SRI MEENAKSHI GOVT. ARTS COLLEGE FOR WOMEN (AUTONOMOUS)
MADURAI – 625 002.

DEPARTMENT OF COMPUTER SCIENCE

B.Sc. COMPUTER SCIENCE

SYLLABUS TO BE INTRODUCED FROM THE ACADEMIC YEAR 2019 – 2020 (UNDER C.B.C.S)

SRI MEENAKSHI GOVT. ARTS COLLEGE FOR WOMEN (AUTONOMOUS)
MADURAI – 625 002.

DEPARTMENT OF COMPUTER SCIENCE

B. Sc COMPUTER SCIENCE

TITLE OF THE PAPERS AND DISTRIBUTION OF CREDITS & MARKS

Subject Code	Study Components	Title of paper	Lect. Hrs/ week	Exam Hrs	No. of Credit	Int. Marks	Ext Marks	Total
I-Semester								
	Part-I	Tamil	6	3	3	25	75	100
	Part-II	English	6	3	3	25	75	100
S11	Part-III Core-1	Programming in C	5	3	5	25	75	100
AY1	Allied-1	Digital Electronics	5	3	5	25	75	100
PS1	Core-2	Programming in C Lab	5	3	3	40	60	100
SSP1	SBE-1	Office Automation Lab	2	3	2	40	60	100
AV1	Part-IV *	Value Education	1		-			
	Total		30		21			600
II-Semester								
	Part-I	Tamil	6	3	3	25	75	100
	Part-II	English	6	3	3	25	75	100
S21	Part-III Core-3	Object Oriented Programming with C++	4	3	4	25	75	100
S22	Core-4	Data Structures and Algorithms	4	3	4	25	75	100
AY2	Allied-2	Mathematical Foundations	5	3	5	25	75	100
PS2	Core-5	Programming in C++ Lab	4	3	3	40	60	100
AV1	Part-IV *	Value Education	1	3	2	25	75	100
		Total	30		24			700

*Examination at the end of the Year

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Subject Code	Study Components	Title of paper	Lect. Hrs/ week	Exam Hrs	No. of Credit	Int. Marks	Ext Marks	Total
III-Semester								
	Part-I	Tamil	6	3	3	25	75	100
	Part-II	English	6	3	3	25	75	100
S31	Part-III Core-6	Computer System Architecture	4	3	4	25	75	100
S32	Core-7	Operating System	4	3	4	25	75	100
AY3	Allied-1	System Software	5	3	5	25	75	100
PS3	Core-8	Visual Basic Lab	3	3	2	40	60	100
SSP2	SBE-2	Skill Based Elective II	2	3	2	40	60	100
	Part-V	Extension Activity/Sports	-	-	1	25	75	100
		Total	30		24			800
SEMESTER –IV								
	Part-I	Tamil	6	3	3	25	75	100
	Part-II	English	6	3	3	25	75	100
S41	Core-9	Computer Networks	4	3	4	25	75	100
S42	Core-10	Database Management System	4	3	4	25	75	100
AY4	Allied-2	Probability & Statistics	5	3	5	25	75	100
PS4	Core-11	ORACLE Lab	5	3	4	40	60	100
		Total	30		23			600

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MADURAI – 625 002.

DEPARTMENT OF COMPUTER SCIENCE
B. Sc COMPUTER SCIENCE

TITLE OF THE PAPERS AND DISTRIBUTION OF CREDITS & MARKS

Subject Code	Study Components	Title of paper	Lect. Hrs/ week	Exam Hrs	No. of Credit	Int. Marks	Ext Marks	Total
SEMESTER –V								
S51	Core-12	Software Engineering	5	3	5	25	75	100
ES51	Elective-1	PHP and MySQL Programming	6	3	5	25	75	100
ES52	Elective-2	Computer Graphics	5	3	5	25	75	100
SS53	SBE-3	Skill Based Elective III	2	3	2	25	75	100
PS5	Core-13	PHP and MySQL Programming Lab	8	3	5	40	60	100
SGK4	SBE-4	GK	2	3	2	25	75	100
NMS1	NME-1	Information Technology	2	3	2	25	75	100
		Total	30		26			700
SEMESTER –VI								
S61	Core -14	Advanced Java Programming	6	3	5	25	75	100
ESP1	Elective-3	Major Project	8	3	5	20	80	100
PS6	Core-15	Advanced Java Programming Lab	8	3	4	40	60	100
SS65	SBE-5	Skill Based Elective V	2	3	2	25	75	100
SSP6	SBE-6	Skill Based Elective VI	2	3	2	40	60	100
NMS2	NME-2	Internet Service at Your Finger Tips	2	3	2	25	75	100
ENS6	Part-IV	EVS	2	3	2	25	75	100
		Total	30		22			700

TOTAL CREDITS =   140   TOTAL MARKS = 4100

List of Skill Based Elective Papers

Skill Based Elective II:

1. Linux Lab
2. Multimedia Lab

Skill Based Elective III:

1. Introduction to Web Design
2. Software Testing

Skill Based Elective V:

1. Mobile Computing
2. Image Processing
3. Data Mining

Skill Based Elective VI:

1. Android Programming Lab
2. MATLAB Programming Lab
3. WEKA Lab

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DEPARTMENT OF COMPUTER SCIENCE
B. Sc COMPUTER SCIENCE
DISTRIBUTION OF CREDITS

	I	II	III	IV	V	VI	CREDITS
Core	8	11	10	12	10	9	60
Allied 1	5		5				10
Allied 2		5		5			10
SBE	2		2		4	4	12
Electives					10	5	15
Language	6	6	6	6			24
VE		2					02
NME					2	2	04
Ext. Activity/Sports			1				01
EVS						2	02
TOTAL	21	24	24	23	26	22	140

Core Papers	:	15
Elective	:	2 Theory, 1 Project
Skill Based Elective	:	6
Non Major Elective	:	2
Allied 1	:	2 Theory
Allied 2	:	2 Theory

Mapping Matrix for Subjects

Mapping	1-20%	21-40%	41-60%	61-80%	81-100%
Scale	1	2	3	4	5
Relation	0.0-1.0	1.1-2.0	2.1-3.0	3.1-4.0	4.1-5.0
Quality	Very Poor	Poor	Moderate	High	Very High

Mean Score of COs = $\dfrac{\text{Total of Value}}{\text{Total No. of Pos \& PSOs}}$ Mean Overall Score of COs = $\dfrac{\text{Total of Mean Score}}{\text{Total No. of COs}}$

SRI MEENAKSHI GOVT. ARTS COLLEGE FOR WOMEN (A), MADURAI – 625 002.
DEPARTMENT OF COMPUTER SCIENCE
B. Sc COMPUTER SCIENCE

Evaluation Pattern for UG Programme :

BLOOM'S TAXANOMY	INTERNAL	EXTERNAL
KNOWLEDGE	50%	50%
UNDERSTANDING	30%	30%
APPLY	20%	20%

Theory Paper :

Internal Evaluation

Test	20
Quiz/Assignment	5
Total	25

INTERNAL EVALUATION   : 25
EXTERNAL EVALUATION   : 75
TOTAL   : 100

INTERNAL   : NO MINIMUM
EXTERNAL   : 35%   of 75 = 27
INTERNAL&EXTERNAL : 40%

Question paper pattern for external Examination:

Section A	5/5 (2 marks each)	10
Section B	5/10 (alternative choice 7 marks each)	35
Section C	3/5 (10 marks each)	30
	Total	75

SRI MEENAKSHI GOVT. ARTS COLLEGE FOR WOMEN (AUTONOMOUS)
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DEPARTMENT OF COMPUTER SCIENCE

B. Sc COMPUTER SCIENCE

Evaluation pattern for UG Programme :

Practical Paper:

Internal Evaluation:

Record	10
Viva-Voce	10
Internal Practical Exam	20
Total	40

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INTERNAL EVALUATION    -  40
EXTERNAL EVALUATION    -  60
                TOTAL  - 100
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INTERNAL                        : NO MINIMUM
EXTERNAL                        : 35%   OF 60
INTERNAL& EXTERNAL TOGETHER     : 40%
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Evaluation pattern for UG Programme :

Project Paper :

Internal	20
External & Viva-Voce	80
Total	100

SRI MEENAKSHI GOVT. ARTS COLLEGE FOR WOMEN (AUTONOMOUS)
MADURAI – 625 002.

DEPARTMENT OF COMPUTER SCIENCE

B. Sc COMPUTER SCIENCE

Course structure for CBCS (UG)

Study Components	No. of courses	Credit per course	Total credits
Part –I - Tamil/Hindi B.A/B.Sc/ B.Com	2+2=4 2	3 3	12 6
PART II – English B.A\B.Sc / B.Com	2+2=4 2	3 3	12 6
PART III – Core Courses B.A/B.Sc/B.Com Allied I B.A/B.Sc/B.Com With Practical Without Practical Allied II B.A/B.Sc/B.Com With Practical Without Practical Project/Elective: (Note: 3 Theory papers/2 Theory papers and one Project) PART IV Basic Tamil/Advanced Tamil/Basic Hindi/Non Major Electives.	13-15 15-17 2-3 3 2 2-3 3 2 3	4-5 4-5 3-5 3-4 5 3-5 3-4 5 5	60 72 10 10 10 15 10 10 15

Note 1
Those who have not studied up to XII std. and taken Hindi under part I must opt for basic Tamil comprising of two courses.
Note 2

Those who have studied Tamil in school and taken Hindi under part 1 should take advanced Tamil comprising of two courses. Note3 Those who have taken Tamil under part 1 can choose basic Hindi comprising of two courses. Basic Hindi cannot be opted by students with the basic knowledge of Hindi.			
Skill based subjects (electives): Note 1: One of the skills based elective paper is general knowledge which is complete for all UG students. Note 2: Students will be allowed to choose at the most 3 skill based elective courses in the V/VI semesters to earn extra credits. Note 3: UG students who wish to earn extra credits will be allowed only one sitting for those papers. Note 4: Registration for skill based elective courses for earning extra credits to be over by the end of January every year for the II year UG students. Note 5: Examinations for earning extra credits will be conducted in December every year for the final year UG students. Note 6: In the consolidated mark sheet for the UG students, if the students have not earned credit the column for the same will be marked as NIL.	3+3=6	2	12
Environmental studies	2	2	
Value education	2	2	
PART-V Extension Activities	1	1	

Programme	: B. Sc Computer Science	Part III : Core
Semester	: I	Hours : 5 P/W 75Hrs P/S
Sub. Code	: S11	Credits : 5

TITLE OF THE PAPER: PROGRAMMING IN C

Pedagogy	Hours	Lecture	Peer Teaching	GD/VIDOES/TUTORIAL	ICT
	5	4	0 / 1	0 / 1	0 / 1

PREAMBLE:

This course introduces the concept of programming in C Language.

COURSE OUTCOME At the end of the Semester, the Students will be able to		Hrs P/S
UNIT 1	**CO1:** Discuss the basic concepts of C, operators and Expressions.	5
UNIT 2	**CO2:** Understand the role of managing input and output operations and Control statements	10
UNIT 3	**CO3:** Analyze the working methodology of arrays and String functions.	20
UNIT 4	**CO4:** Understand the concept of user defined functions, structure and union.	20
UNIT 5	**CO5:** have prior knowledge about pointers in c and its working principles.	20

Programme : B. Sc Computer Science	Part III : Core
Semester : I	Hours : 5 P/W 75Hrs P/S
Sub. Code : S11	Credits : 5

TITLE OF THE PAPER: PROGRAMMING IN C

UNIT I: OVERVIEW OF C: History of C – Importance of C – Sample C Programs – Basic Structure of C Program – Programming Style – Executing a C Program – CONSTANTS , VARIABLES AND DATA TYPES : Introduction – Character Set – C Tokens – Keywords and Identifiers – Constants – Variables – Data Types – Declaration of Variables – Declaration of Storage Class – Assigning Values to Variables – Defining Symbolic Constants.
OPERATORS AND EXPRESSIONS: Introduction – Arithmetic Operators – Relational Operators – Logical Operators – Assignment Operators – Increment and Decrement Operators – Conditional Operator – Bitwise Operators – Special Operators – Arithmetic Expressions – Evaluation of Expressions – Precedence of Arithmetic Operators – Some Computational Problems – Type Conversion in Expressions – Operator Precedence and Associativity – Mathematical Functions.

UNIT II: MANAGING INPUT AND OUTPUT OPERATIONS – Introduction – Reading a Character – Writing a Character – Formatted Input – Formatted Output.
DECISION MAKING AND BRANCHING: Introduction – Decision Making with IF Statement – Simple IF Statement – IF ELSE Statement – Nesting of IF ELSE Statement – ELSE IF Ladder – Switch Statement - Conditional Operator – GOTO Statement.
DECISION MAKING AND LOOPING: Introduction – The WHILE Statement – The DO Statement – The FOR Statement – Jumps in loops.

UNIT III: ARRAYS: Introduction – One Dimensional Arrays – Two Dimensional Arrays – Initializing Two Dimensional Arrays – Multi Dimensional Arrays.
HANDLING OF CHARACTER ARRAYS AND STRINGS: Introduction – Declaring and Initializing String Variables – Reading Strings From Terminal – Writing Strings To Screen – Arithmetic Operations On Characters – Putting String Together – Comparison of Two Strings – String Handling Functions – Table of Strings.

UNIT IV: USER-DEFINED FUNCTIONS: Introduction – Need For User-Defined Functions – A Multi-Function Program – Element of User-Defined Functions – Definition of Functions – Return Values and Their Types – Function Calls – Function Declaration – Category of Functions – No Arguments and No Return Values – Arguments But No Return Values – Arguments with Return Values – No Arguments But Returns a Value – Function that Return Multiple Values – Nesting of Functions – Recursion – Passing Arrays to Functions – Passing Strings to Functions – The Scope, Visibility and Life Time of Variables.
STRUCTURES AND UNIONS: Introduction – Defining a Structure – Declaring Structure Variables – Accessing Structure Members – Structure Initialization – Copying and Comparing Structure Variables – Operations on Individual Members – Arrays of Structures – Arrays within Structures – Structure within Structures – Structure and Functions – Unions – Size of Structures.

UNIT V: POINTERS: Introduction – Understanding Pointers – Accessing the Address of a Variables – Declaring Pointer Variables – Initialization of Pointer Variables – Accessing a Variable

through its Pointers – Chain of Pointers – Pointer Expressions – Pointer Increments and Scale Factor – Pointer and Arrays – Pointers and Character Strings – Array of Pointers – Pointers as Function Arguments – Functions Returning Pointers – Pointers to Functions – Pointers and Structures.
FILE MANAGEMENT IN C: Introduction – Defining and Opening a File – Closing a File – Input and Output Operations on Files.

TEXT BOOK(S):
Programming in ANSI C – by E. Balagurusamy, McGraw Hill - 6th Edition, 2012.

CHAPTERS:
UNIT – I   : CHAPTERS: 1 – 1.1 - 1.10, 2 – 2.1 - 2.11, 3.
UNIT – II   : CHAPTERS: 4, 5, 6 – 6.1 - 6.5.
UNIT – III   : CHAPTERS: 7 – 7.1 - 7.7, 8 – 8.1 - 8.9.
UNIT – IV   : CHAPTERS: 9 – 9.1 - 9.19, 10 – 10.1 - 10.13.
UNIT – V   : CHAPTERS: 11 – 11.1- 11.16, 12 - 12.1 - 12.4.

REFERENCE BOOK(S):

1. Let us know C – By Yeshwant Kanitkar.
2. The C Programming Language, B.W. Kernighan and D. M. Ritchie, ,2nd Edition PHI New Delhi,1990.

Programme : B. Sc Computer Science   **Part III : Core**

Semester   : I   **Hours   : 5 P/W 75Hrs P/S**

Sub. Code   : S11   **Credits : 5**

UNITS	TOPIC	LECTURE HOURS	MODE OF TEACHING
UNIT 1			
1.	Overview of C- importance ,Basic Structure, Data types.	1	Lecture
2.	Concept of C Tokens and Declaration of Storage Classes	1	Lecture
3.	Concept of types of Operators and Expressions	1	Lecture
4.	Type conversion in expressions and Operator Precedence and Associativity	1	Lecture
5.	Discussion	1	Group Discussion
UNIT 11			
6.	Managing Input / Output- Reading and Writing a character.	2	Lecture
7.	Concept of formatted input and output functions	1	Lecture
8.	Decision making and Branching- If statements-simple if, else if, nested if switch and GOTO statement.	2	Lecture
9.	Decision making and Looping – concepts of For statement,While and Do-While statement	2	Lecture
10.	Discussion	1	Group Discussion
11.	Implementation of Decision Making Branching and Looping	1	Peer Teaching
12	Overview of Unit II	1	ICT (NPTEL Videos)
UNIT III			
13	Introduction about Array Concepts	2	Lecture
14.	Types of Arrays with examples	2	Lecture
15.	Introduction about Character Arrays	1	Lecture
16.	Exercise Problems	1	Tutorial
17.	Introduction about Strings	1	Lecture
18.	Reading a String from terminal and Writing a string to screen	2	Lecture
19.	Arithmetic operations on character	2	Lecture
20.	Putting string together without string handling function	2	Lecture
21.	Comparison of two strings without string functions	1	Lecture

22.	String Handling Functions	2	Lecture
23	Table of String	1	Lecture
24.	Exercise Problems of String Function	1	Tutorial
25	Array Implementation	1	Peer Teaching
26.	Array and String concepts	1	ICT (NPTEL Notes)

UNIT IV

27	Introduction of user defined Function, Definition and Elements of User defined functions	2	Lecture
28.	User defined function return values and their types, Concept of Function Calls with example	1	Lecture
29.	Category of functions, Implementation of Function with multiple values return and nesting of functions	2	Lecture
30.	Recursive function	1	Lecture
31.	Passing arrays as argument to function, Passing strings to function, Scope and visibility and life time of variable	2	Lecture
32.	Implementation category of function	1	Tutorial
33.	Definition and Declaration structure variable	1	Lecture
34.	Structure initialization and Accessing structure members	2	Lecture
35.	Copying and comparing of structure variable	1	Lecture
36.	Array of structure and Array within structure	2	Lecture
37.	Structure within Structure, Structures and Functions	2	Lecture
38.	Concepts of Union	1	Lecture
39.	Exercise problems in structure	1	Tutorial
40.	Examples and implementation of Function	1	ICT (NPTEL Notes)

UNIT V

41.	Introduction of pointers	1	Lecture
42.	Accessing the address of variables	1	Lecture
43.	Declaration and initialization of pointer variable	2	Lecture
44	Accessing variable through its pointer	1	Lecture
45.	Pointer expression with examples	1	Lecture
46.	Concepts of pointer and arrays	2	Lecture
47.	Concepts of pointers and character strings	1	Lecture
48.	Array of pointers	2	Lecture
49.	Exercise problems in pointers	1	Group Discussion
50.	Pointers in array examples	1	Peer Teaching
51.	Pointer as function argument and returning pointers	1	Lecture
52	Concept of pointers and structure	1	Lecture

53.	Introduction to file management in c	1	Lecture
54.	Definition of opening and closing a File	1	Lecture
55.	Concepts of input and output operations on files.	2	Lecture
56.	Overview of pointers and file	1	ICT (NPTEL Videos)

Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					Mean Scores of Cos
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	2	3	3	3	3	3	2	4	3	4	3.00
CO2	3	3	4	4	3	4	3	3	3	3	3.30
CO3	4	3	3	3	4	4	3	4	3	3	3.40
CO4	4	3	3	3	3	4	3	3	4	3	3.30
CO5	3	3	3	3	4	3	3	3	4	3	3.20
Mean Overall Score											3.24

Result: The Score for this Course is 3.24 (High Relationship)

COURSE DESIGNER: **Dr. M.SUMATHI**
Associate Professor / Department of Computer Science.

Programme : B. Sc Computer Science	Part III : Allied
Semester : I	Hours : 5 P/W 75 Hrs P/S
Sub. Code : AY1	Credits : 5

TITLE OF THE PAPER: DIGITAL ELECTRONICS

Pedagogy	Hours	Lecture	Peer Teaching	GD/VIDOES/TUTORIAL	ICT
	5	4	0 / 1	0 / 1	0 / 1

PREAMBLE:

This course introduces the basic concepts of digital computer and electronic components.

COURSE OUTCOME At the end of the Semester, the Students will be able to		Hrs P/S
UNIT 1	**CO1:** Describe the basics of Number System and Codes.	15
UNIT 2	**CO2:** Understand the concepts of Boolean Algebra and K-Maps.	15
UNIT 3	**CO3:** Analyze the purpose and applications of Combinational and Sequential Logic	15
UNIT 4	**CO4:** Discuss the various Combinational and Sequential Logic.	15
UNIT 5	**CO5:** Explain the purpose of Passive Elements.	15

Programme : B. Sc Computer Science	Part III : Allied
Semester : I	Hours : 5 P/W 75 Hrs P/S
Sub. Code : AY1	Credits : 5

TITLE OF THE PAPER: DIGITAL ELECTRONICS

UNIT I   NUMBER SYSTEM AND CODES

Number System and Codes: Why Binary Numbers Used – Binary-to-Decimal Conversion – Decimal-to-Binary Conversion – Octal Numbers – Hexadecimal Numbers – The ASCII Code – Excess-3 Code – Gray Code – Arithmetic Circuits – Binary Addition – Binary Subtraction – Unsigned Binary Numbers – Sign Magnitude Numbers – 1's Complement – 2's Complement – 2's Complement Arithmetic – Arithmetic Building Block – half adder – full adder

UNIT II   BOOLEAN ALGEBRA AND K-MAPS

Circuit Analysis and Design – Boolean Algebra - Boolean law & theorem – Sum of product – truth table to Karnaugh map – Pairs, Quads, and Octets – Karnaugh Simplification – Don't Care Conditions – Product of Sums Method – Product of Sum Simplification

UNIT III   COMBINATIONAL AND SEQUENTIAL LOGIC

Flip-flops – RS flip-flop – clocked RS flip-flop – D flip-flop – edge triggered D-Flip flop-JK flip flop-JK Master Slave flip-flop-Shift Registers – types of registers – Serial in Serial out – Serial in-Parallel Out – Parallel in Serial Out - Parallel in Parallel Out - ring counters – Counters – Asynchronous Counters (Ripple Counters) – Mod-3 Counter – Mod-5 Counter.

UNIT IV   PASSIVE ELEMENTS

Resisters – Capacitors – Logic-Circuits – Inverter – OR gate – AND gate – LED – photo-diode – rectifiers.

UNIT V   OPERATIONAL AMPLIFIER AND TIMER

IC 741 application- integrator, differentiator, filter – IC 555 applications, a stable - 555 - mono-stable

TEXT BOOK (S):

Digital Principles & Applications – Malvino & Leech

CHAPTERS:

UNIT I   : CHAPTERS: 4 - 4.1 - 4.8, 5 - 5.1 - 5.7, 5.9
UNIT II   : CHAPTERS: 1 - 1.5 - 1.7, 2 - 2.1 - 2.8
UNIT III   : CHAPTERS: 8.1 - 8.4, 8.6 - 8.8, 10.1 - 10.6, 11.1, 11.4, 11.5
UNIT IV   : CHAPTERS: 1.2, 1.3, 1.4
UNIT V   : CHAPTERS: 9.3, 9.4

REFERENCE BOOK(S): Digital Logic and Computer Design,M.Morris Mano ,PHI,New Delhi 1994.

Programme : B. Sc Computer Science   **Part III : Allied**

Semester   : I   **Hours   : 5 P/W 75 Hrs P/S**

Sub. Code   : AY1   **Credits : 5**

UNITS	TOPIC	LECTURE HOURS	MODE OF TEACHING
UNIT 1			
1.	Number System and Codes: Why Binary Numbers Used	1	Lecturer
2.	Binary-to-Decimal Conversion	1	Lecturer
3.	Octal Numbers, Hexadecimal Numbers	1	Lecturer
4.	Exercise Problems	1	Group Discussion
5.	Exercise Problems	1	Tutorial
6.	The ASCII Code	1	Lecturer
7.	Excess-3 Code	1	Lecturer
8.	Gray Code	1	Lecturer
9.	Arithmetic Circuits	1	Lecturer
10.	Binary Addition, Binary Subtraction, Unsigned Binary Numbers	1	Lecturer
11.	Sign Magnitude Numbers, 1's Complement, 2's Complement	1	Lecturer
12.	2's Complement Arithmetic	1	Lecturer
13.	Arithmetic Building Block	1	Lecturer
14.	half adder, full adder	1	Lecturer
15.	Example Problems	1	Tutorial
UNIT 11			
16.	Circuit Analysis and Design	2	Lecture
17.	Boolean Algebra	2	Lecture
18.	Boolean law & theorem	1	Lecture
19.	Example Problems	1	Tutorial
20.	Sum of product	2	Lecture
21.	Truth table to Karnaugh map – Pairs, Quads, and Octets	1	Lecture
22.	Karnaugh Simplification	1	Lecture
23.	Don't Care Conditions	1	Lecture
24.	Example Problems	1	Tutorial
25.	Product of Sums Method	1	Lecture
26.	Product of Sum Simplification	1	Lecture
27.	Exercise Problems	1	Tutorial

	UNIT III		
28.	Flip-flops	1	Lecture
29.	RS flip-flop	1	Lecture
30.	Clocked RS flip-flop	1	Lecture
31.	D flip-flop	1	Lecture
32.	Edge triggered D-Flip flop	1	Lecture
33.	JK flip flop	1	Group Discussion
34.	JK Master Slave flip-flop	1	Lecture
35.	Shift Registers	1	Lecture
36.	Types of registers : Serial in Serial out, Serial in-Parallel Out	1	Lecture
37.	Parallel in Serial Out - Parallel in Parallel Out	1	Lecture
38.	Exercise Problems	1	Tutorial
39.	Ring counters	1	Lecture
40.	Asynchronous Counters (Ripple Counters)	1	Lecture
41.	Mod-3 Counter	1	Lecture
42.	Mod-5 Counter	1	Tutorial
	UNIT IV		
43.	Resisters	2	Lecture
44.	Capacitors	2	Lecture
45.	Logic-Circuits	1	ICT (Lecture Notes)
46.	Exercise Problems	1	Lecture
47.	Inverter – OR gate	2	Lecture
48.	AND gate	1	ICT (Videos & PPT)
49.	LED	2	Lecture
50.	Photo-Diode	2	Lecture
51.	Rectifiers	1	Lecture
52.	Applications	1	Group Discussion
	UNIT V		
53.	Operational Amplifier And Timer: Introduction	1	Lecture
54.	IC 741 applications	3	Lecture
55.	Integrator – Applications	1	Lecture
56.	Integrator – Applications	1	Videos

57.	Differentiator – Applications	2	Lecture
58.	Filter – Applications	2	Lecture
59.	IC 555 applications a stable – 555 – mono-stable	3	Lecture
60.	Amplifier and Timer applications	1	Videos
61.	Amplifier and Timer applications	1	Group Discussion

Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					Mean Scores of Cos
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	3	3	3	3	2	3	3	4	3	3	3.00
CO2	4	4	4	3	2	4	4	4	3	3	3.50
CO3	4	4	4	3	2	4	3	4	3	3	3.4
CO4	4	4	4	3	2	4	4	4	3	3	3.6
CO5	4	4	4	3	2	3	3	3	3	2	3.1
Mean Overall Score											3.32

Result: The Score for this Course is 3.32 (High Relationship)

COURSE DESIGNER: **Dr. S. SUGUNA**
                        Assistant Professor / Department of Computer Science.

Programme : B. Sc Computer Science   **Part III : Core**

Semester   : I   **Hours   : 5 P/W 75 Hrs P/S**

Sub. Code   : PS1   **Credits : 3**

TITLE OF THE PAPER: PROGRAMMING IN C LAB

1. Write a C program to check the given number is positive or negative.

2. Write a C program to find largest among three numbers using conditional operator.

3. Write a C program to calculate Electric Bill.

4. Write a C program to calculate Student Grade.

5. Write a C program to loan calculation using conditional statement.

6. Write a C program to calculate the value of $y=x^n$.

7. Write a C program to generate Multiplication Table.

8. Write a C program to sum of squares of n numbers.

9. Write a C program for addition of two Matrices.

10. Write a C program to Matrix Subtraction.

11. Write a C program to Matrix Multiplication.

12. Write a C program to Matrix Transpose.

13. Write a C program to get factorial of a given number.

14. Write a C program to find out largest and smallest element of an array.

15. Write a C program to check whether the given number is Prime or not.

16. Write a C program to create a function with no arguments and no return values.

17. Write a C program to create a function with arguments and no return values.

18. Write a C program to create a function with arguments and with return values.

19. Write a C program to create a function with no arguments but return values.

20. Write a C program to perform string copy in C without using STRCPY.

21. Write a C program for concatenation two strings without using STRCAT.

22. Write a C program to print the given names in alphabetical order.

23. Write a C program to perform string handling operations.

24. Write a C program to find Grade, Average and Result using structures.

25. Write a C program to sort the array in an Ascending order.

26. Write a C program to sort the array in Descending order.

27. Write a C program to Factorial Calculation using Recursion.

Programme : B. Sc Computer Science   **Part III : SBE**

Semester   : I   **Hours : 2 P/W 30 Hrs P/S**

Sub. Code   : SSP1   **Credits : 2**

TITLE OF THE PAPER: OFFICE AUTOMATION LAB

WORD

1. Open a Word document to prepare your **Resume** by performing the following operations.

    (a) Formatting the Text- Alignment & Font style

    (b) Page setup (margin alignment, page height & width)

2. Create a student mark sheet using table, find out the total & average marks and display the result.

3. Design an invitation of your course inauguration function using different fonts, font sizes, bullets and Word Art/ Clip Art

4. Mail Merge Concept

    (a) Prepare an invitation and to be sent to specific addresses in the data source.

EXCEL

1. Create suitable work sheet with student mark details and use Data sort to display results and make out a suitable chart.

2. Prepare salary bill in a worksheet showing Basic Pay, DA, HRA, Gross salary, PF, Tax and Net salary using suitable Excel Functions.

POWER POINT

1. Create a power point presentation to explain various aspects of your college using auto play.

2 Create a power point presentation to explain the sales performance of a company over a period of five years. Include slides covering the profile of the company, year wise sales and graph with gridlines, legends and titles for axes. Use Clip Art and animation features.

ACCESS

1. Create a table for storing marks of 10 students. The fields of the table are given below: Reg. No., Name, Mark1, and Mark2, Mark3, Test average (Best Two /2), Assignment, Seminar and Total marks (Test average + Assignment + Seminar) The fields 'Mark1', 'Mark2', 'Mark3' should not allow the user to enter a mark greater than 25 and should display proper message in such case. Similar constraint for the field 'Assignment' is 5 marks and for the field 'Seminar', it is 10 marks.

2. Create a table showing names of authors of at least 10 different books, title of books, the prices of these books, name of publishers and year of publication. Also create Select, Action and Cross-tab queries to display the records from this table meeting the criteria used in these queries.

1. Create a form to enter the data directly into this form. The fields required are: Basic Pay, DA, HRA, Gross salary, PF, Income tax and Net salary.

2. Create a report that displays the customer name, address, phone number, Item code, product quantity of the customers whose orders have been pending for over a month.

Programme : B. Sc Computer Science   **Part III : Core**

Semester   : II   **Hours   : 4 P/W 60 Hrs P/S**

Sub. Code   : S21   **Credits : 4**

TITLE OF THE PAPER : OBJECT ORIENTED PROGRAMMING WITH C++

Pedagogy	Hours	Lecture	Peer Teaching	GD/VIDOES/TUTORIAL	ICT
	4	3	0 / 1	0 / 1	0 / 1

PREAMBLE:

This course introduces the object oriented concept with C++ Language.

COURSE OUTCOME At the end of the Semester, the Students will be able to		Hrs P/S
UNIT 1	**CO1:** Describe the basics of Object Oriented Programming	8
UNIT 2	**CO2:** Understand and apply concepts of objects, arrays, functions and constructors within a class	15
UNIT 3	**CO3:** Demonstrate ability to implement overloading and inheritance	18
UNIT 4	**CO4:** Analyze and utilize the concept of Pointers, Virtual Functions and I/O Operations	10
UNIT 5	**CO5:** Discuss the File stream operations and Templates	9

Programme : B. Sc Computer Science   **Part III : Core**

Semester   : II   **Hours   : 4 P/W 60 Hrs P/S**

Sub. Code   : S21   **Credits : 4**

TITLE OF THE PAPER: OBJECT ORIENTED PROGRAMMING WITH C++

UNIT I : Basic Concepts of Object Oriented Programming - Benefits OOP - Object oriented Languages - Applications of OOP - Structure Of C++ program -Tokens - Keywords - Identifiers and constants - Basic data types - User defined data types - Derived data types - Symbolic constants - Type compatibility - Declaration of variables - Dynamic Initialization of variables - reference variables - operators in C++ - Manipulators - Type cast operators - Expressions and their types - Implicit - Control Structures - The main function - function   prototyping - Inline function - Function overloading

UNIT II : Specifying a class – Defining member function – Making an outside function inline – Nesting of member functions – Private member functions – Array within a class – Memory allocation for objects – Static data members- Static member functions – Array of objects – Objects as function arguments –Friendly functions – Returning objects – Constant member functions – Constructors – Parameterized constructor – Multiple constructors in a class – Constructors with default arguments – Dynamic initialization of objects – Copy constructor – Destructors.

UNIT III : Defining operator overloading – Overloading unary operators – Overloading binary operators – Overloading binary operators using friend function – Rules for overloading operators – Defining derived classes – Sningle inheritance – Making a private member inheritable – Multilevel inheritance – Multiple inheritance – Hierarchical inheritance – Hybrid inheritance – Virtual base classes – Constructors in derived class – Member classes: Nesting of classes.

UNIT IV : Ponter to objects – this pointer – Pointers to derived classes – Virtual functions – Pure virtual functions – C++ Stream classes – Unformatted I/O operations – Managing output with manipulators.

UNIT V : Classes of file stram operations – Opening and closing files – Detecting end of file – More about open() function – File modes, File pointers and their manipulation – Sequential input and output operations – Command line arguments – Templates: Class templates and function templates.

TEXT BOOK (S):

 1. Object Oriented Programming with C++, E. Balagurusamy ,MCGraw Hill Educataion (India) Private Limited, New Delhi, Sixth Edition – 2013.
.
CHAPTERS:
UNIT I   : CHAPTER 1 (EXCEPT 1.3, 1.4), CHAPTER 2 (ONLY 2.6), CHAPTER 3(EXCEPT 3.20, 3.21, 3.22) AND CHAPTER 4
UNIT II   : CHAPTER 5 (EXCEPT 5.18,5.19), CHAPTER 6 (EXCEPT 6.8, 6.9, 6.10)
UNIT III   : CHAPTER 7 & CHAPTER 8
UNIT IV   : CHAPTER 9 & CHAPTER 10
UNIT V   : CHAPTER 11 (EXCEPT 22.8) AND CHAPTER 12(ONLY 12.2, 12.3, 12.4)

REFERENCE BOOKS:

1. C++ - The Complete Reference, Herbert Schildt, TMH, 1998.
2. C++ How to Program, Paul Deital, Harvey DEital, PHI, Ninth Edition (2014).
3. Ashok N. Kamthane, Object Oriented Programming with ANSI & turbo C++, Pearson Education, 2006.
4. Object Oriented Programming Using C++, Ashok Kumar Jagadev, Amiya Kumar Rath and SatchidanandaDehuri, PHI, New Delhi, 2007.

Programme : B. Sc Computer Science   **Part III : Core**

Semester   : II   **Hours   : 4 P/W 60 Hrs P/S**

Sub. Code   : S21   **Credits : 4**

UNITS	TOPIC	LECTURE HOURS	MODE OF TEACHING
UNIT I			
1.	What is object oriented programming? Application of OOP	1	Lecture
2.	The Structure of C++ program - Different data types - Declaration and Initialization of variables – how to reference variables ?	2	Lecture
3.	Concepts of Operators, Expressions and Control Structures	2	Lecture
4.	Why we need main function ? Different function prototypes available and insight on concept of Function overloading	2	Lecture
5.	Discussion	1	Group Discussion
UNIT II			
6.	Specification of a class and Defining member function	1	Lecture
7.	Different access specifiers for member variables and functions	1	Lecture
8.	Define an array within a class and Memory allocation for objects	1	Lecture
9.	Discuss about Static data members and member functions	1	Lecture
10.	Construction of program using previous concepts	1	Group Discussion
11.	Examples for function types	1	Peer Teaching
12	Define Array of objects – Passing arguments to functions Purpose of Friend function – How to return objects to a class and concept of Constant member functions	3	Lecture
13.	Exercise Programs	1	Tutorial
14.	Introduction of Constructors and different types of constructor	2	Lecture
15.	Dynamic initialization of objects, Copy constructor and purpose of Destructors.	2	Lecture
16.	Overview of Unit II	1	ICT (NPTEL Videos)
UNIT III			
17.	Defining operator overloading with Syntax	1	Lecture
18.	Explaining different types of operator overloading - unary operators overloading and binary operators overloading	3	Lecture
19.	Implementation of binary operators using friend function	2	Lecture
20.	Rules for overloading operators	1	Lecture
21.	Exercise Problems	1	Tutorial

22.	Defining derived classes and Inheritance with suitable examples	1	Lecture
23.	Implementations of Single Inheritance and Making a private member inheritable	1	Lecture
24	Implementation of Multilevel Inheritance with suitable examples	1	Lecture
25	Implementation of Multiple Inheritance with suitable examples	1	Lecture
26	Implementation of Hierarchical Inheritance with suitable examples	1	Lecture
27	Implementation of Hybrid Inheritance with suitable examples	1	Lecture
28.	Exercise Programs	1	ICT (NPTEL Notes)
29.	Utilization of Constructors in derived class	1	Lecture
30	Concept of nesting classes.	1	Lecture
31	Applications	1	Group Discussion
UNIT IV			
32.	Introduction of Pointers	1	Lecture
33.	Concepts of Pointer to Object and Purpose of this pointer	1	Lecture
34.	Implementation of Pointers to a derived class	1	Lecture
35.	Exercise Problems	1	Tutorial
36.	Need of Virtual Functions – Defining the virtual functions – Concepts of Pure virtual Functions	2	Lecture
37.	Introduction of stream classes and implementation of unformatted I/O operations	1	Lecture
38.	Managing Output with manipulators	1	Lecture
39.	Efficient use of Pointers inside the class	1	ICT (NPTEL Notes)
40.	Applications	1	Group Discussion
UNIT V			
41.	Introduction of File Stream Operations – Opening, Closing and detecting end of files	2	Lecture
42.	More about open() function – File modes, File pointers and their manipulation	2	Lecture
43.	Manipulations in files using different operations	1	Peer Teaching
44.	Sequential input and output operations – Command line arguments	1	Lecture
45.	Introduction of Templates	1	Lecture
46.	Class templates and function templates	1	Lecture
47.	Overview about files	1	ICT (NPTEL Notes)

Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					Mean Scores of Cos
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	2	3	3	3	3	3	2	4	3	4	3.00
CO2	3	3	4	4	3	4	3	3	3	3	3.30
CO3	4	3	3	3	4	4	3	4	3	3	3.40
CO4	4	3	3	3	3	4	3	3	4	3	3.30
CO5	3	3	3	3	4	3	3	3	4	3	3.20
Mean Overall Score											3.24

Result: The Score for this Course is 3.24 (High Relationship)

COURSE DESIGNER: **Dr. M. SUMATHI**
Associate Professor / Department of Computer Science.

Programme : B. Sc. Computer Science   **Part III :Core**

Semester   : II   **Hours   : 4 P/W 60Hrs P/S**

Sub. Code   : S22   **Credits : 4**

TITLE OF THE PAPER: DATA STRUCTURES AND ALGORITHMS

Pedagogy	Hours	Lecture	Peer Teaching	GD/VIDEOS/TUTORIAL	ICT
	4	4/3	0 / 1	0 / 1	0 / 1

PREAMBLE:

To impart the fundamental knowledge about data and its organization, and problem solving approaches in the computing environment using data structures.

COURSE OUTCOME At the end of the Semester, the Students will be able to		Hrs P/S
UNIT 1	**CO1:** Define algorithm and describes a specific algorithmic approach and apply it for solving common sorting and searching techniques.	12
UNIT 2	**CO2:** Describe simple and common data structures – array and list, stack and queue. Discuss the application of these data structures in solving problems.	12
UNIT 3	**CO3:** Describe the different types of linked list and its application	12
UNIT 4	**CO4:** Describe the advanced data structure – binary tree, its representation and discuss the application.	12
UNIT 5	**CO5:** Describe graph data structure and discuss its application.	12

Programme : B. Sc. Computer Science   **Part III :Core**

Semester   : II   **Hours   : 4 P/W 60Hrs P/S**

Sub. Code   : S22   **Credits : 4**

TITLE OF THE PAPER: DATA STRUCTURES AND ALGORITHMS

UNIT I : Introduction: Algorithm – Writing structured program, Analyzing algorithm-Divide and conquer – The general method, Binary search, Merge sort, Quick sort, Selection sort.

UNIT II : Introduction: Arrays – Ordered List – Sparse Matrices -Representation of Arrays-Stacks and Queues – A Mazing problem – Evaluations of expressions.

UNIT III : Linked list: Singly linked list – linked stacks and queues – polynomial addition – more on linked list – equivalence relations – doubly linked list.

UNIT IV: Trees: Basic terminology – binary trees – binary tree representations – binary tree traversal – threaded binary trees – binary tree representation of trees – application of trees - Set Representation.

UNIT V : Graphs: Terminology and representations – traversals, spanning trees – shortest paths.

TEXT BOOK(S):
   1. Fundamentals of Data structures – Ellis Horowitz, Sartaj Sahani, Galgotia Pub., 1998.(Exclude analysis & Lemma)

CHAPTERS:

UNIT I   : CHAPTERS: 1
UNIT II   : CHAPTERS: 2, 3.1 – 3.3
UNIT III   : CHAPTERS: 4.1, 4.2, 4.4 – 4.8
UNIT IV   : CHAPTERS: 5.1 – 5.7, 5.8.1
UNIT V   : CHAPTERS: 6.1 – 6.3

   2. Fundamentals of Computer Algorithms – Ellis Horowitz, Sartaj Sahni, Sangutheva Rajasekaran, Universities Press – 2nd Edition, 2008.(Exclude analysis & Lemma)

CHAPTERS:

UNIT I   : Chapter: 3.1, 3.3, 3.5 – 3.7

REFERENCE BOOK(S):

   1. Pascal Plus Data Structures Algorithm And Advanced Programming – by Nell.Dale,Susan.C.Lilly,TMH pub., 1985.

   2. C and Data Structures – by P.Radha Ganesan, Sciteh Pub, India Pvt Ltd.

Programme : B. Sc. Computer Science   **Part III :Core**

Semester   : II   **Hours   : 4 P/W 60Hrs P/S**

Sub. Code   : S22   **Credits : 4**

UNITS	TOPIC	LECTURE HOURS	MODE OF TEACHING
UNIT 1			
1.	Introduction on the importance of Data Structures. Define algorithm. Explain how to write algorithm with a simple example.	1	Lecture
2.	Assignment on how to write algorithm for simpler problems.	1	Tutorial
3.	Programming Languages- Structured programming explanation. An overview of analysis	1	Lecture
4.	Discussion on various program solving approaches. Explain divide and conquer method with an example	1	Lecture
5.	Explain sequential and binary search methods. Discuss the relative merits and demerits	1	Lecture
6.	Describe recursion. Explain the function with a walk-through on the execution of a recursive program	1	Lecture
7.	Describe the logic and implementation of Quick Sort method	1	Lecture
8.	Describe the logic and implementation of Merge Sort method	1	Lecture
9.	Describe the logic and implementation of Selection Sort method	1	Lecture
10.	A tutorial session on how to write a program from the algorithmic steps.	1	Tutorial
11.	Give exercise to implement sorting and searching methods in C language.	1	Peer Teaching
12.	Conduct test on the understanding of various methods and techniques learned. Summarizing the concepts discussed.	1	Quiz & Discussion
UNIT 11			
13.	Describe array and its internal storage representation. Walk-through on how does system locate the elements	1	Lecture
14.	Define list and ordered list. Give exercise problems to demonstrate the application of list.	1	Lecture
15.	Describe the sparse matrix.	1	Lecture
16.	Discuss the operations (create, copy, transpose) on sparse matrix.	1	Lecture
17.	Describe Stack data structure and its implementation	2	Lecture
18.	Describe Queue data structure and its implementation	2	Lecture
19.	Discuss the Maze problem and its solution.	1	Lecture

20.	Describe the evaluation of expression - infix, prefix and postfix notation.	1	Lecture
21.	Describe the algorithm to convert from infix to postfix notation.	1	Lecture
22.	Conduct oral test and summarize the concepts discussed in Unit II	1	Group Discussion
UNIT III			
23	Describe Linked list and its advantages.	1	Lecture
24.	Implementation of singly linked list	1	Lecture
25.	Circularly linked list	1	Lecture
26.	Linked Stack and Queue	1	Lecture
27.	Solving Polynomial addition problem using linked list	2	Lecture
28.	Describing equivalence relation and its application in memory usage optimization	1	Lecture
29.	Solving equivalence relation problem using linked list	1	Lecture
30.	Describe doubly linked list and its advantages over singly linked list	1	Lecture
31.	Exercise problems on inserting and removing elements in singly linked list and doubly linked list	1	Tutorial
32.	Memory management using linked list	1	Lecture
33.	Assignment on solving exercise problems using linked list	1	Peer Teaching
UNIT IV			
34.	Tree terminology – Definition – an overview of its application	1	Lecture
35.	Tree and Binary Tree. Advantages of tree over list	1	Lecture
36.	Tree traversal – in order, pre order and post order	1	Lecture
37.	Exercise on adding and removing elements in a binary tree	2	Tutorial
38.	Binary tree operations – copy, check for equality	2	Lecture
39.	Threaded binary tree	1	Lecture
40..	Exercise Problems	1	Peer teaching
41.	Set operation – union and find	1	Lecture
42.	Set representation using tree	1	Lecture
43.	Conduct test to evaluate understanding	1	Quiz
UNIT V			
44.	Graph Terminology – complete, connected, directed	1	Lecture
45.	Graph representation – adjacency matrix and adjacency list	1	Lecture
46.	Graph applications	1	ICT – online resources
47.	Graph traversal – Depth first and Breadth first	1	Lecture

No.	Topic		Method
48.	Exercise problems	1	Tutorial
49.	Minimum cost spanning tree and its implementation	2	Lecture
50.	Shortest path algorithm and its implementation	2	Lecture
51.	Finding Algorithmic complexity of the problems solved	2	Tutorial and peer teaching
52	Summary on various concepts, methods and techniques applied	1	Group discussion

Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					Mean Scores of Cos
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	3	4	3	3	2	3	4	4	3	3	3.20
CO2	4	4	4	3	2	4	4	4	3	3	3.50
CO3	4	4	4	3	2	4	3	4	3	3	3.4
CO4	4	4	4	3	2	4	4	4	3	3	3.6
CO5	4	4	4	3	2	3	3	3	4	3	3.4
Mean Overall Score											3.42

Result: The Score for this Course is 3.42 (High Relationship)

COURSE DESIGNER: **Mrs. A S. BABY RANI**
                        Associate Professor / Department of Computer Science.

Programme :B. Sc Computer Science   **Part III :Allied**

Semester   : II   **Hours : 5 P/W 75Hrs P/S**

Sub. Code   :AY2   **Credits :5**

TITLE OF THE PAPER: MATHEMATICAL FOUNDATIONS

Pedagogy	Hours	Lecture	Peer Teaching	GD/VIDOES/TUTORIAL	ICT
	5	4	0 / 1	0 / 1	0 / 1

PREAMBLE:

To impart the knowledge on the fundamental Mathematical concepts – Sets, Relations, Graph and Trees, which are the foundation of Logic, various representations of Problem Domain and operations.

COURSE OUTCOME At the end of the Semester, the Students will be able to		Hrs P/S
UNIT 1	**CO1:** Represent the sets, operations on sets, verifying basic law using Venn Diagrams	10
UNIT 2	**CO2:** Understand the relationship between sets, operations on relations, Representing the relationships with Hasse Diagrams and finding closure using Warshalls Algorithm; To have introduction to Lattices	17
UNIT 3	**CO3:** impart knowledge on driving Truth Tables, equivalence of formulas and Quantifiers.	18
UNIT 4	**CO4:** Introduce the concept of graph and basic terminologies, theorems.	20
UNIT 5	**CO5:** Introduce special types of Graph – Tree and basic terminologies, essential theorems on Trees.	10

Programme :B. Sc Computer Science   **Part III :Allied**

Semester   : II   **Hours : 5 P/W 75Hrs P/S**

Sub. Code   :AY2   **Credits :5**

TITLE OF THE PAPER: MATHEMATICAL FOUNDATIONS

UNIT I

Set Theory: Introduction – Sets – Notation and Description of Sets – Subsets – Venn – Euler Diagrams – Operation on sets – Properties of set operations – Verification of basic laws and algebra by Venn diagram.

UNIT II

Relations and Functions: Relations – Representation of a relation – Operations on relations – equivalence relation – Closures &Warshalls Algorithm – Partial order Relation – Hasse Diagrams – Lattices.

UNIT III

Logic: Introduction – IF statements – Connectives – Truth table of a formula – Tautology – Tautological implications and Equivalence of formulae – Quantifiers.

UNIT IV

Graph Theory: Introduction- path and circuits: Isomorphism – Subgraphs- Walks, Paths and circuits- Connected graphs, Disconnected Graphs and components.

UNIT V

Euler Graphs: Hamiltonian Paths and circuits- Trees: Some properties of Trees – Distances and centers.

TEXT BOOK(S):
1. Discrete Mathematics – M.Venkataraman, N.Sridharan and N.Chandrasekaran – The National Publishing Company, May 2009.
2. Graph Theory – Narsingh Deo, Prentice Hall of India, 2002(UNIT IV & V)

CHAPTERS:

UnitI	: Chapter 1.1 to 1.8
Unit II	: Chapter 2 (2.2 to 2.6), 10.1
Unit III	: Chapter 9 (9.1 to 9.3, 9.6 to 9.8, 9.15)
UNIT IV	: Chapters 1, 2 - 2.1, 2.2, 2.4, 2.5 (Text Book 2)
UNIT V	: Chapters 2 - 2.6, 2.9, 3 - 3.1, 3.2, 3.4 (Text Book 2)

REFERNCE BOOK(S):
1. Discrete Mathematics for Computer Science, J. Truss, 2nd Edition Addison Wesley,Boston,1999.

Programme :B. Sc Computer Science   **Part III :Allied**

Semester   : II   **Hours : 5 P/W 75Hrs P/S**

Sub. Code   :AY2   **Credits :5**

UNITS	TOPIC	LECTURE HOURS	MODE OF TEACHING
UNIT 1			
1.	Introduction to Sets	1	Lecture
2.	Notation and Description of Sets , Subsets , Venn – Euler Diagrams and Operation on sets	2	Lecture
3.	Solving problems on sets and representation in Venn diagram	1	Peer Teaching
4.	Properties of set operations	1	Lecture
5.	Verification of basic laws and algebra by Venn diagram.	2	Lecture
6.	Additional Problems on Sets, basic law verification	2	Lecture
7.	Applications of Sets in Real world problems	1	Group Discussion
UNIT 11			
8.	Relations : Representation of a relation.	1	Lecture
9.	Operations on relations	1	Lecture
10.	Equivalence relation	1	Lecture
11.	Solving problems on equivalence relation	1	Tutorial
12.	Closures	2	Lecture
13.	Warshalls Algorithm	1	Lecture
14.	Problem Solving using Warshalls Algorithm	1	Peer Teaching
15	Partial order Relation	3	Lecture
16.	Application of Partial Order Relation	1	ICT (UGCEMIRC Video)
17.	Hasse Diagrams	2	Lecture
18.	Problem solving using Hasse Diagram	1	Lecture
19.	Lattices	1	Lecture
20.	Overview of Unit II	1	Presentation
UNIT III			
21.	Introduction to Logic: IF statements	1	Lecture
22.	Connectives	1	Lecture
23.	Problems using connectives	2	Group Discussion
24.	Writing Truth table of a formula	2	Tutorial
25.	Solving Exercise Problems	1	Peer Teaching
26.	Tautology	1	Lecture
27.	Solving Problems based on tautology	2	Lecture

28.	Tautological implications and Equivalence of formulae	2	Tutorial
29.	Problem solving : implications and equivalence of formulas	1	Demonstration
30.	Quantifiers	2	Lecture
31.	Solving exercise problems	2	Lecture
32.	Summary of Unit-II	1	Lecture
UNIT IV			
33.	Introduction to Graph	1	Lecture
34.	Real Time Problems in application to Graph	1	Group Discussion
35.	Path and circuits	2	Lecture
36.	Isomorphism	2	Lecture
37.	Subgraphs	1	Lecture
38.	Solving problems based on path, isomorphism and subgraphs	2	Peer Teaching
39.	Walks, Paths and circuits, Walk Vs Path Vs Circuit	2	Lecture
40.	Theorems on Walk, Path and Circuit	1	Lecture
41.	Solving exercise problems on walk, path and circuit	1	Tutorial
42.	Connected graphs	1	Lecture
43.	Solving problems – testing of Connected graph	1	Lecture
44.	Disconnected Graph	1	Lecture
45.	Components	1	Lecture
46.	Solving problem on components	1	Tutorial
47.	Overview of Unit-IV	2	Lecture
UNIT V			
48.	Hamiltonian Paths and circuits	1	Lecture
49.	Hamiltonian Paths VS circuits	1	Lecture
50.	Solving exercise problems on Hamiltonian path, circuit	1	Peer Teaching
51.	Introduction to Trees	1	Lecture
52.	Some properties of Trees, related theorems	2	Lecture
53.	Distances and related theorems	1	Lecture
54.	Finding thecenter(s) of tree	1	Lecture
55.	Solving Exercise Problems on Trees	1	Tutorial
56.	Overview of UNIT-V	1	ICT-NPTEL Video

Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					Mean Scores of Cos
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	3	4	3	3	2	3	4	4	3	3	3.20
CO2	4	4	4	3	2	4	4	4	3	3	3.50
CO3	4	4	4	3	2	4	3	4	3	3	3.4
CO4	4	4	4	3	2	4	4	4	3	3	3.6
CO5	4	4	4	3	2	3	3	3	4	3	3.4
Mean Overall Score											3.42

Result: The Score for this Course is 3.42 (High Relationship)

COURSE DESIGNER: **Mrs. G. SUDHA**
             Assistant Professor / Department of Computer Science.

Programme :B. Sc Computer Science   **Part III : Core**

Semester   : II   **Hours : 4 P/W 60Hrs P/S**

Sub. Code   : PS2   **Credits : 3**

TITLE OF THE PAPER: PROGRAMMING IN C++ LAB

1. Printing Prime numbers between two given numbers.
2. *Printing 3 digit numbers as a series of words. (Ex. 543 should be printed out as Five Four Three).*
3. Finding area of geometric shapes using function overloading.
4. Inline functions for simple arithmetic operations.
5. Demonstrating the use of Pre-defined Manipulators.
6. Demonstrating the use of friend function.
7. Creating student mark list using array of objects,
8. Demonstrating constructor overloading.
9. Overloading the unary – operator.
10. Demonstrating single inheritance.
11. Demonstrating the use of **this** pointer.
12. Designing our own manipulator.
13. Illustrating function templates.
14. Illustrating class templates.
15. Overloading the binary + operator.
16. Demonstrating Multiple inheritance.
17. Demonstrating Multilevel inheritance.
18. Demonstrating Hierarchical inheritance.
19. Demonstrating Virtual functions.
20. Processing mark list using binary file.
21. Count number of objects in a file.
22. Demonstrating the use of Command-line arguments.

Programme :B. Sc Computer Science			**Part III :Core**
Semester : III			**Hours : 4 P/W 60Hrs P/S**
Sub. Code : S31			**Credits : 4**

TITLE OF THE PAPER: COMPUTER SYSTEM ARHITECTURE

Pedagogy	Hours	Lecture	Peer Teaching	GD/VIDOES/TUTORIAL	ICT
	4	3	0 / 1	0 / 1	0 / 1

PREAMBLE:

To understand the organization of various parts of computer, design principle and mode of communication between them inside a Digital Computer.

COURSE OUTCOME		Hrs P/S
At the end of the Semester the Students will be able to		
UNIT 1	**CO1:**Impart knowledge on registers, instruction, timing and control	12
UNIT 2	**CO2:** Understand types of languages, operators, and subroutine and to illustrate the working scenario of assembler	12
UNIT 3	**CO3:**Understand the instruction formats, Addressing modes, Data transfer & manipulation instructions and RISC	12
UNIT 4	**CO4:**Illustrate interrupt concepts and DMA	12
UNIT 5	**CO5:**Illustrate memory hierarchy and its working fashion	12

Programme	**:B. Sc Computer Science**	**Part III :Core**	
Semester	**: III**	**Hours :4 P/W 60Hrs P/S**	
Sub. Code	**: S31**	**Credits : 4**	

TITLE OF THE PAPER: COMPUTER SYSTEM ARHITECTURE

UNIT I

BASIC COMPUTER ORGANIZATION AND DESIGN: Instruction Codes – Stored Program Organization – Indirect Address – Computer Registers – Computer Instructions – Timing and Control – Instruction Cycle – Memory Reference Instructions.

UNIT II

PROGRAMMING THE BASIC COMPUTER: Instruction – Machine Language – Assembly Language – The Assembler – Program Loops – Programming Arithmetic and Logic Operations – Subroutines – Input/output Programming.

UNIT III

CENTRAL PROCESSING UNIT: Introduction – General Register Organization – Stack Organization – Instruction Formats – Addressing Modes – Data Transfer and Manipulation – Program Control – Reduced Instruction Set Computer.

UNIT IV

INPUT/OUTPUT ORGANIZATION: Peripheral Devices – I/O Interface – Priority Interrupt – Direct Memory Access – DMA Controller – DMA Transfer.

UNIT V

MEMORY ORGANIZATION: Memory Hierarchy – Main Memory – Auxiliary Memory – Associative Memory – Cache Memory – Virtual Memory.

TEXT BOOK:
COMPUTER SYSTEM ARCHITECTURE by M. Morris Mano – PEARSON, 3rd Edition, 2008.

UNIT I   : CHAPTERS 5.1 – 5.6
UNIT II   : CHAPTERS 6.1 – 6.8
UNIT III   : CHAPTERS 8.1 – 8.8
UNIT IV   : CHAPTERS 11.1 – 11.6
UNIT V   : CHAPTERS 12.1 – 12.6

REFERENCE BOOKS:
1. COMPUTER SYSTEM ARCHITECTURE – by Carl Hamacher, 5th edition TATA McGRAW Hill,2002.

Programme :B. Sc Computer Science　　　　**Part III :Core**

Semester　: III　　　　　　　　　　　**Hours :4 P/W 60Hrs P/S**

Sub. Code　: S31　　　　　　　　　　**Credits : 4**

UNITS	TOPIC	LECTURE HOURS	MODE OF TEACHING
	UNIT I		
1.	Instruction Codes	1	Lecture
2.	Stored Program Organization	1	Lecture
3.	Indirect Address	1	Lecture
4.	Computer Registers	2	Lecture
5.	Computer Instructions	1	Lecture
6.	Timing and Control	2	Lecture
7.	Instruction Cycle	1	Lecture
8.	Memory Reference Instructions.	1	Lecture
9.	Solving problems in exercise	2	Group Discussion
	UNIT II		
10.	Instruction to Machine Language and Assembly Language	1	Lecture
11.	Pass1 of Assembler	1	Lecture
12.	Pass2 of Assembler	1	Lecture
13.	Revising Assembler and algorithms	1	Group Discussion
14.	Program Loops	1	Lecture
15.	Programming Arithmetic and Logic Operations	1	Lecture
16.	Solving exercise problems on loops and operations	1	Peer Teaching
17.	Subroutines	1	Lecture
18.	Illustrating subroutine with own example	1	Tutorial
19.	Input/output Programming	1	Lecture
20.	Solving exercise problems	1	Lecture
21.	Summary of UNIT II	1	ICT(NPTEL Videos)
	UNIT III		
22.	Introduction to CPU	1	Lecture
23.	General Register Organization	1	Lecture
24.	Stack Organization, Advantages and Disadvantages	1	Lecture
25.	Instruction Formats	1	Tutorial
26.	Addressing Modes	2	Lecture
27.	Solving exercise problems on instruction formats and addressing modes	1	Tutorial

28.	Data Transfer and Manipulation	1	Lecture
29.	Solving problems on data transfer and manipulation	1	Peer Teaching
30.	Program Control	1	Lecture
31.	Reduced Instruction Set Computer	1	Lecture
32.	Overview of UNIT III	1	ICT (EMMRC Video)
UNIT IV			
33.	Introduction to Peripheral Devices	1	Lecture
34.	I/O Interface	2	Lecture
35.	Priority Interrupt	2	Lecture
36.	Revising interrupts	1	Peer teaching
37.	Direct Memory Access	1	Lecture
38.	DMA Controller	1	Lecture
39.	DMA Transfer	1	Lecture
40.	Overview of DMA	1	ICT (NPTEL Notes)
41.	Summary of UNIT IV	2	Lecture
UNIT V			
42.	Memory Hierarchy	1	Lecture
43.	Main Memory	1	Lecture
44.	Auxiliary Memory	1	Lecture
45.	Associative Memory : Hardware, Working methodology	1	Lecture
46.	Illustrating associative memory with example	1	ICT (EMMRC Video)
47.	Cache Memory : Terminologies, Architecture, Working methodology and replacement policies	2	Lecture
48.	Illustrating cache memory with example	1	Lecture
49.	Virtual Memory : Hardware, Configuration, Mapping and Replacement methods	2	Lecture
50.	Illustration of Virtual Memory with Example	1	ICT (EMMRC Video)
51.	Overview of UNIT – V	1	Group Discussion

Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					Mean Scores of Cos
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	3	4	3	3	2	3	4	4	3	3	3.20
CO2	4	4	4	3	2	4	4	4	3	3	3.50
CO3	4	4	4	3	2	4	3	4	3	3	3.4
CO4	4	4	4	3	2	4	4	4	3	3	3.6
CO5	4	4	4	3	2	3	3	3	4	3	3.4
Mean Overall Score											3.42

Result: The Score for this Course is 3.42 (High Relationship)

COURSE DESIGNER: **Mrs. G.SUDHA**
           Assistant Professor / Department of Computer Science.

Programme	:B. Sc Computer Science	Part III :Core
Semester	: III	Hours : 4 P/W 60Hrs P/S
Sub. Code	: S32	Credits : 4

TITLE OF THE PAPER: OPERATING SYSTEMS

Pedagogy	Hours	Lecture	Peer Teaching	GD/VIDOES/TUTORIAL	ICT
	4	3	0 / 1	0 / 1	0 / 1

PREAMBLE:

To impart the knowledge about the design principles of the Operating System and implement simple Operating System mechanism.

COURSE OUTCOME		Hrs P/S
At the end of the Semester the Students will be able to		
UNIT 1	**CO1:**Impart knowledge on operating systems, its types and process scheduling	12
UNIT 2	**CO2:** Understand the CPU scheduling concepts and related algorithms	13
UNIT 3	**CO3:**Analyse the impact of deadlock and mechanisms to handle them	10
UNIT 4	**CO4:** Discuss the memory management	13
UNIT 5	**CO5:**Explain file system management	12

Programme : B. Sc Computer Science		**Part III :Core**
Semester : III		**Hours : 4 P/W 60Hrs P/S**
Sub. Code : S32		**Credits : 4**

TITLE OF THE PAPER: OPERATING SYSTEM

UNIT I : Introduction – Operating System – Mainframe Systems – Desktop Systems – Multiprocessor Systems – Distributed Systems – Clustered Systems – Real-Time Systems. Processes – Process Concept – Process Scheduling – Operations on Processors – Cooperating Processes – Inter Process Communication.

UNIT II : CPU Scheduling – Basic Concepts – Scheduling Criteria – Scheduling Algorithms – Multiple – Processor Scheduling – Real-Time Scheduling - Process Synchronization – Background – The Critical Section Problem – Synchronization Hardware – Semaphores – Classic Problems of Synchronization – Critical Regions–Monitors.

UNIT III : Deadlocks –System Model - Deadlock Characterization –Methods for Handling Deadlocks – Deadlock Prevention – Deadlock Avoidance – Deadlock Detection – Recovery from Deadlock.

UNIT IV : Memory Management – Background – Swapping – Contiguous Memory Allocation – Paging – Segmentation – Segmentation with Paging – Virtual Memory – Background – Demand Paging – Process Creation – Page Replacement – Allocation of Frames – Thrashing.

UNIT V : File System Interface – File Concept – Access Methods – Directory Structure – Security – The Security Problem – User Authentication – Program Threats – System Threats.

TEXT BOOK(S):

Operating System Concepts by Abraham Silberschatz, Peter B.Galvin, Gagne –Wiley- Sixth Edition, 2013.

CHAPTERS:
UNIT I   : CHAPTERS: 1.1 - 1.7, 4.1 - 4.5
UNIT II   : CHAPTERS: 6.1 - 6.5, 7.1 - 7.7
UNIT III   : CHAPTERS 8.1 - 8.7
UNIT IV   : CHAPTERS 9.1 – 9.6, 10.1 – 10.6
UNIT V   : CHAPTERS 11.1 – 11.3, 19.1 - 19.4

REFERENCE BOOK(S):
1. Operating System, D.M Dhamdhere, 2002, Tata McGraw-Hill, New Delhi.
2. Modern Operating System by Andrew S.Tanenbaum Prentice Hall of India, New Delhi (1996).

Programme : B. Sc Computer Science   **Part III :Core**

Semester   : III   **Hours : 4 P/W 60Hrs P/S**

Sub. Code   : S32   **Credits : 4**

TITLE OF THE PAPER: OPERATING SYSTEM

UNITS	TOPIC	LECTURE HOURS	MODE OF TEACHING
UNIT 1			
1.	Define operating system and discuss about different types of operating system	2	Lecture
2.	Discuss the history of operating system and describe its evolution with the advancement in hardware and software technology	2	Lecture
3.	Define process and describe the role of operating system as process manager	2	Lecture
4.	Describe about various process states and the process control block.	2	Lecture
5.	Discuss the operations on processes and interrupt handling	1	Lecture
6.	Describe about Inter Process Communication	2	Lecture
7.	Discuss the features of modern OS.	1	ICT – online resources
UNIT 11			
8.	Define the jargons used for program execution. Describe the basic concepts of preemptive and non preemptive processes	1	Lecture
9.	Describe various scheduling algorithms. Evaluate the performance of scheduling algorithms with Gantt Chart	2	Lecture
10.	Discuss multiprocessing. Describe multiprocessor scheduling and management	1	Lecture
11.	Describe the concept of concurrent process and critical section	1	Lecture
12.	Describe the hardware and software solutions (test and set, semaphore, monitor) for process synchronization	2	Lecture
13.	Discussion on Producer-Consumer, Readers - Writers and Dining philosopher	2	Lecture
14.	Exercise problems for evaluating the performance of scheduling algorithm and assignment on solving problems on process synchronization	2	Tutorial
15.	Recall and summarize the concepts discussed in Unit I and II.	2	Quiz

	UNIT III		
16.	Define deadlock. Discuss the causes of deadlock.	1	Lecture
17.	Describe various approaches in handling deadlock	1	Lecture
18..	Discuss the concept of resources - single and multiple instances, allocation and deallocation of different types of resources	1	Lecture
19.	Describe deadlock prevention and resource allocation graph	2	Lecture
20.	Describe deadlock avoidance and bankers algorithm	2	Lecture
21.	Describe deadlock detection and application of graphs in deadlock detection	2	Lecture
22.	Describe deadlock recovery	1	Lecture
	UNIT IV		
23.	Describe the role of OS as memory manager. Describe earlier methods – swapping and overlay	1	Lecture
24.	Main Memory - fixed partition and variable partition	1	Lecture
25.	Discuss about absolute and relocatable translation. Discuss the concept of logical Vs physical address.	1	Lecture
26.	Describe the concept of virtual memory - paging	2	Lecture
27.	Describe Segmentation	2	Lecture
28.	Discuss the relative merits and demerits of paging and segmentation	1	Lecture
29.	Describe demand paging and page replacement algorithms	2	Lecture
30.	Explain thrashing	1	Lecture
31.	Exercise problems on finding page fault rate and compare the performance of different page replacement algorithms	1	Peer teaching
32.	Discuss process and memory management strategies applied in different types of OS	1	Group Discussion
	UNIT V		
33.	Describe the concept of file and file system. Discuss file attributes	1	Lecture
34.	Describe file organization and access methods	1	Lecture
35.	Describe the directory structure and access control permission	1	Lecture
36.	Discuss the concept of file security	1	Lecture
37.	Describe the types of file system threats	1	Lecture
38.	Explain user threat and counter measures	1	Lecture
39.	Explain program threat and counter measures	1	Lecture
40.	Discuss the file handling commands and shell interface of Linux OS	3	Tutorial
41.	Case Study on Windows and Linux	2	Group discussion

Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					Mean Scores of Cos
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	3	4	3	3	2	3	4	4	3	3	3.20
CO2	4	4	4	3	2	4	4	4	3	3	3.50
CO3	4	4	4	3	2	4	3	4	3	3	3.4
CO4	4	4	4	3	2	4	4	4	3	3	3.6
CO5	4	4	4	3	2	3	3	3	4	3	3.4
Mean Overall Score											3.42

Result: The Score for this Course is 3.42 (High Relationship)

COURSE DESIGNER: **Mrs. A S. BABY RANI**
Associate Professor / Department of Computer Science.

Programme : B. Sc Computer Science   **Part III : Allied**

Semester   : III   **Hours   : 5 P/W 75 Hrs P/S**

Sub. Code   : AY3   **Credits : 5**

TITLE OF THE PAPER: SYSTEM SOFTWARE

Pedagogy	Hours	Lecture	Peer Teaching	GD/VIDOES/TUTORIAL	ICT
	5	4	0 / 1	0 / 1	0 / 1

PREAMBLE:	
Design and working principles of various system software.	

COURSE OUTCOME At the end of the Semester, the Students will be able to		**Hrs P/S**
UNIT 1	**CO1:** Define System Software and Discuss about machine architectures of SIC and SIC / XE systems.	15
UNIT 2	**CO2:** Discuss about the Assembler basic functions, algorithms, data structures, features and various types of assemblers.	15
UNIT 3	**CO3:** Understanding the role of various Loaders functions and features.	15
UNIT 4	**CO4:** Describe the Macro Processor functions and features.	15
UNIT 5	**CO5:** Analyze the role of Compiler.	15

Programme : B. Sc Computer Science   **Part III : Allied**

Semester   : III   **Hours   : 5 P/W 75 Hrs P/S**

Sub. Code   : AY3   **Credits : 5**

TITLE OF THE PAPER: SYSTEM SOFTWARE

UNIT I

System Software and Machine Architecture-Simplified Instructional Computer (SIC), SIC/XE.

UNIT II

Basic Assembler functions – Assembler algorithm and data structures – Machine Dependent Assembler features – one pass assemblers – multi pass assemblers.

UNIT III

Basic Loader functions – Design of Absolute Loader – Bootstrap Loader – Machine Dependent Loader features – Loader design options – Linkage editors – Dynamic linking.

UNIT IV

Basic Macro processor functions – Machine independent macro processor features.

UNIT V

Basic Compiler functions – grammars – lexical analysis – Syntactic analysis – code generation – machine Independent compiler features.

TEXT BOOK(S):

System Software an Introduction to System Programming - by Leland L. Beck, Addison – Wesley, III Edition 1999.

CHAPTERS:
UNIT I   : CHAPTERS: 1.1, 1.2,1.3
UNIT II   : CHAPTERS: 2.1,2.2, 2.4
UNIT III   : CHAPTERS: 3.1, 3.2, 3.4
UNIT IV   : CHAPTERS: 4.1, 4.2
UNIT V   : CHAPTERS: 5.1, 5.3

REFERENCE BOOK(S):
   1. Introduction to System Software – by DamDhere ,2nd Edition,TATA McGRAW Hill, New Delhi,1999.

Programme : B. Sc Computer Science		**Part III : Allied**	
Semester : III		**Hours : 5 P/W 75 Hrs P/S**	
Sub. Code : AY3		**Credits : 5**	

UNITS	TOPIC	LECTURE HOURS	MODE OF TEACHING
UNIT 1			
1.	System Software and Machine Architecture	3	Lecture
2.	Addressing Modes and Instruction Formats	1	Lecture
3.	Various Addressing Modes : Example	1	Tutorial
4.	Simplified Instructional Computer	3	Lecture
5.	SIC/XE	3	Lecture
6.	Programming Examples	2	Lecture
7.	Programming Examples	1	Group Discussion
8.	Example: SIC, SIC/XE	1	ICT : Notes
UNIT 11			
9.	Basic Assembler functions	1	Lecture
10.	Assembler algorithm and data structures	3	Lecture
11.	Example: how assembler works	1	Tutorial
12.	Machine Dependent Assembler features: Instruction Formats	2	Lecture
13.	Machine Dependent Assembler features: Addressing Modes	2	Lecture
14.	Machine Dependent Assembler features: Program Relocation	1	Lecture
15.	Example Problems	1	Lecture
16.	Exercise problems	1	Tutorial
17.	One Pass assemblers	1	Lecture
18.	Multi Pass assemblers	1	Lecture
19.	Applications of One pass and multi pass assembler	1	ICT (NPTEL Notes)
UNIT III			
20..	Basic Loader functions	1	Lecture
21.	Design of Absolute Loader	1	Lecture
22.	Bootstrap Loader	1	Lecture
23.	ALP for Bootstrap Loader	1	Group Discussion
24.	Machine Dependent Loader features: Relocation	1	Lecture
25.	Machine Dependent Loader features: Linking	2	Lecture
26.	ALP for Relocation and Linking	1	ICT (Lecture Notes)

27.	Machine Dependent Loader features: Algorithm and Data Structure	3	Lecture
28.	Loader design options: Linkage editors	1	Lecture
29.	Loader design options: Dynamic linking	1	Lecture
30.	Applications of various loaders	1	Lecturer
31.	Exercise Problems	1	Tutorial
UNIT IV			
32.	Basic Macro processor functions	2	Lecture
33.	Macro Processor Tables and Logic	4	Lecture
34.	One Macro Processor: Problems	1	Lecture
35.	Exercise Problems	1	Tutorial
36.	Machine independent macro processor features: Concatenation of Macro parameters	1	Lecture
37.	Machine independent macro processor features: Generation of unique labels	1	Lecture
38.	Machine independent macro processor features Conditional Macro Expansion	1	Lecture
38.	Machine independent macro processor features: Keyword Macro parameters	1	Lecture
40.	Macro Processor Design Options	1	ICT (PPT)
41.	Macro Processor Design Options	1	Lecture
42.	Applications and Examples	1	Peer Teaching
UNIT V			
43.	Basic Compiler functions	2	Lecture
44.	Grammars	1	Lecture
45.	lexical analysis	1	Lecture
46.	Syntactic analysis	2	Lecture
47.	NFA, DFA, Parse Tree Construction	1	Lecture
48	Code generation	1	Lecture
49.	Exercise Problems	1	Tutorial
50.	machine Independent compiler features: Structured variables	1	Lecture
51.	machine Independent compiler features: Code Optimization	1	Lecture
52.	machine Independent compiler features: Storage Variable	1	Lecture
53.	machine Independent compiler features: Block Structured Languages	1	Lecture
54.	Compiler functions and features	1	ICT (NPTEL Notes)
55.	Compiler Features	1	Group Discussion

Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					Mean Scores of Cos
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	3	3	3	3	2	3	3	4	3	3	3.00
CO2	4	4	4	3	2	4	4	4	3	3	3.50
CO3	4	4	4	3	2	4	3	4	3	3	3.4
CO4	4	4	4	3	2	4	4	4	3	3	3.6
CO5	4	4	4	3	2	3	3	3	3	2	3.1
Mean Overall Score											3.32

Result: The Score for this Course is 3.32 (High Relationship)

COURSE DESIGNER: **Dr. S. SUGUNA**
Assistant Professor / Department of Computer Science

Programme : B. Sc Computer Science   **Part III : Core**

Semester   : III   **Hours   : 3 P/W 45 Hrs P/S**

Sub. Code   : PS3   **Credits : 2**

TITLE OF THE PAPER : VISUAL BASIC LAB

1.   Develop VB Application for Creation of Scientific Calculator.

2.   Develop VB Application to handle the MDI with Menu options

3.   Develop VB Application to handle frame control.

4.   Develop VB Application to handle Mouse event and list box.

5.   Develop VB Application to Create the Menu options and Tool bar (images).

6.   Develop VB Application using the Modules and class concept.

7.   Develop VB Application to loading the picture through ActiveX Document[Use Driver, Dir and File List Box Components]

8.   Develop VB Application to create DLL.

9.   Develop VB Application to handle DLL using API Viewer

10.   Develop VB Application for the following:

      i.   to access the native database and perform the following operations for a Student Database (ie) Insert a Record, Modify the Records, View the records and delete the records by DML operations.

11.   Develop VB Application for the following:

      i.   Develop VB Application to access the (Oracle or Access) database and perform the following using DDL operations (ie) Creation, Modification, Display and View the Table.

12.   Develop VB code for any application(Railway, Airline, Library etc..)

Programme : B. Sc Computer Science   **Part III : SBE**

Semester   : III   **Hours   : 2 P/W 30 Hrs P/S**

Sub. Code   : SSP2   **Credits : 2**

TITLE OF THE PAPER : LINUX LAB

1. Write a shell script that accepts two file names as arguments, check if the permissions for these files are identical and if the permission are identical, output common permissions and otherwise output each file name followed by its permissions.

2. Write a shell script that accepts a path name and creates all the components in that path name as directories

3. Write a shell scripts which accepts valid login name as arguments and prints corresponding home directory, if no argument is specified print a suitable error msg.

4. Write a shell script that accept a list of filenames as its arguments, count and report occurrence of each word that is present in the first argument file on other argument files.

5. Write a shell program to delete the given word from the file content.

6. Write a shell script that takes a login name as command –line argument and reports when that person logs.

7. Write a shell script which receives two files names as arguments. It should check whether the two file contents are same or not. If they are same then second file should be deleted.

8. Write a shell script that displays a list of all files in the current directory to which the user has read write and execute permissions

9. Write an interactive file handling shell program. Let it offer the user the choice of copying, removing, renaming files.

10. Shell script containing a function mycd() using which, it is possible to shuttle between directories.

11. Shell script using grep/egrep to find the number of words character, words and lines in a file.

12. Write a shell program using awk to generate a Fibonacci series.

13. Write a shell script using awk to display the pattern of given string or number.

14. Write a shell script program to display the process attributes.

15. Write a shell script to change the priority of processes.

16. Write a program to create a child process and allow the parent to display "parent" and the child to display "child" on the screen.
17. Write a shell script to check and list attributes of processes.
18. Write a Shell Script to implement read, write, and execute permissions.
19. Write a Shell Script for changing process priority.
20. Compare two text files with the diff command.
21. Write a shell script that determines the period for which a specified user is working on the system.
22. Write a shell script to change the mode of file /directory.
23. Simulate some UNIX commands like rm mv, ls thru C program.
24. System Calls Implementation: COPY, COPY CON, RENAME, DELETE.

Programme : B. Sc Computer Science   **Part III : SBE**

Semester   : III   **Hours   : 2 P/W 30 Hrs P/S**

Sub. Code   : SSP2   **Credits : 2**

TITLE OF THE PAPER : MULTIMEDIA LAB

Adobe Photoshop – (Image creation and Manipulation)

1. Working with Selection Tools , Copy, Cut, Paste,Move Tool

2. Working with Lasso, Polygonal Lasso tool , Transform and Opacity options

3. Working with Quick Select Tool (or Magic WandTool), Invert Selection Tool

4. Working with Paint Bucket Tool, Color Picker, BrushTool

5. Working with Layers, Eraser Tool

6. Working with Text and Transform Tool

7. Working with Color Balance

8. Working with Crop and Canvas

9. Working with Clone Stamp Tool, Smudge Tool

10. Working with Filters , effects

Macromedia FLASH – (2D Animation)

1. Motion Tweening

2. Shape Tweening

3. Working with multiple Layers

4. Animation using guide layer

5. Animation using Masking Effect

6. Working with Fade-in, Fade-out andZoom-in, Zoom-out options

7. Working with Image Effects like blur, ripple

8. Sparkling Glass Effect

9. Flash Slide Show Presentation

10. Working with Flash Scripts in order to control the animation

3D Studio MAX – (3D Animation and rendering)

1. Working with Build-in 3D objects.

2. Simulation of a building.

3. Materials and Textures

4. Creation of user defined objects and Organization of Objects in a Scene.

5. Simulation of Bomb blast.

6. Illuminating Scenes Using Lights.

7. Creating an Underwater Scene

8. Cloth, Hair, and Fur Creation

9. Character Animation

Programme : B. Sc Computer Science	Part III : Core
Semester : IV	Hours : 4 P/W 60 Hrs P/S
Sub. Code : S41	Credits : 4

TITLE OF THE PAPER: COMPUTER NETWORKS

Pedagogy	Hours	Lecture	Peer Teaching	GD/VIDOES/TUTORIAL	ICT
	4	3	0 / 1	0 / 1	0 / 1

PREAMBLE:

- To impart the basic taxonomy and terminology of the computer networking and enumerate the layers of OSI model
- Understand the division of network functionalities into layers.
- Be familiar with the components required to build different types of networks be exposed to the required functionality at each layer

COURSE OUTCOME At the end of the Semester, the Students will be able to		Hrs P/S
UNIT 1	**CO1:** Describe the basics of Computer Networks	5
UNIT 2	**CO2:** Analyze Physical Layer of Transmission Media	15
UNIT 3	**CO3:** Understanding Data Link Layer , Design Issues and Error Correction	15
UNIT 4	**CO4:** Analyze various Routing Algorithms and Quality of Service	15
UNIT 5	**CO5:** Discuss about the Transport Layer and Application Layer	10

Programme : B. Sc Computer Science	Part III : Core
Semester : IV	Hours : 4 P/W 60Hrs P/S
Sub. Code : S41	Credits : 4

TITLE OF THE PAPER: COMPUTER NETWORKS

UNIT 1

Introduction: Use of Computer Networks – Network Hardware – Network Software – Reference Models – Example Networks: The Internet, Ethernet.

UNIT II

Physical Layer: Transmission Media – Wireless Transmission – The Public Switched Telephone Network.

UNIT III

Data Link Layer: Data Link Layer Design Issues – Error Correction and Detection – Elementary Data Link Protocols.

UNIT IV

Network Layer: Network Layer Design Issues – Routing Algorithms: Shortest Path Routing, Flooding, Distance Vector Routing, Broadcasting, Multicast Routing – Congestion Control Algorithms-Quality of Service- Techniques for achieving good quality of service-Traffic shaping-The leaky bucket algorithm-The token bucket algorithm.

UNIT V

The Transport Layer : Elements of Transport Protocols -The Application Layer: Domain Name System – Electronic Mail – The World Wide Web – Multimedia.

TEXT BOOK:
1. COMPUTER NETWORKS by Andrew S. Tanenbaum – IV Edition – Prentice Hall, India.
CHAPTERS:
UNIT I   : Chapter 1 - 1.1, 1.2, 1.3, 1.4-1.4.1, 1.4.2, 1.4.3, 1.5 - 1.5.1, 1.5.3.
UNIT I   : Chapter 2 - 2.2, 2.3, 2.5 – 2.5.1, 2.5.4, 2.5.5.
UNIT III   : Chapter 3 - 3.1, 3.2, 3.3.
UNIT IV   : Chapter 5 - 5.1, 5.2 - 5.2.2, 5.2.3, 5.2.4, 5.2.7, 5.2.8, 5.3 – 5.3.1, 5.3.2, 5.3.3, 5.3.6, 5.4.2.

UNIT V   : Chapter 6 – 6.2, 7 -7.1, 7.2, 7.3.1, 7.3.2, 7.3.3, 7.3.4, 7.4.1, 7.4.2, 7.4.3, 7.4.6, 7.4.7.

REFERENCE BOOKS:
 1. Computer Communication & Network – by John Fuer, Pitman – Computer System Series – 1980.
 2. Data & Communication Network – by E. Stallings – PHI, IV Edition, 1996.

Programme : B. Sc Computer Science   **Part III : Core**

Semester   : IV   **Hours : 4 P/W 60Hrs P/S**

Sub. Code : S41   **Credits : 4**

UNITS	TOPIC	LECTURE HOURS	MODE OF TEACHING
UNIT 1			
1.	Introduction and Use of Computer	1	Lecture
2.	Network Hardware Network Software	1	Lecture
3.	OSI Reference Model	1	Lecture
4.	TCP/IP Reference Model	1	Lecture
5.	The Internet, Ethernet	1	Lecture
UNIT 11			
6.	Basics for Data Communication	1	Lecture
7.	Transmission Media – Magnetic Media, Twisted Pair, Baseband and Broadband Coaxial Cable	2	Lecture
8.	Transmission Media –Fiber Optics, Transmission of Light through fiber, Fiber cables, Fiber Optics Network, Comparison of fiber optics and copper wire	3	Lecture
9.	Wireless Transmission	2	Lecture
10.	The Public Switched Telephone Network	1	Lecture
11.	The Local Loop, Transmission Impairment , Modems	2	Lecture
12.	Rs-232-C and Rs-449, Fiber in Local Loop , Multiplexing, Switching	3	Lecture
13.	Overview	1	Discussion
UNIT III			
14.	Data Link Layer –Services provided to the Network Layer Framing.	2	Lecture
15.	Error Control	2	Lecture
16.	Flow Control	2	Lecture
17.	Error Correcting Codes	2	Lecture
18.	Error Correcting Codes – Example	1	ICT (NPTEL Notes)
19.	Error Detecting Codes	2	Lecture
20	Error Detecting Codes – Example	1	ICT (NPTEL Notes)
21.	Unrestricted Simplex Protocol	1	Lecture
22.	Simplex Stop and Wait Protocol	1	Lecture
23.	Simplex protocol for a Noisy Channel	1	Lecture
UNIT IV			
24.	Network Layer Design Issues	1	Lecture
25.	Routing Algorithms: Shortest Path Routing	1	Lecture
26.	Routing Algorithms: Flooding	1	Lecture

27.	Routing Algorithms: Distance Vector Routing	3	Lecture
28.	Broadcasting, Multicast Routing	2	Lecture
29.	Quality of Service- Techniques for achieving good quality of service	1	Lecture
30.	Traffic shaping	1	Lecture
31.	The leaky bucket algorithm	2	Lecture
32.	The token bucket algorithm	2	Lecture
33.	Applications	1	Tutorial
UNIT V			
34.	Elements of Transport Protocols	3	Lecture
35.	Domain Name System	1	Lecture
36.	Electronic Mail	2	Lecture
37.	The World Wide Web	2	Peer Teaching
38.	Multimedia	1	Lecture
39.	Various Applications	1	Group Discussion

Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					Mean Scores of Cos
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	3	4	3	3	2	3	4	4	3	3	3.20
CO2	4	4	4	3	2	4	4	4	3	3	3.50
CO3	4	4	4	3	2	4	3	4	3	3	3.4
CO4	4	4	4	3	2	4	4	4	3	3	3.6
CO5	4	4	4	3	2	3	3	3	4	3	3.4
Mean Overall Score											3.42

Result: The Score for this Course is 3.42 (High Relationship)

COURSE DESIGNER: **Dr. N.SUJATHA**
                                         Assistant Professor / Department of Computer Science.

Programme : B. Sc Computer Science

Semester   : IV

Sub. Code   : S42

Part III : Core

Hours   : 4 P/W 60 Hrs P/S

Credits : 4

TITLE OF THE PAPER: DATABASE MANAGEMENT SYSTEM

Pedagogy	Hours	Lecture	Peer Teaching	GD/VIDOES/TUTORIAL	ICT
	4	3	0 / 1	0 / 1	0 / 1

PREAMBLE:

To introduce the concepts of Database Systems Design.

COURSE OUTCOME		Hrs P/S
At the end of the Semester, the Students will be able to		
UNIT 1	**CO1:** Describe the purpose of Database System, Database Architecture and basics of Relational Model.	12
UNIT 2	**CO2:** Understand the concepts of SQL.	12
UNIT 3	**CO3:** Explain the purpose of Relational Query Languages and ER Model	12
UNIT 4	**CO4:** Analyze the purpose of Normalization and discuss about various Normal Forms.	12
UNIT 5	**CO5:** Discuss about the storage and file structure, Indexing and Hashing techniques.	12

Programme : B. Sc Computer Science	**Part III : Core**	
Semester : IV	**Hours : 4 P/W 60 Hrs P/S**	
Sub. Code : S42	**Credits : 4**	

TITLE OF THE PAPER: DATABASE MANAGEMENT SYSTEM

UNIT I : Introduction: Purpose of Database System – View of Data – Database Languages – Relational Databases – Database Design – E-R Model – Data Storage and Querying – Transaction Management – Database Architecture - Database Users & Administrators.

Relational model: Structure of Relational Databases – Database Schema – Keys – Schema Diagrams – Relational Query Language – Relational Operations.

UNIT II : Introduction to SQL: Overview of SQL Query Language - SQL Data Definition – Basic Structure of SQL Queries – Additional Basic Operations – Set Operations – Null Values – Aggregate Functions – Nested Sub queries – Modification of the Database.

Intermediate SQL: Join Expressions – Views – Transactions – Integrity Constraints – SQL Data Types & Schemas.

UNIT III : Formal Relational Query Languages: The Relational Algebra – The Tuple Relational Calculus – The Domain Relational Calculus.

Database Design and the ER Model: The Entity Relationship Model – Constraints – ER Diagrams – Extended ER Features.

UNIT IV : Relational Database Design: Features of Good Relational Designs – Atomic Domains & First Normal Form – Decomposition Using Functional Dependencies – Functional-Dependency Theory – Algorithms for Decomposition – Decomposition Using Multi-valued Dependencies.

UNIT V : Storage and File Structure: RAID - File Organization – Organization of Records in Files – Data Dictionary Storage.

Indexing and Hashing: Basic Concepts – Ordered Indices - Static Hashing – Dynamic Hashing – Data Structure.

TEXT BOOK(S):

1. Database System Concepts – by Abraham Silberschatz, Henry F. Korth, and S. Sudarshan, McGraw Hill, VI - Edition 2013.

CHAPTERS:

UNIT – I   : CHAPTERS 1 - 1.2, 1.3, 1.4, 1.5, 1.6-1.6.3, 1.7, 1.8, 1.9, 1.12, AND 2.

UNIT – II   : CHAPTERS 3, 4 - 4.1, 4.2, 4.3, 4.4, 4.5.

UNIT – III   : CHAPTERS 6, 7 - 7.2, 7.3, 7.5, 7.8.

UNIT – IV   : CHAPTERS 8 – 8.1 - 8.6.

UNIT – V   : CHAPTERS 10 – 10.3, 10.5, 10.6, 10.7, 11 – 11.1, 11.2, 11.6, 11.7 – 11.7.1.

REFERENCE BOOK(S):

1. Database Management System – by Raghu Ramakrishna, MCGraw Hill, 1998.
2. Introduction to Database System – by C.J. Date, Addition Wesley, VI - Edition, 1997.
3. Modern Database Management – by McFadden is Introduced , IV - Edition.

Programme : B. Sc Computer Science **Part III : Core**

Semester   : IV **Hours   : 4 P/W 60 Hrs P/S**

Sub. Code : S42 **Credits : 4**

UNITS	TOPIC	LECTURE HOURS	MODE OF TEACHING
UNIT 1			
1.	Introduction: Purpose of Database System	1	Lecture
2.	View of Data, Database Languages	1	Lecture
3.	Relational Databases, Database Design	1	Group Discussion
4.	E-R Model, Data Storage and Querying	1	Lecture
5.	Transaction Management	1	Lecture
6.	Database Architecture	1	Lecture
7.	Database Users & Administrators	1	ICT (Lecture Notes)
8.	Relational model, Structure of Relational Databases	1	Lecture
9.	Database Schema	1	Lecture
10.	Keys, Schema Diagrams	1	Lecture
11.	Exercise problems	1	Tutorials
12.	Relational Query Language, Relational Operations	1	Lecture
UNIT 11			
13.	Introduction to SQL: Overview of SQL Query Language	1	Lecture
14.	SQL Data Definition	1	Lecture
15.	Basic Structure of SQL Queries	1	Peer Teaching
16.	Additional Basic Operations	1	Lecture
17.	Set Operations, Null Values	1	Lecture
18.	Aggregate Functions, Nested Sub queries	1	ICT (Videos)
19.	Modification of the Database	1	Lecture
20.	Intermediate SQL:	1	Lecture
21.	Join Expressions	1	Lecture
22.	Views, Transactions	1	Lecture
23.	Integrity Constraints	1	Lecture
24.	Example Queries	1	Tutorials
UNIT III			
25.	Formal Relational Query Languages	1	Lecture
26.	The Relational Algebra	1	Lecture
27.	The Tuple Relational Calculus	1	Lecture

28.	The Domain Relational Calculus	1	Lecture
29.	Exercise Problems	1	Tutorial
30.	Database Design and the ER Model	1	Lecture
31.	The Entity Relationship Model	1	Group Discussion
32.	Constraints	1	Lecture
33.	ER Diagrams	1	Lecture
34.	Extended ER Features	2	Lecture
35.	ER Diagrams: Sample Cases	1	ICT (Lecture Notes)
UNIT IV			
36.	Relational Database Design	1	Lecture
37.	Features of Good Relational Designs	1	Lecture
38.	Atomic Domains & First Normal Form	1	Lecture
39.	Decomposition Using Functional Dependencies	1	ICT (Lecture Notes)
40.	Functional-Dependency Theory	1	Lecture
41.	Second Normal Form, Third Normal Form	3	ICT (Videos & PPT)
42.	BCNF	2	Lecture
43.	Algorithms for Decomposition	1	Lecture
44.	Exercise Problems	1	Tutorial
UNIT V			
45.	Storage and File Structure: Introduction	1	Lecture
46.	RAID	2	ICT (Lecture Notes)
47.	File Organization	1	Lecture
48.	Organization of Records in Files	1	Group Discussion
49.	Data Dictionary Storage	1	Lecture
50.	Indexing and Hashing: Basic Concepts	1	Lecture
51.	Ordered Indices	2	Lecture
52.	Static Hashing	1	Lecture
53.	Dynamic Hashing	1	Lecture
54.	Exercise Problems	1	Tutorial

Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					Mean Scores of Cos
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	3	4	3	3	2	3	4	4	3	3	3.20
CO2	4	4	4	3	2	4	4	4	3	3	3.50
CO3	4	4	4	3	2	4	3	4	3	3	3.4
CO4	4	4	4	3	2	4	4	4	3	3	3.6
CO5	4	4	4	3	2	3	3	3	4	3	3.4
Mean Overall Score											3.42

Result: The Score for this Course is 3.42 (High Relationship)

COURSE DESIGNER: **Dr. S. SUGUNA**
                          Assistant Professor / Department of Computer Science

Programme	:B. Sc Computer Science	Part III :Allied
Semester	: IV	Hours : 5 P/W 75Hrs P/S
Sub. Code	:AY4	Credits :5

TITLE OF THE PAPER: PROBABILITY AND STATISTICS

Pedagogy	Hours	Lecture	Peer Teaching	GD/VIDOES/TUTORIAL	ICT
	5	3	0 / 1	0 / 2	0 / 1

PREAMBLE:

To impart the knowledge on the fundamental statistical and probability concepts for problem solving -

COURSE OUTCOME At the end of the Semester, the Students will be able to		Hrs P/S
UNIT 1	**CO1:** Represent the various aggregation methods on group of numbers	15
UNIT 2	**CO2:** Understand the concepts of curve fitting line, curve and parabola.	15
UNIT 3	**CO3:** Impart knowledge on finding relationship between attributes through correlation and regression.	15
UNIT 4	**CO4:** Study on probability, random variables, expectations and moment generating functions	15
UNIT 5	**CO5:** Introduce special types of distributions – binomial, Poisson and normal.	15

Programme :B. Sc Computer Science   **Part III :Allied**

Semester   : IV   **Hours : 5 P/W 75Hrs P/S**

Sub. Code   :AY4   **Credits :5**

TITLE OF THE PAPER: PROBABILITY AND STATISTICS

UNIT I

Mean Median, Mode, Standard Deviation, Mean Deviation, and Quartile Deviation.

UNIT II

Curve Fitting – Principle of Least Square – Fitting a Straight Line – Fitting a Second Degree Parabola – Fitting Exponential Curve.

UNIT III

Correlation – Rank Correlation – Regression – Correlation Coefficient for a bivariate – Frequency Distribution.

UNIT IV

Probability – Conditional Probability – Random Variables – Discrete Random Variables – Continuous Random Variables – Mathematical Expectations – Moment Generating Functions.

UNIT V

Some Special Distribution – Binomial Distribution – Poisson distribution – Normal Distribution.

TEXT:

Statistics – by Arumugam & Isaac. Edition,Year

CHAPTERS:

UNIT – I   : CHAPTERS 1 – 1.1 - 1.4, CHAPTER 2 – 2.1 - 2.3, CHAPTER 3 – 3.1, 3.2.
UNIT – II   : CHAPTERS 5 – 5.1.
UNIT – III   : CHAPTERS 6 – 6.1 - 6.4.
UNIT – IV   : CHAPTERS 11 – 11.1, 11.2, 12 – 12.1 - 12.5.
UNIT – V   : CHAPTERS 13 – 13.1 - 13.3.

REFERENCES:

1. Introduction to Mathematical statistics, Mood. A.M. Grayill, F. and Boe, McGRAW Hill,1974.

Programme :B. Sc Computer Science   **Part III :Allied**

Semester   : IV   **Hours : 5 P/W 75Hrs P/S**

Sub. Code   :AY4   **Credits :5**

UNITS	TOPIC	LECTURE HOURS	MODE OF TEACHING
UNIT I			
1.	Introduction to Statistics	1	Lecture
2.	Mean Median, Mode	2	Lecture
3.	Solving problems on mean, median and mode	3	Group Discussion
4.	Standard Deviation	2	Lecture
5.	Solving problems on Standard deviation	3	Lecture
6.	Mean Deviation, Quartile Deviation with problems	3	Lecture
7.	Summary of UNIT – I	1	Peer Teaching
UNIT 11			
8.	Curve Fitting, Principle of Least Square	2	Lecture
9.	Fitting a Straight Line	2	Lecture
10.	Solving problems on straight line fitting	2	Lecture
11.	Fitting a Second Degree Parabola	2	Tutorial
12.	Solving problems on parabola	2	Lecture
13.	Fitting Exponential Curve.	2	Lecture
14.	Solving problems on curve fitting	2	Tutorial
15.	Overview of Unit II	1	ICT
UNIT III			
16.	Correlation	2	Lecture
17.	Problem solving on correlation	1	Lecture
18.	Rank Correlation	1	Lecture
19.	Problem solving on rank correlation	1	Lecture
20.	Regression	2	Lecture
21.	Problem solving on regression	1	Tutorial
22.	Correlation Coefficient for a bivariate	2	Lecture
23.	Problem solving on correlation coefficient for bivariate	2	Tutorial
24.	Frequency Distribution	1	Demonstration
25.	Problem solving on frequency distribution	1	Peer teaching
26.	Summary on UNIT III	1	ICT
UNIT IV			

27.	Probability –introduction	1	Group Discussion
28.	Conditional Probability	1	Lecture
29.	Random Variables	1	Lecture
30.	Solving exercise problems on random variable	1	Lecture
31.	Discrete Random Variables	1	Lecture
32.	Solving exercise problems on discrete random variable	2	Tutorial
33.	Continuous Random Variables	2	Lecture
34.	Solving exercise problems on continuous random variable	1	Tutorial
35.	Mathematical Expectations	1	Lecture
36.	Solving exercise problems on expectations	1	Tutorial
37.	Moment Generating Functions	1	Lecture
38.	Solving exercise problems on moment generating functions	1	Tutorial
39.	Overview of Unit-IV	1	Lecture
UNIT V			
40.	Some Special Distribution– introduction	1	Lecture
41.	Examples on distribution cases	1	Lecture
42.	Binomial Distribution	2	Lecture
43.	Solving problems on binomial distribution	2	Tutorial
44.	Poisson distribution	2	Lecture
45.	Solving problems on Poisson distribution	2	Tutorial
46.	Normal Distribution	2	Lecture
47.	Solving problems on normal distribution	2	Tutorial
48.	Overview of UNIT-V	1	ICT-NPTEL Video

Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					Mean Scores of Cos
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	3	3	3	3	2	3	3	4	3	3	3.00
CO2	4	4	4	3	2	4	4	4	3	3	3.50
CO3	4	4	4	3	2	4	3	4	3	3	3.4
CO4	4	4	4	3	2	4	4	4	3	3	3.6
CO5	4	4	4	3	2	3	3	3	3	2	3.1
Mean Overall Score											3.32

Result: The Score for this Course is 3.32 (High Relationship)

COURSE DESIGNER: **Mrs. G.SUDHA**

Assistant Professor / Department of Computer Science.

TITLE OF THE PAPER: ORACLE LAB

WORKING WITH DDL, DML COMMANDS

1. Working with Time & Date, string functions
2. Table creation with primary key, not null, unique, foreign key and check constraints.
3. Inserting record (values to selective fields), Updation and deletion of records.
4. Queries using simple select statements
5. Queries using multiple tables
6. Nested queries
7. Aggregate functions
8. Queries using GROUP BY.. HAVING
9. Queries using set operations (union, intersection and minus)
10. OUTER Join Queries (left outer, right outer, full outer join)

VIEWS

11. Creating view using multiple tables and nested query.

PL / SQL

12. Fibonacci series generation
13. Calculating Factorial
14. Sum of the series

EXCEPTIONS

15. Raising the build-in exceptions.
16. Creation of user defined exceptions and raising it.

WORKING WITH CURSORS

17. Student mark list processing
18. Duplicating a table exempting a field
19. Segregating students in to two tables according to the result

WORKING WITH FUNCTIONS

20. Fetching balance of an account holder in banking system using function

WORKING WITH PROCEDURE

21. Performing basic arithmetic operations using in, out and in out parameters.

PACKAGES

22. Performing banking operations using package

TRIGGERS

23. Trigger to Monitor a table

24. Triggers in Inventory control system

25. Update balance in master table at every successful transaction in banking system.

Programme : B. Sc Computer Science	Part III : Core
Semester : V	Hours : 5 P/W 75Hrs P/S
Sub. Code : S51	Credits : 5

TITLE OF THE PAPER: SOFTWARE ENGINEERING

Pedagogy	Hours	Lecture	Peer Teaching	GD/VIDOES/TUTORIAL	ICT
	5	4	0 / 1	0 / 1	0 / 1

PREAMBLE:

To introduces the concepts of systematic approach of software design and maintenance..

COURSE OUTCOME		Hrs P/S
At the end of the Semester, the Students will be able to		
UNIT 1	**CO1:** Describe the basics of software engineering and plan the organizational and development process	10
UNIT 2	**CO2:** Analyze various software cost estimation and staffing Level estimation	15
UNIT 3	**CO3:** Understand the software requirement definitions	20
UNIT 4	**CO4:** Analyze various software design	20
UNIT 5	**CO5:** Discuss about the verification and validation techniques	10

Programme : B. Sc Computer Science   **Part III : Core**

Semester   : V   **Hours   : 5 P/W 75Hrs P/S**

Sub. Code   : S51   **Credits : 5**

TITLE OF THE PAPER: SOFTWARE ENGINEERING

UNIT I : Introduction to Software Engineering and Planning: Introduction - definition - some size factors - quality and Productivity factors. Planning a Software Project: Introduction - Defining the problem - Developing a solution strategy - Planning the development process - Planning an organizational structure.

UNIT II: Software Cost Estimation:
Introduction - Software cost factors - Software cost estimation techniques - Staffing - Level estimation.

UNIT III: Software Requirement Definition:
Introduction- The software requirement specification - Formal specification techniques - Languages and processors for requirements.

UNIT IV: Software Design:
 Introduction - Fundamental design concepts - Modules and Modularization criteria - Design notations - Design techniques .

UNIT V: Verification and Validation Techniques:
Introduction - Quality Assurance - Walkthroughs and inspection - Unit testing and debugging - System testing -Software Maintenance.

TEXT BOOK :

1. SOFTWARE ENGINEERING CONCEPTS - By Richard Fairley - Tata McGraw Hill - Edition, 1997.
CHAPTERS:
UNIT I   : CHAPTERS 1.1 – 1.3, 2.1 – 2.4
UNIT II   : CHAPTERS 3.2, 3.3
UNIT III   : CHAPTERS 4.1 – 4.3
UNIT IV   : CHAPTERS 5.1 – 5.4
UNIT V   : CHAPTERS 8.1, 8.2, 8.6, 9

 REFERENCE BOOKS:

1. SOFTWARE ENGINEERING – by Roger S.Pressman McGraw Hill Publication(1997) IV Edition.
2. 2. SOFTWARE ENGINEERING – by Lan Somerville - Addison Wesley Publishing Co.,1992

Programme : B. Sc Computer Science	Part III : Core
Semester : V	Hours : 5 P/W 75Hrs P/S
Sub. Code : S51	Credits : 5

UNITS	TOPIC	LECTURE HOURS	MODE OF TEACHING
UNIT 1			
1.	Introduction to Software Engineering and Planning:	1	Lecture
2.	some size factors	2	Lecture
3.	Quality and Productivity factors, planning a Software Project	2	Lecture
4.	Defining the problem	1	Lecture
5.	Developing a solution strategy	1	Lecture
6.	Planning the development process	1	Lecture
7.	Planning an organizational structure.	1	Lecture
8.	Discussion	1	Group Discussion
UNIT 11			
9.	Introduction to Software cost estimation	1	Lecture
10.	Programmer ability, product complexity	2	Lecture
11.	Product size, available time	2	Lecture
12	Required level of reliability, level of technology	1	Lecture
13.	Expert Judgment	1	Lecture
14.	Delphi cost estimation techniques	2	Lecture
15.	Work Breakdown cost estimation techniques	2	Lecture
16.	Algorithmic cost estimation techniques	2	Lecture
17.	Staffing level estimation	1	Lecture
18.	Exercise Problems – To do the software cost estimation	1	Group Discussion
UNIT III			
19.	The software requirement	1	Lecture
20.	Relational Notations- Implicit equations	2	Lecture
21.	Relational Notations-Algebric Axiom	1	Lecture
22.	Exercise Problems	2	ICT (NPTEL Notes)
21.	State Oriented Notations-Decision Table	2	Lecture
23.	State Oriented Notations-Event Table	1	Lecture
24.	State Oriented Notations-Transition Table	1	Lecture
25.	Petrinets	2	Lecture

26.	Exercise Problems	2	ICT (NPTEL Notes)
27.	Languages and Processor - PSL\PSA	1	Lecture
28.	Languages and Processor – RSL\REVS	1	Lecture
29.	Languages and Processor – SADT,SSA	1	Lecture
30.	Languages and Processor - GIST	1	Lecture
31.	Applications	2	Group Discussion
UNIT IV			
32.	Design concepts	3	Lecture
33.	Modules and Modularization criteria –Coupling	2	Lecture
34.	Modules and Modularization criteria – Cohesion	2	Lecture
35.	Design Notations	3	Tutorial
36.	Stepwise Refinement	2	Lecture
37.	Level of Abstraction	2	Lecture
38.	Structured design	1	Tutorial
39.	Integrated Top down development	2	Lecture
40.	Jackson structured Design	2	Lecture
41.	Exercise Problems	1	Group Discussion
UNIT V			
42.	Quality Assurance	1	Lecture
43.	Walkthroughs and inspection	2	Lecture
44.	Unit testing and debugging	2	Lecture
45.	System testing	2	Peer Teaching
46.	Managerial Aspects	1	Lecture
47.	Configuration Management	1	Lecture
48.	Source Code Metrics	1	Lecture

Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					Mean Scores of Cos
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	3	4	3	3	2	3	4	4	3	3	3.20
CO2	3	4	4	3	2	4	4	4	3	4	3.50
CO3	3	4	4	3	2	4	3	4	3	4	3.4
CO4	3	4	4	3	2	4	4	4	3	4	3.6
CO5	3	4	4	3	2	3	3	3	4	4	3.4
Mean Overall Score											3.42

Result: The Score for this Course is 3.42 (High Relationship)

COURSE DESIGNER: **Dr. N.SUJATHA**
Assistant Professor / Department of Computer Science.

Programme	: B. Sc Computer Science	Part III : Elective
Semester	: VI	Hours : 6/W 90 Hrs/S
Subject Code	: ES51	Credits : 5

TITLE OF THE PAPER: PHP AND MYSQL PROGRAMMING

Pedagogy	Hours	Lecture	Peer Teaching	GD/VIDOES/TUTORIAL	ICT
	6	4	0/ 1	0 / 1	0 / 1

PREAMBLE:

This course aims at facilitating the students to understand web framework through real time web applications with PHP and MYSQL

COURSE OUTCOME At the end of the Semester, the Students will be able to		Hrs P/S
UNIT 1	**CO1:** Introduce the basic concepts of Web and PHP	10
UNIT 2	**CO2:** Elaborate the usage of basic data types, Functions, Arrays, Strings, Date and Times, Regular Expressions of PHP	20
UNIT 3	**CO3:** Discuss the basic concepts of Object Oriented Programming	20
UNIT 4	**CO4:** Demonstrate the Database manipulation and MYSQL queries	20
UNIT 5	**CO5:** Describe Report Generation in PHP	20

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Programme	: B. Sc Computer Science	Part III : ELECTIVE-I
Semester	: VI	Hours : 6/W 90 Hrs/S
Subject Code	: ES51	Credits : 5

TITLE OF THE PAPER: PHP AND MYSQL PROGRAMMING

UNIT I

Database applications and the web – The Web – Three tier Architecture, PHP Scripting language – Introducing PHP – Condition and Branches – Loops.

UNIT II

PHP Scripting Language – Functions – Types – User Defined functions- Arrays, Strings and Advanced Data Manipulation in PHP – Arrays, strings, Regular Expressions, Dates and Times, Integers and Floats.

UNIT III

Introduction to Object Oriented Programming with PHP – Classes and Objects, Inheritance, Throwing and Catching Exceptions, SQL and MySQL – Database Basics, My SQL Command Interpreter, Managing Databases and Tables, Inserting, Updating, and Deleting Data, Querying with SQL SELECT, Join Queries.

UNIT IV

Querying Web Databases – Querying a MySQL Database using PHP (Except case study), Processing User Input, Writing to Web databases- Database Inserts, Updates, and Deletes. Validation with PHP and Java Script – Validation and Error Reporting Principles. Server-Side Validation with PHP, JavaScript and Client Side Validation. (Except JavaScript examples)

UNIT V

Reporting – Creating a Report, Producing PDF, Advanced features of Object Oriented Programming in PHP5 – Working with Class Hierarchies, Class Type Hints, Abstract Classes and Interfaces.

TEXT BOOK(S):

1. Web Database Applications with PHP and MySql by Hugh E. Williams & David Lane, II Edition, SPD O' REILLY

CHAPTERS:
UNIT I   : Chapters 1, 2
UNIT II   : Chapters 2, 3
UNIT III   : Chapters 4, 5
UNIT IV   : Chapters 6 (Except Case Study), 8, 9(Except JavaScript Examples)
UNIT V   : Chapters 13, 14

Programme   : B. Sc Computer Science   **Part III : ELECTIVE-I**

Semester   : VI   **Hours   : 6/W 90 Hrs/S**

Subject Code : ES51   **Credits : 5**

UNITS	TOPIC	LECTURE HOURS	MODE OF TEACHING
UNIT 1 :			
1.	Introduction, Database applications and the web	1	Lecture
2.	Three tier Architecture, PHP Scripting language	2	Lecture
3.	The Web — Introducing PHP	2	Lecture
4.	Condition and Branches	2	Lecture
5.	Loops	2	Lecture
6.	Review of Introduction	1	Group Discussion
UNIT 11 :			
7.	PHP Scripting Language – Functions – Types – User Defined functions	5	Lecture
8.	Arrays, strings	2	Lecture
9.	Advanced Data Manipulation in PHP – Arrays, strings	4	Lecture
10.	Regular Expressions	4	Lecture
11.	Dates and Times, Integers and Floats	3	Lecture
12.	Evaluation of UNIT II	2	Tutorial
UNIT III :			
13.	Introduction to Object Oriented Programming with PHP – Classes and Objects, Inheritance	4	Lecture
14.	Throwing and Catching Exceptions	2	Lecture
15.	SQL and MySQL – Database Basics, My SQL Command Interpreter	6	Lecture
16.	Managing Databases and Tables, Inserting, Updating, and Deleting Data, Querying with SQL SELECT, Join Queries	6	Lecture
17.	Summarize UNIT III	2	Peer team Teaching
UNIT IV :			
18.	Querying Web Databases	2	Lecture
19.	Querying a MySQL Database using PHP (Except case study), Processing User Input,	5	Lecture
20.	Writing to Web databases- Database Inserts, Updates, and Deletes	5	Lecture
21.	Validation with PHP and Java Script – Validation and Error	5	Tutorial

	Reporting Principles. Server-Side Validation with PHP, JavaScript and Client Side Validation. (Except JavaScript examples)		
22.	Demonstration of Chapter IV	3	Online Demo
UNIT V :			
23.	Reporting – Creating a Report, Producing PDF	6	Lecture
24.	Advanced features of Object Oriented Programming in PHP5	4	Lecture
25.	Working with Class Hierarchies, Class Type Hints, Abstract Classes and Interfaces.	6	Lecture
26.	Discussion	4	Peer team Teaching

Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					Mean Scores of Cos
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	2	3	3	3	3	3	2	4	3	4	3.00
CO2	3	3	4	4	3	4	3	3	3	3	3.30
CO3	4	3	3	3	4	4	3	4	3	3	3.40
CO4	4	3	3	3	3	4	3	3	4	3	3.30
CO5	3	3	3	3	4	3	3	3	4	3	3.20
Mean Overall Score											3.24

Result: The Score for this Course is 3.24 (High Relationship)

COURSE DESIGNER: **Dr. G. SUJATHA**
Associate Professor / Department of Computer Science.

Programme	: B. Sc Computer Science	Part III : Elective
Semester	: V	Hours : 5 P/W 75Hrs P/S
Sub. Code	: ES52	Credits : 5

TITLE OF THE PAPER: COMPUTER GRAPHICS

Pedagogy	Hours	Lecture	Peer Teaching	GD/VIDOES/TUTORIAL	ICT
	5	4	0 / 1	0 / 1	0 / 1

PREAMBLE:

- To make students understand about fundamentals of Graphics to enable them to design animated scenes for virtual object creations.
- To make the student present the content graphically..

COURSE OUTCOME		Hrs P/S
At the end of the Semester, the Students will be able to		
UNIT 1	**CO1:** Describe the applications of computer graphics concepts in the development of computer games, information visualization, and business applications. and discuss the overview of Display devices, Input devices and Hard copy devices	10
UNIT 2	**CO2:** Analyze and provide an understanding to draw the various shapes and fill the shapes using various algorithms.	20
UNIT 3	**CO3:** Understanding the Attributes of Output Primitives, Inquiry Functions and Anti aliasing.	15
UNIT 4	**CO4:** Analyze and comprehend the two dimensional graphics and their transformations as well as other transformations.	20
UNIT 5	**CO5:** Discuss and provide an better analogy of mapping from a world coordinates to device coordinates, and clipping	10

Programme : B. Sc Computer Science   Part III : Elective

Semester   : V   Hours   : 5 P/W 75Hrs P/S

Sub. Code   : ES52   Credits : 5

TITLE OF THE PAPER: COMPUTER GRAPHICS

UNIT I

A Survey of Computer Graphics: Computer-Aided Design – Presentation Graphics Computer Art – Entertainment – Education and Training – Visualization – Image Processing – Graphical User Interfaces. Overview of Graphic Systems: Video Display Devices – Raster Scan Systems - Random Scan Systems – Input Devices – Hard Copy Devices.

UNIT II

Output Primitives: Points and Lines – Line Drawing Algorithms – Circle Generation Algorithms – Ellipse Generating Algorithms - Other Curves-Filled Area primitives.

UNIT III

Attributes of Output Primitives: Line Attributes – Curve Attributes – Color and Gray Scale Levels – Area Fill Attributes – Character Attributes – Bundled Attributes – Inquiry Functions – Anti aliasing.

UNIT IV

Two-Dimensional Geometric Transformations: Basic Transformations – Matrix Representations – Composite Transformations – Other Transformations – Transformation between Coordinate Systems.

UNIT V

 Two-Dimensional Viewing : The Viewing Pipeline – Viewing Coordinate Reference Frame – Window – to – Viewport Coordinate Transformation – Two-Dimensional Viewing Functions – Clipping Operations – Point Clipping – Cohen Sutherland Line Clipping – Sutherland Hodgeman Polygon Clipping - Curve Clipping – Text Clipping – Exterior Clipping.

TEXT BOOK:

1. COMPUTER GRAPHICS – Donald Hearn, M. Pauline Baker, PHI, 2nd Edition, 1994

CHAPTERS:
UNIT I   : CHAPTERS: 1.1 TO 1.8, 2.1 – 2.3, 2.5, 2.6
UNIT II   : CHAPTERS: 3.1, 3.2, 3.5, 3.6, 3.7, and 3.11
UNIT III   : CHAPTERS: 4
UNIT IV   : CHAPTERS: 5.1 – 5.5
UNIT V   : CHAPTERS: 6

REFERENCE BOOKS:
1. Computer Graphics, Multimedia & Animation – Malay K.Pakhira, PHI, New Delhi, 2008.
2. Fundamentals of Computer Graphics and Multimedia – D.P.Mukherjee, PHI, New Delhi, 1999.

Programme : B. Sc Computer Science   **Part III : Elective**

Semester   : V   **Hours : 5 P/W 75Hrs P/S**

Sub. Code   : ES52   **Credits : 5**

UNITS	TOPIC	LECTURE HOURS	MODE OF TEACHING
UNIT 1			
1.	Purpose of Computer Graphics	1	Lecture
2.	Applications of Computer Graphics	2	Lecture
3.	Display Devices	3	Lecture
4.	Raster and Random scan systems	1	Lecture
5.	Input devices	1	Lecture
6.	Hard Copy devices	1	Lecture
7.	Exercise problem on applications of graphics	1	Discussion
UNIT 11			
8.	Output Primitives - Line	2	Lecture
9.	DDA Line drawing algorithm	2	Lecture
10.	Breshenham Line drawing Algorithm	2	Lecture
11.	Circle Generating Algorithm	2	Lecture
12.	Ellipse Generating Algorithm	3	Lecture
13.	Exercise Problems by using Various algorithms	2	Group Discussion
14	Scan line polygon fill Algorithm	2	Lecture
15.	Boundary fill algorithm	1	Lecture
16.	Flood fill algorithm	1	Lecture
17.	Exercise Problems by using Various fill algorithms	2	Group Discussion
18.	Issues in Fill Algorithm	1	Peer teaching
UNIT III			
18.	Attributes Output Primitives	1	Lecture
19.	Line Attributes	2	Lecture
20.	Curve Attributes	2	Lecture
21.	Color and Grey scale attributes	2	Lecture
22.	Area Fill Attributes	1	Lecture
23.	Character Attributes	2	Lecture
24.	Bundle Attributes	1	Lecture
25.	Inquiry Functions	1	Lecture
26.	Antialising	1	Lecture
27.	Exercise Problems	1	ICT (NPTEL Notes)

28.	Applications	1	Group Discussion
UNIT IV			
30.	Purpose of Transformation	1	Lecture
31.	2-D Transformations	1	Lecture
32.	2-D Translations	2	Lecture
33.	2-D Rotations	3	Lecture
34.	2-D Scaling	2	Lecture
35.	Homogeneous Transformation	2	Lecture
36.	Heterogeneous Transformations	2	Tutorial
37.	Reflection	2	Lecture
38.	Shearing	2	Lecture
39.	Transformation between Coordinate Systems	1	Lecture
44.	Applications	2	Tutorial
UNIT V			
45.	Viewing Coordinate Reference	1	Lecture
46.	Window – to – Viewport Coordinate Transformation	1	Lecture
47.	Two-Dimensional Viewing Functions	1	Lecture
	Clipping –Point Clipping	1	Peer Teaching
48.	Cohen Sutherland Line Clipping	1	Lecture
49.	Sutherland Hodgeman Polygon Clipping	1	Lecture
50.	Curve Clipping	1	Lecture
51.	Text Clipping	1	Lecture
52.	Exterior Clipping	1	Lecture
53.	Applications	1	Tutorial

Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					Mean Scores of Cos
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	3	3	3	3	2	3	3	4	3	3	3.00
CO2	4	4	4	3	2	4	4	4	3	3	3.50
CO3	4	4	4	3	2	4	3	4	3	3	3.4
CO4	4	4	4	3	2	4	4	4	3	3	3.6
CO5	4	4	4	3	2	3	3	3	3	2	3.1
Mean Overall Score											3.32

Result: The Score for this Course is 3.32 (High Relationship)

COURSE DESIGNER: **Dr. N.SUJATHA**
Assistant Professor / Department of Computer Science.

Programme	: B. Sc Computer Science	Part III : SBE
Semester	: V	Hours : 2 P/W 30Hrs P/S
Sub. Code	: SS53	Credits : 2

TITLE OF THE PAPER: INTRODUCTION TO WEB DESIGN

Pedagogy	Hours	Lecture	Peer Teaching	GD/VIDOES/TUTORIAL	ICT
	2	1	0 / 1	0 / 1	0 / 1

PREAMBLE:

To impart the knowledge in various phases of compiler and its implementation and Application.

COURSE OUTCOME At the end of the Semester, the Students will be able to		Hrs P/S
UNIT 1	**CO1:** Describe the basics of Internet and Internet Protocols	5
UNIT 2	**CO2:** Understand the structure of HTML and Remote method Invocation.	6
UNIT 3	**CO3:** Analyze the functions of Java Script and VB script	7
UNIT 4	**CO4:** Implement HTML ,DHTML and Cascading Style sheets	6
UNIT 5	**CO5:** Discuss the CGI, API, Servlet and JSP	6

Programme	: B. Sc Computer Science	Part III : SBE
Semester	: V	Hours : 2 P/W 30Hrs P/S
Sub. Code	: SS53	Credits : 2

TITLE OF THE PAPER: INTRODUCTION TO WEB DESIGN

UNIT I: INTRODUCTION: Internet - History of the internet - internet services and Accessibility _ uses of the internet- protocols -web concepts - Internet standards - INTERNET PROTOCOLS: introduction - internet protocols -Host names - internet applications and application protocols.

UNIT II: JAVA NETWORK PROGRAMMING: sockets - multicast sockets -remote method invocation -HTML: introduction - SGML - outline of HTML document - head section -HTML forms.

UNIT III: JAVA SCRIPT: introduction - language elements - objects of java script other objects - Arrays - VBSCRIPT: introduction - embedding VBscript code in an HTML document - comments - variables - operators - procedures - conditional statement - looping constructs- objects and VBscript - cookies.

UNIT IV: DYNAMIC HTML (DHTML): introduction- cascading style sheets - DHTML document object model and collections -event handling -EXETENSIBLE MARK-UP LANGUAGE: introduction - HTML vs XML - syntax of the XML documents XML validation -XML DTD -the building blocks of XML documents - DTD elements - DTD attributes -DTD entities - DTD validation.

UNIT V: SERVLETS: introduction – advantage of servlets over CGI _ installing servlets - the servlet life cycle- servlet API - a simple servlet - handling HTTP get requests - Handling HTTP post requests - cookies - session tracking -multi-tier applications using database - JAVA SERVER PAGES (JSP): introduction -advantages of JSP - developing first JSP - components of JSP - reading requests information- retrieving the data posted from a HTML file to a JSP file - JSP sessions - cookies -disabling sessions.

TEXT BOOK(S):

1. Web Technology by N.P.Gopalan, J.Akilandeswari - PHI - I Edition - 2010
UNIT I   : CHAPTERS: 1.1 TO 1.7, 2.1 – 2.4
UNIT II   : CHAPTERS: 3.1-3.4, 3.6,4.1-4.6
UNIT III   : CHAPTERS: 5.1-5.5, 6.1-6.10
UNIT IV   : CHAPTERS: 7.1 – 7.4, 8.1-8.11
UNIT V   : CHAPTERS: 101-10.11, 11.1- 11.9

REFERENCE BOOK(S):

1. The Complete Reference - Web Design by Thomas A.Powell - McGrawHill - II Edition

Programme : B. Sc Computer Science　　　**Part III : SBE**

Semester　: V　　　　　　　　　　　**Hours　: 2 P/W 30Hrs P/S**

Sub. Code　: SS53　　　　　　　　　**Credits : 2**

UNITS	TOPIC	LECTURE HOURS	MODE OF TEACHING
UNIT 1			
1.	Internet - History of the internet - internet services and Accessibility	1	Lecture
2.	uses of the internet- protocols	1	Lecture
3.	protocols -web concepts - Internet standards.	1	Lecture
4.	Internet protocols: introduction - internet protocols -Host names -	1	Lecture
5.	Internet applications and application protocols	1	ICT-PPT
UNIT 11			
6.	Java network programming: sockets - multicast sockets	2	Lecture
7.	Remote method invocation -HTML: introduction	2	Lecture
8.	SGML - outline of HTML document - head section -HTML forms.	2	Tutorial
UNIT III			
9.	JAVA SCRIPT: introduction - language elements - objects of java script other objects.	1	Lecture
10.	Arrays - VBSCRIPT: introduction - embedding VBscript code in an HTML document	2	Lecture
11.	comments - variables - operators .	1	Lecture
12.	Procedures - conditional statement – looping- construct	1	Lecture
13.	Objects and VBscript - cookies.	2	Lecture
UNIT IV			
14.	DYNAMIC HTML (DHTML): introduction- cascading style sheets	1	Lecture
15.	DHTML document object model and collections	1	Lecture
16.	Event handling -Exetensible Mark-up Language	1	Lecture
17.	introduction - HTML vs XML - syntax of the XML documents XML validation -XML DTD	1	Tutorial
18.	The building blocks of XML documents - DTD elements - DTD attributes -	1	Lecture
19.	DTD entities - DTD validation.	1	Group discussion

	UNIT V		
20.	Servlets: introduction – advantage of servlets over CGI	1	Lecture
21.	Installing servlets - the servlet life cycle- Servlet API - a simple servlet	1	Lecture
22.	Handling HTTP get requests - Handling HTTP post requests- Cookies - session tracking	1	Lecture
23.	Multi-tier applications using database- JSP: introduction - advantages of JSP - developing first JSP	1	Lecture
24.	Components of JSP - reading requests information	1	Lecture
25.	Retrieving the data posted from a HTML file to a JSP file - JSP sessions - cookies -disabling sessions	1	Tutorial

Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					Mean scores of Cos
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	4	3	4	4	4	3	4	4	3	3	3.6
CO2	4	3	4	4	3	3	4	4	5	5	3.9
CO3	4	3	3	3	3	3	4	3	4	3	3.3
CO4	4	3	4	2	4	3	4	4	4	4	3.6
CO5	4	4	3	4	5	3	4	4	4	4	3.9
Mean Overall Score											3.66

Result: The Score for this Course is 3.66 (High Relationship)

COURSE DESIGNER: **Dr.A.PREMA**
                         Assistant Professor / Department of Computer Science.

Programme :B. Sc Computer Science   Part III :SBE

Semester   :V   Hours :2 P/W 30Hrs P/S

Sub. Code   : SS53   Credits :2

TITLE OF THE PAPER: SOFTWARE TESTING

Pedagogy	Hours	Lecture	Peer Teaching	GD/VIDOES/TUTORIAL	ICT
	2	1	0 / 1	0 / 1	0 / 1

PREAMBLE:

To impart the knowledge of software testing methodologies, skills, techniques and reviews in software testing

COURSE OUTCOME At the end of the Semester, the Students will be able to		Hrs P/S
UNIT 1	**CO1:**Impart knowledge on software testing, TMM levels and Origin of defects.	6
UNIT 2	**CO2:** Analyze the importance of test cases, various test case design strategies and determining Test Coverage	6
UNIT 3	**CO3:**Illustration of different types of tests and their effectiveness in software testing.	6
UNIT 4	**CO4:**Understand the test planning and study about test specialist and their role in software testing.	6
UNIT 5	**CO5:**Impart the concepts of Controlling and monitoring measurements in software testing. Understanding the reviews in software testing phase.	6

Programme :B. Sc Computer Science   **Part III :SBE**

Semester   :V   **Hours :2 P/W 30Hrs P/S**

Sub. Code   : SS53   **Credits :2**

TITLE OF THE PAPER: SOFTWARE TESTING

UNIT I :INTRODUCTION: Testing as an Engineering Activity – Role of Process in Software Quality – Testing as a Process –TMM levels- Basic Definitions – Software Testing Principles – The Tester's Role in a Software Development Organization – Origins of Defects - Defect Classes – The Defect Repository and Test Design.

UNIT II: TEST CASE DESIGN: Introduction to Testing Design strategies – The Smarter Tester – Test Case Design Strategies – Using Black box Approach to Test Case Design –COTS-using White Box approach to test Design-Test Adequacy Criteria – Coverage and Control Flow Graphs – Covering Code Logic.

UNIT III :LEVELS OF TESTING: The Need for Levels of Testing – Unit Test functions, procedures etc – Unit Test Planning – Designing the Unit Tests – The Test Harness – Integration tests goals– Designing Integration Tests – System Test – The Different Types – Regression Testing – Alpha, Beta and Acceptance Tests.

UNIT IV :TEST MANAGEMENT: Introductory Concepts – Testing and debugging Goals and Policies – Test Planning – Test Plan Components – Introducing the test specialist – Skills needed by a test specialist – Building a Testing Group.

UNIT V :CONTROLLING AND MONITORING: Defining Terms – Measurements and Milestones for Controlling and Monitoring –Criteria for Test Completion – Types of reviews – Developing a review program.

TEXT BOOK:
1. Practical Software Testing – by Ilene Bernstein, Springer International Edition, Chennai, 2003.

CHAPTERS:
UNIT I   : CHAPTERS: 1.1,1.2,1.3,1.3.1,2.1,2.2,2.3,3,3.1.
UNIT II   : CHAPTERS: 4,4.1,4.2,4.3,4.9,5,5.1,5.2,5.3.
UNIT III   : CHAPTERS: 6,6.1,6.3,6.4,6.6,6.8,6.11,6.13,6.14,6.15.
UNIT IV   : CHAPTERS: 7,7.1,7.2,7.3,8,8.1,8.2.
UNIT V   : CHAPTERS: 9,9.1,9.3,10.1,10.2

REFERENCE BOOKS:
1. Software Testing in the Real World – Improving the Process - Edward Kit, Pearson Education, New Delhi, 1995
2. Effective Software testing – by Elfriede Dustin, Pearson Education, New Delhi,2003
   Software Testing – Effective Methods, Tools and Techniques – by Renu Rajani and Pradeep Oak, Tata McGraw Hill, New Delhi, 2004.

Programme :B. Sc Computer Science   **Part III :SBE**

Semester   :V   **Hours :2 P/W 30Hrs P/S**

Sub. Code   : SS53   **Credits :2**

UNITS	TOPIC	LECTURE HOURS	MODE OF TEACHING
UNIT I			
1.	Need of Testing, testing an Engineering Activity	1	Lecture
2.	Role of Process in Software Quality , Testing as a Process	1	Lecture
3.	TMM levels- Basic Definitions , Software Testing Principles	1	Lecture
4.	The Tester's Role in a Software Development Organization	1	Lecture
5.	Origins of Defects	1	Peer Teaching
6.	Defect Classes, The Defect Repository and Test Design	1	Lecture
UNIT II			
7.	Introduction to Testing Design strategies ; the role of Smarter Tester	1	Lecture
8.	Test Case Design Strategies, COTS	1	Lecture
9.	Using Black box Approach to Test Case Design	1	Lecture
10.	using White Box approach to test Design, Test Adequacy Criteria	2	Lecture
11.	Coverage and Control Flow Graphs – Covering Code Logic	1	Tutorial
UNIT III			
12.	The Need for Levels of Testing,	1	Lecture
13.	Unit Test functions, procedures, Unit Test Planning, Designing the Unit Tests	1	Lecture
14.	The Test Harness	1	Lecture
15.	Integration tests goals, Designing Integration Tests	1	Lecture
16.	System Test	1	Tutorial
17.	Regression Testing, Alpha, Beta and Acceptance Tests.	1	ICT (NPTEL Notes)
UNIT IV			
18.	Testing and debugging Goals and Policies,	1	Lecture
19.	Planning the Test and Test Plan Components	1	Lecture
20.	Need of test specialist	1	Group Discussion
21.	Skills needed by a test specialist	1	Lecture
22.	Building a Testing Group.	1	Lecture
23.	Overview of UNIT IV	1	Peer teaching
UNIT V			

No.		Hours	Method
24.	Terminologies used in monitoring the testing phase	1	Lecture
25.	Measurements and Milestones for Controlling and Monitoring in software testing	1	Lecture
26.	Criteria for Test Completion	1	Lecture
27.	Types of reviews	1	Lecture
28.	Developing a review program	1	Lecture
29.	Overview of UNIT V	1	Group Discussion

Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					Mean scores of Cos
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	2	4	4	3	3	2	3	3	3	4	3.1
CO2	3	5	3	4	4	3	3	3	4	4	3.6
CO3	4	4	4	4	4	4	4	3	4	5	4
CO4	3	3	5	4	2	3	4	4	4	4	3.6
CO5	3	4	4	4	4	3	4	3	4	4	3.7
Mean Overall Score											3.6

Result: The Score for this Course is 3.66 (High Relationship)

COURSE DESIGNER: **Mrs. G.SUDHA**
Assistant Professor / Department of Computer Science.

Programme :B. Sc Computer Science   **Part III : Core**

Semester   :V   **Hours : 8 P/W 120 Hrs P/S**

Sub. Code   : PS5   **Credits : 5**

TITLE OF THE PAPER: PHP AND MYSQL PROGRAMMING LAB

1. Write a PHP Coding for:
    i.   Create a Times Table
    ii.   Use Include File Concept

2. Write a PHP Coding to handle:
    i.   Global Variable
    ii.   Static Variable

3. Write a PHP Coding for:
    i.   Pass by Reference
    ii.   Handling Default Parameter

4. Write a PHP Coding to handle Array Functions:
    i.   Counting number of elements
    ii.   Finding Min, and Max
    iii.   Explode and Implode
    iv.   Sorting
    v.   Cm to inch calculation for all array element

5. Write a PHP Coding to handle String Functions:
    i.   Padding
    ii.   Change Case
    iii.   Trimming
    iv.   Finding the Positions of Characters
    v.   Handling Substring
    vi.   Handling String Replace

6. Write a PHP Coding for handling Constructor.

7. Write a PHP Coding for handling Destructor

8. Write a PHP Coding for handling Private Member Function.

9. Write a PHP Coding for handling Static Member Variables.

10. Write a PHP Coding for handling Inheritance.

11. Write a PHP Coding for Exception handling.

12. Write a PHP Coding to connect PHP with MYSQL using PEAR.

13. Write a PHP Coding for database connectivity (PHP & MYSQL).
14. Write a PHP Coding for database connectivity (PHP & MYSQL) with error handling.
15. Write a PHP Coding for database connectivity (PHP & MYSQL) and format the output.
16. Write a PHP Coding for database connectivity (PHP & MYSQL) using template concept.
17. Write a PHP Coding to pass parameter to PHP using HTML forms, Hyperlinks, and Browser.

Programme	: B. Sc Computer Science	Part III : NME
Semester	: VI	Hours : 2 P/W 30 Hrs P/S
Sub. Code	: NMS1	Credits : 2

TITLE OF THE PAPER: INFORMATION TECHNOLOGY

Pedagogy	Hours	Lecture	Peer Teaching	GD/VIDOES/TUTORIAL	ICT
	2	1	0 / 1	0 / 1	0 / 1

PREAMBLE:

To impart the knowledge in information Technology and its Application.

COURSE OUTCOME		Hrs P/S
At the end of the Semester, the Students will be able to		
UNIT 1	**CO1:** Describe the basics of Networking and Internet	3
UNIT 2	**CO2:** Analyze the usage of IT and implementation using Global Positioning System.	8
UNIT 3	**CO3:** Discuss the various input devices and functions of operating System	7
UNIT 4	**CO4:** Understanding the features of word processor and applications of Networking	6
UNIT 5	**CO5:** Discuss the Graphics ,multimedia tools and techniques and Multimedia on the Web	6

UNIT I

The Internet-world wide web – Getting connected to the web – web Multimedia-Bandwidth. Information technology Introduction – Information Systems.

UNIT II

What is Software – IT in Business and Industry – IT in Education IT in Science, Engineering & Math – Computer in Hiding – Global Positioning System (GPS).

UNIT III

Input Output Devices – Modern Storage Device – User Interfaces – Application Programs – Operating System – Introduction – Types.

UNIT IV

Entering and Editing Documents – Formatting Documents – Database Application – Principles of Data Storage – Network Applications: Fax, Voice and Information Services.

UNIT V

Multimedia – Introduction – Tools of Multimedia-Graphic effects and techniques — Multimedia Authoring Tool -- Multimedia on the web

TEXT BOOK(S):

1. INFORMATION TECHNOLOGY THE BREAKING WAVE BY Dennis P.Curtin, Kim Foley Sen & Cathleen Morin – Tata McGraw Hill Ed.,

CHAPTERS:
UNIT I   : CHAPTERS 1.1,1.3,1.6,2.1,2.2
UNIT II   : CHAPTERS 2.3,2.4,2.6,2.8,2.9,2.10
UNIT III   : CHAPTERS 4.1, 5.2, 6.2, 6.3, 6.4, 6.5
UNIT IV   : CHAPTERS 7.1, 7.3, 8.4, 8.5, 9.1
UNIT V   : CHAPTERS10.1, 10.3, 10.6, 10.8

REFERENCE BOOK(S):

1. Multimedia: Computing,Communications and Applications, R. Steinmetz and K.Naharstedt,Pearson,, New Delhi,2001.

Programme : B. Sc Computer Science   **Part III : NME**

Semester   : VI   **Hours   : 2 P/W 30Hrs P/S**

Sub. Code   : NMS1   **Credits : 2**

UNITS	TOPIC	LECTURE HOURS	MODE OF TEACHING
UNIT 1			
1.	The Internet-world wide web – Getting connected to the web	1	Lecture
2.	Web Multimedia-Bandwidth. Information technology Introduction – Information Systems.	1	Lecture
3.	Overview of Unit I	1	ICT(Video)
UNIT 11			
4.	What is Software – IT in Business and Industry	2	Lecture
5.	IT in Education IT in Science, Engineering & Math – Computer in Hiding	3	Lecture
6.	Global Positioning System(GPS)	2	Lecture
7.	Application	1	Videos
UNIT III			
8.	Input Output Devices – Modern Storage Device	2	Lecture
9.	User Interfaces – Application Programs	2	Lecture
10.	Operating System –Introduction-Types	2	Lecture
11.	Discussion	1	Group Discussion
UNIT IV			
12.	Entering and Editing Documents – Formatting Documents	2	Lecture
13.	Database Application – Principles of Data Storage	2	Lecture
14.	Fax, Voice , Information Services	1	Lecture
15.	Issues in Network Application	1	Group Discussion
UNIT V			
16.	Multimedia – Introduction – Tools of Multimedia	2	Lecture
17.	Graphic effects and techniques — Multimedia Authoring Tool	3	Lecture
18.	Multimedia on the web	1	Tutorial

Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					Mean Scores of Cos
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	2	3	3	4	4	3	3	3	4	4	3.3
CO2	3	3	4	4	4	4	3	4	4	4	3.7
CO3	2	3	4	4	4	3	4	2	3	3	3.2
CO4	3	3	4	3	4	3	4	3	4	4	3.5
CO5	3	3	3	4	4	3	3	4	4	5	3.6
Mean Overall Score											3.46

Result: The Score for this Course is 3.46 (High Relationship)

COURSE DESIGNER: **Dr. A.PREMA**
Assistant Professor / Department of Computer Science.

Programme : B. Sc Computer Science	**Part III : Core**
Semester : VI	**Hours : 6 P/W 90 Hrs P/S**
Sub. Code : S61	**Credits : 5**

TITLE OF THE PAPER: ADVANCED JAVA PROGRAMMING

Pedagogy	**Hours**	**Lecture**	**Peer Teaching**	**GD/VIDOES/TUTORIAL**	**ICT**
	6	**5**	**0 / 1**	**0 / 1**	**0 / 1**

PREAMBLE:

To impart the programming skills in Java.

COURSE OUTCOME At the end of the Semester, the Students will be able to		**Hrs P/S**
UNIT 1	**CO1:** Describe the basics concepts of object oriented programming	**10**
UNIT 2	**CO2:** Discuss various operators, Expressions, Looping and branching statements and Data structure.	**20**
UNIT 3	**CO3:** Understand the concept of Inheritance, Interface and packages.	**20**
UNIT 4	**CO4:** Understand the concepts of Multithreaded Programming and Exception handling.	**20**
UNIT 5	**CO5:** Discuss the Applet programming, Graphics programming and file handling concepts.	**10**

Programme : B. Sc Computer Science	**Part III : Core**	
Semester : VI	**Hours : 6 P/W 90Hrs P/S**	
Sub. Code : S61	**Credits : 5**	

TITLE OF THE PAPER: ADVANCED JAVA PROGRAMMING

UNIT I : Fundamentals of Object Oriented Programming – Basic Concepts of Object Oriented Programming – Benefits of OOP – Applications of OOP – Java Evolution – Java History – Java Features – How Java Differs From C & C++ - Java and Internet- Java and World Wide Web – Web Browsers – Hardware and Software Requirements – Java Support System – Java Environment - Simple Java Program – Java Tokens – Java Statements - Java Virtual Machine – Constants – Variables – Data Types – Declaration of Variables – Giving Values to Variables - Scope of Variables – Symbolic Constants - Type Casting.

UNIT II : Operators and Expressions – Arithmetic Operators – Relational Operators – Logical Operators – Assignment Operators – Increment and Decrement Operators – Conditional Operator – Bitwise Operators – Special Operators – Arithmetic Expressions – Evaluation of Expressions – Precedence of Arithmetic Operators – Type Conversion in Expressions – Operator Precedence and Associativity - Decision Making and Branching – Decision Making and Looping – Classes, Objects and Methods – Arrays, Strings and Vectors.

UNIT III : Interface Multiple Inheritance – Defining Interfaces – Extending Interfaces – Implementing Interfaces – Accessing Interface Variables – Packages – Introduction – Java API Packages – Using System Packages – Naming Conventions – Creating Packages – Accessing a Package – Using a Package – Adding a Class to a Package.

UNIT IV : Multithreaded Programming – Introduction – Creating a Thread – Extending a Thread Class – Stopping and Blocking a Thread – Life Cycle of a Thread – Using Thread Methods - Thread Exceptions – Thread Priority - Synchronization – Implementing the Runnable Interface - Inter-thread Communication - Managing Errors and Exceptions – Introduction – Types of Errors – Exceptions – Syntax of Exception Handling Code – Multiple Catch Statement – Using Finally Statement – Throwing Our Own Exceptions.

UNIT V : Applet Programming – Introduction – Building Applet Code – Applet Life Cycle – Creating an Executable Applets – Designing a Web Page – Applet Tag – Adding Applet to HTML Files - Running the Applet – More About Applet Tag - Passing Parameters to Applets – Graphics Programming - Managing IO Files in Java – Concept of Streams – Stream Classes - Creation of Files – Handling Primitive Data Types – Concatenating and Buffering Files.

TEXT BOOK(S):
1. Programming with Java, A Primer – by E. Balagurusamy TMH, 4th edition, 2010.

CHAPTERS:

UNIT I   : CHAPTERS   1 - 1.3, 1.4, 1.5, 2 - 2.1 TO 2.9, 3 - 3.2, 3.6, 3.7, 3.10, 4- 4.1 TO 4.9.
UNIT II   : CHAPTERS   5 - 5.1 TO 5.14, 6 - 6.1 TO 6.8, 7 - 7.1 TO 7.6, 8 - 8.1 TO 8.16, 9 - 9.1 TO 9.7.
UNIT III   : CHAPTERS   10 - 10.1 TO 10.5, 11 - 11.1 TO 11.8.

UNIT IV   : CHPATERS 12 - 12.1 TO 12.10, 13 - 13.1 TO 13.7.
UNIT V   : CHAPTERS 14 - 14.1 TO 14.12, 15 – 15.1 TO 15.9, 16 - 16.2 TO 16.14

REFERENCE BOOK(S):

1.   The Complete Reference – Java by Patric Naughton and Herbert Schildt – TMH Ltd.

2.   The Java Programming Languages – by Ken Arnold James Gosling, Addison Wesley, II – Edition 1998.

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Programme : B. Sc Computer Science   **Part III : Core**

Semester   : VI   **Hours   : 6 P/W 90Hrs P/S**

Sub. Code   : S61   **Credits : 4**

UNITS	TOPIC	LECTURE HOURS	MODE OF TEACHING
UNIT 1			
1.	Fundamentals of Object Oriented Programming , Basic Concepts of Object Oriented Programming , Benefits of OOP, Applications of OOP	2	Lecture
2.	Java Evolution , Java History ,Java Features , How Java Differs From C & C++ , Java and Internet, Java and World Wide Web , Web Browsers , Hardware and Software Requirements , Java Support System , Java Environment -	2	Lecture
3.	Simple Java Program , Java Tokens, Java Statements ,Java Virtual Machine	2	Lecture
4.	Constants , Variables ,Data Types , Declaration of Variables, Giving Values to Variables , Scope of Variables Symbolic Constants , Type Casting	2	Lecture
5.	Discussion	2	Group Discussion
UNIT 11			
6.	Operators and Expressions, Arithmetic Operators, Relational Operators ,Exercise programs	1	Lecture
7.	Logical Operators, Assignment Operators	1	Lecture
8.	Increment and Decrement Operators, Conditional Operator	1	Lecture
9.	Bitwise Operators, Special Operators,	1	Lecture
10.	Arithmetic Expressions ,Evaluation of Expressions , Precedence of Arithmetic Operators, Type Conversion in Expressions	1	Group Discussion
11.	Operator Precedence and Associativity -	1	Peer Teaching
12	Decision Making and Branching, Exercise programs	3	Lecture
13.	Decision Making and Looping, Exercise programs	3	Tutorial
14.	Classes, Objects and Methods, Exercise programs	3	Lecture
15.	Arrays, Strings, Exercise programs	2	Lecture
16.	Vectors, Exercise programs	2	Lecture
17.	Overview of Unit II	1	ICT (NPTEL Videos)
UNIT III			
18.	Interface Multiple Inheritance	1	Lecture

19.	Exercise Problems	1	Lecture
20.	Defining Interfaces , Extending Interfaces Implementing Interfaces	2	Lecture
21.	Exercise Problems	1	Tutorial
22.	Accessing Interface Variables , Packages Introduction	2	Lecture
23.	Java API Packages , Using System Packages , Naming Conventions	2	Tutorial
24.	Creating Packages , Accessing a Package	2	Lecture
25.	Using a Package	3	Lecture
26.	Exercise Problems	1	ICT (NPTEL Notes)
27.	Adding a Class to a Package	2	Lecture
28.	Exercise Problems	2	Lecture
29.	Applications	1	Group Discussion
UNIT IV			
30.	Multithreaded Programming	1	Lecture
31.	Creating a Thread, Extending a Thread Class , Stopping and Blocking a Thread	2	Lecture
32.	Life Cycle of a Thread, Using Thread Methods ,Thread Exceptions	2	Lecture
33.	Exercise Problems	1	Tutorial
34.	Thread Priority, Synchronization, Implementing the Runnable Interface	2	Lecture
35.	Inter-thread Communication, Managing Errors and Exceptions	2	Lecture
36.	Exercise Problems	1	Tutorial
37.	Types of Errors, Exceptions , Syntax of Exception Handling Code	3	Lecture
38.	Multiple Catch Statement, Using Finally Statement	2	Lecture
39.	Throwing Our Own Exceptions	2	Lecture
41.	Exercise problems	1	ICT (NPTEL Notes)
42..	Applications	1	Group Discussion
UNIT V			
43.	Applet Programming, Introduction	1	Lecture
44.	Building Applet Code, Applet Life Cycle – Creating an Executable Applets	1	Lecture
45.	Designing a Web Page ,Applet Tag , Adding Applet	1	Lecture

No.	Topic	Hours	Method
	to HTML Files		
46.	Exercise Problem on Applet	1	Peer Teaching
47.	Running the Applet ,More About Applet Tag ,Passing Parameters to Applets	1	Lecture
48.	Exercise Problem on Applet	1	Lecture
50.	Graphics Programming , Managing IO Files in Java , Concept of Streams , Stream Classes	1	Lecture
51.	Exercise Problem on Graphics	1	Lecture
52.	Creation of Files, Handling Primitive Data Types, Concatenating and Buffering Files	1	Lecture
53.	Exercise Problem on files	1	Group Discussion

Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					Mean Scores of Cos
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	2	3	3	3	3	3	2	4	3	4	3.00
CO2	3	3	4	4	3	4	3	3	3	3	3.30
CO3	4	3	3	3	4	4	3	4	3	3	3.40
CO4	4	3	3	3	3	4	3	3	4	3	3.30
CO5	3	3	3	3	4	3	3	3	4	3	3.20
Mean Overall Score											3.24

Result: The Score for this Course is 3.24 (High Relationship)

COURSE DESIGNER: **Dr. P.PUNITHA PONMALAR**
                          Associate Professor / Department of Computer Science.

Programme : B. Sc Computer Science   **Part III : Core**

Semester   : VI   **Hours   : 8 P/W 140 Hrs P/S**

Sub. Code   : PS6   **Credits : 4**

TITLE OF THE PAPER: ADVANCED JAVA PROGRMMING LAB

1. To implement a simple temperature conversion program.

2. To perform addition and subtraction of complex numbers using class and objects.

3. To perform volume calculation using method overloading.

4. Using command line arguments, test if the given string is palindrome or not.

5. String manipulation using String Methods (Use of any five String methods are preferred).

6. Write a program to fill names into a list .Also, copy them in reverse order into another list. If the name contains any numeric value throw an exception Invalid Name

7. Program to demonstrate the use of any two built-in exceptions in Java.

8. To perform multiplication of matrices using class and objects.

9. Using multilevel inheritance process student marks.

10. Implement multiple inheritance for payroll processing.

11. Implement interface for area calculation for different shapes.

12. Create a package called Arithmetic that contains methods to deal with all arithmetic operators. Also write a program to use the package.

13. Create two threads such that one of the thread generate Fibonacci series and another generate perfect numbers between two given limits.

14. Define an exception called **: Marks Out of bound:** Exception, that is thrown if the entered marks are greater than 100.

15. Program to demonstrate the use of Wrapper class methods.

16. File Processing using Byte stream.

17. File Processing using Character Stream.

18. Write applets to draw the following Shapes:

    (a). Cone **(b).** Cylinder   **(c).** Square inside a Circle **(d).** Circle inside a Square

19. Write an applet Program to design a simple calculator.

20. Write an Applet Program to animate a ball across the Screen.

Programme : B. Sc. Computer Science   **Part IV : SBE**

Semester   : III   **Hours   : 2 P/W 30Hrs P/S**

Sub. Code   : SS65   **Credits : 2**

TITLE OF THE PAPER: MOBILE COMPUTING

Pedagogy	Hours	Lecture	Peer Teaching	GD/VIDEOS/TUTORIAL	ICT
	2	2/1	0 / 1	0 / 1	0 / 1

PREAMBLE:

To introduce the basics of mobile computing and apply the concepts in developing wireless applications.

COURSE OUTCOME At the end of the Semester, the Students will be able to		Hrs P/S
UNIT 1	**CO1:** Describe the concepts of communication technologies, network architecture in general and wireless networking technology in particular.	5
UNIT 2	**CO2:** Describe the mobile computing architecture and applications. Describe the wireless technology standards and services.- GSM, GPRS, UMTS	5
UNIT 3	**CO3:** Discuss the mobile application related protocols of MAC, Mobile IP and transport layer	5
UNIT 4	**CO4:**Describe the concept of Mobile Ad-hoc network and wireless sensor network.	7
UNIT 5	**CO5:** Discuss about the operating systems used in mobile and wireless sensor networks. Describe the technology J2ME, Android used for developing mobile applications. Design and develop mobile applications.	8

Programme	**: B. Sc. Computer Science**	**Part IV : SBE**	
Semester	**: III**	**Hours : 2 P/W 30Hrs P/S**	
Sub. Code	**: SS65**	**Credits : 2**	

TITLE OF THE PAPER: MOBILE COMPUTING

UNIT I: Basics of Communication Technologies : Mobile Handsets – Cell Phone System – Types of Telecommunication Networks – Computer Networks – LAN Architectures – Components of Wireless Communication System – Architecture of a Mobile Telecommunication System –Wireless Local Area Networks – Bluetooth Technology.

UNIT II : Introduction to Mobile Computing and Wireless Networking: Mobile Computing Applications – Characteristics of Mobile Computing- Structure of Mobile Computing Application- Cellular Mobile Communication- Global System for Mobile Communications (GSM)-General Packet Radio Service (GPRS)- Universal Telecommunication System(UMTS).

UNIT III : Properties required of MAC Protocols – Wireless MAC Protocols: Some Issues - The 802.11 MAC Standard – MAC Protocols for Ad Hoc Networks - Mobile Internet Protocol: Overview of Mobile IP –Desirable features of Mobile IP - Mobile Transport Layer: An overview of the operation of TCP - Mobile Databases: Issues in Transaction Processing – Transaction Processing Environment – Data Dissemination –Transaction Processing in Mobile Environment – Data Replication – Mobile Transaction Models – Rollback Process - Two-phase Commit Protocol – Query Processing – Recovery.

UNIT IV : Mobile Adhoc Networks: Characteristics of Mobile Ad Hoc Networks (MANET) – Applications of MANETs – MANET Routing Protocol – Vehicular Ad Hoc Networks – Security Issues – Countermeasures - Wireless Sensor Networks – Applications – Architecture of the Sensor Node - WSN Routing Protocols – Low Energy Adaptive Clustering Hierarchy (LEACH) – Geographic and Energy Aware Routing – Target Coverage.

UNIT V : Operating Systems for Mobile Computing: Mobile OS –A survey of Commercial Mobile Operating Systems – Operating Systems for Sensor Networks - Mobile Application Development and Protocols : HDML– WAP-J2ME – Android Software Development Kit - Mobile Commerce: Applications of M-Commerce - B2B – B2C Applications – Mobile Payment Systems .

TEXT BOOK(S):

1. Fundamentals of Mobile Computing – Prasant Kumar Patnaik, Rajib Mall- Prentice Hall of India , 2012

CHAPTERS:

UNIT I	: CHAPTERS 1 - 1.1 - 1.4, 1.6 - 1.8, 1.10, 1.11	
UNIT II	: CHAPTERS 2 - 2.3 - 2.9	
UNIT III	: CHAPTERS 3 - 3.1, 3.2, 3.7, 3.8, 4.3, 4.4, 5.4, 6.1 - 6.10	
UNIT IV	: CHAPTERS 7 - 7.2, 7.3, 7.8, 7.9, 7.11, 7.13, 8.2, 8.3, 8.6 - 8.6.6, 8.6.8	
UNIT V	: CHAPTERS 9 - 9.2, 9.4, 9.6, 10.2 - 10.4, 11.1, 11.2, 11.5	

REFERENCE BOOK(S):

1. Mobile Communications – Jochen H. Schiller – Pearson Education, Second Edition, 2007
2. Android Developers: https://developer.android.com/index.html
3. Apple Developers: https://developer.apple.com
4. Blackberry Developers: https://developer.blackberry.com

Programme : B. Sc. Computer Science   **Part IV : SBE**

Semester   : III   **Hours   : 2 P/W 30Hrs P/S**

Sub. Code : SS65   **Credits : 2**

UNITS	TOPIC	LECTURE HOURS	MODE OF TEACHING
UNIT 1			
1.	An overview of communication technologies, telecommunication technology	1	Lecture
2.	Describe computer network, LAN and wireless network	1	Lecture
3.	Describe the components of wireless network technology.	1	Lecture
4.	Describe the architecture of mobile telecommunication system.	1	Lecture
5.	Describe WLAN and Bluetooth technology	1	Lecture
UNIT 11			
6.	Explain about mobile and wireless network	1	Lecture
7.	Describe mobile computing applications	1	Lecture
8.	Describe the structure of mobile applications	1	Lecture
9.	Describe cellular technology - GSM	1	Lecture
10.	GPRS – technology and services and UMTS - Technology	1	Lecture
UNIT III			
11.	Discuss the wireless network standard protocols, 802.11	1	Lecture
12.	Describe Mobile IP	1	Lecture
13.	Explain about mobile transport layer	1	Lecture
14.	Describe Mobile Database. Explain mobile data and transaction processing	1	Lecture
15.	Mobile transaction model, protocol and query processing	1	Lecture
UNIT IV			
16.	What is an ad-hoc network. Association and configuration of mobile ad-hoc network, MANET	1	Lecture
17.	Discuss the security issues in ad-hoc network	1	Lecture
18.	Describe wireless sensor network and protocols	1	Lecture
19.	Describe the architecture of wireless sensor network node	1	Lecture
20.	Describe WSN routing protocols	1	Lecture
21.	Assignment on designing a prototype of WSN application	2	Group discussion and Peer teaching
UNIT V			
22.	An overview of mobile operating systems	1	Lecture
23.	Describe the different technologies for developing mobile	1	Lecture

No.	Topic		Method
	applications, mobile commerce		
24.	HDML, WAP and J2ME	2	Tutorial
25.	Android SDK	2	Tutorial
26.	Projects on mobile applications	2	Group discussion and Peer teaching

Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					Mean Scores of Cos
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	2	4	4	2	3	3	4	4	4	4	3.4
CO2	3	2	4	4	4	4	4	4	4	4	3.7
CO3	4	4	4	5	4	4	4	4	4	5	4.2
CO4	4	4	4	4	4	4	4	5	4	4	4.1
CO5	4	3	3	5	4	4	4	4	4	5	4
Mean Overall Score											3.88

Result: The Score for this Course is 3.88 (High Relationship)

COURSE DESIGNER: **Mrs. A S. BABY RANI**
Associate Professor / Department of Computer Science.

Programme	: B. Sc Computer Science	Part III : SBE
Semester	: VI	Hours : 2 P/W 30Hrs P/S
Sub. Code	: SS65	Credits : 2

TITLE OF THE PAPER: IMAGE PROCESSING

Pedagogy	Hours	Lecture	Peer Teaching	GD/VIDOES/TUTORIAL	ICT
	2	1	0 / 1	0 / 1	0 / 1

PREAMBLE:

To enrich the knowledge about digital imaging system, digital image processing operations, image enhancement, image compression and image segmentation concepts.

COURSE OUTCOME At the end of the Semester, the Students will be able to		Hrs P/S
UNIT 1	**CO1:** To understand the concept of image Processing and their fundamentals	5
UNIT 2	**CO2:** To analyze the concept of image acquisition process	5
UNIT 3	**CO3:** Analyze the working methodology of Arithmetic operations on image	5
UNIT 4	**CO4:** Discuss about the need for image transformation	5
UNIT 5	**CO5:** Describe the concept of image enhancement	10

Programme : B. Sc Computer Science	Part III : SBE
Semester : V	Hours : 2 P/W 30Hrs P/S
Sub. Code : SS65	Credits : 2

TITLE OF THE PAPER: IMAGE PROCESSING

UNIT I: Introduction to Image Processing

Overview of Image Processing - Nature of Image Processing - Digital Image Representation- Types of Images-Based on Nature - Based on Attributes - Based on Colour - Based on Dimensions-Based on Data Types - Domain Specific Images- Digital Image Processing Operations - Fundamental Steps In Image Processing

UNIT II: Digital Imaging Systems

Biological Aspects of Image Acquisition - Human Visual System - Properties of Human Visual System - Monochrome and Colour Image - Review of Digital Cameras-Sampling and Quantization - Sampling - Resampling - Image Quantization - Image Display Devices and Device Resolution - Digital Halftone Process - Random Dithering - Ordered Dithering - Non - periodic Dithering - Image Storage and File Formats - Need for File Formats -Types of File Formats - Structures of File Formats.

UNIT III: Digital Image Processing Operations:

Classification of Image Processing Operations - Arithmetic Operations. Logical Operations - Geometrical Operations - Image Interpolation Techniques - Set Operations.

UNIT IV: Digital Image Transforms:

Need for Image Transforms - Introduction to Fourier Transform - Discrete Fourier Transform - Fast Fourier Transform - Discrete Cosine Transform.

UNIT V: Image Enhancement:

Image Quality and Need for Image Enhancement - Image Quality Factors - Image Quality Assessment Toll - Image Quality Metrics - Image Enhancement operations - Histogram Stretching –Histogram Sliding - Histogram Equalization - Histogram Specification - Local and Adaptive Contrast Enhancement

TEXT BOOK(S):
1. DIGITAL IMAGE PROCESSING, S.Sridhar, Second Edition, OXFPRD University Press 2016.

Unit I:	Chapter 1 (1.1 to 1.7)
Unit II:	Chapter 2 (2.3 to 2.8)
Unit III:	Chapter 3 (3.2)
Unit IV:	Chapter 4 (4.1 and 4.3)
Unit V:	Chapter 5 (5.1 5.2 and 5.4)

REFERENCE BOOK(S):

1. Digital Image Processing using MATLAB, Rafael C. Gonzalez, Richard E. Woods,2nd Edition, Prentice Hall of India, 2002.
2. Fundamentals of Digital Image Processing, A.Jain, Prentice Hall of India, 2010.
3. Digital Image Processing, Willliam K Pratt, John Willey, 2002.

Programme : B. Sc Computer Science   **Part III : SBE**

Semester   : VI   **Hours   : 2 P/W 30Hrs P/S**

Sub. Code   : SS65   **Credits : 2**

UNITS	TOPIC	LECTURE HOURS	MODE OF TEACHING
UNIT 1			
1.	Overview of image processing and image representation and	1	Lecture
2.	Concept Image Attributes	1	Lecture
3.	Image Processing operations	1	Lecture
4.	Fundamental steps of image processing	1	Lecture
5.	Discussion	1	Group Discussion
UNIT 11			
6.	Aspects of image Acquisition	1	Lecture
7.	Image Sampling and Quantization concepts	1	Lecture
8.	Types of dithering	1	Lecture
9.	Image storage and file formats	1	Lecture
10.	Implementation of digital imaging system	1	Peer teaching
UNIT 11I			
11	Classification of image processing operations	1	Lecture
12.	Arithmetic Operations. Logical Operations - Geometrical Operations -	2	Lecture
13.	Image Interpolation Techniques - Set Operations.	1	Lecture
14.	Application image processing operations	1	Tutorial
UNIT-IV			
15	Introduction to image transformation	1	Lecture
16.	Concept of Fourier Transfer transformation	1	Lecture
17.	Discrete Fourier Transform - Fast Fourier Transform Discrete Cosine Transform concepts	1	Lecture
18.	Application of image Transformation	1	Lecture
19.	Concept of Fourier Transfer transformation	1	ICT (NPTEL Notes)
UNIT V			
20.	Need for image enhancement	1	Lecture
21.	Image quality factors and assessment tools, Image quality metrics	2	Lecture
22.	Introduction Image enhancement operations	1	Lecture

No.	Topic	Hours	Method
23	Histogram Stretching, sliding , equalization and specification	2	Lecture
24.	Local and Adaptive Contrast Enhancement	2	Lecture
25.	Overview of image enhancement	1	Group Discussion
26.	Implementation of image enhancement using matlab	1	Peer Teaching

Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					Mean Scores of Cos
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	2	4	3	2	3	3	4	4	4	3	3.2
CO2	3	3	3	3	4	4	4	4	3	4	3.5
CO3	4	4	4	4	4	4	4	4	3	3	3.8
CO4	4	4	4	3	4	4	4	5	4	4	4
CO5	4	3	3	4	4	4	4	4	4	5	3.9
Mean Overall Score											3.68

Result: The Score for this Course is 3.68 (High Relationship)

COURSE DESIGNER: **Dr. M.SUMATHI**
                      Associate Professor / Department of Computer Science.

Programme	: B. Sc Computer Science	Part III : SBE5
Semester	: VI	Hours : 2 P/W 30 Hrs P/S
Subject Code	: SS65	Credits : 2

TITLE OF THE PAPER: DATA MINING

Pedagogy	Hours	Lecture	Peer Teaching	GD/VIDOES/TUTORIAL	ICT
	2	1/2	0 / 1	0 / 1	0 / 1

PREAMBLE:

To understand the basic concepts of data mining and warehousing.

COURSE OUTCOME		Hrs P/S
At the end of the Semester, the Students will be able to		
UNIT 1	**CO1:** Describe the introductory concepts and issues of Data Mining	4
UNIT 2	**CO2:** Explain the methods of Preprocessing and cleaning Data	4
UNIT 3	**CO3:** Demonstrate the design of Data Warehouse and Multidimensional Data model.	5
UNIT 4	**CO4:** Summarize the Data Mining techniques Association, Classification and Clustering	10
UNIT 5	**CO5:** Identify and discuss the Applications of Data Mining	7

Programme	: B. Sc Computer Science	Part III : SBE5
Semester	: VI	Hours : 2 P/W 30 Hrs P/S
Subject Code	: SS65	Credits : 2

TITLE OF THE PAPER: DATA MINING

UNIT I

Introduction - What is Data mining? - Data mining – On What kind of Data? - Data mining Functionalities - Classification of Data mining - Major issues in Data Mining.

UNIT II

Data PreProcessing – Why Preprocess the Data? - Data Cleaning - Data Integration and Transformation - Data Reduction.

UNIT III

Data Warehouse and OLAP Technology: An overview – What is Data Warehouse? - Multidimensional Data Model - Data Warehouse Architecture.

UNIT IV

Mining Frequent Patterns, Associations, and Correlations – Basic Concepts and a Road Map – What is Classification? What is Prediction? – What is Cluster Analysis?

UNIT V

Data Mining Applications – Additional Themes on Data Mining – Social Impacts of Data Mining – Trends in Data Mining.

TEXT BOOK :

1. Data Mining (Concepts and Techniques) Second Edition, Jiawei Han and Micheline Kamber, Morgan Kaufmann Publishers – An imprint of Elsevier.

CHAPTERS:

UNIT I   : CHAPTERS 1 - 1.2,1.3,1.4,1.6, 1.9.
UNIT II   : CHAPTERS 2 – 2.1,2.3,2.4,2.5
UNIT III : CHAPTERS 3 – 3.1,3.2,3.3
UNIT IV   : CHAPTERS 5.1,6.1,7.1
UNIT V   : CHAPTERS 11 – 11.1, 11.3, 11.4.11.5

REFERENCE BOOKS:

1.   Data Mining: A Knowledge Discovery Approach, Krzysztof J.Cios, Witold Pedrycz, W.Swiniarski, Lukasz A.Kurgan.
2.   Data Warehousing, Prabhu , PHI Learning Private Limited, New Delhi, 2012.

Programme : B. Sc Computer Science   **Part III : SBE5**
Semester : VI   **Hours : 2 P/W 30 Hrs P/S**
Subject Code : SS65   **Credits : 2**

UNITS	TOPIC	LECTURE HOURS	MODE OF TEACHING
UNIT 1			
1.	Introduction - What is Data mining?	1	Lecture
2.	Data mining – On What kind of Data? Data mining Functionalities	1	Lecture
3.	Classification of Data mining - Major issues in Data Mining.	1	Lecture
4.	Discussion	1	ICT (PPT)
UNIT 11			
5.	Data Pre Processing – Why Preprocess the Data?	1	Lecture
6.	Data Cleaning	1	Lecture
7.	Data Integration and Transformation	1	Lecture
8.	Data Reduction	1	Lecture
UNIT III			
9.	Data Warehouse and OLAP Technology: An overview – What is Data Warehouse? - Multidimensional Data Model	2	Lecture
10.	What is Data Warehouse?	1	Lecture
11.	Data Warehouse Architecture	1	Lecture
12.	UNIT III Overview	1	Tutorial
UNIT IV			
13.	Mining Frequent Patterns, Associations, and Correlations – Basic Concepts and a Road Map	4	Lecture
14.	What is Classification? What is Prediction?	2	Lecture
15.	What is Cluster Analysis?	2	Lecture
16.	Discussion	2	ICT (PPT)
UNIT V			
17.	Data Mining Applications	1	Peer Teaching
18.	Additional Themes on Data Mining	2	Lecture
19.	Social Impacts of Data Mining	2	Lecture
20.	Trends in Data Mining	1	Lecture
21.	Discussion	1	Group Discussion

Course Outcomes (Cos)	Programme Outcomes (Pos)					Programme Specific Outcomes (PSOs)					Mean Scores of Cos
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	4	4	3	3	4	4	3	4	3	4	3.6
CO2	4	4	4	3	4	4	4	4	3	3	3.7
CO3	4	4	3	3	3	4	4	4	3	4	3.6
CO4	3	4	3	4	3	3	4	4	3	4	3.5
CO5	3	4	3	4	4	3	3	4	4	4	3.6
Mean Overall Score											3.6

Result: The Score for this Course is 3.6 (High Relationship)

COURSE DESIGNER: **Dr. G.SUJATHA**
                         Associate Professor, Department of Computer Science.

Programme   : B. Sc Computer Science   **Part III :** SBE
Semester   : VI   **Hours**   : 2 P/W   30 Hrs P/S
Subject Code : SSP6   **Credits :** 2

TITLE OF THE PAPER : ANDROID PROGRAMMING LAB

TITLE OF THE PAPER : MATLAB PROGRAMMING LAB

1. Write a MATLAB program for Basic commands like date, pwd, who, dir
2. Write a MATLAB program for find Largest number in three number using if statement
3. Write a MATLAB program for display prime numbers 1 to 100 using for loop and break.
4. Write a MATLAB program for Sum of Digits using while loop

5. Write a MATLAB program for Unit Converter using Switch
6. Write a MATLAB program for check given string is palindrome or not
7. Write a MATLAB program for display star pattern as like

           *
           **
           ***
           ****
           *****

 8. Write a MATLAB program for compute the value of following function by using
        1.Normal method
        2.Avoiding inner loop
        3.Avoiding both loop

$$y(n) = 1^{3}*(1^{3}+2^{3})*(1^{3}+2^{3}+3^{3})*\ldots*(1^{3}+2^{3}+ \ldots+n^{3})$$

9. Write a MATLAB program for a given matrix to perform the following operations.
    A = 1 2 3
        4 5 6
        7 8 0

   (a)   Display the matrix
   (b)   Get the matrixsize
   (c)   Get the matrixtranspose
   (d)   Inverse matrix
   (e)   Matrix determination(det)
10. Write a MATLAB program for
    B = [2 2 3; 4 0 6; 8 15]
    C = [1 1 2; 6 3 5; 1 9 1]
    To Calculate:
   (a)   D = B -C
   (b)   E = B +C
   (c)   F=E+2
   (d)   G=B*C
   (e)   H=B.*C
11. Write a MATLAB program to
        1.Read and display a image

2. Display multi Image in a Single Window

3. Display multi Image in a Separate Window

12. Write a MATLAB program to

    1. Resize a image

    2. Rotate a image

    3. Crop a image

13. Write a MATLAB program for flip an image

14. Write a MATLAB program for convert image color RGB to Gray color

15. Write a MATLAB program for contrast manipulation

16. Write a MATLAB program for histogram for Black and White image

17. Write a MATLAB program for histogram for RGB image

18. Write a MATLAB program for Histogram Equalization

19. Write a MATLAB program for Histogram of original and flipped image

20. Write a MATLAB program for

- Image Addition
- Image Subtraction
- Image Multiply

21. Write a MATLAB program for Deblurring

22. Write a MATLAB program for Color – Dithering

23. Write a MATLAB program for Image Negation.

24. Write a MATLAB program to extract Red, Green, and Blue Component from an Image

25. Write a Matlab program for Edge Detection by using the following Operators.

    1. Sobel

    2. Prewitt

    3. Roberts

26. Write a MATLAB program to draw a 2-D simple plot graph

27. Write a MATLAB program for 2-D plot graph with title, legend, label

28. Write a MATLAB program for 2-D multi plot with color

29. Write MATLAB program for 3-D plot

30. Write a MATLAB program for 3-D multi plot with color

TITLE OF THE PAPER : WEKA LAB

1. Demonstration of preprocessing on dataset student.arff

2. Demonstration of preprocessing on dataset labor.arff

3. Demonstration of Association rule process on dataset contactlenses.arff using apriori algorithm

4. Demonstration of Association rule process on dataset test.arff using apriori algorithm

5. Demonstration of classification rule process on dataset student.arff using j48 algorithm

6. Demonstration of classification rule process on dataset employee.arff using j48 algorithm

7. Demonstration of classification rule process on dataset employee.arff using id3 algorithm

8. Demonstration of classification rule process on dataset employee.arff using naïve bayes algorithm

9. Demonstration of clustering rule process on dataset iris.arff using simple k-means

10. Demonstration of clustering rule process on dataset student.arff using simple k-means

Programme : B. Sc Computer Science   **Part III : NME**

Semester   : VI   **Hours   : 2 P/W   30Hrs P/S**

Sub. Code   : NMS2   **Credits : 2**

TITLE OF THE PAPER: INTERNET SERVICE AT YOUR FINGER TIPS

Pedagogy	**Hours**	**Lecture**	**Peer Teaching**	**GD/VIDOES/TUTORIAL**	**ICT**
	2	**1**	**0 / 1**	**0 / 1**	**0 / 1**

PREAMBLE:
To impart the knowledge in information Technology and its Application.

COURSE OUTCOME		**Hrs P/S**
At the end of the Semester, the Students will be able to		
UNIT 1	**CO1:** Describe the basics of Networking and Internet	**4**
UNIT 2	**CO2:** Analyze the usage of IT and implementation using Global Positioning System.	**7**
UNIT 3	**CO3:** Discuss the various input devices and functions of operating System	**7**
UNIT 4	**CO4:** Understand the features of word processor and applications of Networking	**6**
UNIT 5	**CO5:** Discuss the Graphics ,multimedia tools and techniques and Multimedia on the Web	**6**

Programme : B. Sc Computer Science **Part III : NME**

Semester   : VI **Hours : 2 P/W 30Hrs P/S**

Sub. Code : NMS2 **Credits : 2**

UNIT I : Introduction – Computer Networks – Uses – Types of Network – Internet – TCP/IP – Internet Access – Modems.

UNIT II : Internet Protocols - Internet Addressing – World Wide Web – Web pages and HTML – multimedia on the web – web browsers – Search Basics.

UNIT III : Email Basics – Email Ethics – Useful Email Services – News groups.

UNIT IV : Digital Payment – Various modes of Payments – Bank Cards – Types of Cards –- Unstructured Supplementary Service Data (USSD) based Mobile Banking - Aadhar enabled payment system (AEPS) - Micro ATM Transaction – UPI – e –wallets - POS - POS Types.

UNIT V : Internet Applications - Railway reservation system – online shopping - B2B - B2C Applications - E-Learning

TEXT BOOK (S):
1. Internet in a Nut Shell, Alexis Leon, Mathew Leon, Leon Press – 1st Edition, 1998.

CHAPTERS:
 UNIT I   : CHAPTERS 1, 2,3,6,7
 UNIT II   : CHAPTERS 11, 14,24,25,26,27,28,33
 UNIT III   **:** CHAPTERS 15, 16, 18,21,22,23

 2. Computer Networks – Andrew S. Tanenbaum, PHI, Fourth Edition, 2003

  UNIT I: CHAPTERS 1 - 1.1, 1.2
  UNIT IV & V : www.slideshare.net/00priya33/presentation-on-railway-reservation
                        www.slideshare.net/00priya33/presentation-33554342
                        www.csun.edu/~vcmkt002/.../B2B%20Chapter%201.ppt
                        www.slideshare.net/.../business-to-consumer-marketing-b2-c-
                           presentatio..
                       www.slideshare.net/AshwinKumar24/elearningppt

REFERENCE BOOK(S):
1. Internet Technology and Web Design - 3rd Edition.
2. E - Commerce - David Whiteley.

Programme : B. Sc Computer Science   **Part III : NME**

Semester   : VI   **Hours   : 2 P/W 30Hrs P/S**

Sub. Code   : NMS2   **Credits : 2**

UNITS	TOPIC	LECTURE HOURS	MODE OF TEACHING
UNIT 1			
1.	Introduction – Computer Networks	1	Lecture
2.	Uses – Types of Network – Internet	2	Lecture
3.	TCP/IP – Internet Access – Modems.	1	Tutorial
UNIT 11			
4.	Internet Protocols - Internet Addressing	1	Lecture
5.	World Wide Web – Web pages and HTML – multimedia on the web	3	Lecture
6.	web browsers – Search Basics	2	Lecture
7.	Application	1	Videos
UNIT III			
8.	Email Basics – Email Ethics	2	Lecture
9.	Useful Email Services	2	Lecture
10.	News groups	2	Lecture
11.	Exercises	1	ICT(videos)
UNIT IV			
12.	Digital Payment – Various modes of Payments	1	Lecture
13.	Bank Cards – Types of Cards - Unstructured Supplementary Service Data (USSD) based Mobile Banking	2	Lecture
14.	Aadhar enabled payment system (AEPS)	1	Lecture
15.	Micro ATM Transaction – UPI – e – wallets	1	Lecture
16.	POS - POS Types	1	Lecture
UNIT V			
17.	Internet Applications - Railway reservation system	2	Lecture
18.	online shopping - B2B - B2C Applications - E-Learning	3	Lecture
19.	Examples of Online Shopping	1	videos

Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					Mean Scores of Cos
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	3	2	3	4	3	3	4	4	4	4	3.4
CO2	3	2	4	4	3	3	3	4	3	3	3.2
CO3	3	3	4	5	4	3	4	3	4	3	3.6
CO4	3	2	2	4	3	3	4	2	4	4	3.1
CO5	3	3	3	4	2	3	4	4	4	4	3.4
Mean Overall Score											3.34

Result: The Score for this Course is 3.34 (High Relationship)

COURSE DESIGNER: **Dr. A.PREMA**
Assistant Professor / Department of Computer Science.