓		✓
CO-4	✓	✓	✓	✓	✓	✓		✓	✓	✓
CO-5	✓	✓	✓	✓	✓	✓		✓	✓	✓
	Number of matches (✓) = 35 Relationship = High									

Semester – III

Course Title	GUI PROGRAMMING USING VISUAL BASIC
Total Hrs.	60
Hrs./Week	4
Sub.Code	
Course Type	ALLIED II/1
Credits	3
Marks	

General Objective:

To teach effective user interfaces with Visual Basic controls, forms, and other GUI components and database access using data control ,ADO Control, DAO, RDO and Data Environment Designer.

Course Objectives: The learner will be able to:

CO No.	Course Objectives
CO-1	Describe about visual basic IDE besides forms and MDI.
CO-2	Compare various types of operators, control structures besides arrays, variables and constants.
CO-3	Analyze different controls in toolbox.
CO-4	Explain the role of program components such as controls, classes, objects, properties, methods, functions, procedures, forms, modules and projects.
CO-5	Creating dialogs, menus, windows and use Windows common dialogs

UNIT I

Integrated Development Environment (IDE) and Forms: Introducing Visual BASIC- Learning the IDE Features- Working with Forms: The Anatomy

of a Form- Working with Form Properties- Tweaking a Form's Properties- Introducing Form events- Introducing Form methods- Working with Multiple Document Interface (MDI) Forms.

UNIT II

Logic and Program Flow, Data Types : Understanding Logical operators- Making Comparisons- Evaluating Conditions in code- Performing repetitive tasks. Introducing variables- variable types- Arrays– Constants

UNIT III

Selecting and Using Controls: Introducing Controls- Command Buttons- Text Boxes-Labels- Option Buttons- Check Boxes- Frame controls- List Boxes- Combo Boxes- Image objects- Picture objects Timers- Scroll Bars- Drive Lists- Directory List Boxes- File List Boxes.

UNIT IV

Modules, Classes, Menus, And Tool Bars: Introducing Code Modules and Classes- Creating a Code Library- Working with sub procedures- Working with Function procedures- Using Private and public sub procedures. Understanding the Menu Object- Creating a menu with the Menu

UNIT V

Storing And Retrieving Data, Dialog Boxes : Working with ASCII Files- Data controls- Understanding the Anatomy of a database- Creating data bases with Visual Data Manager- Creating a Data base Table- Creating a Query- Modifying a table- DAO-RDO-ADO-Data reports.

TEXT BOOK:

1. Visual BASIC 6 In Record Time – Steve Brown – bpb Publications.

REFERENCE BOOKS:

1. Visual BASIC 6 – Paul Sheriff – PHI

2. The Complete Reference Visual Basic 6 – Noel Jerke - Tata Mcgraw - Hill Edition

Co No	Upon Completion of this course, students will be able to	PSO Addressed	Cognitive level
Co-1	Understand the components of visual basic Integrated Development Environment (IDE) besides forms and MDI forms.	**PSO1,PSO4**	**Understanding**
Co-2	Examine different control structures, variables, arrays and constants.	**PSO1&PSO4**	**Applying**
Co-3	Construct windows application using toolbox controls.	**PSO1,PSO3& PSO4**	**Applying**
Co-4	Analyze code using procedures, sub-procedures, and functions.	**PSO1,PSO5**	**Analyzing**
Co-5	Evaluate the database operations through data controls.	**PSO1,PSO2&PSO5**	**Evaluating**

Relationship Matrix

Semester	Code		Title of the course			Hours		Credit	
III	Allied-II/1		GUI Programming Using Visual Basic			4		3	
Course Outcomes (COS)	Programme Learning Outcomes (PLOs)					Programme Specific Outcomes (PSOs)				
	PL O1	PL O2	PL O3	PL O4	PLO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO-1	✓	✓	✓	✓	✓	✓			✓	
CO-2	✓	✓	✓	✓	✓	✓			✓	
CO-3	✓	✓	✓	✓	✓	✓		✓	✓	
CO-4	✓	✓		✓	✓	✓				✓
CO-5	✓	✓	✓	✓	✓	✓	✓			✓
	Number of matches (✓) = 36 Relationship = high									

Prepared by   Checked by

Semester – III

Course Title	GUI PROGRAMMING USING VISUAL BASIC PRACTICAL
Total Hrs.	30
Hrs./Week	2
Sub.Code	
Course Type	Allied-II/1P
Credits	1
Marks	

General Objective:

To teach effective user interfaces with Visual Basic controls, forms, and other GUI components and database access using data control ,ADO Control, DAO, RDO and Data Environment Designer.

Course Objectives: The learner will be able to:

CO No.	Course Objectives
CO-1	Explain about the concept of control array and menus.
CO-2	Illustrate the concept of scrollbars and common dialog control.
CO-3	Examine richtextbox and data control.
CO-4	Teach datareport control.
CO-5	Test listbox and timer control.

1 Design an arithmetic Calculator

2 Menu Creation with simple files and edit options.

3 Designing a color mixer using basic colors.

4   Create a file open dialogue box to load a picture.

5   Create an application to format the text inside the text box.

6   Viewing records using data base controls.

7   Adding records to database using data control

8   Display the information in the report form.

9   Create an application to move the elements from list to list and add new items.

10 Animate a Picture using Timer control.

Co No.	Upon Completion of this course, students will be able to	PSO Addressed	Cognitive level
Co- 1	Understand the concept of control array for creating arithmetic calculator besides menu editor.	PSO1,pso4	Understanding
Co- 2	Apply scrollbars and common dialog control for creating applications.	PSO1,PSO3 ,PSO5	Applying
Co- 3	Connect databases to insert, delete and edit records.	PSO1,4,5	Analyzing
Co- 4	Evaluate report using data report and data environment	PSO1,3,5	Analyzing
Co- 5	Test animations using timer, picture and common dialog controls	PSO1,3,4	Evaluating

Relationship Matrix

Semester	Code		Title of the course			Hours	Credit
III	Allied-II/ 1P		GUI Programming Using Visual Basic Practical			2	1

Course Outcomes (COS)	Programme Learning Outcomes (PLOs))					Programme Specific Outcomes (PSOs)				
	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO-1	✓	✓	✓	✓	✓	✓			✓	
CO-2	✓		✓	✓	✓	✓		✓		✓
CO-3	✓	✓	✓	✓	✓	✓			✓	✓
CO-4		✓		✓	✓	✓		✓		✓
CO-5	✓	✓	✓	✓	✓	✓		✓	✓	
Number of matches (✓) = 36										

	Relationship = High	

Prepared by   Checked by

Name :W.FathimaFarsana   Head of the Department
Signature :

III SEMESTER
SEC-1   **INTRODUCTION TO COMPUTERS**
Hrs / Week : 2   Hrs / Sem :30   Hrs/Unit :6   Credits :

III SEMESTER			
SEC-2	MOOC-NPTEL COURSE		
Hrs / Week : 2	Hrs / Sem :30	Hrs/Unit :6	Credits :

Course Title	INTRODUCTION TO PHOTO EDITING
Total Hrs.	30
Hrs./Week	2
Sub.Code	
Course Type	NME 1
Credits	1
Marks	

General Objective:

To teach students the basic tools used in photoshop to create and edit images and train them the techniques to capture digital images and photo retouching.

Course Objectives: The learner will be able to:

CO No.	Course Objectives
CO-1	Comprehend the basic concepts of image manipulation and color selection.
CO-2	Identify various paintings tools and its settings.
CO-3	Discuss about selections and the tools used for selections in an image.
CO-4	Explain the ideas of filling ,stroking besides paint bucket and gradient tools.
CO-5	Analyze various layers and its functions.

Unit I

Basic Image Manipulation - Bitmap Images - Vector Images - Image Size and Resolution Settings - Creating New Images - Color Basics - Color Modes - Foreground and Background Colors - Selecting Colors with the Eyedropper Tool - Selecting Colors with the Swatches Palette

Unit II

Painting Tools: Painting Tools - The Brush Tool - Blending Modes - The Pencil Tool - The Eraser Tool - The Magic Eraser Tool - The Background Eraser Tool - Using the Art History Brush - Using the History Brush – Brush Settings

Unit III

Making Selections: Selection Basics - Making Pixel Selections - The Marquee Tools - The Lasso Tools - The Magic Wand Tool - Selecting by Color Range adjusting Pixel Selections

Unit IV

The Extract Command - Copying and Pasting Pixel Selections - Saving and Loading Selections -Filling and Stroking - Applying Fills - Using the Paint Bucket Tool - Using the Gradient Tool

Unit V:

Layers: Using Layers and Layer Sets - Creating Layers and Layer Sets - Stacking and Linking Layers - Moving Layer Content with the Move Tool - Locking Layers - Merging and Flattening Layers

Text Book:

Adobe Photoshop.CS2 Class Room In book New Full-color Edition Adobe Press

REFERENCE BOOK:

Adobe Illustrator For Beginners 2021: Learn Graphic Design With Illustrator, By Hector Grant

Co No	Upon Completion of this course, students will be able to	PSO Addressed	Cognitive level
Co- 1	Understand the basics of image manipulation to optimize and save images in proper file format	PSO1,PSO3	Understanding
Co- 2	Develop a colourful paintings using painting tools.	PSO3,PSO4,PSO5	Applying
Co- 3	Apply selection techniques to select specified area of an imageMake use of retouching and repairing techniques to correct images	PSO3,PSO5	Applying

Co- 4	Experiment with paint bucket tool,gradient tool to create special effects in an image	PSO3,PSO4,PSO5	Analyzing
Co- 5	Evaluate to link,stack,merge and flatten various layers.	PSO3,PSO5	Evaluating

Relationship Matrix

Semester	Code		Title of the course		Hours		Credit	
III	NME1		Introduction to PhotoEditing		2		1	

Course Outcomes (COS)	ProgrammeLearning Out Come (PLOS)					Programme Specific Outcomes (PSOs)				
	PLO1	PLO 2	PLO 3	PLO 4	PLO 5	PSO1	PSO2	PSO3	PSO4	PSO5
CO-1	✓	✓			✓	✓		✓		
CO-2	✓	✓	✓	✓	✓			✓	✓	✓
CO-3	✓	✓		✓	✓			✓		✓
CO-4	✓	✓	✓	✓	✓			✓	✓	✓
CO-5	✓	✓		✓	✓			✓		✓
	Number of matches (✓) = 33 Relationship = Medium									

Prepared by   Checked by

R.Fathima Syreen   1. ....

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Semester IV

Course Title	Linux Programming
Total Hrs.	60
Hrs./Week	4
Sub.Code	
Course Type	Core
Credits	4
Marks	

General Objective:

To explain the fundamental ideas behind the open source operating system, Linux helps to understand OS level programming.

Course Objectives: The learner will be able to:

CO No.	Course Objectives
CO-1	Understand the Basics of linux
CO-2	Teach the importance of shell programming and its coding
CO-3	Illustrate function and debugging
CO-4	Assess linux file structure
CO-5	Write Standard I/O Library commands

UNIT I

Introduction: What Is UNIX?- What Is Linux?- The GNU Project and the Free Software Foundation - Linux Distribution. Programming Linux: Linux Programs-Text Editors- The C Compiler Development System Roadmap.

UNIT II

Shell Programming : What Is a Shell? - Redirecting Output -Redirecting Input- Pipes. The Shell as a Programming Language: Interactive Programs-

Creating a Script-Making a Script Executable. Shell Syntax: Variables- Conditions- Control Structures.

UNIT III

Functions- Commands-Command Execution- Debugging Scripts The dialog utility.

UNIT IV

Linux File Structure: Directories-Files and Devices- System Calls and Device Drivers. Library Functions- Low-Level File Access-write-read-open- Initial Permissions.

UNIT V

The Standard I/O Library: fopen-fread-fwrite-fclose-fflush-fseek-fgetcgetc-getchar.Formatted Input and Output: printf- fprintf- sprintf- scanffscanf-sscanf.

TEXT BOOK:

1.Neil Matthew and Richard Stones, "Beginning Linux Programming" 4 th Edition, Wiley India Pvt. Ltd.

REFERENCE BOOK:

1. Iresh A. Dhotre, "Linux Programming", A C

Course Outcomes

CO No.	Course Outcomes	PSO Addressed	Cognitive Level
CO-1	Understanding the basic Linux commands and text editors	PSO1,PSO3	Understanding
CO-2	Demonstrate redirect input and output of Linux commands	PSO1,PSO2,PSO3,PSO5	Applying
CO-3	Testlinux programs using control structures ,	PSO1,PSO2,PSO3,PSO4,PSO5	Applying

	other input and output commands		
CO-4	Write file,filter commands	PSO1,PSO2,PSO3,PSO4	Applying
CO-5	Apply & Analyze server commands	PSO1,PSO2,PSO3,PSO4,PSO5	Applying, Analyzing,Evaluating

Relationship Matrix

Semester	Course Code	Title of the Course	Hours	Credit
IV	---	Linux Programming	60	4

Course Outcomes (COs)	Programme Learning Outcomes (PLOs)					Programme Specific Outcomes (PSOs)				
	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO-1	✓	✓			✓	✓		✓		
CO-2	✓	✓	✓		✓	✓	✓	✓		✓
CO-3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
CO-4	✓	✓	✓	✓	✓	✓	✓	✓	✓	
CO-5	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Number of matches (✓) =42 Relationship = High									

Prepared by   Checked by

Name :Dr.S.PiramuKailasam   Head of the Department

Signature :

Course Title	ASP.NET
Total Hrs.	60
Hrs./Week	4
Sub.Code	
Course Type	DES-III(B)
Credits	4
Marks	

General Objective

Create a web application using .net and Learn data access mechanism provided to Develop console application.

Course Objectives: The learner will be able to:

CO No.	Course Objectives
CO-1	Understand the basic Knowledge on web application programming
CO-2	Solve the data access mechanism
CO-3	Operate web controls and its operations
CO-4	Distinguish State management and its types
CO-5	Design and create a web application using ADO.NET data access web control tool

UNIT I

The .NET framework – VB.NET , C#, and the NET language – the common language runtime – the .NET class library

Data types – declaring variables — variable operations – object based manipulation – conditional structures – loop structures – functions and subroutines

UNIT II

ASP .NET Applications - understanding ASP .NET classes -Web form fundamentals – a simple page Applet - the page class – assessing HTML server controls.

UNIT III

Web controls – stepping up to web controls – web control classes – auto post back and web control events – a simple web page applet – assessing web controls-Validation and Rich Controls-Understanding Regular Expressions

UNIT IV

State management – the problem of state – view state – transferring Information – custom cookies – session state – session state configuration – application state

UNIT V

ADO.NET - Data Access-Creating a Connection- Updating Data Accessing-Modifying-Component based programming – why use components – creating a simple component

TEXT BOOK:

The complete reference ASP .NET , Mathew Macdonald, TMH 2002

REFERENCE BOOK :

Microsoft ASP. NET Step by step, G. Andrew Duthie, PHI

CO No.	Course Outcome	PSO Addressed	Cognitive Level
CO-1	Observe the basic Knowledge on web application programming	PSO1,PSO2	Understanding
CO-2	Develop the data access mechanism	PSO1,PSO2,PSO3,PSO5	Applying

CO-3	Apply web controls and its operations	PSO1,PSO2,PSO4,PSO5	Applying
CO-4	Discover State management and its types	PSO1,PSO2,PSO3,PSO5	Analyzing
CO-5	Connect ADO.NET data access	PSO1,PSO3,PSO4,PSO5	Evaluating

Relationship Matrix

Semester	Course Code	Title of the Course	Hours	Credit
VI	---	ASP.NET	60	4

Course Outcomes (COs)	Programme Learning Outcomes (PLOs)					Programme Specific Outcomes (PSOs)				
	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO-1	✓	✓	✓	✓	✓	✓	✓			
CO-2	✓	✓	✓	✓	✓	✓	✓	✓		✓
CO-3	✓	✓	✓	✓	✓	✓	✓		✓	✓
CO-4	✓	✓	✓	✓	✓	✓	✓	✓		✓
CO-5	✓	✓	✓	✓	✓	✓		✓	✓	✓
	Number of matches (✓) = 43 Relationship = High									

Prepared by   Checked by

Name :Dr.S.PiramuKailasam   Head of the Department

Signature :

Course Title	COMPUTER NETWORKS
Total Hrs.	60
Hrs./Week	4
Sub.Code	
Course Type	
Credits	
Marks	

General Objective:

To familiarize students with the fundamental concepts of data communication, the different types of network topologies and protocols and understand the layered network models (OSI reference model).

Course Objectives: The learner will be able to:

CO No.	Course Objectives
CO-1	Understanding of fundamentals concept of computer networking
CO-2	Identify the different types of guided and unguided media
CO-3	Examine the different internetworking devices and their functions. Explain the role of protocols in networking.
CO-4	Analyze the transport and session layer OSI model
CO-5	Analyze the presentation and Application layer in OSI model

UNIT I

Introduction: Data Communication – Networks – Protocols and Standards – Standards Organizations. Basic Concepts: Line Configuration – Topology – Transmission Mode – Categories of Networks – Internetworks.The OSI Model: The Model – Functions of the layers - Physical, Data Link, Network, Transport, Session, Presentation and Application Layers.

UNIT II

Transmission Media Guided Media : Twisted – Pair Cable, Coaxial Cable, Optical Fiber – Unguided media: Radio Frequency Allocation-Propagation of Radio Waves- Terrestrial Microwave-Satellite Communication, Cellular Telephony

UNIT III:

Data Link Control: Line Discipline – Flow Control – Error Control. Network Layer Function: Circuit Switching – Packet Switching – Message Switching

UNIT IV:

Transport Layer**:** Duties of the transport Layer. Session Layer: Session and Transport Interaction – Synchronization Points – Session Protocol Data Unit.

UNIT V:

Presentation Layer: Translation – Encryption / Decryption – Authentication Data Compression Application Layer: Message Handling System – File Transfer, Access and Management, Virtual Terminal, Directory Services, Common Management Information Protocol.

TEXTBOOK:

"Introduction to Data Communication and Networking" – BehrouzForouzan – Tata McGraw-Hill, 3rd Edition, 2006.

REFERENCE BOOKS:

1. "COMPUTER NETWORKS" – Andrew S. Tanenbaum, 4thEdition, PHI
2. Achyut and Godbole, "Data Communications and Computer Networks", Tata McGraw-Hill Edition,2006.

Co No	Upon Completion of this course, students will be able to	PSO Addressed	Cognitive level
CO-1	Understanding the basic computer networking, data communications and topologies.	**PSO1,PSO3**	**Understanding**
CO-2	Classify the different types of wired media and wireless media (cellular telephony, satellite communication).	**PSO1,PSO2,PSO3,PSO5**	**Understanding**
CO-3	Identify the different internetworking devices andnetwork layer functions.	**PSO1,PSO2,PSO3,PSO5**	**Applying**
CO-4	Analyze the transport and session layer OSI model	**PSO1,PSO3**	**Analyzing**
CO-5	Analyze the presentation and Application layer in OSI model	**PSO1,PSO3,PSO5**	**Analyzing**

Relationship Matrix

Semester	Code		Title of the course		Hours		Credit		
			Computer Networks		4				
Course Outcomes (COS)	**Programme Learning Outcomes (PLOs)**					**Programme Specific Outcomes (PSOs)**				
	PLO1	**PLO2**	**PLO3**	**PLO4**	**PLO5**	**PSO 1**	**PSO 2**	**PSO 3**	**PSO 4**	**PSO 5**
CO-1	✔	✔			✔	✔		✔		
CO-2	✔	✔	✔	✔	✔	✔	✔	✔		✔
CO-3	✔	✔	✔	✔	✔	✔	✔	✔		✔
CO-4	✔	✔			✔	✔		✔		
CO-5	✔	✔		✔	✔	✔		✔		✔
	Number of matches (✓) = 35 Relationship = High									

Prepared by   Checked by

1. M.H.Ibrahim   1. ....

Course Title	Linux Programming (Practical)
Total Hrs.	60
Hrs./Week	2
Sub.Code	
Course Type	P 5
Credits	1
Marks	

General Objective:

The course aims to provide exposure to problem-solving through Linux shell programming which is designed to give the student hands-on experience with the concepts.

Course Objectives: The learner will be able to:

CO No.	Course Objectives
CO-1	Understandthe fundamentals of shell programming
CO-2	Writeprograms using the basic elements like input, output , control statements
CO-3	Write programs involving decision structures, loops and functions.
CO-4	Compute file problems through shell programming
CO-5	Compile and test shell programs for file operations

1. Write a Shell program to display your address.

2. To perform arithmetic operations using Shell Arithmetic.

3. Print the different patterns using looping concept.

4. To perform simple inventory control operation using read statement.

5. To prepare the student mark statement using the necessary controls.

6. Sort the given numbers in both ascending and descending orders.

7. Write a shell program to perform user defined function concept.

8. Write a shell program using dialog utility concept.

9. Write a program to perform file operations.

10. Write a shell script to print 'Hello Linux' message in Bold, Blink, and different colors.

Co No	Upon Completion of this course, students will be able to	PSO Addressed	Cognitive level
Co-1	Understandthe fundamentals of shell programming	PSO1,PSO5	Understanding
Co-2	Examine programs using the basic elements like input, output , control statements	PSO1,PSO2,PSO5	Applying
Co-3	Apply basic commands in linux	PSO1,PSO2,POS4,PSO5	Applying
Co-4	Test file problems through shell programming	PSO1,PSO3,PSO4,PSO5	Analyzing
Co-5	Test programs using sort, functions	PSO1,PSO2,PSO3,PSO5	Analyzing

Relationship Matrix

Semester	Code	Title of the course	Hours	Credit
IV	P 5	Linux Programming Practical	2	1

Course Outcomes (COS)	Programme Out Come (PLO)					Programme Specific Outcomes (PSOs)				
	PLO 1	PLO2	PLO3	PLO 4	PLO 5	PSO 1	PSO2	PSO 3	PSO 4	PSO 5
CO-1	✓	✓		✓	✓	✓				✓
CO-2	✓	✓	✓	✓	✓	✓	✓			✓
CO-3	✓	✓	✓	✓	✓	✓	✓		✓	✓
CO-4	✓	✓	✓	✓	✓	✓		✓	✓	✓
CO-5	✓	✓	✓	✓	✓	✓	✓	✓		✓
	Number of matches (✓) = 41 Relationship = HIGH									

Prepared by   Checked by

Name :Dr.S.PiramuKailasam   Head of the Department

Signature :

Semester IV

Course Title	ASP.NET Practical
Total Hrs.	60
Hrs./Week	4
Sub.Code	
Course Type	DES-III(B)
Credits	4
Marks	

General Objective

ASP.Net is a powerful framework which provides web application development and help in developing windows application, web application and web services.

Course Objectives: The learner will be able to:

CO	Course Objectives
CO-1	Understand Microsoft frame to create a web form
CO-2	Development of console application
CO-3	Examinewebcontrols and windows application
CO-4	Connect data access mechanism provided .net
CO-5	Plan website application

1. Create a web form to add controls and display a message .
2. Create a web form to change the color of the page using drop down list.
3. Create a page using code behind file.
4. Create a web form to handle list box's selection change event.

5. Create a page that takes name and message from the user and choose a color by radio button, select a style from the checkbox and display the formatted text.
6. Create a web form and demonstrate the use of hyperlink control.
7. Create a web form and demonstrate the use of validation control.
8. Create a page that takes number of rows and columns from the user and make a table.
9. Create a page which generates a greeting card.
10. Demonstrate use of login controls with web forms for login, create user, password recovery.

CO No.	Course Outcome	PSO Addressed	Cognitive Level
CO-1	Understand the basic concepts and limitations of ASP.NET frame work	PSO1,PSO3,PSO5	Understanding
CO-2	Practice console application	PSO1,PSO2,PSO5	Applying
CO-3	Experiment various examples using webcontrols and windows applications	PSO1,PSO3,PSO5	Analyzing
CO-4	Test ADO.Net data access control	PSO1,PSO3,PSO4,PSO5	Analyzing
CO-5	Design and Examine website application	PSO1,PSO3,PSO4,PSO5	Analyzing,Evaluating

Relationship Matrix

Semester	Course Code	Title of the Course		Hours		Credit		
VI	---	ASP.NET		60		4		
Course Outcomes (COs)	Programme Learning Outcomes (PLOs)					Programme Specific Outcomes (PSOs)			
	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO-1	✓	✓	✓	✓	✓	✓		✓		✓

CO-2	✓	✓	✓	✓	✓	✓	✓			✓
CO-3	✓	✓	✓	✓	✓	✓		✓		✓
CO-4	✓	✓	✓	✓	✓	✓		✓	✓	✓
CO-5	✓	✓	✓	✓	✓	✓		✓	✓	✓
	Number of matches (✓) = 42 Relationship = HIGH									

Prepared by   Checked by

Name :Dr.S.PiramuKailasam   Head of the Department

Signature :

Semester – IV

Course Title	Web Designing using HTML & CSS
Total Hrs.	60
Hrs./Week	4
Sub.Code	
Course Type	Allied-II/2
Credits	3
Marks	

General Objective:

To teach the basic elements of HTML,,lists, frames,forms and the concept of cascading style sheets(CSS).

Course Objectives: The learner will be able to:

CO No.	Course Objectives
CO-1	Comprehend the basic elements and attributes of HTML.

CO-2	Identify the body structure of HTML.
CO-3	Differentiate the types of list and frame settings in HTML.
CO-4	Explain forms and its various controls.
CO-5	Focus on CSS and its properties.

UNIT I

Introduction to HTML – History Of HTML –HTML Documents - HTML Editors – HTML Basics – HTML Elements and Attributes – Anchor Tag – Hyper Links. Head and Body Sections – Header Section – Title, prologue, Links, Colorful Web Page, Comment Lines.

UNIT II

Designing Body Sections – Heading printing, Aligning the Headings, Horizontal rule, Paragraph, Tab Settings.

UNIT III

Lists, Unordered Lists, Ordered Lists, Table Handling, Layouts, Frames: Frameset Definition – Frame Definition – Nested Framesets.

UNIT IV

Forms – Action Attribute – Drop Down List – Check Boxes – Radio Buttons – Text Field – Text Area – Password – Hidden – Submit and Reset Buttons.

UNIT V

Cascading Style Sheets: Introducing CSS, Where you can Add CSS Rules-CSS Properties: Controlling Text- Text Formatting-Text Pseudo Classes- Selectors-Lengths- Introducing the Box Model. More Cascading Style Sheets: Links, Lists, Tables, Outlines, The :focus and :activate Pseudo classes Generated Content, Miscellaneous Properties, Additional Rules, Positioning and Layout wit, Page Layout CSS , Design Issues.

TEXT BOOK :

Web Designing and CSS : The Complete Reference, Fifth Edition by Thomas Powell.

REFERENCE BOOK:

World wide web design with html-c.Xavier,McGraw-Hill Education - Europe, 2015

Co No	Upon Completion of this course, students will be able to	PSO Addressed	Cognitive level
Co- 1	Understand anchor tag , head and body sections of HTML.	PSO1,4&5	Understand
Co- 2	Apply horizontal rule, headings,paragraph and tab settings to create a webpage.	PSO1,4&5	Applying
Co- 3	Experiment various lists and frame settings in HTML.	PSO1,4&5	Applying
Co- 4	Analyze the various attributes and components of a form for web page design.	PSO1,2,3&5	Analyzing
Co- 5	Evaluate the function and design components that are used in the creation of a web site using CSS.	PSO1,2,4&5	Evaluating

Relationship Matrix

Semester	Code		Title of the course	Hours	Credit
IV	Allied-II/2		Web Designing using HTML & CSS	4	3

Course Outcomes (COS)	Programme Learning Outcomes (PLOs))					Programme Specific Outcomes (PSOs)				
	PLO 1	PL O2	PL O3	PL O4	PL O5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO-1	✓	✓	✓	✓	✓	✓			✓	✓
CO-2	✓	✓	✓	✓	✓	✓			✓	✓
CO-3	✓	✓	✓	✓	✓	✓			✓	✓
CO-4	✓	✓	✓	✓	✓	✓	✓	✓		✓
CO-5	✓	✓	✓	✓	✓	✓	✓		✓	✓
	Number of matches (✓) = 42 ⁣ Relationship = High									

Prepared by   Checked by

Name : W.FATHIMA FARSANA   Head of the Department

Signature :

Course Title	Web Designing using HTML & CSS Practical
Total Hrs.	60
Hrs./Week	2
Sub.Code	
Course Type	Allied-II/2P
Credits	1
Marks	

General Objective:

To train the students for developing web pages using HTML and CSS.

Course Objectives: The learner will be able to:

CO No.	Course Objectives
CO-1	Understand various formatting elements besides the components of the form.
CO-2	Discuss about list and table creation.
CO-3	Apply frames and its attributes to develop a web page
CO-4	Illustrate the concepts of style sheet to create a colourful web page.
CO-5	Focus on inline style sheet and links in CSS.

1. Write a HTML code to display information about your college using all formatting elements with suitable headings and horizontal rules.Add background color and picture.
2. Write a HTML program to prepare a bio-data in a form.
3. Write an HTML program to print a nested list.
4. Write an HTML program to display your current semester time table.
5. Write an HTML code to display a list of cars in a frame Line, each one to a brief description in second frame. Both the frames should be side by side.
6. Write an HTML program to display any three Flower details in separate frames. Each frame should   be side by side.

7. Write a HTML program to develop a web page using css.
8. Design a style sheet to give following effects.
    a. The first letter of the paragraph should have 150% font size
    b. The first line of the paragraph should have purple as background color and white as the fore color.
9. Design a CSS(inline) that displays the regular text at the center with green as background color and white as foreground color and should be bold; using class.
10. Design a CSS Set the background color for visited and unvisited links to "lightblue", and the background color for the hover and active link states to "yellow".

Co No	Upon Completion of this course, students will be able to	PSO Addressed	Cognitive level
Co-1	Show formatting tags, heading, horizontal rules, forms and image tags to develop a web page.	PSO1,5	Understanding
Co-2	Illustrate the list and tables for display the content in the webpage.	PSO1,5	Understanding
Co-3	Apply frames to create an attractive web page.	PSO1,4,5	Applying
Co-4	Experiment CSS to display a colorful text with background color.	PSO1,4,5	Analyzing
Co-5	Analyze an inline stylesheets and links with different colors.	PSO1,3	Analyzing

Relationship Matrix

Semester	Code		Title of the course		Hours		Credit		
IV	Allied-II/2P		Web Designing using HTML & CSS Practical		2		1		
Course Outcomes (COS)	Programme Learning Outcomes (PLOs))					Programme Specific Outcomes (PSOs)				
	PLO 1	PLO 2	PLO3	PLO 4	PLO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO-1	✓	✓		✓	✓	✓				✓
CO-2	✓	✓		✓	✓	✓				✓
CO-3	✓	✓	✓	✓	✓	✓			✓	✓
CO-4	✓	✓	✓	✓	✓	✓			✓	✓
CO-5	✓	✓			✓	✓		✓		
	Number of matches (✓) = 33 Relationship = Medium									

Prepared by   Checked by

1. W.FathimaFarsana   1. ....

IV SEMESTER		
SEC-III	SOFT SKILLS	
Hrs / Week : 4 Hrs / Sem : 60 Hrs / Unit : 12 Credits :		

Course Title	**Logical Reasoning**
Total Hrs.	60
Hrs./Week	4
Sub.Code	
Course Type	Allied – I
Credits	3
Marks	

General Objective:

To improve the critical thinking and problem solving skills of the students, so that they can apply it to software development.

Course Objectives: The learner will be able to:

CONo.	Course Objectives
CO-1	Teach reasoning methods by solving series completion and blood relations problems.
CO-2	Solve problems based on analogies.
CO-3	Classify and choose the given odd pair of words, numerals and letter group.
CO-4	Experiment different methods to implement coding and decoding.
CO-5	Summarize question based, selection based and family based puzzles.

UNIT I

Introduction - Series Completion: Number Series – Alphabet Series – Alpha-Numeric Series – Continuous Pattern Series - **Blood Relations:** Deciphering Jumbled up Descriptions – Relation Puzzle – Coded Relations

UNIT II

Analogy: Common Relationships – Completing the Analogous Pair – Direct/Sample Analogy – Choosing the Analogous Pair – Double Analogy – Choosing a Similar Word – Detecting Analogies – Multiple Word Analogy – Number Analogy – Alphabet Analogy

UNIT III

Classification: Choosing the Odd Word – Choosing the Odd Pair of Words – Choosing the Odd Numeral – Choosing the Odd Numeral Pair/Group – Choosing the Odd Letter Group

UNIT IV

Coding-Decoding: Letter Coding – Direct Letter Coding – Number/Symbol Coding – Matrix Coding – Substitution – Deciphering Message Word Codes – Deciphering Number and Symbol Codes for Messages – Jumbled Coding

UNIT V

Puzzle Test: Classification Type Questions – Seating/Placing Arrangements – Comparison Type Questions – Sequential Order of Things – Selection based on given conditions – Family based Problems – Jumbled Problems

TEXT BOOK:

A Modern Approach to Verbal & Non-Verbal Reasoning, Dr.R.S.Aggarwal, S.Chand& Company Ltd

REFERENCE BOOK:
How To prepare Logical Reasoning for CAT, Arun Sharma, McGraw Hill Education WE Series

Course Outcomes

CO	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Examine problem solving with missing series and blood relation puzzles.	PSO1, PSO2 & PSO3	Applying
CO-2	Choose and detect different types of	PSO1, PSO2 &	Applying

CO		PSO	
	analogies.	PSO3	
CO-3	Analyze the classification methods to find the odd one.	PSO1, PSO2 & PSO3	Analyzing
CO-4	Categorize coding and decoding techniques to decipher the messages.	PSO1, PSO2, PSO3 & PSO4	Analyzing
CO-5	Evaluate puzzles based on various types of questions.	PSO1, PSO2, PSO3 & PSO5	Evaluating

Relationship Matrix

Semester	Course Code	Title of the Course	Hours	Credit
V	---	Logical Reasoning	60	3

Course Outcomes (COs)	Programme Learning Outcomes (PLOs)					Programme Specific Outcomes (PSOs)				
	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO-1	✔	✔	✔	✔	✔	✔	✔	✔		
CO-2	✔	✔	✔	✔	✔	✔	✔	✔		
CO-3	✔	✔	✔	✔	✔	✔	✔	✔		
CO-4	✔	✔	✔	✔	✔	✔	✔	✔	✔	
CO-5	✔	✔	✔	✔	✔	✔	✔	✔		✔
	Number of matches (✓) =42 Relationship = High									

Prepared by   Checked by

Name :MohideenPillai S   Head of the Department

Signature :

Course Title	Introduction to internet and web designing
Total Hrs.	30
Hrs./Week	2
Sub.Code	
Course Type	NME 2
Credits	
Marks	

General Objective:

To provide the students conceptual and technological developments in the field of Internet and train them to design website.

Course Objectives: The learner will be able to:

CO	Course Objectives
CO-1	Comprehend the fundamental concepts of web design.
CO-2	Discuss the header and body section of html documents.
CO-3	Illustrate the types of lists besides table creation. To provide student an ability to design website using HTML
CO-4	Analyze frames and its creation in a web page
CO-5	Focus on forms and its various controls.Understand fundamental tools and technologies for web design

UNIT I

Introduction to internet-computers in business networks-internet-electronic mail-resource sharing-gopher-www-usenet-telnet-bulletin services-wide area information service.

UNIT II

Designing a home page-history of html-html generations-html document-anchor tag-hyper links-sample html documents-header and body section-

degning the body-tab setting-image and picture-embedding PNG format images.

UNIT III

List unordered list-ordered list-nested list-table creation-Cell spacing and spanning-coloring cells - rows and columns specification.

UNIT IV

Frameset-definition-frame definition-nested frame sets.

UNIT V

Forms action attributes-method attributes-enctype attributes-dropdown list.

TEXT BOOK:

World wide web design with html-c.Xavier,McGraw-Hill Education - Europe, 2015

REFERENCE BOOK:

Web Designing and CSS : The Complete Reference, Fifth Edition by Thomas Powell.

Co No	Upon Completion of this course, students will be able to	PSO Addressed	Cognitive level
Co-1	Understand the basics of internet technologies.	PSO1,PSO3,PSO5	Understanding
Co-2	Identify the structure of html documents and its tags to create a colourful webpage	PSO1,PSO4, PSO5	Understanding
Co-3	Construct tables with row and column spanning for a web page	PSO3,PSO5	Applying
Co-4	Experiment with frames to develop multiple sections in a web page	PSO4,PSO5	Applying
Co-5	Evaluate forms and its various controls to create user interface web page	PSO2,PSO5	Analyzing

Relationship Matrix

Semester	Code	Title of the course	Hours	Credit
IV	NME2	INTERNET AND WEB DESIGNING	2	1

Course Outcomes (COS)	ProgrammeLearningOut Come (PLOS)					Programme Specific Outcomes (PSOs)				
	PLO1	PLO 2	PLO 3	PLO 4	PLO 5	PSO1	PSO2	PSO3	PSO4	PSO5

CO-1	✓	✓		✓	✓	✓		✓		✓
CO-2	✓	✓	✓	✓	✓	✓			✓	✓
CO-3	✓	✓		✓	✓			✓		✓
CO-4		✓	✓	✓	✓				✓	✓
CO-5	✓	✓	✓	✓	✓		✓			✓
	Number of matches (✓) = 34 Relationship = High									

Prepared by   Checked by

R.Fathima Syreen   1. ....

Course Title	Computer Graphics
Total Hrs.	90
Hrs./Week	6
Sub.Code	
Course Type	XI
Credits	
Marks	

General Objective:

To introduce the fundamental concepts and theory of computer graphics and make them to learn the basic principles of 3- dimensional computer graphics.

Course Objectives: The learner will be able to:

CO	Course Objectives
CO-1	List the types of various display devices and graphics functions
CO-2	Illustrate various algorithms to draw lines and circles.
CO-3	Comprehend the ideas of geometrical transformations.
CO-4	Analyze various clipping methods and its algorithms.
CO-5	Focus on visible surface and back detection methods and its algorithms.

UNIT - I

Introduction to graphics:

Application of computer graphics — Video Display Device - Refresh Cathode-Ray tubes Raster - Scan Displays Random - Scan Displays - Color CRT Monitors - Direct view Storage tubes Flat - Panel Displays

Graphics in c++ — Line , Circle drawing – Other shapes – Setting drawing colors – Setting background colors – Line styles – Fill styles – Displaying texts – Animations.

UNIT II

Raster Graphics Algorithms

Line Drawing Algorithms-DDA Algorithm - Bresenham's algorithm-Circle generating Algorithm - Bresenham's algorithm – Midpoint algorithm.

UNIT III

Geometrical transformations – Basic Transformations - Translation - Rotation - Scaling - Matrix Representations - Homogeneous Coordinates – window to view port transformations

UNIT IV

Clipping operation - Point Clipping – Line Clipping - Cohen Sutherland Line Clipping Algorithm-Liang-Barsky Line Clipping Algorithm

Polygon Clipping - Sutherland-Hodgeman Polygon Clipping-Curve Clipping.

UNIT – V

Visible Surface Detection Methods : Classification Visible Surface Detection Algorithms - Back Face Detection - Depth - Buffer Method - A-Buffer Method - Scan line method - Depth sorting method

TEXT BOOKS :

1. Computer Graphics and Multimedia – Donald Hearn &paurlin Baker – computer Graphics, Prentice Hall of India pvt Ltd.
2. Interactive computer Graphics –Neumann andSproull McGrew Hill publications.

REFERENCE BOOK

1. John f. Hughes, Andries Van Dam, Morgan Mcguire, David F. Sklar, James D. Foley, Steven K. Feiner, Kurt Akeley, "Computer Graphics Principles and Practice" 3rd Edition, Pearson Education,2014.

Co No	Upon Completion of this course, students will be able to	PSO Addressed	Cognitive level
Co-1	Understand different graphics systems besides various graphics functions to draw an image.	PSO1,PSO3	Understanding
Co-2	Construct lines and circles using	PSO1,PSO3,PSO5	Applying

	scan conversion algorithms.		
Co-3	Experiment various geometric transformations of objects such as translation, scaling and rotation	PSO3,PSO4,PSO5	Applying
Co-4	Compare different clipping methods to clip a scene from an image.	PSO3,PSO5	Analyzing
Co-5	Evaluate visible surface and back face detection techniques for display of 3D scene on 2D screen.	PSO3,PSO4,PSO5	Evaluating

Relationship Matrix

Semester	Code		Title of the course		Hours		Credit
V	XI		Computer Graphics		6		

Course Outcomes (COS)	Programme Learning Out Come (PLOS)					Programme Specific Outcomes (PSOs)				
	PLO1	PLO2	PLO3	PLO4	PLO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO-1	✓	✓			✓	✓		✓		
CO-2	✓	✓		✓	✓	✓		✓		✓
CO-3	✓	✓	✓	✓	✓			✓	✓	✓
CO-4	✓	✓		✓	✓			✓		✓
CO-5	✓	✓	✓	✓	✓			✓	✓	✓
	Number of matches (✓) = 34 Relationship = High									

Prepared by   Checked by

R.Fathima Syreen   Head of the Department

Course Title	PYTHON PROGRAMMING
Total Hrs.	60
Hrs./Week	4
Sub.Code	
Course Type	CORE IX
Credits	4
Marks	

General Objective:

To teach programming in solving problems by familiarizing the students with the basic concepts of Python programming.

Course Objectives: The learner will be able to:

CO	Course Objectives
CO-1	Understand the fundamentals of python programming.
CO-2	Comprehend the built in functions, branching and looping statements.
CO-3	List the types of arguments and functions .
CO-4	Distinguish the exception handling and modules.
CO-5	Evaluate the files and packages in python.

UNIT I
Introduction to Python - Installation and Working with Python - Understanding Python – variables - Python basic Operators - Understanding python blocks Python Objects -Namespaces - Comments - Operators - Variables and Assignment - Numbers - Integers Floating Point Real Numbers - Complex Numbers - Strings - Lists and Tuples -Dictionaries.

UNIT II

Built-in Function - Statements and Syntax Variable Assignment Identifiers - Conditionals and Loops - If Statement - else Statement - elif (else-if) Statement - while Loop - break Statement - continue Statement - pass Statement

UNIT III:

Functions - Default Arguments - Formal Arguments - Positional Arguments -Variable-length Arguments - Creating Functions - Calling Functions -Passing Functions

UNIT IV:

Classes - Modules - Persistent Storage Modules Related Modules Errors And Exceptions -Detecting and Handling Exceptions- Exceptions as Strings - Exceptions as Classes -Module Built-in Functions

UNIT V:

Regular Expressions - Files and Input/Output - Files and the open() Built-in Function - File Execution - Errors and Exceptions - Packages

TEXTBOOK:

Core Python Programming, Wesley J. Chun, Publisher: Prentice Hall PTR

REFERENCE BOOKS:

1. Chun, J.Wesley, "Core Python Programming", Second Edition, Person, 2010.
2. Barry, Paul, "Headfirst Python", Second Edition, O Rielly, 2010.

Co No	Upon Completion of this course, students will be able to	PSO Addressed	Cognitive level
CO-1	Understand the fundamentals concept variables, objects, blocks, list, tuple and dictionaries in python programs.	PSO1,PSO3	Understanding
CO-2	Identify the built in functions, branching and looping statements to execute in python programs.	PSO1,PSO3	Applying
CO-3	Apply the types of arguments and functions and implement in python programs.	PSO1,PSO3	Applying
CO-4	Experiment the detect and handling errors using exception handling in python programs.	PSO1,PSO3,PSO4,PSO5	Analyzing
CO-5	Evaluate the files operation and packages in python.	PSO1,PSO2,PSO3,PSO4	Evaluating

Relationship Matrix

Semester	Code		Title of the course		Hours		Credit	
			Python Programming		4			

Course Outcomes (COS)	Programme Learning Outcomes (PLOs)					Programme Specific Outcomes (PSOs)				
	PL O1	PL O2	PL O3	PL O4	PL O5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO-1	✔	✔			✔	✔		✔		
CO-2	✔	✔		✔	✔	✔		✔		✔
CO-3	✔	✔		✔	✔	✔		✔		✔
CO-4	✔	✔	✔	✔	✔	✔		✔	✔	✔
CO-5	✔	✔	✔	✔	✔	✔	✔	✔	✔	
	Number of matches (✓) = 37 Relationship = High									

Prepared by   Checked by

1. M.H.Ibrahim   1. ………………………

Course Title	SOFTWARE ENGINEERING
Total Hrs.	60
Hrs./Week	4
Sub.Code	
Course Type	CORE XIII
Credits	
Marks	

General Objective:

To train the students to analyze and translate a specification into a design, and develop the code from the design using software methodologies.

Course Objectives: The learner will be able to:

CO	Course Objectives
CO-1	Understand the basic concepts used in software engineering.
CO-2	Discuss the concepts of system requirements and system models.
CO-3	Explain various prototyping techniques besides modular decomposition.
CO-4	Analyze object oriented design and software design
CO-5	Focus on user interface design , approaches on verification and validation

UNIT I

Introduction: What is Software Engineering – Software Process – software Process model – software engineering methods. CASE Computer Based System Engineering System properties – system environment – system modeling – system engineering process – system requirements – system design – system evolution – system decommissioning – system procurement. Software processes: Software Process models: Process iteration - Software Specification – design and implementation – Software validation – Software Evolution – automated process support.

UNIT II

Project Management: Software requirement: Functional and non-functional requirements – user Requirements – system requirements – Software requirements document. System Models – Context models – Behavioral models – data models – Object models

UNIT III

Software Prototyping: Prototyping in the software process – Rapid prototyping techniques – user interface prototyping .Architectural Design - System structuring – Control models – Modular decomposition – domain specified architecture.

UNIT IV

Object oriented design: Object and object classes – An object oriented design process – design evolution. Real time software - System design – real-time executives – monitoring and control systems – data acquisition systems.

UNIT V

User Interface design: User Interface design – User interaction – information presentation – user support – interface evaluation.

Verification and Validation: Verification and Validation planning – Software inspections - Automated static analysis – clean – room software development.

TEXT BOOKS:

Software Engineering, IAN SOMMERVILLE, 6th Edition, Pearson Education Asia.

REFERENCE BOOK:

Software Engineering Theory and Practices, Shari Lawrence Pfleeger, 2nd Edition, Pearson Education Asia.

Co No	Upon Completion of this course, students will be able to	PSO Addressed	Cognitive level
Co- 1	Illustrate software engineering practices in system engineering, modelling, design,evolution besides various process models.	PSO2,PSO3	Understanding
Co- 2	Apply system models in design,development and deployment of software project.	PSO2,PSO5	Apply
Co- 3	Classify system into modules and define interface between modules.	PSO1,PSO2	Analyzing
Co- 4	Evaluate object oriented design to develop quality softwares	PSO1,PSO2,PSO4	Analyzing
Co- 5	Experiment the sotware with system validation and verification	PSO2,PSO4,PSO5	Understand

Relationship Matrix

Semester	Code		Title of the course		Hours		Credit
IV	CoreXIII		Software Engineering		4		2
Course Outcomes (COS)	Programme Learning Out Come (PLOS)					Programme Specific Outcomes (PSOs)				
	PO 1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO-1	✓	✓	✓	✓	✓		✓	✓		
CO-2	✓	✓	✓	✓	✓		✓			✓
CO-3	✓	✓	✓	✓	✓	✓	✓			
CO-4	✓	✓	✓	✓	✓	✓	✓		✓	
CO-5	✓	✓	✓	✓	✓		✓		✓	✓
	Number of matches (✓) = 37									

Prepared by   Checked by

1. R.FathimaSyreen   1. ....

Semester – V

Course Title	Computer Graphics using C++ practical
Total Hrs.	60
Hrs./Week	4
Sub.Code	
Course Type	P7
Credits	4
Marks	

General Objective:

To teach the students fundamentals of graphics functions and train them to create and develop animations.

Course Objectives: The learner will be able to:

CO No.	Course Objectives
CO-1	Comprehend the structures of various graphics functions
CO-2	Discuss various methods to animate an object.
CO-3	Explain various filling algorithms
CO-4	Analyze DDA and Bresenham's algorithm to draw line and circle
CO-5	Focus on different transformation of objects.

1.   Program to draw text in various styles

2.   Program to draw an object and fill it using various styles

3.   Program to draw a natural scenery

4.   Program to animate an object

5.   Program to scroll a text

6.   Program using any filling algorithm

7.   Program to draw line using DDA Algorithm

8.   Program to draw line using Bresenham's Algorithm

9.   Program to draw circle using Bresenham's Algorithm

10.   Program to use transformations

Co No	Upon Completion of this course, students will be able to	PSO Addressed	Cognitive level
Co-1	Understand the concepts in graphics functions to draw various shapes	PSO1,PSO3,PSO5	Understanding
Co-2	Develop an application to perform animation	PSO3,PSO4,PSO5	Applying
Co-3	Apply filling techniques for modifying an object	PSO3,PSO5	Analyzing
Co-4	compare DDA and Bresenhem's algorithm to draw lines and circles.	PSO3,PSO5	Analyzing
Co-5	Experiment with an object to perform translation, scaling and rotation.	PSO3,PSO4,PSO5	Analyzing

Relationship Matrix

Semester	Code		Title of the course		Hours		Credit
V	P7		Computer Graphics using C++ practical		4		4

Course Outcomes (COS)	Programme Out Come (POS)					Programme Specific Outcomes (PSOs)				
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO-1	✓	✓		✓	✓	✓		✓		✓
CO-2	✓	✓	✓	✓	✓			✓	✓	✓

CO-3	✓	✓		✓	✓			✓		✓
CO-4	✓	✓		✓	✓			✓		✓
CO-5	✓	✓	✓	✓	✓			✓	✓	✓

Number of matches (✓) = 35

Relationship = High

Prepared by   Checked by

R.FathimaSyreen   Head of the Department

Semester – V

Course Title	**PYTHON PROGRAMMING PRACTICAL**
Total Hrs.	**30**
Hrs./Week	**2**
Sub.Code	
Course Type	
Credits	
Marks	

General Objective:

To teach programming in solving problems by familiarizing the students with the basic concepts of Python programming.

Course Objectives: The learner will be able to:

CO No.	Course Objectives
CO-1	Understand Lists, Dictionaries in Python.
CO-2	Identify conditional and loops in Python
CO-3	Comprehend Object Oriented Programming concepts in Python

| CO-4 | Examine file concept |
| CO-5 | Analyze regular expressions and packages. |

1. Write a program to use list.
2. Write a program to use tuple.
3. Write a program to use dictionaries.
4. Write a program to use conditional statements.
5. Write a program to use loop
6. Write a program using classes
7. Write a program with exception handling
8. Write a program to read and write files, create and delete directories
9. Write a program using regular expressions
10. Write a program using packages.

✓Co No	Upon Completion of this course, students will be able to	PSO Addressed	Cognitive level
CO-1	Understand Lists, Dictionaries and tuple to execute in Python.	PSO1,PSO3	Understanding
CO-2	Identify conditional statements and looping statements in Python programs.	PSO1,PSO3	Applying
CO-3	Analyze the classes and exception handling to implement in python programs.	PSO1,PSO3,PSO4	Analyzing
CO-4	Experiment the read and write a file concept in python programs.	PSO1,PSO3,PSO4,PSO5	Analyzing
CO-5	Evaluate regular expressions and packages implement in python.	PSO1,PSO3,PSO4,PSO5	Evaluating

Relationship Matrix

Semester	Code		Title of the course		Hours		Credit	
			Python Programming practicals		2			

Course Outcomes (COS)	Programme Out Come (POS)					Programme Specific Outcomes (PSOs)				
	PO 1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO-1	✔	✔			✔	✔		✔		
CO-2	✔	✔			✔	✔		✔		
CO-3	✔	✔	✔	✔	✔	✔		✔	✔	
CO-4	✔	✔	✔	✔	✔	✔		✔	✔	✔
CO-5	✔	✔	✔	✔	✔	✔		✔	✔	✔

Number of matches (✓) = 36

Relationship =High

Prepared by   Checked by

1. M.H.Ibrahim   1. ....

Semester – V

Course Title	MOBILE COMPUTING
Total Hrs.	60
Hrs./Week	4
Sub.Code	
Course Type	DSE-I
Credits	4
Marks	

General Objective:

This course introduces the basic concepts and principles in mobile computing and it includes the major techniques involved, and networks & systems issues for the design and implementation of mobile computing systems and applications.

Course Objectives: The learner will be able to:

CO	Course Objectives
CO-1	Describe the basic concepts of mobile computing
CO-2	Illustrate the functionalities of various internet protocols and transport layer.
CO-3	Explain about telecommunication systems.
CO-4	Focus the concept of Ad-hoc network and its applications.
CO-5	Compare the various types of mobile operating system.

UNIT I:
INTRODUCTION TO MOBILE COMPUTING
Mobile Computing – Mobile Computing Vs wireless Networking – Mobile Computing Applications – Characteristics of Mobile computing – Structure of Mobile Computing Application. MAC Protocols – Wireless MAC Issues – Fixed Assignment Schemes – Random Assignment Schemes – Reservation Based Schemes.

UNIT II :
MOBILE INTERNET PROTOCOL AND TRANSPORT LAYER
Overview of Mobile IP – Features of Mobile IP – Key Mechanism in Mobile IP – route Optimization. Overview of TCP/IP – Architecture of TCP/IP-Adaptation of tCP Window – Improvement in TCP Performance.

UNIT III :
MOBILE TELECOMMUNICATION SYSTEM
Global System for Mobile Communication (GSM) – General Packet Radio Service (GPRS) – Universal Mobile Telecommunication System (UMTS).

UNIT IV :
MOBILE AD-HOC NETWORKS
Ad-Hoc Basic Concepts – Characteristics – Applications – Design Issues – Routing – Essential of Traditional Routing Protocols –Popular Routing Protocols – Vehicular Ad Hoc networks (VANET) – MANET Vs VANET – Security .

UNIT V :
MOBILE PLATFORMS AND APPLICATIONS

Mobile Device Operating Systems – Special Constrains & Requirements – Commercial Mobile Operating Systems – Software Development Kit: iOS, Android, BlackBerry, Windows Phone – M-Commerce – Structure – Pros & Cons – Mobile Payment System – Security Issues.

TEXT BOOK:

Prasant Kumar Pattnaik, Rajib Mall, "Fundamentals of Mobile Computing", PHI Learning Pvt. Ltd, New Delhi – 2012.

REFERENCES:

1. Jochen H. Schller, "Mobile Communications", Second Edition, Pearson Education, New Delhi, 2007.
2. Dharma PrakashAgarval, Qing and An Zeng, "Introduction to Wireless and Mobile systems", Thomson Asia Pvt Ltd, 2005.
3. UweHansmann, LotharMerk, Martin S. Nicklons and Thomas Stober, "Principles of Mobile Computing", Springer, 2003

Co No	Upon Completion of this course, students will be able to	PSO Addressed	Cognitive level
Co-1	Understand the basic concepts and principles in mobile computing	**PSO1,2**	**Understanding**
Co-2	Identify the structure and components for Mobile IP and TCP/IP.	**PSO1,3**	**Understanding**
Co-3	Explain about GSM,GPRS and UMTS.	**PSO1,3,4,5**	**Applying**
Co-4	Analyze the concepts of Ad-hoc network, MANET and VANET	**PSO1,3,5**	**Analyzing**
Co-5	Evaluate the concept of mobile operating system and M-commerce.	**PSO1,4,5**	**Evaluating**

Relationship Matrix

Semester	Code	Title of the course	Hours	Credit
V	DSE-I	MOBILE COMPUTING	4	4

Course Outcomes (COS)	Programme Learning Outcomes (PLOs))					Programme Specific Outcomes (PSOs)				
	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO-1	✓		✓		✓	✓	✓			

CO-2	✓	✓	✓		✓	✓		✓		
CO-3	✓	✓		✓	✓	✓	✓	✓	✓	✓
CO-4	✓	✓	✓	✓	✓	✓		✓		✓
CO-5	✓	✓	✓	✓	✓	✓			✓	✓

Number of matches (✓) = 36

Relationship = High

Prepared by   Checked by

1. W.FathimaFarsana   1. ....

SEMESTER V

Course Title	CLOUD COMPUTING
Total Hrs.	60
Hrs./Week	4
Sub.Code	
Course Type	DES2(B)
Credits	4
Marks	

General Objective

To learn about the cloud environment, building software systems and components that scale to millions of users in modern internet, cloud concepts capabilities across the various cloud service models.

Course Objectives: The learner will be able to:

CO No.	Course Objectives
CO-1	Understand Basic Knowledge on Cloud Computing.
CO-2	Compare the models and services of Technologies.
CO-3	Apply Cloud techniques for improving the efficiency of business.
CO-4	*Analyze* each and every service in cloud computing.
CO-5	Analyze a given algorithm for its efficiency based on cloud management.

Unit I

Cloud Computing Overview – Origins of Cloud computing – Cloud components – Essentialcharacteristics – On-demand self-service , Broad network access , Location independentresource pooling , Rapid elasticity , Measured service

Unit II

Cloud scenarios – Benefits: scalability , simplicity , vendors ,security. Limitations – Sensitiveinformation - Application development – Security concerns - privacy concern with a third party- security level of third party - security benefits

Unit III

Cloud architecture: Cloud delivery model – SPI framework , SPI evolution , SPI vs.traditional IT Model Software as a Service (SaaS): SaaS service providers – Google App Engine, Salesforce.com and googleplatfrom – Benefits – Operational benefits - Economic benefits

Unit IV

Infrastructure as a Service (IaaS): IaaS service providers – Amazon EC2 , GoGrid –Microsoft soft implementation and support – Amazon EC service level agreement – Recentdevelopments – Benefits-Cloud deployment model :

Public clouds – Private clouds – Community clouds – Hybrid clouds - Advantages of Cloud computing

Unit V

Virtualization: Virtualization and cloud computing - Need of virtualization – cost,administration , fast deployment , reduce infrastructure cost – limitations.

Text Book:

1. Cloud computing a practical approach - Anthony T.Velte , Toby J. VelteRobertElsenpeter TATA McGraw- Hill , New Delhi - 2010

2. Cloud Computing: Web-Based Applications That Change the Way You Work andCollaborate Online - Michael Miller - Que 2008

Reference Books

1. Cloud Computing, Theory and Practice, Dan C Marinescu, MK Elsevier.

2. Cloud Computing, A Hands on approach, ArshadeepBahga, Vijay Madisetti,University Press

3. Mastering Cloud Computing, Foundations and Application Programming, Raj KumarBuyya, Christenvecctiola, S Tammaraiselvi, TMH

4.https://keyhannet.com/wp-content/uploads/2018/11/K.-Chandrasekaran-Essentials-of-Cloud-Computing-2014-Chapman-and-Hall_CRC.pdf

CO No.	Course Outcome	PSO Addressed	Cognitive Level
CO-1	Understand the evaluation of cloud computing	PSO1,PSO5	Understanding
CO-2	Understand the key enabling technologies that help in the development of cloud.	PSO1,PSO2,PSO5	Understanding
CO-3	Analyze security, efficiency of other computing	PSO1,PSO3,PSO5	Analyzing
CO-4	Test the ability to understand and use the architecture of compute and storage cloud.	PSO1,PSO3,PSO4,PSO5	Analyzing
CO-5	Explain appropriate technologies and algorithms	PSO1,PSO3,PSO4,PSO5	Analyzing

Relationship Matrix

Semester	Course Code	Title of the Course	Hours	Credit
V	---	Cloud Computing	60	4

Course Outcomes (COs)	Programme Learning Outcomes (PLOs)					Programme Specific Outcomes (PSOs)				
	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO-1	✓	✓		✓	✓	✓				✓
CO-2	✓	✓	✓	✓	✓	✓	✓			✓
CO-3	✓	✓		✓	✓	✓		✓		✓
CO-4	✓	✓	✓	✓	✓	✓		✓	✓	✓
CO-5	✓	✓	✓	✓	✓	✓		✓	✓	✓
	Number of matches (✓) = 39 Relationship = HIGH									

Prepared by   Checked by

Name :Dr.S.PiramuKailasam   Head of the Department

Signature :

Semester – V

Course Title	NETWORK SECURITY
Total Hrs.	60
Hrs./Week	4
Sub.Code	

Course Type	DSE2(A)
Credits	
Marks	

General Objective:

Understand the design concept of cryptography and authentication and develop experiments on algorithm used for security

Course Objectives: The learner will be able to:

CO No.	Course Objectives
CO-1	Understand fundamentals of network security and encryption techniques
CO-2	List the algorithms and theorem in network security.
CO-3	Distinguish the authentication functions and besides digital signature in network security
CO-4	Analyze the authentication applications in network security
CO-5	Evaluate intrusion detection system and firewall designs in network security

UNIT I

Model of network security – Security attacks, services and attacks – OSI security architecture – Classical encryption techniques – SDES – Block cipher Principles DES – Strength of DES – Block cipher design principles – Block cipher mode of operation – Evaluation criteria for AES – RC4 - Differential and linear cryptanalysis – Placement of encryption function – traffic confidentiality.

UNIT II

Number Theory – Prime number – Modular arithmetic – Euclid's algorithm - Fermet's and Euler's theorem – Primality – Chinese remainder theorem – Discrete logarithm – Public key cryptography and RSA – Key distribution – Key management – Diffie Hellman key exchange – Elliptic curve cryptography.

UNIT III

Authentication requirement – Authentication function – MAC – Hash function – Security of hash function and MAC – SHA - HMAC – CMAC - Digital signature and authentication protocols – DSS.

UNIT IV

Authentication applications – Kerberos – X.509 Authentication services - E-mail security – IP security - Web security

UNIT V

Intruder – Intrusion detection system – Virus and related threats – Countermeasures – Firewalls design principles – Trusted systems – Practical implementation of cryptography and security

TEXT BOOK
1. William Stallings, "Cryptography & Network Security", Pearson Education, Fourth Edition 2010. State Integrated Board of Studies – Computer Science UG 60

REFERENCE BOOKS
1. Charlie Kaufman, Radia Perlman, Mike Speciner, "Network Security, Private communication in public world", PHI Second Edition, 2002.
2. Bruce Schneier, Neils Ferguson, "Practical Cryptography", Wiley Dreamtech India Pvt Ltd, First Edition, 2003.
3. Douglas R Simson "Cryptography – Theory and practice", CRC Press, First Edition, 1995. DSE – III Bigdata Analytics

✓Co No	Upon Completion of this course, students will be able to	PSO Addressed	Cognitive level
CO-1	Understand fundamentals of network security , attacks and encryption techniques	**PSO1,PSO3**	Understanding
CO-2	Identify the algorithms and theorem in network security.	**PSO1,PSO3,PSO4**	Understanding
CO-3	Examine different authentication functions and teach digital signature in network security.	**PSO1,PSO3,PSO5**	Applying
CO-4	Analyze the types of authentication applications in network security.	**PSO1,PSO3,PSO4**	Analyzing
CO-5	Evaluate intrusion detection system and firewall designs in network security	**PSO1,PSO2,PSO3,PSO5**	Evaluating

Relationship Matrix

Semester	Code			Title of the course		Hours		Credit	
				Network Security		4			
Course Outcomes (COS)	Programme Learning Outcomes (PLOs)					Programme Specific Outcomes (PSOs)				
	PL O1	PL O2	PL O3	PL O4	PL O5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO-1	✔	✔			✔	✔		✔		
CO-2	✔	✔	✔	✔	✔	✔		✔	✔	
CO-3	✔	✔		✔	✔	✔		✔		✔
CO-4	✔	✔	✔	✔	✔	✔		✔	✔	
CO-5	✔	✔	✔	✔	✔	✔	✔	✔		✔
	Number of matches (✓) = 37 Relationship = High									

Prepared by   Checked by

1. M.H.Ibrahim   1. ....

Course Title	Block Chain Technology
Total Hrs.	60
Hrs./Week	4
Sub.Code	
Course Type	DES2(B)
Credits	4
Marks	

General Objective

Blockchain is a promising technology which can be the master key to unlock huge career opportunities.

Course Objectives: The learner will be able to:

CO	Course Objectives
CO-1	Understand how blockchain systems work
CO-2	Able to understand types of block chain
CO-3	Record distributed applications of blockchain
CO-4	Diagram public key cryptography
CO-5	Differentiate blockchain technology applications

Unit I

Blockchain : The growth of blockchain technology- Distributed system-Electronic cash – Blockchain defined peer to peer – distributed ledger – Crptographically secure, append only, updateable via consensus – Benefits & limitations of blockchain – features of Blockchain

Unit II

Types of Blockchain: Distributed ledgers – Public Blockchain – Private Blockchain – Tokenized Blockchain – TokenlessBlockchain – CAP Theorem &Blockchain

Unit III

Decentralization: Decentralization using Blockchain – methods of decentralization – Routes to decentralization – Platforms for decentralization

Unit IV

Public key cryptography: Public keys – Private key , digital signatures and hash function – Introducing Bitcoin – Bitcoin network & payments

Unit V

Applications of Blockchain technology: Introduction to Etherum – Solidity programming language- Applications of Blockchain technology.

Text Book:

1.Mastering Block Chain - Imran Bashir, second edition, packt publishing ,2018

ReferenceBook:

1.Block chain Ebook – cybrosys publishers, www.cybrosys.com

CO No.	Course Outcome	PSO Addressed	Cognitive Level
CO-1	Understand how blockchain systems work	PSO1,PSO5	Understanding
CO-2	Able to understand types of block chain	PSO1,PSO5	Understanding
CO-3	Record distributed applications of blockchain	PSO1,PSO2,PSO5	Applying

CO-4	Diagram public key cryptography	PSO1,PSO3,PSO4,PSO5	Analyzing
CO-5	Differentiate blockchain technology applications	PSO1,PSO3,PSO5	Analyzing

Relationship Matrix

Semester	Course Code	Title of the Course	Hours	Credit
IV	---	Block chain technology	60	4

Course Outcomes (COs)	Programme Learning Outcomes (PLOs)					Programme Specific Outcomes (PSOs)				
	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO-1	✓	✓		✓	✓	✓				✓
CO-2	✓	✓		✓	✓	✓				✓
CO-3	✓	✓	✓	✓	✓	✓	✓			✓
CO-4	✓	✓	✓	✓	✓	✓		✓	✓	✓
CO-5	✓	✓		✓	✓	✓		✓		✓
	Number of matches (✓) = 36 Relationship = High									

Prepared by   Checked by

Name :Dr.S.PiramuKailasam   Head of the Department

Course Title	MongoDB Programming
Total Hrs.	60
Hrs./Week	4
Sub.Code	
Course Type	CORE XIV
Credits	4
Marks	

General Objective

Understanding and gaining knowledge of NoSQL databases , data modeling concepts, CRUD operations and schema designing.

Course Objectives: The learner will be able to:

CO	Course Objectives
CO-1	Understanding and gaining knowledge of NoSQL databases and data modeling concepts.
CO-2	Develop Basic Knowledge on MongoDBdatatypes and MongoDB query document
CO-3	Distinguish types of indexs and its administration
CO-4	Write control structures and methods in programs
CO-5	Focus troubleshoot Performance issues

UNIT I

MongoDB Overview-Advantages-MongoDB Environment-Common Terms in MongoDB- Data Modelling-Create and Drop Database

UNIT II

Collections-Create and Drop Collections- MongDB Data Types-Insert Command- MongoDB Query Document-Update Command-Delete Command-Projection-Limit Record-Sort Record-Aggregation.

UNIT III

Indexing- Compound Indexes -Indexing Objects and Arrays Index Cardinality -Using explain() and hint() -The Query Optimizer-Types of Indexes-Unique Indexes -Sparse Indexes -Index Administration -Identifying Indexes-Changing Indexes

UNIT IV

Replication: Overview – Replica sets – Master-slave replication – Drivers and replication. Sharding: Overview – A sample shard cluster – Querying and indexing a shard cluster – Choosing a shard key – Sharding in production.

UNIT V

Deployment and administration: Deployment – Monitoring and diagnostics – Maintenance – Performance troubleshooting.

TEXT BOOK

1. Kristina Chodorow "MongoDB the definitive guide",Second Edition, , O‟Reilly Media Inc

REFERENCE BOOKS

1. Rick Copeland, 2013, "MongoDB Applied Design Patterns", First Edition, O‟Reilly Media Inc.

WEBSITES

https://www.tutorialspoint.com/mongodb

CO No.	Course Outcome	PSO Addressed	Cognitive Level
CO -1	Understanding NoSQL databases , data modeling concepts and MongoDBenvirionment.	PSO1,PSO5	Understanding
CO -2	ExperimentMongoDBdatatypes and MongoDB query document	PSO1,PSO2,PSO3,PSO4,PSO5	Applying
CO -3	Examine the types of indexes and its administration	PSO1,PSO2, PSO3,PSO4,PSO5	Applying
CO -4	Illustrate control structures and methods in programs	, PSO1,PSO2,PSO3,PSO5	Analyzing
CO -5	Explain MongoDB programs using input and output commands	PSO1,PSO3,PSO5	Analyzing

Relationship Matrix

Semester	Course Code	Title of the Course		Hours	Credit
VI	---	MongoDB Programming		60	4

Course Outcomes (COs)	Programme Learning Outcomes (PLOs)					Programme Specific Outcomes (PSOs)				
	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO-1	✓	✓		✓	✓	✓				✓
CO-2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
CO-3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
CO-4	✓	✓	✓	✓	✓	✓	✓	✓	✓	
CO-5	✓	✓		✓	✓	✓		✓		✓
	Number of matches (✓) = 42 Relationship = High									

Prepared by   Checked by

Name :Dr.S.PiramuKailasam   Head of the Department

Signature :

Course Title	PHP With MYSQL
Total Hrs.	60
Hrs./Week	4
Sub.Code	
Course Type	CORE XV
Credits	4
Marks	

General Objective:

To familiarize the students with the basic concept of PHP arrays, functions, Cookies, sessions and databases.

Course Objectives: The learner will be able to:

CO	Course Objectives
CO-1	Explain the basic concepts of PHP besides variables, data types and operators.
CO-2	Illustrate the control structures, loop statements and built-in functions.
CO-3	Discuss about arrays, date and time functions in PHP.
CO-4	Explain about functions, cookies and sessions.
CO-5	Evaluate the concept of databases and SQL.

UNIT – I

Introduction: PHP History – Unique Feature – Writing and running the script – Mixing PHP with HTML – Variables and operators: Assigning values to variable – Destroying and inspecting variable content – PHP Data Types - Manipulating variable with operators.

UNIT – II

Controlling program flow: writing simple conditional statements – if – if else – if else if -Switch case repeating action with loops: while – do while – for loops – String functions – Numeric function.

UNIT – III

Working with Array: Storing data in Array – Assigning Array values – Nesting Arrays – for each loop – Array functions –Generating Date and Time – Format Date and Time – Date and Time functions.

UNIT – IV

Functions: Creating and invoking function – using arguments and return values - Cookies: Basics – Attributes – Headers – setting , reading and removing cookies – Session: Basics – Creating and removing sessions – Handling scripting Errors.

UNIT – V

Working with database and SQL: Database, records, primary and foreign key - SQL statements – Creating database – Adding Tables – Adding Records – Executing Queries – modifying and removing records – Retrieving Data – Returning data as array and object.

TEXT BOOK:

PHP A Beginner's Guide – VikramVaswani – Tata McGraw Hill professional

REFERENCE BOOKS

1   Learning PHP, MySQL, and JavaScript by Robin Nixon -2009,O'Reilly Media, Inc.
2   PHP: The Complete Reference by Steven Holzner

Co No	Upon Completion of this course, students will be able to	PSO Addressed	Cognitive level
Co-1	Discuss the basic concepts of PHP, manipulation of variables, data types and operators.	**PSO1,3&5**	**Understand**
Co-2	Compare the different types of conditional and loop statements.	**PSO1&3**	**Understand**
Co-3	Illustrate arrays, date and time functions in PHP.	**PSO1,3**	**Applying**
Co-4	Experiment the concept of user-defined functions, creating cookies and sessions.	**PSO1,4**	**Applying**
Co-5	Analyze database connectivity using MySQL	**PSO1,2&5**	**Analyzing**

Relationship Matrix

Semester	Code		Title of the course		Hours		Credit		
VI	CORE XV		PHP With MYSQL		4		4		
Course Outcomes (COS)	Programme Learning Outcomes (PLOs))					Programme Specific Outcomes (PSOs)				
	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO-1	✓	✓		✓	✓	✓		✓		✓
CO-2	✓	✓			✓	✓		✓		
CO-3	✓	✓			✓	✓		✓		
CO-4	✓	✓	✓	✓	✓	✓			✓	
CO-5	✓	✓	✓	✓	✓	✓	✓			✓
	Number of matches (✓) = 32 Relationship = Medium									

Prepared by   Checked by

1. W.FATHIMA FARSANA   1. ....

Course Title	DATA MINING AND DATA WAREHOUSING
Total Hrs.	60
Hrs./Week	4
Sub.Code	
Course Type	Core XVI
Credits	4
Marks	

General Objective:

Understand the process of data mining and its importance in business market, to unravel patterns and make better sense of large chunks of data.

Course Objectives: The learner will be able to:

CO	Course Objectives
CO-1	understand the process of data mining and its importance
CO-2	understand the uses of Classification methods
CO-3	Sketch Clustering technique types
CO-4	Differentiate types of Web mining
CO-5	Assess the problems and processes involved in the development of a data warehouse.

Unit I

Introduction: Data mining application–data mining techniques–data mining case studies-the future of data mining –data mining software - Association rules mining: Introduction basics-task and a naïve algorithm-apriori algorithm –performance evaluation of algorithms.

UNIT–II

Classification : Introduction – decision tree – over fitting and pruning -DT rules -- naïve bayes method - estimation predictive accuracy of classification methods - other evaluation criteria for classification method – classification software

UNIT–III

Cluster analysis: cluster analysis –types of data –computing distances-types of cluster analysis methods -partitioned methods – hierarchical methods –density based methods -cluster analysis software.

UNIT –IV

Web data mining: Introduction - web terminology and characteristics-locality and hierarchy in the web-web content mining-web usage mining- – web mining software - ranking of web pages

UNIT-V

Data Warehousing: Introduction –Operational data sources-data warehousing -Data warehousing design –Guidelines for data warehousing implementation -Data warehousing metadata -Online analytical processing (OLAP): Introduction –OLAP characteristics of OLAP system – Multidimensional view and data cube

TEXT BOOK:

Introduction to Data mining with case studies‖, G.K. Gupta, PHI Private limited, New Delhi, 2008.2ndEdition, PHI , 2011

REFERENCE:

Data Mining Techniques, Arun K Pujari , University Press.

CO	Course Outcomes	PSO Addressed	Cognitive Level
CO-1	Understand the process of data mining and its importance	PSO1,PSO5	Understanding
CO-2	Report the uses of Classification methods	PSO1,PSO2,PSO5	Understanding
CO-3	Apply Clustering techniques	PSO1,PSO2,PSO4,PSO5	Applying
CO-4	Differentiate types of Web mining	PSO1,PSO3,PSO5	Analyzing
CO-5	Summarize the problems and processes involved in the development of a data	PSO1,PSO3,PSO4,PSO5	Evaluating

warehouse.		

Relationship Matrix

Semester	Course Code	Title of the Course	Hours	Credit
VI	---	Data Mining And Data warehousing	60	4

Course Outcomes (COs)	Programme Learning Outcomes (PLOs)					Programme Specific Outcomes (PSOs)				
	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO-1	✓	✓		✓	✓	✓				✓
CO-2	✓	✓	✓	✓	✓	✓	✓			✓
CO-3	✓	✓	✓	✓	✓	✓	✓		✓	✓
CO-4	✓	✓	✓		✓	✓		✓		✓
CO-5	✓	✓		✓	✓	✓		✓	✓	✓
	Number of matches (✓) = 37 Relationship = HIGH									

Prepared by   Checked by

Name :Dr.S.PiramuKailasam   Head of the Department

Signature :

Semester VI

Course Title	MongoDB Programming Practical
Total Hrs.	60
Hrs./Week	4
Sub.Code	
Course Type	CORE XIV
Credits	4
Marks	

General Objective

Performing backups with MongoDB and understanding its recovery strategies to optimize read/write performance by sharing and replication of data.

Course Objectives: The learner will be able to:

CO	Course Objectives
CO-1	UnderstandingMongoDB environment and basic commands
CO-2	Apply the Knowledge of MongoDB manipulation commands using collection and databases
CO-3	Compute find and sort methods in to collections
CO-4	Compute control structures and methods in programs
CO-5	Examine different methods, user and assign roles

1. Write a MongoDB query to create the collection "Students" and insert the data.
2. Write a MongoDB query to create,insert data into the Database
3. Write a MongoDB query to create an employee Database
4. Write a MongoDB query to update and delete data into the Database

5. Write a MongoDB query to find a record in the table.

6. Write a MongoDB query to sort a Database

7. Write a MongoDB query to create and drop Index.

8. Write a MongoDB query using match() and group() method

9. Write a MongoDB query using count() and remove() function

10. Write a MongoDB query to create a user and assign roles.

CO No.	Course Outcome	PSO Addressed	Cognitive Level
CO-1	UnderstandMongoDB environment and basic commands like create collection , use database	PSO1,PSO5	Understanding
CO-2	Experiment the Knowledge of MongoDB manipulation commands using collection and databases	PSO1,PSO2,PSO3,PSO4,PSO5	Applying
CO-3	Experiment find and sort methods in to collections	PSO2,PSO3,PSO4,PSO5	Analyzing
CO-4	Experiment control structures and methods in programs	PSO1,PSO3,PSO5	Analyzing
CO-5	Test different methods, user and assign roles	PSO1,PSO2,PSO3,PSO5	Evaluating

Relationship Matrix

Semester	Course Code	Title of the Course	Hours	Credit
VI	---	MongoDB Programming Practical	60	4

Course Outcomes (COs)	Programme Learning Outcomes (PLOs)					Programme Specific Outcomes (PSOs)				
	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO-1	✓	✓			✓	✓				✓
CO-2	✓	✓	✓	✓	✓	✓	✓			✓
CO-3	✓	✓	✓	✓	✓		✓		✓	✓
CO-4	✓	✓		✓	✓	✓		✓		✓
CO-5	✓	✓	✓	✓	✓	✓		✓	✓	✓
	Number of matches (✓) = 37 Relationship = HIGH									

Prepared by   Checked by

Name :Dr.S.Piramu Kailasam   Head of the Department

Signature :

Semester – VI

Course Title	PHP With MYSQL PRACTICAL
Total Hrs.	60
Hrs./Week	4
Sub.Code	
Course Type	P 10
Credits	2
Marks	

General Objective:

To teach the students how to create database-driven websites using PHP, MySQL and SQL basics.

Course Objectives: The learner will be able to:

CO No.	Course Objectives

CO-1	Illustrate control and loop structures.
CO-2	Discuss about file concept in PHP.
CO-3	Experiment with built-in functions in PHP.
CO-4	Connect MySQL database using PHP.
CO-5	Focus on user defined functions in PHP.

1. Write a PHP code using if else statement.

2. Write a PHP code using while loop.

3. Write a PHP script to get the current file name.

4. Write a PHP code to print the multiplication table.

5. Write a PHP code using string and numeric functions.

6. Write a PHP code using array functions.

7. Write a PHP script to calculate and display average temperature, five lowest and highest temperatures.

8. Design a HTML form using HTML Control and write a PHP code for displaying the employee's information.

9. Write a PHP code for Adding, Deleting, and Modifying records.

10. Write a PHP code using function.

Co No	Upon Completion of this course, students will be able to	PSO Addressed	Cognitive level
Co- 1	Explain if statements and while-loop.	PSO1,3,5	understanding
Co- 2	Construct a code for string, numeric and array functions	PSO1,3	Applying
Co- 3	Examine file concept to get a current file name.	PSO1,3&4	Applying
Co- 4	Develop a PHP scripts to handle HTML forms.	PSO1,3&5	Applying
Co- 5	Analyze and solve various database tasks using the PHP language.	PSO1,3&5	Analyzing

Relationship Matrix

Semester	Code	Title of the course	Hours	Credit

VI	P10		PHP With MYSQL PRACTICAL			4		2	
Course Outcomes (COS)	Programme Learning Outcomes (PLOs))					Programme Specific Outcomes (PSOs)				
	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO-1	✓	✓		✓	✓	✓		✓		✓
CO-2	✓	✓			✓	✓		✓		
CO-3	✓	✓	✓	✓	✓	✓		✓	✓	
CO-4	✓	✓		✓	✓	✓		✓		✓
CO-5	✓	✓		✓	✓	✓		✓		✓
	Number of matches (✓) = 34 Relationship = High									

Prepared by   Checked by

1. W.Fathima Farsana   1. ....

Semester – V

Course Title	IOT DESIGN AND APPLICATIONS
Total Hrs.	60
Hrs./Week	4
Sub.Code	
Course Type	DSE-III
Credits	4
Marks	

General Objective:

To teach the fundamentals of IOT its physical and logical devices.

Course Objectives: The learner will be able to:

CO	Course Objectives
CO-1	Discuss about the basic concepts of IOT.
CO-2	Explain about the logical design of IOT
CO-3	Illustrate the physical design and end points of IOT.
CO-4	Experiment the application areas of IOT.
CO-5	Focus the supporting boards for IOT devices.

Unit I

Fundamentals of IoT Introduction to IoT - Characteristics, Physical design of IoT - Things in IoT, IoT Protocols.Logical design of IoT-IoT Enabling Technologies-IoT Levels and Deployment templates.

Unit II

Design Methodology of IoT and Logical Design using Python IoT Design Methodology - Case study on IoT System for Weather Monitoring, Motivation for Using Python.IoT Systems – Logical Design using Python - Python Modules, File Handling, Date/Time Operations, Python Packages of Interest for IoT.

Unit III

IoT Physical Devices and End Points What is an IoT Device – Basic building block of an IoT device, Raspberry Pi, About the Board, Raspberry Pi Interfaces, Programming Raspberry Pi with Python.

Unit IV

IoT in Real-time Applications Implementation in real time – Programming Connected Devices, Programming and connecting devices using Python and C language. Raspberry Pi with Raspbian Operating System.

Unit V

Supporting boards with IoTIoT – Galieo Intel board and Windows OS.

Case Study – IoT Temperature Controller

Text Books:

1. ArshdeepBahga, Vijay Madisetti(2015), Internet of Things – A Hands-on Approach, VPT publisher, First Edition.

2. Etter (2016), IoT (Internet of Things) Programming – A Simple and Fast Way of Learning IoT, Kindle Edition.

Reference Books:

1. Olivier Hersent, Omar Elloumi and David Boswarthick (2012), The Internet of Things- Key Applications and Protocols, Wiley.
2. Dieter Uckelmann, Mark Harrison, Florian Michahelles (2011), Architecting the Internet of Things, Springer.

Co No	Upon Completion of this course, students will be able to	PSO Addressed	Cognitive level
Co-1	Understand the fundamental concepts of IOT and its design.	**PSO1,3&4**	**Understanding**
Co-2	Explain about the logical design of IOT using Python.	**PSO1&3**	**Understanding**
Co-3	Develop the physical design of IOT using Raspberry Pi.	**PSO1,3 &5**	**Applying**
Co-4	Analyze the real time applications in IOT.	**PSO1,PSO2,3 &5**	**Analyzing**
Co-5	Explain the supporting boards with IOT.	**PSO1,PSO2,3&4**	**Analyzing**

Relationship Matrix

Semester	Code	Title of the course	Hours	Credit
VI	DSE-III	IOT DESIGN AND APPLICATIONS	4	4

Course Outcomes (COS)	Programme Learning Outcomes (PLOs))					Programme Specific Outcomes (PSOs)				
	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO-1	✓	✓	✓	✓	✓	✓		✓	✓	
CO-2	✓	✓			✓	✓		✓		
CO-3	✓	✓		✓	✓	✓		✓		✓
CO-4	✓	✓	✓	✓	✓	✓	✓	✓		✓
CO-5	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	Number of matches (✓) = 38 Relationship = High									

Prepared by   Checked by

1. W.FathimaFarsana   1. ....

Semester VI

Course Title	R PROGRAMMINGWITH DATA SCIENCE
Total Hrs.	60
Hrs./Week	4
Sub.Code	
Course Type	DES-III(B)
Credits	4

Marks	

General Objective

To Understand Data Science and its applications to Introduce basic graphs and statistics in R.

Course Objectives: The learner will be able to:

CO	Course Objectives
CO-1	Understand Basic Knowledge on R programming
CO-2	Solve data in and out of R
CO-3	Experiment vectorized operations and data frames
CO-4	Illustrate on control structures and loops
CO-5	Summarize scoping rules of R

Unit – I

History and Overview of R: What is R? What is S? The S Philosophy – Back to R – Basic Features of R – Free Software – Design of the R System – Limitation of R – R Resources Getting Started with R: Installation – Getting started with the R interface.

Unit – II

Getting Data In and Out of R: Reading and Writing Data - Reading Data Files with read.table() - Reading in Larger Datasets with read.table - Calculating Memory - Requirements for R Objects - Using the readr Package - Using Textual and Binary Formats for Storing Data - Using dput() and dump()

Unit – III

Vectorized Operations - Vectorized Matrix Operations - Dates and Times - Dates in R Times in R - Operations on Dates and Times - Summary - Managing Data Frames with the dplyr package - Data Frames - The dplyr Package - dplyr Grammar - Installing the dplyr package - select() - filter() - arrange() - rename() - mutate() - group_by() – Summary

Unit – IV

Control Structures - if-else - for Loops - Nested for loops - while Loops - repeat Loops - next, break – Summary. Functions - Functions in R - Your First Function - Argument Matching - Lazy Evaluation

Unit – V

Scoping Rules of R - A Diversion on Binding Values to Symbol - Scoping Rules - Lexical Scoping: Why Does It Matter? - Lexical vs. Dynamic Scoping

- Application: Optimization - Plotting the Likelihood – Summary. Coding Standards for R - Loop Functions - Looping on the Command Line - lapply() - sapply() - split() - Splitting a Data Frame - tapply - apply() - Col/Row Sums and Means - Other Ways to Apply - mapply().

Text Books

1. Roger D. Peng, "R Programming for Data Science", LeanPub, 2015. (e-Book)

Reference Books

1. Tony Fischetti, "Data Analysis with R", Paperback, PACKT Publications, 2015

2. Grolemund, Garrett, "Hands on Programming with R", O' Reilly Inc., 2015

3. PaalTeetor, "R Cook Book", O' Reilly, Paperback Edition, 2011

CO No.	Course Outcome	PSO Addressed	Cognitive Level
CO-1	Understand the basic concepts and limitations of R language	PSO1, PSO3	Understanding
CO-2	Identify Data In and Out of R	PSO1, PSO3	Understanding
CO-3	Experiment vectorized operations and data frames	PSO1,PSO2, PSO3	Applying
CO-4	Test control structures and	PSO1,PSO3,PSO4,PSO5	Analyzing

CO-5	Test scoping rules of R	PSO1,PSO3,PSO5	Evaluating
	loops		

Relationship Matrix

Semester	Course Code	Title of the Course	Hours	Credit
VI	---	R Programming with Data Science	60	4

Course Outcomes (COs)	Programme Learning Outcomes (PLOs)					Programme Specific Outcomes (PSOs)				
	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO-1	✓	✓			✓	✓		✓		
CO-2	✓	✓			✓	✓		✓		
CO-3	✓	✓	✓	✓	✓	✓	✓	✓		
CO-4	✓	✓	✓	✓	✓	✓		✓	✓	✓
CO-5	✓	✓		✓	✓	✓		✓		✓
	Number of matches (✓) = 34 Relationship = High									

Prepared by   Checked by

Name :Dr.S.PiramuKailasam   Head of the Department

Signature :

Semester – VI

Course Title	Project
Total Hrs.	90
Hrs./Week	6
Sub.Code	
Course Type	

Credits	
Marks	

General Objective:

The project aims to provide students with a transitional experience from the academic world to the professional world.

Course Objectives: The learner will be able to:

CONo.	Course Objectives
CO-1	Understand project characteristics and various stages of a project.
CO-2	to develop problem solving, analysis, synthesis and evaluation skills.
CO-3	To encourage teamwork.
CO-4	apply and integrate the knowledge acquired throughout the undergraduate study
CO-5	train students with skills on systematic development and documentation of a significant piece of work.

GUIDELINES :

1. The project may be done individually or in groups **not exceeding five per group.**
2. The minimum length of the project should be 30 pages in A4 size.
3. The project may not be experimental oriented .
4. Project should be cheap within the expense of students limit.
5. It can be of survey method.
6. Marks for the project report will be 100 divided as **60% for the presentation of project and 40% for viva-voce.**
7. **Evaluation scheme:**
8. The project will be evaluated by both Internal and External Examiners. Each Examiner will evaluate for 100 marks. The allocation of marks for project is as follows:

Course Outcomes

CO	Course Outcomes	Cognitive Level
CO-1	List out the data from various sources like real	Remembering

		data.	
CO-2		Interpret the concept of online software model.	Understanding
CO-3		Identify the potential areas of research in the software field.	Applying
CO-4		Experiment with real data in the software.	Applying
CO-5		Create and develop the software.	Creating

Relationship Matrix

Semester	Course Code	Title of the Course		Hours		Credit		
VI	---	Project		60		3		

Course Outcomes (COs)	Programme Learning Outcomes (PLOs)					Programme Specific Outcomes (PSOs)				
	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO-1	✔	✔		✔	✔	✔	✔	✔	✔	✔
CO-2	✔	✔		✔	✔	✔	✔	✔	✔	✔
CO-3	✔	✔		✔	✔	✔	✔	✔	✔	✔
CO-4	✔	✔		✔	✔	✔	✔	✔	✔	✔
CO-5	✔	✔		✔	✔	✔	✔	✔	✔	✔

Number of matches (✓) = 45
Relationship = High

Prepared by   Checked by

Name :R.Fathima Syreen   Head of the Department

Semester – VI

Course Title	ANDROID APP DEVELOPMENT
Total Hrs.	60
Hrs./Week	4
Sub.Code	

Course Type	DSE-4B
Credits	
Marks	

General Objective:

To teach the students fundamentals of Android programming using the Android SDK and train them in developing simple applications that could run on Android phones and tablets.

Course Objectives: The learner will be able to:

CO	Course Objectives
CO-1	Comprehend the basic concepts of Android operating systems.
CO-2	Illustrate the ideas on java SE and Android XML
CO-3	Explain various user interface design such as buttons menus and dialogs.
CO-4	Analyze transitions,playing videos and handling events.
CO-5	Focus on content providers besides woking with databases.

UNIT-I

Introduction to Android – What is Android – Advantages of Android – Preparing of Liftoff: Java – Eclipse – Android – SDK. – Android Development Environment: Installing Java, Eclipse and Android – updating the Android SDK: Setting up AVDs and Smart Phone Connections – Developing on 64 Bit Computing Platforms

UNIT-II

Introducing the Android Software Development Platform: Understanding Java SE and the Dalwik Virtual Machine – The directory Structure – Android XML and Android Application Resources – Launching Application: Android Manifest.XML – Creating your first Android Application – Android Frame work Overview – Foundation of OOPS – Overview of XML – The APK File – Android Application Components – Android Intent Objects – Android Manifest XML

UNIT-III

Screen Layouts Design: Views and Layouts – Android view Hierarchical – Defining Screen Layouts using XML – UI Design: Buttons, Menus, Dialogs – Using Common UI Elements – Using Menus in Android – Adding Dialogs

UNIT-IV

An Introduction to Graphic Resources in Android: Introducing the Drawables – Using Bitmap Images in Android – Creating Animation in Android – Using Transitions – Creating 9-Patch Customs Scalable Images – Playing Video in your Android Apps - Adding Interactivity: Handling UI events - An overview of UI events in Android – Handling Onclick events

UNIT-V

In understanding content providers: An overview of Android Content Providers – Defining a Content Providers – Working with a Database – Understanding Intents and Intent Filters – Graphics API-2D Graphics – android-graphics-Canvas- android-graphics-Paint class

TEXT BOOK :

Android Apps for Absolute Beginners 2nd Edition by Wallace Jackson, A press

REFERENCE BOOKS :

1. Professional Android Open Accessory Programming with Arduino by Andreas Goransson, David Cuartielles Ruiz

2. Enterprise Android Programming Android Database Application for the Enterprise by ZigurdMednieks, G.BlakeMeike, Laird Dornin, Zane Pan

Co No	Upon Completion of this course, students will be able to	PSO addressed	Cognitive level
Co- 1	Understand and configure Android application development environment	PSO1,PSO4	Understanding
Co- 2	Discuss the fundamentals of Android frame work and XML.	PSO1,PSO4	Understanding
Co- 3	Develop user Interfaces for the Android platform.	PSO1,PSO4	Applying
Co- 4	Evaluate screen Layouts ,user Interface to deploy softwares to mobile devices	PSO3,PSO4	Analyzing
Co- 5	Connect databases for Android application development.	PSO1,PSO2,PSO4	Analyzing

Relationship Matrix

Semester	Code		Title of the course		Hours		Credit	
VI	DSE-4B		Android App development		4		4	

Course Outcomes (COS)	ProgrammeLearning OutCome (PLOS)					Programme Specific Outcomes (PSOs)				
	PLO1	PLO 2	PLO 3	PLO 4	PLO 5	PSO1	PSO2	PSO3	PSO4	PSO5
CO-1	✓	✓	✓	✓	✓	✓			✓	
CO-2	✓	✓	✓	✓	✓	✓			✓	
CO-3	✓	✓	✓	✓	✓	✓			✓	
CO-4	✓	✓	✓	✓	✓			✓	✓	
CO-5	✓	✓	✓	✓	✓	✓	✓		✓	

Number of matches (✓) = 36

Relationship = High

Prepared by   Checked by

R.Fathima Syreen   1. ....

Semester – VI

Course Title	Software Testing
Total Hrs.	60
Hrs./Week	4
Sub.Code	
Course Type	AI
Credits	3
Marks	

General Objective:

To learn the fundamentals, methods and tools in software testing and apply it to a software product to develop a reliable, quality, errors free software.

Course Objectives: The learner will be able to:

CO	Course Objectives
CO-1	Identify the basics of testing, quality, models and important testing methods in software development.
CO-2	Develop a software product with expected reliability and performance by using various types of testing techniques.
CO-3	Analyze and apply the factors, tools and process to deliver software with better performance and user friendly manner.
CO-4	Explain the activities of software team management and automating the testing process.
CO-5	Summarize the activities involved in preparing test plan and management besides automating the test.

UNIT I

Principles of Testing, Software Development Life Cycle Models (SDLC), Phases of Software Project, Quality, Quality Assurance and Quality Control, Testing, Verification and Validation, Life Cycle Models, White Box Testing: White Box Testing, Static Testing, Structural Testing, Challenges in White Box Testing.

UNIT II

Testing Techniques: Black Box Testing, Integration Testing, Top-Down Integration, Bottom-Up Integration, Bi-Directional Integration, Defect Bash, System and Acceptance Testing, Functional versus Non-functional Testing, Functional System Testing, Non-Functional System Testing, Acceptance Testing.

UNIT III

Performance Testing: Factors, Methodology, Tools, Process for performance testing, Regression Testing, Types, Testing of Object-oriented Systems, Usability and Accessibility Testing, approach, Quality factors, Aesthetics Testing, Accessibility Testing, Tools for Usability.

UNIT IV

Common People Issues: Perceptions and Misconceptions About Testing, comparison between Testing and Development Functions, Providing Career Paths for Testing Professionals, The role of the Ecosystem and a call for Action. Organization Structures for testing teams: Dimensions of Organization Structures, Structures in Single product Companies, Structures for Multi-Product Companies.

UNIT V

Test Planning, Management: Test Planning: Preparation, scope management, Test approach, setting up criteria, Identifying responsibilities, test deliveries, testing tasks, activity breakdown, communication and risk management. Test Management: Choice of standards, Test Infrastructure Management, Integrating with Product release. Software Test Automation: Introduction, Terms used, Skills needed, scope of automation: Identifying the types of testing amenable to automation.

TEXT BOOK:

SrinivasanDesikan, Gopalaswamy Ramesh: Software testing Principles and Practices, 2nd Edition, Pearson, 2012.

REFERENCE BOOKS:

1. Software Testing :AdityaMathur.
2. Software Testing, Ron Patton, Second Edition, SAMS Pearson Publication2011
3. The Craft of Software Testing, Brain Marick, Pearson Publication 2010

Course Outcomes

CO	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Understand the steps in software development and various life cycle models.	PSO1, PSO2, PSO4 & PSO5	Understanding
CO-2	Apply different types of testing techniques to produce software with better functional and non-functional characteristics.	PSO1, PSO2, PSO4 & PSO5	Applying
CO-3	Estimate the quality the software product by applying performance, usability and acceptance testing methods and tools.	PSO2, PSO3, PSO4 & PSO5	Analyzing
CO-4	Illustrate the issues in software testing and the organization structure for testing teams.	PSO2, PSO4 & PSO5	Analyzing
CO-5	Choose a test plan with proper management system and automate the test.	PSO2, PSO3, PSO4 & PSO5	Evaluating

Relationship Matrix

Semester	Course Code	Title of the Course		Hours	Credit
V	---	Software Testing		60	3

Course Outcomes (COs)	Programme Learning Outcomes (PLOs)					Programme Specific Outcomes (PSOs)				
	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO-1	✔	✔	✔	✔	✔	✔	✔		✔	✔
CO-2	✔	✔	✔	✔	✔	✔	✔		✔	✔
CO-3	✔	✔	✔	✔	✔		✔	✔	✔	✔
CO-4	✔	✔	✔	✔	✔		✔		✔	✔
CO-5	✔	✔	✔	✔	✔		✔	✔	✔	✔
	Number of matches (✓) = 44 Relationship = High									

Prepared by   Checked by

Name :Mohideen Pillai S   Head of the Department

Signature :