B.Sc., INFORMATION TECHNOLOGY

Syllabus

Program Code: UIT

2023-2024 onwards

MANNAR THIRUMALAI NAICKER COLLEGE

(AUTONOMOUS)

Re-accredited with "A" Grade by NAAC

PASUMALAI, MADURAI – 625 004

GUIDLINESS FOR OUTCOME BASED EDUCATION WITH CHOICE BASED CREDIT SYSTEM

(FOR UG PROGRAM FROM 2023 -2024 ONWARDS)

ELIGIBILITY FOR ADMISSION

Candidates seeking admission to the UG Degree program must have passed the Higher Secondary Education (respective groups – Arts / Science) of the Government of Tamil Nadu or any other state or its equivalent qualification.

DURATION OF THE COURSE

The duration of the course shall be three academic years comprising six semesters with two semesters in each academic year.

Subjects of Study

Part I : Tamil / Hindi /

Part II : English

Part III :

1.Core Subjects
2.Allied Subjects
3.Electives

Part IV:

1.Non Major Electives (I Year)
2.Skill Based Subjects
3.Environmental Studies - Mandatory Subject
4.Value Education - Mandatory Subject

Part V :

Extension Activities

ARTS & SCIENCE

CBCS COURSE STRUCTURE FOR UG PROGRAMS

Sem I	Credit	Sem II	Credit	Sem III	Credit	Sem IV	Credit	Sem V	Credit	Sem VI	Credit
1.1. Language - Tamil	3	2.1. Language - Tamil	3	3.1. Language - Tamil	3	4.1. Language - Tamil	3	5.1 Core Course – \CC IX	4	6.1 Core Course – CC XIII	4
1.2 English	3	2.2 English	3	3.2 English	3	4.2 English	3	5.2 Core Course – CC X	4	6.2 Core Course – CC XIV	4
1.3 Core Course – CC I	4	2.3 Core Course – CC III	4	3.3 Core Course – CC V	4	4.3 Core Course – CC VII Core Industry Module	4	5. 3.Core Course CC -XI	4	6.3 Core Course – CC XV	4
1.4 Core Course – CC II	4	2.4 Core Course – CC IV	4	3.4 Core Course – CC VI	4	4.4 Core Course – CC VIII	4	5. 3.Core Course –/ Project with viva-voce CC - XII	4	6.4 Elective -VII Generic/ Discipline Specific	3
1.5 Elective I Generic/ Discipline Specific	3	2.5 Elective II Generic/ Discipline Specific	3	3.5 Elective III Generic/ Discipline Specific	3	4.5 Elective IV Generic/ Discipline Specific	3	5.4 Elective V Generic/ Discipline Specific	3	6.5 Elective VIII Generic/ Discipline Specific	3
1.6 Skill Enhancement Course SEC-1 (NME)	2	2.6 Skill Enhancement Course SEC-2 (NME)	2	3.6 Skill Enhancement Course SEC-4, (Entrepreneurial Skill)	1	4.6 Skill Enhancement Course SEC-6	2	5.5 Elective VI Generic/ Discipline Specific	3	6.6 Extension Activity	1
1.7Ability Enhancement Compulsory Course (AECC) Soft Skill-1	2	2.7 Skill Enhancement Course – SEC-3(NME)	2	3.7 Skill Enhancement Course SEC-5	2	4.7 Skill Enhancement Course SEC-7	2	5.6 Value Education	2	6.7 Professional Competency Skill	2
1.8 Skill Enhancement - (Foundation Course)	2	2.8 Ability Enhancement Compulsory Course (AECC) Soft Skill-2	2	3.7 Ability Enhancement Compulsory Course (AECC) Soft Skill-3	2	4.7 7Ability Enhancement Compulsory Course (AECC) Soft Skill-4	2	5.5 Summer Internship /Industrial Training	2		
				3.8 E.V.S	-	4.8 E.V.S	2				
	23		**23**		**22**		**25**		**26**		**21**
	Total Credit Points										**140**

QUESTION PAPER PATTERN FOR THE CONTINUOUS INTERNAL ASSESSMENT

Note: Duration – 1 hour

(FOR PART I, PART II & PART III)

The components for continuous internal assessment are:

Part –A

Four multiple choice questions (answer all) 4 x01= 04 Marks

Part –B

Two questions (‘either …. or ‘type) 2 x05= 10 Marks

Part –C

Two questions (‘either …. or ‘type) 2 x 08=16 Marks

Total 30 Marks

THE COMPONENTS FOR CONTINUOUS INTERNAL ASSESSMENT ARE:

(60 Marks of two continuous internal assessments will be converted to 15 marks)

Two tests and their average --15 marks

Seminar /Group discussion / Quiz Test --5 marks

Assignment --5 marks

Total 25 Marks

QUESTION PAPER PATTERN FOR THE SUMMATIVE EXAMINATIONS:

Note: Duration- 3 hours

Part –A

Ten multiple choice questions	10 x01	= 10 Marks

No Unit shall be omitted: not more than two questions from each unit.)

Part –B

Five Paragraph questions (‘either …. or ‘type)	5 x 05	= 25 Marks

(One question from each Unit)

Part –C

Five Paragraph questions (‘either …. or ‘type)	5 x 08	= 40 Marks

(One question from each Unit)

Total	75 Marks

PART-IV- SKILL BASED PAPERS / NME:

The Scheme of Examination for Skill Based Papers: (Except Practical Lab Subjects)

QUESTION PAPER PATTERN FOR THE CONTINUOUS INTERNAL ASSESSMENT (SKILL BASED AND NME COURSES) DURATION – 1 HOUR

- 50 MCQs will be asked for each internal assessment tests (50 x 1=50 Marks) and converted for 15 marks

THE COMPONENTS FOR CONTINUOUS INTERNAL ASSESSMENT ARE:

Two tests and their average	--15 marks
Seminar /Group discussion / Quiz Test	-- 5 marks
Assignment	-- 5 marks
Total	25 Marks

SUMMATIVE EXAMINATION PATTERN (SKILL BASED AND NME COURSES) DURATION – 3 HOURS

Pattern of the Question Paper for Skill Based and Non-Major Elective courses (External)

75 Multiple choice questions will be asked from five units (75 x 1=75 Marks)

(15MCQ's from each unit)

PART-IV- ENVIRONMENTAL STUDIES AND VALUE EDUCATION

QUESTION PAPER PATTERN (INTERNAL ASSESSMENT)

Pattern of the Question Paper for Environmental Studies & Value Education (Internal)

50 MCQs will be asked for each internal assessment tests (50 x 1=50 Marks) and converted for 15 marks

Two tests and their average	--	15 marks
Project	--	10 marks

Total		25 Marks
		---

* The students as Individual or Group must visit a local area to document environmental assets – river / forest / grassland / hill / mountain – visit a local polluted site – urban / rural / industrial / agricultural – study of common plants, insects, birds – study of simple ecosystem – pond, river, hill slopes, etc.

SUMMATIVE EXAMINATION PATTERN

Pattern of the Question Paper for Environmental Studies & Value Education only) (External)

75 Multiple choice questions will be asked from five units (75 x 1=75 Marks)

(15MCQ's from each unit)

PART V EXTENSION ACTIVITIES: (MAXIMUM MARKS: 100)

1. NCC
2. NSS
3. Physical Education
4. YRC
5. RRC
6. Health & Fitness Club
7. Eco Club
8. Human Rights Club

Internal Examinations - - 25 Marks

Summative Examinations - - 75 Marks

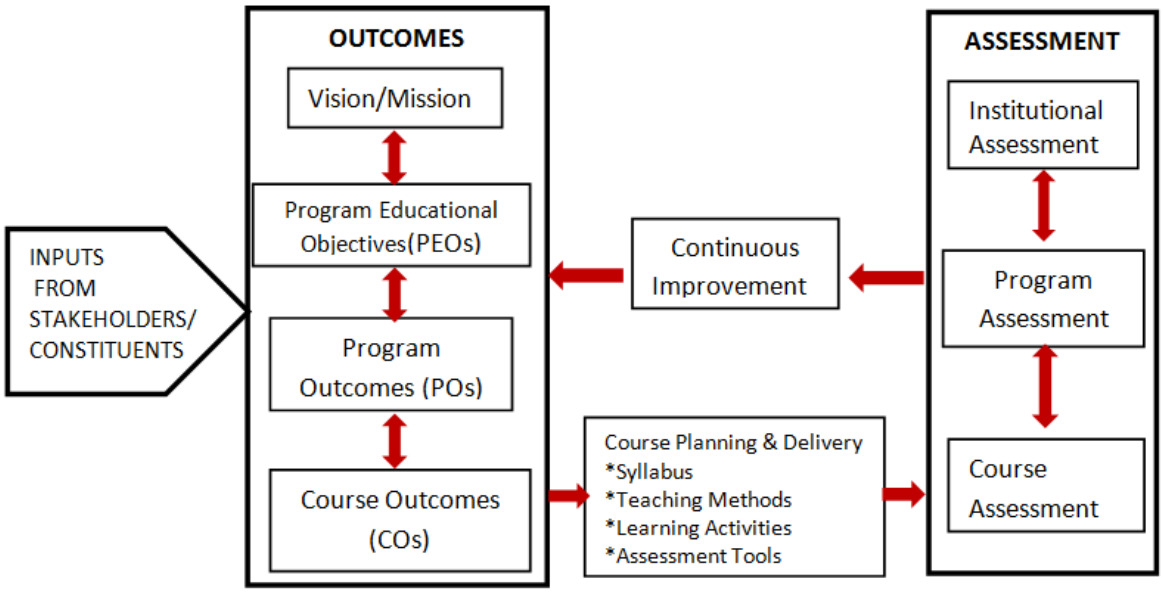
100

OUTCOME BASED EDUCATION:

OBE starts with the identification and articulation of clear and measurable learning outcomes for each course or program. These outcomes describe the skills, knowledge, and abilities that students are expected to acquire. The curriculum, instructional methods, and assessments are aligned with the defined learning outcomes. This ensures that everything taught and evaluated is directly related to what students are expected to learn.

The Learning Outcomes-Based Approach to curriculum planning and transaction in our institution ensures whether the teaching-learning processes are oriented towards enabling students to attain the defined learning outcomes relating to the courses within a programme. The outcome based approach, particularly in the context of undergraduate studies, requires a significant shift from teacher-centric to learner-centric pedagogies and from passive to active/participatory pedagogies.

Assessment Method: The students are assessed with 2 internal examination and the summative examination which includes problem based assignments; practical assignment laboratory reports; observation of practical skills; individual project reports ,case-study reports; team project reports; oral presentations, including seminar presentation; viva voce interviews; computerized adaptive testing; etc. and any other pedagogic approaches as per the context.



INSTITUTIONAL VISION

To Mould the learners into accomplished individuals by providing them with a stimulus for social change through character, confidence and competence.

INSTITUTIONAL MISSION

1. Enlightening the learners on the ethical and environmental issues.

2. Extending holistic training to shape the learners in to committed and competent citizens.

3. Equipping them with soft skills for facing the competitive world.

4. Enriching their employability through career oriented courses.

5. Ensuring accessibility and opportunity to make education affordable to the underprivileged.

Highlights of the Revamped Curriculum:

- Student-centric, meeting the demands of industry & society, incorporating industrial components, hands-on training, skill enhancement modules, industrial project, project with viva-voce, exposure to entrepreneurial skills, training for competitive examinations, sustaining the quality of the core components and incorporating application oriented content wherever required.
- The Core subjects include latest developments in the education and scientific front, advanced programming packages allied with the discipline topics, practical training, devising mathematical models and algorithms for providing solutions to industry / real life situations. The curriculum also facilitates peer learning with advanced mathematical topics in the final semester, catering to the needs of stakeholders with research aptitude.
- The General Studies and Mathematics based problem solving skills are included as mandatory components in the 'Training for Competitive Examinations' course at the final semester, a first of its kind.
- The curriculum is designed so as to strengthen the Industry-Academia interface and provide more job opportunities for the students.

- The Industrial Statistics course is newly introduced in the fourth semester, to expose the students to real life problems and train the students on designing a mathematical model to provide solutions to the industrial problems.
- The Internship during the second year vacation will help the students gain valuable work experience that connects classroom knowledge to real world experience and to narrow down and focus on the career path.
- Project with viva-voce component in the fifth semester enables the student, application of conceptual knowledge to practical situations. The state of art technologies in conducting a Explain in a scientific and systematic way and arriving at a precise solution is ensured. Such innovative provisions of the industrial training, project and internships will give students an edge over the counterparts in the job market.
- State-of Art techniques from the streams of multi-disciplinary, cross disciplinary and inter disciplinary nature are incorporated as Elective courses, covering conventional topics to the latest - Artificial Intelligence.

MANNAR THIRUMALAI NAICKER COLLEGE (AUTONOMOUS),
MADURAI – 625 004
B.SC INFORMATION TECHNOLOGY CURRICULUM
(For the student admitted during the academic year 2023-2024 onwards)

Course Code	Title of the Course	Hrs	Credits	Maximum Marks		
				Int	Ext	Total
FIRST SEMESTER						
Part – I	**Tamil / Alternative Course**					
23UTAGT11	தமிழ் இலக்கிய வரலாறு - I	6	3	25	75	100
Part – II	**English**					
23UENGE11	GENERAL ENGLISH - I	6	3	25	75	100
Part - III	**Core Courses**					
23UITCC11	PROGRAMMING IN C	5	5	25	75	100
23UITCP11	PROGRAMMING IN C LAB	5	5	25	75	100
Part - III	**Elective Course**					
23UELEA12	DIGITAL LOGIC	4	3	25	75	100
Part IV	**Non Major Elective**					
23UITNM11	FUNDAMENTALS OF INFORMATION TECHNOLOGY	2	2	25	75	100
Part IV	**Foundation Course**					
23UITFC11	FUNDAMENTALS OF COMPUTERS	2	2	25	75	100
	Total	30	23	175	525	700
SECOND SEMESTER						
Part – I	**Tamil / Alternative Course**					
23UTAGT21	தமிழ் இலக்கிய வரலாறு – II	6	3	25	75	100
Part – II	**English**					
23UENGE21	GENERAL ENGLISH - II	6	3	25	75	100
Part - III	**Core Courses**					
23UITCC21	JAVA PROGRAMMING	5	5	25	75	100
23UITCP21	JAVA PROGRAMMING LAB	5	5	25	75	100
Part - III	**Elective Course**					
23UMTEA23	STATISTICAL AND NUMERICAL METHODS - I	4	3	25	75	100
Part IV	**Non Major Elective**					
23UITNM21	BASICS OF INTERNET	2	2	25	75	100
Part IV	**Skill Enhancement course**					
23UITSP21	INTRODUCTION TO HTML LAB	2	2	25	75	100
	Total	30	23	175	525	700


FIRST SEMESTER

Course Name	PROGRAMMING IN C			
Course Code	23UITCC11	**L**	**P**	**C**
Category	CORE	5	-	5

COURSE OBJECTIVES

- To familiarize the students with the understanding of code organization.
- To improve the programming skills.
- Learning the basic programming constructs.

UNIT - I Studying Concepts of Programming Languages **15**

Language Evaluation Criteria - Language design - Language Categories - Implementation Methods – Programming Environments - Overview of C: History of C- Importance of C- Basic Structure of C Programs-Executing a C Program- Constants, Variables and Data types - Operators and Expressions - Managing Input and Output Operations.

UNIT - II Decision Making and Branching **15**

Decision Making and Looping - Arrays - Character Arrays and Strings

UNIT - III User Defined Functions **15**

Elements of User Defined Functions- Definition of Functions- Return Values and their Types- Function Call- Function Declaration- Categories of Functions- Nesting of Functions-Recursion

UNIT - IV Structures and Unions **15**

Introduction- Defining a Structure- Declaring Structure Variables Accessing Structure Members- Structure Initialization- Arrays of Structures- Arrays within Structures- Unions- Size of Structures.

UNIT - V Pointers **15**

Understanding Pointers- Accessing the Address of a Variable- Declaring Pointer Variables- Initializing of Pointer Variables- Accessing a Variable through its Pointer- Chain of Pointers- Pointer Expressions- Pointer and Scale Factor- Pointer and Arrays- Pointers and Character Strings- Array of Pointers- Pointer as Function Arguments- Functions Returning Pointers- Pointers to Functions-**File Management in C**

Total Lecture Hours **75**

BOOKS FOR STUDY:

- Robert W. Sebesta, (2012), ―Concepts of Programming Languages‖, Fourth Edition, Addison Wesley (Unit I : Chapter – 1)
- E. Balaguruswamy, (2010), ―Programming in ANSI C‖, Fifth Edition, Tata McGraw Hill Publications

BOOKS FOR REFERENCES:

- Ashok Kamthane, (2009), ―Programming with ANSI & Turbo C‖, Pearson Education
- Byron Gottfried, (2010), ―Programming with C‖, Schaums Outline Series, Tata McGraw Hill Publications

WEB RESOURCES:

- **http://www.tutorialspoint.com/cprogramming/**
- **http://www.cprogramming.com/**
- **http://www.programmingsimplified.com/c-program-examples**
- **http://www.programiz.com/c-programming**
- **http://www.cs.cf.ac.uk/Dave/C/CE.html**
- **http://fresh2refresh.com/c-programming/c-function/**

Nature of Course	EMPLOYABILITY		SKILL ORIENTED	✓	ENTREPRENEURSHIP			
Curriculum Relevance	LOCAL		REGIONAL		NATIONAL		GLOBAL	✓
Changes Made in the Course	Percentage of Change		No Changes Made		New Course	✓		

***Treat 20% as each unit (20*5=100%) and calculate the percentage of change for the course.**

COURSE OUTCOMES:		K LEVEL
After studying this course, the students will be able to:		
CO1	Outline the fundamental concepts of C programming languages, andits features	K1 to K4
CO2	Demonstrate the programming methodology.	K1 to K4
CO3	Identify suitable programming constructs for problem solving.	K1 to K4
CO4	Select the appropriate data representation, control structures, functions and concepts based on the problem requirement.	K1 to K4
CO5	Evaluate the program performance by fixing the errors.	K1 to K4

MAPPING WITH PROGRAM OUTCOMES:

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	L	S	S	-	-	-				
CO2	M	-	S	M	S	-				
CO3	M	M	S	S	S	-				
CO4	M	M	S	S	S	M				
CO5	-	M	S	S	M	S				

S- STRONG M – MEDIUM L - LOW

CO / PO MAPPING:

COS	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO 1	3	2	2	3	2	2
CO 2	3	3	2	3	2	2
CO 3	3	3	3	3	2	2
CO 4	3	3	2	3	2	2
CO 5	3	3	2	3	2	2
WEIGHTAGE	15	14	11	15	10	10
WEIGHTED PERCENTAGE OF COURSE CONTRIBUTION TO POS	100	93	73	100	67	67

LESSON PLAN:

UNIT	PROGRAMMING IN C	HRS	PEDAGOGY
I	**Studying Concepts of Programming Languages**- Language Evaluation Criteria - Language design - Language Categories - Implementation Methods – Programming Environments - Overview of C: History of C- Importance of C- Basic Structure of C Programs- Executing a C Program- Constants, Variables and Data types - Operators and Expressions - Managing Input and Output Operations	15	ICT, CHALK & TALK

II	**Decision Making and Branching**: Decision Making and Looping - Arrays - Character Arrays and Strings	**15**	**ICT, CHALK & TALK**
III	**User Defined Functions:** Elements of User Defined Functions- Definition of Functions- Return Values and their Types- Function Call- Function Declaration- Categories of Functions- Nesting of Functions- Recursion	**15**	**ICT, CHALK & TALK**
IV	**Structures and Unions:** Introduction- Defining a Structure- Declaring Structure Variables Accessing Structure Members- Structure Initialization- Arrays of Structures- Arrays within Structures- Unions- Size of Structures.	**15**	**ICT, CHALK & TALK**
V	**Pointers:** Understanding Pointers- Accessing the Address of a Variable- Declaring Pointer Variables- Initializing of Pointer Variables- Accessing a Variable through its Pointer- Chain of Pointers- Pointer Expressions- Pointer and Scale Factor- Pointer and Arrays- Pointers and Character Strings- Array of Pointers- Pointer as Function Arguments- Functions Returning Pointers- Pointers to Functions- **File Management in C**	**15**	**ICT, CHALK & TALK**

Learning Outcome Based Education & Assessment (LOBE)
Formative Examination - Blue Print
Articulation Mapping – K Levels with Course Outcomes (COs)

Internal	Cos	K Level	Section A		Section B Either or Choice	Section C Either or Choice
			MCQs			
			No. of. Questions	K - Level		
CI AI	CO1	K1 – K4	2	K1,K2	2(K3)	2(K4)
	CO2	K1 – K4	2	K1,K2	2(K3)	2(K4)
CI AII	CO3	K1 – K4	2	K1,K2	2(K3)	2(K4)
	CO4	K1 – K4	2	K1,K2	2(K3)	2(K4)
Question Pattern CIA I & II		No. of Questions to be asked	4		4	4
		No. of Questions to be answered	4		2	2
		Marks for each question	1		5	8
		Total Marks for each section	4		10	16

Distribution of Marks with K Level CIA I & CIA II							
	K Level	Section A (Multiple Choice Questions)	Section B (Either / Or Choice)	Section C (Either / Or Choice)	Total Marks	% of (Marks without choice)	Consolidate of %
CIA I	K1	2			2	3.6	7.2
	K2	2			2	3.6	
	K3		20		20	35.7	35.7
	K4			32	32	57.1	57.1
	Marks	4	20	32	56	100	100
CIA II	K1	2			2	3.6	7.2
	K2	2			2	3.6	
	K3		20		20	35.7	35.7
	K4			32	32	57.1	57.1
	Marks	4	20	32	56	100	100

K1- Remembering and recalling facts with specific answers

K2- Basic understanding of facts and stating main ideas with general answers

K3- Application oriented- Solving Problems

K4- Examining, analyzing, presentation and make inferences with evidences

CO5 will be allotted for individual Assignment which carries five marks as part of CIA component.

Summative Examination – Blue Print Articulation Mapping – K Level with Course Outcomes (COs)						
S. No	COs	K - Level	Section A (MCQs)		Section B (Either / or Choice) With K - LEVEL	Section C (Either / or Choice) With K - LEVEL
			No. of Questions	K – Level		
1	CO1	K1-K4	2	K1,K2	2 (K3)	2(K4)
2	CO2	K1-K4	2	K1,K2	2 (K3)	2(K4)
3	CO3	K1-K4	2	K1,K2	2 (K3)	2(K4)
4	CO4	K1-K4	2	K1,K2	2 (K3)	2(K4)
5	CO5	K1-K4	2	K1,K2	2 (K3)	2(K4)
No. of Questions to be Asked			10		10	10
No. of Questions to be answered			10		5	5
Marks for each question			1		5	8
Total Marks for each section			10		25	40
(Figures in parenthesis denotes, questions should be asked with the given K level)						

Distribution of Marks with K Level						
K Level	**Section A (Multiple Choice Questions)**	**Section B (Either or Choice**	**Section C (Either/ or Choice)**	**Total Marks**	**% of (Marks without choice)**	**Consolidated %**
K1	**5**			**5**	**3.6**	**3.6**
K2	**5**			**5**	**3.6**	**3.6**
K3		**50**		**50**	**35.7**	**35.7**
K4			**80**	**80**	**57.1**	**57.1**
Marks	**10**	**50**	**80**	**140**	**100**	**100**
NB: Higher level of performance of the students is to be assessed by attempting higher level of K levels.						

Summative Examinations - Question Paper – Format

Q. No.	**Unit**	**CO**	**K-level**		
Answer **ALL** the questions				**PART – A**	**(10 x 1 = 10 Marks)**
1.	**Unit - I**	**CO1**	**K1**		
				a)	b)
				c)	d)
2.	**Unit - I**	**CO1**	**K 2**		
				a)	b)
				c)	d)
3.	**Unit - II**	**CO2**	**K 1**		
				a)	b)
				c)	d)
4.	**Unit - II**	**CO2**	**K 2**		
				a)	b)
				c)	d)
5.	**Unit - III**	**CO3**	**K 1**		
				a)	b)
				c)	d)
6.	**Unit - III**	**CO3**	**K 2**		
				a)	b)
				c)	d)
7.	**Unit - IV**	**CO4**	**K 1**		
				a)	b)
				c)	d)
8.	**Unit - IV**	**CO4**	**K 2**		
				a)	b)
				c)	d)
9.	**Unit - V**	**CO5**	**K 1**		
				a)	b)
				c)	d)
10.	**Unit - V**	**CO**	**K 2**		
				a)	b)
				c)	d)

Answer **ALL** the questions **PART – B**				**(5 x 5 = 25 Marks)**
11. a)	**Unit - I**	**CO1**	**K 3**	
		OR		
11. b)	**Unit - I**	**CO 1**	**K 3**	
12. a)	**Unit - II**	**CO 2**	**K 3**	
		OR		
12. b)	**Unit - II**	**CO 2**	**K 3**	
13. a)	**Unit - III**	**CO 3**	**K 3**	
		OR		
13. b)	**Unit - III**	**CO 3**	**K 3**	
14. a)	**Unit - IV**	**CO 4**	**K 3**	
		OR		
14. b)	**Unit - IV**	**CO 4**	**K 3**	
15. a)	**Unit - V**	**CO 5**	**K 3**	
		OR		
15. b)	**Unit - V**	**CO 5**	**K 3**	

Answer **ALL** the questions **PART – C(5 x 8 = 40 Marks)**				
16. a)	**Unit - I**	**CO 1**	**K 4**	
		OR		
16. b)	**Unit - I**	**CO 1**	**K 4**	
17. a)	**Unit - II**	**CO 2**	**K 4**	
		OR		
17. b)	**Unit - II**	**CO 2**	**K 4**	
18. a)	**Unit - III**	**CO 3**	**K 4**	
		OR		
18. b)	**Unit - III**	**CO 3**	**K 4**	
19. a)	**Unit - IV**	**CO 4**	**K 4**	
		OR		
19. b)	**Unit - IV**	**CO 4**	**K 4**	
20. a)	**Unit - V**	**CO 5**	**K 4**	
		OR		
20. b)	**Unit - V**	**CO 5**	**K 4**	

Course Name	PROGRAMMING IN C LAB			
Course Code	23UITCP11	**L**	**P**	**C**
Category	CORE	5	-	5

COURSE OBJECTIVES:

- The Course aims to provide exposure to problem-solving through C programming
- It aims to train the student to the basic concepts of the C -Programming language
- Apply different concepts of C language to solve the problem

CONTENTS **75**

1. Programs using Input/ Output functions
2. Programs on conditional structures
3. Command Line Arguments
4. Programs using Arrays
5. String Manipulations
6. Programs using Functions
7. Recursive Functions
8. Programs using Pointers
9. Files
10. Programs using Structures & Unions

BOOKS FOR STUDY:

- Robert W. Sebesta, (2012), ―Concepts of Programming Languages‖, Fourth Edition, Addison Wesley (Unit I : Chapter – 1)

E. Balaguruswamy, (2010), ―Programming in ANSI C‖, Fifth Edition, Tata McGraw Hill Publications

BOOKS FOR REFERENCES:

- Ashok Kamthane, (2009), ―Programming with ANSI & Turbo C‖, Pearson Education Byron Gottfried, (2010), ―Programming with C‖, Schaums Outline Series, Tata McGraw Hill Publications

WEB RESOURCES:

- http://www.tutorialspoint.com/cprogramming/
- http://www.cprogramming.com/
- http://www.programmingsimplified.com/c-program-examples
- http://www.programiz.com/c-programming
- http://www.cs.cf.ac.uk/Dave/C/CE.html
- http://fresh2refresh.com/c-programming/c-function/

Nature of Course	EMPLOYABILITY		SKILL ORIENTED	✓	ENTREPRENEURSHIP			
Curriculum Relevance	LOCAL		REGIONAL		NATIONAL		GLOBAL	✓
Changes Made in the Course	Percentage of Change		No Changes Made		New Course	✓		
***Treat 20% as each unit (20*5=100%) and calculate the percentage of change for the course.**								

COURSE OUTCOMES:		**K LEVEL**
After studying this course, the students will be able to:		
CO1	Demonstrate the understanding of syntax and semantics of C programs.	**K1 to K4**
CO2	Identify the problem and solve using C programming techniques.	**K1 to K4**
CO3	Identify suitable programming constructs for problem solving.	**K1 to K4**
CO4	Analyse various concepts of C language to solve the problem in an efficient way.	**K1 to K4**
CO5	Develop a C program for a given problem and test for its correctness.	**K1 to K4**

MAPPING WITH PROGRAM OUTCOMES:

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	L	S	S	-	-	-				
CO2	M	-	S	M	S	-				
CO3	M	M	S	S	S	-				
CO4	M	M	S	S	S	M				
CO5	-	M	S	S	M	S				

S- STRONG **M – MEDIUM** **L - LOW**

CO / PO MAPPING:

COS	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO 1	3	2	2	3	2	2
CO 2	3	3	2	3	2	2
CO 3	3	3	3	3	2	2
CO 4	3	3	2	3	2	2

CO 5	**3**	**3**	**2**	**3**	**3**	**2**
WEIGHTAGE	**15**	**14**	**11**	**15**	**11**	**10**
WEIGHTED PERCENT OF COURSE CONTRIBUTION TO POS	**100**	**93**	**73**	**100**	**73**	**67**

LESSON PLAN:

S.NO	List of Programs	Hours	Pedagogy
1.	Programs using Input/ Output functions	**75**	**Laboratory Experiments**
2.	Programs on conditional structures		
3.	Command Line Arguments		
4.	Programs using Arrays		
5.	String Manipulations		
6.	Programs using Functions		
7.	Recursive Functions		
8.	Programs using Pointers		
9.	Files		
10.	Programs using Structures & Unions		

Learning Outcome Based Education & Assessment (LOBE) Formative Examination - Blue Print Articulation Mapping – K Levels with Course Outcomes (COs)							
Internal	**Cos**	**K Level**	**Syntax & Semantics**	**Programming principles**	**Concept Applications**	**Coding& Implementation**	**Debugging & Output**
CI AI	**CO1**	**K1**	**5**				
	CO2	**K2**		**5**			
	CO3	**K3**			**5**		
	CO4	**K4**				**5**	
	CO5	**K5**					**5**
Question Pattern CIA		**No. of Questions to be asked**	**2**	**2**	**2**	**2**	**2**
		No. of Questions to be answered	**2**	**2**	**2**	**2**	**2**
		Marks for each question	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**
		Total Marks for each section	**5**	**5**	**5**	**5**	**5**

Distribution of Marks with K Level CIA									
	K Level	**Syntax & Semantics**	**Programming principles**	**Concept Applications**	**Coding**	**Debugging & Output**	**Total Marks**	**% of (Marks without choice)**	**Consolidated %**
CIA	**K1**	**5**					**5**	**20**	**20**
	K2		**5**				**5**	**20**	**20**
	K3			**5**			**5**	**20**	**20**
	K4				**5**		**5**	**20**	**20**
	K5					**5**	**5**	**20**	**20**
	Marks						**25**	**100**	**100**

K1- Remembering and recalling facts with specific answers

K2- Basic understanding of facts and stating main ideas with general answers

K3- Application oriented- Solving Problems

K4- Examining, analyzing, presentation and make inferences with evidences

CO will be allotted for individual Assignment which carries five marks as part of CIA component.

Summative Examination – Blue Print Articulation Mapping – K Level with Course Outcomes (COs)							
Internal	**Cos**	**K Level**	**Syntax & Semantics**	**Programmingprinciples**	**Concept Applications**	**Coding& Implementation**	**Debugging & Output**
CI AI	**CO1**	**K1**	**15**				
	CO2	**K2**		**15**			
	CO3	**K3**			**15**		
	CO4	**K4**				**15**	
	CO5	**K5**					**15**
Question Pattern		No. of Questions to be asked	**2**	**2**	**2**	**2**	**2**
		No. of Questions to be answered	**2**	**2**	**2**	**2**	**2**
		Marks for each question	**7.5**	**7.5**	**7.5**	**7.5**	**7.5**
		Total Marks for each section	**15**	**15**	**15**	**15**	**15**

Distribution of Marks with K Level								
K Level	**Syntax & Semantics**	**Programming principles**	**Concept Applications**	**Coding**	**Debugging & Output**	**Total Marks**	**% of (Marks without choice)**	**Consolidated %**
K1	15					**15**	**20**	**20**
K2		15				**15**	**20**	**20**
K3			15			15	20	20
K4				15		**15**	20	20
K5					15	15	20	20
Marks						**75**	**100**	**100**

Course Name	DIGITAL LOGIC			
Course Code	23UELEA12	**L**	**P**	**C**
Category	ALLIED	4	-	3

COURSE OBJECTIVES:

- To learn how to work on combinational Logic.
- To learn the Arithmetic Circuits and Flip-Flops.
- To learn the types of Registers.
- To implement the basic concept of memories.

UNIT - I Number Systems and Codes **12**

BinaryNumbersystem–Binarytodecimal–decimaltobinary–hexadecimal–ASCIIcode– Excess-3Code–Graycode.

DigitalLogic: TheBasicGates–NOT,OR,AND-UniversalLogicGates–NOR, NAND.

UNIT - II Combinational Logic Circuits: **12**

Boolean Laws and Theorems. - Sum of Products method - Truth table to Karnaugh Map –Pairs, Quads, and Octets – Don't Care Condition Product-of sums method -Product-of sumsSimplifications.

DataProcessingCircuits: Multiplexers–Demultiplexers-1-of-16Decoder–BCD-to-decimalDecoders–Seven segmentDecoders–Encoders–Exclusive-ORGates-ParityGeneratorsandCheckers.Arrays and Strings.

UNIT – III Arithmetic Circuits and Flip-Flops **12**

BinaryAddition-BinarySubtraction–2'SComplementRepresentation-2'sComplementArithmetic–ArithmeticBuildingBlocks:Adder-Subtractor.

Flip-Flops-RSFlip-Flops – Gated Flip-Flops– Edge-triggered RS Flip-Flops – Edge-triggeredDFlip-flops–Edge-triggeredJKFlip-Flops– JKMasterSlaveFlip- flops.

UNIT - IV Types of Registers **12**

SerialIn-SerialOut–SerialIn-ParallelOut–ParallelIn-ParallelOut–RingCounter–RippleCounter–SynchronousCounter

UNIT - V Memory **12**

Semiconductor memory–RAM– SRAM – DRAM – ROM– PROM- EPROM–EEPROM Magnetic memory – Hard Disk – Floppy Disk Optical memory –CDROM – CDR– CDRW– DVD.

Total Lecture Hours **60**

BOOKS FOR STUDY:

- DonaldPLeach,AlbertPaulMalvino,GoutamSaha(2015)- DigitalPrinciplesandApplications,8th edition ,McGraw-HillEducation.
- M.MorrisMano (2007) -ComputerSystemArchitecture,3rd Edition,PearsonEducation.

UNITI :TextBook 1:Chapters5:(5.1to5.9)and2:(2.1to2.3)

UNITII :TextBook1:Chapters3:(3.1to3.8)and4:(4.1to4.7)

UNITIII:TextBook1:Chapters6:(6.1to6.8)and8:(8.1to8.5,8.8)

UNITIV:TextBook1:Chapters9:(9.1to9.6)and10:(10.1,10.3)

UNITV:TextBook1:Chapter13:(13.1, 13.2, 13.3, 13.5)

BOOKS FOR REFERENCES:

- R.AnanthaNatarajan - DigitalDesign,,PHILearning,.
- PrinciplesofDigitalElectronics,K.Meena,PHILearning,2013.
- DigitalComputerFundamentals,ThomasC.BarteeTMH2007.
- Ashok Kamthane, (2009), ―Programming with ANSI & Turbo C‖, Pearson Education
- Byron Gottfried, (2010), ―Programming with C‖, Schaums Outline Series, Tata McGraw Hill Publications

WEB RESOURCES:

- **https://soaneemrana.org/onewebmedia/DIGITAL%20PRINCIPLES%20AND%20APPLICATION%20BY%20LEACH%20&%20MALVINO.pdf**
- **https://www.javatpoint.com/digital-computers**

Nature of Course	EMPLOYABILITY		SKILL ORIENTED	✓	ENTREPRENEURSHIP			
Curriculum Relevance	LOCAL		REGIONAL		NATIONAL		GLOBAL	✓
Changes Made in the Course	Percentage of Change		No Changes Made		New Course	✓		

***Treat 20% as each unit (20*5=100%) and calculate the percentage of change for the course.**

COURSE OUTCOMES:		K LEVEL
After studying this course, the students will be able to:		
CO1	Understand the basic so number system and logic gates	K1 to K4
CO2	Understand combinatorial logic circuits and implementation of circuits	K1 to K4
CO3	Analyze the concept of Arithmetic circuits and Flip Flops.	K1 to K4
CO4	Relate the ideas of types of registers	K1 to K4
CO5	Analyze the concept of different types of memories	K1 to K4

MAPPING WITH PROGRAM OUTCOMES:

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	M	S	S	-	-				
CO2	M	S	S	M	M	-				
CO3	M	M	S	S	M	S				
CO4	S	M	S	M	S	M				
CO5	S	S	S	S	S	S				

S- STRONG M – MEDIUM L - LOW

CO / PO MAPPING:

COS	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO 1	2	2	2	3	2	2
CO 2	3	2	2	3	2	2
CO 3	3	3	2	3	2	2
CO 4	3	3	2	3	2	2
CO 5	3	3	3	3	2	2
Weightage	14	13	13	15	10	10
WEIGHTED PERCENTAGE OF COURSE CONTRIBUTION TO POS	93	87	87	100	67	67

LESSON PLAN:

UNIT	DIGITALLOGIC FUNDAMENTALS	HRS	PEDAGOGY
I	BinaryNumbersystem–Binarytodecimal–decimaltobinary–hexadecimal–ASCIIcode– Excess-3Code–Graycode. **DigitalLogic:**TheBasicGates–NOT,OR,AND-UniversalLogicGates–NOR, NAND.	12	ICT, CHALK & TALK
II	Boolean Laws and Theorems. - Sum of Products method - Truth table to Karnaugh Map –Pairs, Quads, and Octets – Don't Care	12	ICT, CHALK & TALK

	Condition Product-of sums method -Product-of sumsSimplifications. **DataProcessingCircuits:**Multiplexers–Demultiplexers-1-of-16Decoder–BCD-to-decimalDecoders–Seven segmentDecoders–Encoders–Exclusive-ORGates-ParityGeneratorsand Checkers. Arrays and Strings.		
III	BinaryAddition-BinarySubtraction–2'SComplementRepresentation-2'sComplementArithmetic–ArithmeticBuildingBlocks:Adder-Subtractor . **Flip-Flops**-RSFlip-Flops – Gated Flip-Flops– Edge-triggered RS Flip-Flops – Edge-triggeredDFlip-flops– Edge-triggeredJKFlip-Flops– JKMasterSlaveFlip- flops.	**12**	**ICT, CHALK & TALK**
IV	SerialIn-SerialOut–SerialIn-ParallelOut–ParallelIn-ParallelOut–RingCounter– RippleCounter–SynchronousCounter	**12**	**ICT, CHALK & TALK**
V	Semiconductor memory–RAM– SRAM – DRAM – ROM–PROM- EPROM–EEPROM Magnetic memory – Hard Disk – Floppy Disk Optical memory –CDROM – CDR– CDRW– DVD.	**12**	**ICT, CHALK & TALK**

Learning Outcome Based Education & Assessment (LOBE) Formative Examination - Blue Print Articulation Mapping – K Levels with Course Outcomes (COs)						
Internal	**Cos**	**K Level**	**Section A**		**Section B Either or Choice**	**Section C Either or Choice**
			MCQs			
			No. of. Questions	**K - Level**		
CI AI	**CO1**	**K1 – K4**	2	K1,K2	2(K3)	2(K4)
	CO2	**K1 – K4**	2	K1,K2	2(K3)	2(K4)
CI AII	**CO3**	**K1 – K4**	2	K1,K2	2(K3)	2(K4)
	CO4	**K1 – K4**	2	K1,K2	2(K3)	2(K4)
Question Pattern CIA I & II		**No. of Questions to be asked**	4		4	4
		No. of Questions to be answered	4		2	2
		Marks for each question	1		5	8
		Total Marks for each section	4		10	16

Distribution of Marks with K Level CIA I & CIA II							
	K Level	Section A (Multiple Choice Questions)	Section B (Either / Or Choice)	Section C (Either / Or Choice)	Total Marks	% of (Marks without choice)	Consolidate of %
CIA I	K1	2			2	3.6	7.2
	K2	2			2	3.6	
	K3		20		20	35.7	35.7
	K4			32	32	57.1	57.1
	Marks	4	20	32	56	100	100
CIA II	K1	2			2	3.6	7.2
	K2	2			2	3.6	
	K3		20		20	35.7	35.7
	K4			32	32	57.1	57.1
	Marks	4	20	32	56	100	100

K1- Remembering and recalling facts with specific answers

K2- Basic understanding of facts and stating main ideas with general answers

K3- Application oriented- Solving Problems

K4- Examining, analyzing, presentation and make inferences with evidences

CO 5 will be allotted for individual Assignment which carries five marks as part of CIA component.

Summative Examination – Blue Print Articulation Mapping – K Level with Course Outcomes (COs)						
S. No	COs	K - Level	Section A (MCQs)		Section B (Either / or Choice) With K - LEVEL	Section C (Either / or Choice) With K - LEVEL
			No. of Questions	K – Level		
1	CO1	K1-K4	2	K1,K2	2 (K3)	2(K4)
2	CO2	K1-K4	2	K1,K2	2 (K3)	2(K4)
3	CO3	K1-K4	2	K1,K2	2 (K3)	2(K4)
4	CO4	K1-K4	2	K1,K2	2 (K3)	2(K4)
5	CO5	K1-K4	2	K1,K2	2 (K3)	2(K4)
No. of Questions to be Asked			10		10	10
No. of Questions to be answered			10		5	5
Marks for each question			1		5	8
Total Marks for each section			10		25	40
(Figures in parenthesis denotes, questions should be asked with the given K level)						

Distribution of Marks with K Level						
K Level	**Section A (Multiple Choice Questions)**	**Section B (Either or Choice**	**Section C (Either/ or Choice)**	**Total Marks**	**% of (Marks without choice)**	**Consolidated %**
K1	**5**			**5**	**3.6**	**3.6**
K2	**5**			**5**	**3.6**	**3.6**
K3		**50**		**50**	**35.7**	**35.7**
K4			**80**	**80**	**57.1**	**57.1**
Marks	**10**	**50**	**80**	**140**	**100**	**100**
NB: Higher level of performance of the students is to be assessed by attempting higher level of K levels.						

Summative Examinations - Question Paper – Format

Q. No.	**Unit**	**CO**	**K-level**		
Answer **ALL** the questions				**PART – A**	**(10 x 1 = 10 Marks)**
1.	**Unit - I**	**CO1**	**K1**		
				a)	b)
				c)	d)
2.	**Unit - I**	**CO1**	**K 2**		
				a)	b)
				c)	d)
3.	**Unit - II**	**CO2**	**K 1**		
				a)	b)
				c)	d)
4.	**Unit - II**	**CO2**	**K 2**		
				a)	b)
				c)	d)
5.	**Unit - III**	**CO3**	**K 1**		
				a)	b)
				c)	d)
6.	**Unit - III**	**CO3**	**K 2**		
				a)	b)
				c)	d)
7.	**Unit - IV**	**CO4**	**K 1**		
				a)	b)
				c)	d)
8.	**Unit - IV**	**CO4**	**K 2**		
				a)	b)
				c)	d)
9.	**Unit - V**	**CO5**	**K 1**		
				a)	b)
				c)	d)
10.	**Unit - V**	**CO**	**K 2**		
				a)	b)
				c)	d)

Answer **ALL** the questions **PART – B**				**(5 x 5 = 25 Marks)**
11. a)	**Unit - I**	**CO1**	**K 3**	
		OR		
11. b)	**Unit - I**	**CO 1**	**K 3**	
12. a)	**Unit - II**	**CO 2**	**K 3**	
		OR		
12. b)	**Unit - II**	**CO 2**	**K 3**	
13. a)	**Unit - III**	**CO 3**	**K 3**	
		OR		
13. b)	**Unit - III**	**CO 3**	**K 3**	
14. a)	**Unit - IV**	**CO 4**	**K 3**	
		OR		
14. b)	**Unit - IV**	**CO 4**	**K 3**	
15. a)	**Unit - V**	**CO 5**	**K 3**	
		OR		
15. b)	**Unit - V**	**CO 5**	**K 3**	

Answer **ALL** the questions **PART – C(5 x 8 = 40 Marks)**				
16. a)	**Unit - I**	**CO 1**	**K 4**	
		OR		
16. b)	**Unit - I**	**CO 1**	**K 4**	
17. a)	**Unit - II**	**CO 2**	**K 4**	
		OR		
17. b)	**Unit - II**	**CO 2**	**K 4**	
18. a)	**Unit - III**	**CO 3**	**K 4**	
		OR		
18. b)	**Unit - III**	**CO 3**	**K 4**	
19. a)	**Unit - IV**	**CO 4**	**K 4**	
		OR		
19. b)	**Unit - IV**	**CO 4**	**K 4**	
20. a)	**Unit - V**	**CO 5**	**K 4**	
		OR		
20. b)	**Unit - V**	**CO 5**	**K 4**	

Course Name	FUNDAMENTALS OF COMPUTERS			
Course Code	23UITFC11	**L**	**P**	**C**
Category	FOUNDATION COURSE	2	-	2

COURSE OBJECTIVES:

- To analyze a problem with appropriate problem solving techniques
- To understand the main principles of imperative, functional and logic oriented programming languages an
- To increase the ability to learn new programming languages.

UNIT - I	**Introduction**	**6**

Characteristics of Computers - Evolution of Computers.**Basic Computer Organization:** I/O Unit - Storage Unit - Arithmetic Logic Unit - Control Unit - Central Processing Unit.

UNIT - II	**Computer Software**	**6**

Types of Software - System Architecture **Computer Languages:** Machine Language - Assembly Language - High Level Language - Object Oriented Languages

UNIT – III	**Problem Solving Concepts**	**6**

Problem Solving in Everyday life - Types of Problems - Problem solving with computers - Difficulties with Problem Solving

UNIT - IV	**Problem Solving concepts for the computer**	**6**

Constant Variables - Data Types - Functions -Operators - Expressions and Equations .
Organizing the Solution: Analyzing the problem - Algorithm - Flowchart - Pseudo code

UNIT - V	**Programming Structure**	**6**

Structuring a solution - Modules and their function - Local and Global variables - Parameters - Return values - Sequential Logic Structure - Problem solving with Decision - Problem Solving with Loops.

Total Lecture Hours	**30**

BOOKS FOR STUDY:

- Pradeep K.Sinha and Priti Sinha, (2004) —Computer Fundamentals‖, Sixth Edition, BPB Publications.
  Unit I : Chapter 1 & 2,
  Unit II : Chapter 10 & 12
- Maureen Sprankle and Jim Hubbard, (2009) —Problem Solving and Programming Concept, Ninth Edition, Prentice Hall.
  Unit III: Chapter 1,2 &3
  Unit IV : Chapter 3,
  Unit V : Chapter 4,5 ,6,7 & 8

BOOKS FOR REFERENCES:

- R.G. Dromey, (2007), —How to Solve it by Computer‖, Prentice Hall International Series in Computer Science.
- C. S. V. Murthy, (2009), —Fundamentals of Computers‖, Third Edition, Himalaya Publishing House.

WEB RESOURCES:

- **http://www.tutorialspoint.com/computer_fundamentals/**
- **http://www.comptechdoc.org/basic/basictut/**
- **http://www.homeandlearn.co.uk/**
- **http://www.top-windows-tutorials.com/computer-basics/**
- **https://www.programiz.com/article/flowchart-programming (Algorithm and flow chart)**

Nature of Course	EMPLOYABILITY		SKILL ORIENTED	✓	ENTREPRENEURSHIP			
Curriculum Relevance	LOCAL		REGIONAL		NATIONAL		GLOBAL	✓
Changes Made in the Course	Percentage of Change		No Changes Made		New Course	✓		

***Treat 20% as each unit (20*5=100%) and calculate the percentage of change for the course.**

COURSE OUTCOMES:		**K LEVEL**
After studying this course, the students will be able to:		
CO1	Outline the Computer fundamentals and various problem solving concepts in Computers	**K1 to K2**
CO2	Describe the basic computer organization, software, computer languages, software development life cycle and the need of structured programming in solving a computer problem	**K1 to K2**
CO3	Identify the types of computer languages, software, computer problems and examine how to set up expressions and equations to solve the problem.	**K1 to K2**
CO4	Choose most appropriate programming languages, constructs and features to solve the problems in diversified domains.	**K1 to K2**
CO5	Analyze the design of modules and functions in structuring the solution and various Organizing tools in problem solving.	**K1 to K2**

MAPPING WITH PROGRAM OUTCOMES:										
CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	M	L	L	-	-				
CO2	M	M	M	S	S	S				
CO3	M	S	S	S	M	S				
CO4	S	S	S	M	S	S				
CO5	S	S	S	M	M	S				
S- STRONG				M – MEDIUM					L - LOW	

CO / PO MAPPING:						
COS	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO 1	3	2	2	2	2	3
CO 2	3	2	2	2	3	2
CO 3	3	3	3	3	2	2
CO 4	3	2	2	2	2	3
CO 5	3	3	2	2	3	2
Weightage	15	12	11	11	12	12
WEIGHTED PERCENTAGE OF COURSE CONTRIBUTION TO POS	100	80	73	73	80	80

LESSON PLAN:

UNIT	Fundamentals of Computers	HRS	PEDAGOGY
I	**Introduction:** Characteristics of Computers - Evolution of Computers **Basic Computer Organization:** I/O Unit - Storage Unit - Arithmetic Logic Unit - Control Unit - Central Processing Unit.	6	ICT, CHALK & TALK
II	**Computer Software:** Types of Software - System Architecture **Computer Languages:** Machine Language - Assembly Language - High Level Language - Object Oriented Languages	6	ICT, CHALK & TALK
III	**Problem Solving Concepts:** Problem Solving in Everyday life - Types of Problems - Problem solving with computers - Difficulties with Problem Solving	6	ICT, CHALK & TALK
IV	**Problem Solving concepts for the computer:** Constant Variables - Data Types - Functions -Operators - Expressions and Equations - **Organizing the Solution:** Analyzing the problem - Algorithm - Flowchart - Pseudo code	6	ICT, CHALK & TALK

V	**Programming Structure:** Structuring a solution - Modules and their function - Local and Global variables - Parameters - Return values - Sequential Logic Structure - Problem solving with Decision - Problem Solving with Loops	**6**	**ICT, CHALK & TALK**

Learning Outcome Based Education & Assessment (LOBE) Formative Examination - Blue Print Articulation Mapping – K Levels with Course Outcomes (COs)				
Internal	**Cos**	**K Level**	**Section A**	
			MCQs	
			No. of. Questions	**K - Level**
CI AI	**CO1**	**K1 – K2**	**25**	**K1,K2**
	CO2	**K1 – K2**	**25**	**K1,K2**
CI AII	**CO3**	**K1 – K2**	**25**	**K1,K2**
	CO4	**K1 – K2**	**25**	**K1,K2**
Question Pattern CIA I & II		**No. of Questions to be asked**	**50**	
		No. of Questions to be answered	**50**	
		Marks for each question	**1**	
		Total Marks for each section	**50**	

* Two Formative examinations will be conducted as a part of Continuous Internal Assessment under which, 50 MCQ's will be asked [50X1=50 marks] from any 4 CO's. (Ist Test-2 CO's & IInd Test-2 CO's) in equal weightage

Distribution of Marks with K Level CIA I & CIA II					
	K Level	Section A (Multiple Choice Questions)	Total Marks	% of (Marks without choice)	Consolidate of %
CIA I	K1	30	30	60	100
	K2	20	20	40	
	K3				
	K4				
	Marks	50	50	100	100
CIA II	K1	30	30	60	100
	K2	20	20	40	
	K3				
	K4				
	Marks	50	50	100	100

K1- Remembering and recalling facts with specific answers

K2- Basic understanding of facts and stating main ideas with general answers

K3- Application oriented- Solving Problems

K4- Examining, analyzing, presentation and make inferences with evidences

CO5 will be allotted for individual Assignment which carries five marks as part of CIA component.

Summative Examination – Blue Print Articulation Mapping – K Level with Course Outcomes (COs)				
S. No	COs	K - Level	Section A (MCQs)	
			No. of Questions	K – Level
1	CO1	K1-K2	15	K1,K2
2	CO2	K1-K2	15	K1,K2
3	CO3	K1-K2	15	K1,K2
4	CO4	K1-K2	15	K1,K2
5	CO5	K1-K2	15	K1,K2
No. of Questions to be Asked			75	
No. of Questions to be answered			75	
Marks for each question			1	
Total Marks for each section			75	
(Figures in parenthesis denotes, questions should be asked with the given K level)				

In summative examinations, 75 MCQ's will be asked [75X1=75 marks] from all 5 CO's in equal weightage.

Distribution of Marks with K Level				
K Level	**Section A (Multiple Choice Questions)**	**Total Marks**	**% of (Marks without choice)**	**Consolidated %**
K1	**40**	**40**	**53**	**100**
K2	**35**	**35**	**47**	
K3				
K4				
Marks		**75**	**100**	**100**
NB: Higher level of performance of the students is to be assessed by attempting higher level of K levels.				

Course Name	FUNDAMENTALS OF INFORMATION TECHNOLOGY			
Course Code	23UITNM11	**L**	**P**	**C**
Category	NON MAJOR ELECTIVE	2	-	2

COURSE OBJECTIVES:

- Understand basic concepts and terminology of information technology.
- Have a basic understanding of personal computers and their operation.
- Be able to identify data storage and its usage
- Get great knowledge of software and its functionalities
- Understand about operating system and their uses

UNIT - I Introduction to Computers **6**

Introduction, Definition, .Characteristics of computer, Evolution of Computer, Block Diagram Of a computer, Generations of Computer, Classification Of Computers, Applications of Computer, Capabilities and limitations of computer

UNIT - II Basic Computer Organization **6**

Role of I/O devices in a computer system. Input Units: Keyboard, Terminals and its types. Pointing Devices, Scanners and its types, Voice Recognition Systems, Vision Input System, Touch Screen, Output Units: Monitors and its types. Printers: Impact Printers and its types. Non Impact Printers and its types, Plotters, types of plotters, Sound cards, Speakers.

UNIT – III Storage Fundamentals **6**

Primary Vs Secondary Storage, Data storage & retrieval methods. Primary Storage: RAM ROM, PROM, EPROM, EEPROM. Secondary Storage: Magnetic Tapes, Magnetic Disks. Cartridge tape, hard disks, Floppy disks Optical Disks, Compact Disks, Zip Drive, Flash Drives

UNIT - IV Software **6**

Software and its needs, Types of S/W. System Software: Operating System, Utility Programs Programming Language: Machine Language, Assembly Language, High Level Language their advantages & disadvantages. Application S/W and its types: Word Processing, Spread Sheets Presentation, Graphics, DBMS s/w

UNIT - V Operating System: **6**

Functions, Measuring System Performance, Assemblers, Compilers and Interpreters.
Batch Processing, Multiprogramming, Multi Tasking, Multiprocessing, Time Sharing, DOS, Windows, Unix/Linux.

Total Lecture Hours **30**

BOOKS FOR STUDY:

- Anoop Mathew, S. KavithaMurugeshan (2009), " Fundamental of Information Technology", Majestic Books.
- Alexis Leon, Mathews Leon," Fundamental of Information Technology", 2nd Edition.
- S. K Bansal, "Fundamental of Information Technology".

BOOKS FOR REFERENCES:

- Bhardwaj SushilPuneet Kumar, "Fundamental of Information Technology"
- GG WILKINSON, "Fundamentals of Information Technology", Wiley-Blackwell
- A Ravichandran , "Fundamentals of Information Technology", Khanna Book Publishing

WEB RESOURCES:

- **https://testbook.com/learn/computer-fundamentals**
- **https://www.tutorialsmate.com/2020/04/computer-fundamentals-tutorial.html**
- **https://www.javatpoint.com/computer-fundamentals-tutorial**
- **https://www.tutorialspoint.com/computer_fundamentals/index.htm**
- **https://www.nios.ac.in/media/documents/sec229new/Lesson1.pdf**

Nature of Course	EMPLOYABILITY		SKILL ORIENTED	✓	ENTREPRENEURSHIP						
Curriculum Relevance	LOCAL		REGIONAL		NATIONAL		GLOBAL	✓			
Changes Made in the Course	Percentage of Change		No Changes Made		New Course	✓					

***Treat 20% as each unit (20*5=100%) and calculate the percentage of change for the course.**

COURSE OUTCOMES:		**K LEVEL**
After studying this course, the students will be able to:		
CO1	Learn the basics of computer, Construct the structure of the required things in computer, learn how to use it.	**K1 to K2**
CO2	Develop organizational structure using for the devices present currently under input or output unit.	**K1 to K2**
CO3	Concept of storing data in computer using two header namely RAM and ROM with different types of ROM with advancement in storage basis	**K1 to K2**
CO4	Work with different software, Write program in the software and applications of software.	**K1 to K2**
CO5	Usage of Operating system in information technology which really acts as a interpreter between software and hardware.	**K1 to K2**

MAPPING WITH PROGRAM OUTCOMES:										
CO/PO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	**M**	**M**	**M**	**M**	**S**	**S**				
CO2	**M**	**S**	**S**	**S**	**M**	**S**				

CO3	M	M	S	S	M	S				
CO4	S	M	M	S	S	S				
CO5	L	M	S	M	S	S				

S- STRONG **M – MEDIUM** **L - LOW**

CO / PO MAPPING:

COS	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO 1	3	3	3	3	3	3
CO 2	3	3	2	3	3	3
CO 3	2	3	3	3	3	3
CO 4	3	3	3	3	3	3
CO 5	3	3	2	2	3	3
Weightage	14	15	14	14	15	15
WEIGHTED PERCENTAGE OF COURSE CONTRIBUTION TO POS	93	100	93	93	100	100

LESSON PLAN:

UNIT	Fundamentals of Information Technology	HRS	PEDAGOGY
I	Introduction to Computers: Introduction, Definition, .Characteristics of computer, Evolution of Computer, Block Diagram Of a computer, Generations of Computer, Classification Of Computers, Applications of Computer, Capabilities and limitations of computer	6	ICT, CHALK & TALK
II	**Basic Computer Organization:** Role of I/O devices in a computer system. Input Units: Keyboard, Terminals and its types. Pointing Devices, Scanners and its types, Voice Recognition Systems, Vision Input System, Touch Screen, Output Units: Monitors and its types. Printers: Impact Printers and its types. Non Impact Printers and its types, Plotters, types of plotters, Sound cards, Speakers.	6	ICT, CHALK & TALK
III	**Storage Fundamentals:** Primary Vs Secondary Storage, Data storage & retrieval methods. Primary Storage: RAM ROM, PROM, EPROM, EEPROM. Secondary Storage: Magnetic Tapes, Magnetic Disks. Cartridge tape, hard disks, Floppy disks Optical Disks, Compact Disks, Zip Drive, Flash Drives	6	ICT, CHALK & TALK
IV	**Software:** Software and its needs, Types of S/W. System Software: Operating	6	ICT, CHALK &

	System, Utility Programs Programming Language: Machine Language, Assembly Language, High Level Language their advantages & disadvantages. Application S/W and its types: Word Processing, Spread Sheets Presentation, Graphics, DBMS s/w		**TALK**
V	**Operating System:** Functions, Measuring System Performance, Assemblers, Compilers and Interpreters.Batch Processing, Multiprogramming, Multi Tasking, Multiprocessing, Time Sharing, DOS, Windows, Unix/Linux.	**6**	**ICT, CHALK & TALK**

Learning Outcome Based Education & Assessment (LOBE) Formative Examination - Blue Print Articulation Mapping – K Levels with Course Outcomes (COs)				
Internal	**Cos**	**K Level**	**Section A**	
			MCQs	
			No. of. Questions	**K - Level**
CI AI	**CO1**	**K1 – K2**	**25**	**K1,K2**
	CO2	**K1 – K2**	**25**	**K1,K2**
CI AII	**CO3**	**K1 – K2**	**25**	**K1,K2**
	CO4	**K1 – K2**	**25**	**K1,K2**
Question Pattern CIA I & II		**No. of Questions to be asked**	**50**	
		No. of Questions to be answered	**50**	
		Marks for each question	**1**	
		Total Marks for each section	**50**	

***** Two Formative examinations will be conducted as a part of Continuous Internal Assessment under which, 50 MCQ's will be asked [50X1=50 marks] from any 4 CO's. (I^{st} Test-2 CO's & II^{nd} Test-2 CO's) in equal weightage

Distribution of Marks with K Level CIA I & CIA II					
	K Level	Section A (Multiple Choice Questions)	Total Marks	% of (Marks without choice)	Consolidate of %
CIA I	K1	30	30	60	100
	K2	20	20	40	
	K3				
	K4				
	Marks	50	50	100	100
CIA II	K1	30	30	60	100
	K2	20	20	40	
	K3				
	K4				
	Marks	50	50	100	100

K1- Remembering and recalling facts with specific answers

K2- Basic understanding of facts and stating main ideas with general answers

K3- Application oriented- Solving Problems

K4- Examining, analyzing, presentation and make inferences with evidences

CO5 will be allotted for individual Assignment which carries five marks as part of CIA component.

Summative Examination – Blue Print Articulation Mapping – K Level with Course Outcomes (COs)				
S. No	COs	K - Level	Section A (MCQs)	
			No. of Questions	K – Level
1	CO1	K1-K2	15	K1,K2
2	CO2	K1-K2	15	K1,K2
3	CO3	K1-K2	15	K1,K2
4	CO4	K1-K2	15	K1,K2
5	CO5	K1-K2	15	K1,K2
No. of Questions to be Asked			75	
No. of Questions to be answered			75	
Marks for each question			1	
Total Marks for each section			75	
(Figures in parenthesis denotes, questions should be asked with the given K level)				

In summative examinations, 75 MCQ's will be asked [75X1=75 marks] from all 5 CO's in equal weightage.

Distribution of Marks with K Level				
K Level	**Section A (Multiple Choice Questions)**	**Total Marks**	**% of (Marks without choice)**	**Consolidated %**
K1	**40**	**40**	**53**	**100**
K2	**35**	**35**	**47**	
K3				
K4				
Marks		**75**	**100**	**100**
NB: Higher level of performance of the students is to be assessed by attempting higher level of K levels.				


SECOND SEMESTER

Course Name	JAVA PROGRAMMING			
Course Code	23UITCC21	**L**	**P**	**C**
Category	CORE	5	-	5

COURSE OBJECTIVES:

- To provide knowledge on fundamentals of object-oriented programming
- To have the ability to use the SDK environment to create, debug and run servlet programs

UNIT - I Fundamentals of Object- Oriented Programming **15**

Introduction – Object Oriented Paradigm – Concepts of Object – Oriented Programming – Benefits of OOP – Evolution: Java History- Java Features - Differs from C and C++ - Overview of Java Language: Java Program- Structure – Tokens – Java Statements – Java Virtual Machine – Command Line Arguments.

UNIT - II Constants, Variables and Data Types **15**

Operators and Expressions – Decision making and Branching – Looping – Arrays - Strings – Collection Interfaces and classes

UNIT - III Classes objects and methods **15**

Introduction – Defining a class – Method Declaration – Constructors - Method Overloading – Static Members – Nesting of methods – Inheritance – Overriding – Final variables and methods – Abstract methods and classes

UNIT - IV Multiple Inheritance **15**

Defining Interfaces – Extending Interfaces – Implementing Interfaces – Packages: Creating Packages – Accessing Packages – Using a Package – Managing Errors and Exceptions - Multithreaded Programming

UNIT - V Layout ManagersJDBC – Java Servlet **15**

Servlet Environment Role – Servlet API – Servlet Life Cycle – Servlet Context – HTTP Support – HTML to Servlet Communication

Total Lecture Hours **75**

BOOKS FOR STUDY:

- E Balagurusamy(2010), "Programming with Java", Tata McGraw Hill Edition India Private Ltd, 4th Edition
- C Xavier,"Java Programming – A Practical Approach", Tata McGraw Hill Edition Private Ltd

BOOKS FOR REFERENCES:

- P.Naughton and H.Schildt (1999), "Java 2 The Complete Reference", TMH, 3rd Edition
- JaisonHunder& William Crawford (2002),"Java Servlet Programming", O'Reilly
- Jim Keogh (2002), "J2EE: The Complete Reference", Tata McGraw Hill Edition.

WEB RESOURCES:

- **http://www.tutorialspoint.com/cprogramming/**
- **http://www.cprogramming.com/**
- **http://www.programmingsimplified.com/c-program-examples**
- **http://www.programiz.com/c-programming**
- **http://www.cs.cf.ac.uk/Dave/C/CE.html**
- **http://fresh2refresh.com/c-programming/c-function/**

Nature of Course	EMPLOYABILITY	✓	SKILL ORIENTED		ENTREPRENEURSHIP							
Curriculum Relevance	LOCAL		REGIONAL		NATIONAL		GLOBAL	✓				
Changes Made in the Course	Percentage of Change		No Changes Made		New Course	✓						
***Treat 20% as each unit (20*5=100%) and calculate the percentage of change for the course.**												

COURSE OUTCOMES:		**K LEVEL**
After studying this course, the students will be able to:		
CO1	Outline the fundamental concepts of C programming languages, andits features	**K1 to K4**
CO2	Demonstrate the programming methodology.	**K1 to K4**
CO3	Identify suitable programming constructs for problem solving.	**K1 to K4**
CO4	Select the appropriate data representation, control structures, functions and concepts based on the problem requirement.	**K1 to K4**
CO5	Evaluate the program performance by fixing the errors.	**K1 to K4**

MAPPING WITH PROGRAM OUTCOMES:

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	L	S	S	-	-	-				
CO2	M	-	S	M	S	-				
CO3	M	M	S	S	S	-				
CO4	M	M	S	S	S	M				
CO5	-	M	S	S	M	S				

S- STRONG	M – MEDIUM	L - LOW

CO / PO MAPPING:

COS	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO 1	3	2	2	2	2	2
CO 2	2	3	2	2	2	2
CO 3	2	3	3	3	2	2
CO 4	2	3	2	2	2	2
CO 5	3	3	2	2	2	2
WEIGHTAGE	12	14	11	11	10	10
WEIGHTED PERCENTAGE OF COURSE CONTRIBUTION TO POS	80	93	73	73	63	63

LESSON PLAN:

UNIT	JAVA PROGRAMMING	HRS	PEDAGOGY
I	**Fundamentals of Object- Oriented Programming**: Introduction – Object Oriented Paradigm – Concepts of Object – Oriented Programming – Benefits of OOP – Evolution: Java History- Java Features - Differs from C and C++ - Overview of Java Language: Java Program- Structure – Tokens – Java Statements – Java Virtual Machine – Command Line Arguments	15	ICT, CHALK & TALK
II	Constants, Variables and Data Types – Operators and Expressions – Decision making and Branching – Looping – Arrays - Strings – Collection Interfaces and classes	15	ICT, CHALK & TALK
III	**Classes objects and methods**: Introduction – Defining a class – Method Declaration – Constructors - Method Overloading – Static Members – Nesting of methods – Inheritance – Overriding – Final variables and methods – Abstract methods and classes	15	ICT, CHALK & TALK
IV	**Multiple Inheritance**: Defining Interfaces – Extending Interfaces – Implementing Interfaces – Packages: Creating Packages – Accessing Packages – Using a Package – Managing Errors and Exceptions - Multithreaded Programming	15	ICT, CHALK & TALK
V	Layout Managers - JDBC – Java Servlet: - Servlet Environment Role – Servlet API – Servlet Life Cycle – Servlet Context – HTTP Support – HTML to Servlet Communication	15	ICT, CHALK & TALK

Learning Outcome Based Education & Assessment (LOBE) Formative Examination - Blue Print Articulation Mapping – K Levels with Course Outcomes (COs)						
Internal	**Cos**	**K Level**	**Section A**		**Section B Either or Choice**	**Section C Either or Choice**
			MCQs			
			No. of. Questions	**K - Level**		
CI AI	**CO1**	**K1 – K4**	2	K1,K2	2(K3)	2(K4)
	CO2	**K1 – K4**	2	K1,K2	2(K3)	2(K4)
CI AII	**CO3**	**K1 – K4**	2	K1,K2	2(K3)	2(K4)
	CO4	**K1 – K4**	2	K1,K2	2(K3)	2(K4)
Question Pattern CIA I & II		**No. of Questions to be asked**	4		4	4
		No. of Questions to be answered	4		2	2
		Marks for each question	1		5	8
		Total Marks for each section	4		10	16

Distribution of Marks with K Level CIA I & CIA II							
	K Level	**Section A (Multiple Choice Questions)**	**Section B (Either / Or Choice)**	**Section C (Either / Or Choice)**	**Total Marks**	**% of (Marks without choice)**	**Consolidate of %**
CIA I	**K1**	**2**			**2**	**3.6**	**7.2**
	K2	**2**			**2**	**3.6**	
	K3		**20**		**20**	**35.7**	**35.7**
	K4			**32**	**32**	**57.1**	**57.1**
	Marks	**4**	**20**	**32**	**56**	**100**	**100**
CIA II	**K1**	**2**			**2**	**3.6**	**7.2**
	K2	**2**			**2**	**3.6**	
	K3		**20**		**20**	**35.7**	**35.7**
	K4			**32**	**32**	**57.1**	**57.1**
	Marks	**4**	**20**	**32**	**56**	**100**	**100**

K1- Remembering and recalling facts with specific answers

K2- Basic understanding of facts and stating main ideas with general answers

K3- Application oriented- Solving Problems

K4- Examining, analyzing, presentation and make inferences with evidences

CO5 will be allotted for individual Assignment which carries five marks as part of CIA component.

Summative Examination – Blue Print Articulation Mapping – K Level with Course Outcomes (COs)						
S. No	COs	K - Level	Section A (MCQs)		Section B (Either / or Choice) With K - LEVEL	Section C (Either / or Choice) With K - LEVEL
			No. of Questions	K – Level		
1	CO1	K1-K4	2	K1,K2	2 (K3)	2(K4)
2	CO2	K1-K4	2	K1,K2	2 (K3)	2(K4)
3	CO3	K1-K4	2	K1,K2	2 (K3)	2(K4)
4	CO4	K1-K4	2	K1,K2	2 (K3)	2(K4)
5	CO5	K1-K4	2	K1,K2	2 (K3)	2(K4)
No. of Questions to be Asked			10		10	10
No. of Questions to be answered			10		5	5
Marks for each question			1		5	8
Total Marks for each section			10		25	40
(Figures in parenthesis denotes, questions should be asked with the given K level)						

Distribution of Marks with K Level						
K Level	Section A (Multiple Choice Questions)	Section B (Either or Choice	Section C (Either/ or Choice)	Total Marks	% of (Marks without choice)	Consolidated %
K1	5			5	3.6	3.6
K2	5			5	3.6	3.6
K3		50		50	35.7	35.7
K4			80	80	57.1	57.1
Marks	10	50	80	140	100	100
NB: Higher level of performance of the students is to be assessed by attempting higher level of K levels.						

Summative Examinations - Question Paper – Format

Q. No.	Unit	CO	K-level		
Answer **ALL** the questions				**PART – A**	**(10 x 1 = 10 Marks)**
1.	**Unit - I**	**CO1**	**K1**		
				a)	b)
				c)	d)
2.	**Unit - I**	**CO1**	**K 2**		
				a)	b)
				c)	d)
3.	**Unit - II**	**CO2**	**K 1**		
				a)	b)
				c)	d)
4.	**Unit - II**	**CO2**	**K 2**		
				a)	b)
				c)	d)
5.	**Unit - III**	**CO3**	**K 1**		
				a)	b)
				c)	d)
6.	**Unit - III**	**CO3**	**K 2**		
				a)	b)
				c)	d)
7.	**Unit - IV**	**CO4**	**K 1**		
				a)	b)
				c)	d)
8.	**Unit - IV**	**CO4**	**K 2**		
				a)	b)
				c)	d)
9.	**Unit - V**	**CO5**	**K 1**		
				a)	b)
				c)	d)
10.	**Unit - V**	**CO**	**K 2**		
				a)	b)
				c)	d)

Answer **ALL** the questions **PART – B**				**(5 x 5 = 25 Marks)**
11. a)	**Unit - I**	**CO1**	**K 3**	
		OR		
11. b)	**Unit - I**	**CO 1**	**K 3**	
12. a)	**Unit - II**	**CO 2**	**K 3**	
		OR		
12. b)	**Unit - II**	**CO 2**	**K 3**	
13. a)	**Unit - III**	**CO 3**	**K 3**	
		OR		
13. b)	**Unit - III**	**CO 3**	**K 3**	
14. a)	**Unit - IV**	**CO 4**	**K 3**	
		OR		
14. b)	**Unit - IV**	**CO 4**	**K 3**	
15. a)	**Unit - V**	**CO 5**	**K 3**	
		OR		
15. b)	**Unit - V**	**CO 5**	**K 3**	

Answer **ALL** the questions **PART – C(5 x 8 = 40 Marks)**				
16. a)	**Unit - I**	**CO 1**	**K 4**	
		OR		
16. b)	**Unit - I**	**CO 1**	**K 4**	
17. a)	**Unit - II**	**CO 2**	**K 4**	
		OR		
17. b)	**Unit - II**	**CO 2**	**K 4**	
18. a)	**Unit - III**	**CO 3**	**K 4**	
		OR		
18. b)	**Unit - III**	**CO 3**	**K 4**	
19. a)	**Unit - IV**	**CO 4**	**K 4**	
		OR		
19. b)	**Unit - IV**	**CO 4**	**K 4**	
20. a)	**Unit - V**	**CO 5**	**K 4**	
		OR		
20. b)	**Unit - V**	**CO 5**	**K 4**	

Course Name	JAVA PROGRAMMING LAB			
Course Code	23UITCP21	**L**	**P**	**C**
Category	CORE	5	-	5

COURSE OBJECTIVES:

- To design and develop applications using different Java programming language techniques, JDBC & Servlets
- To design and develop applications using different Java programming language techniques, JDBC & Servlets

CONTENTS **75**

1. Basic Programs
2. Arrays
3. Strings
4. Array List, HashSet and Vector collection classes
5. Classes and Objects
6. Interfaces
7. Inheritance
8. Packages
9. Exception Handling
10. Threads
11. Linked List
12. Stacks
13. Queue
14. Sorting
15. Binary Tree Representation
16. Working with Database using JDBC
17. Web application using Servlet

BOOKS FOR STUDY:

- E Balagurusamy(2010), “Programming with Java”, Tata McGraw Hill Edition India Private Ltd, 4th Edition.
- C Xavier,”Java Programming – A Practical Approach”, Tata McGraw Hill Edition Private Ltd.

BOOKS FOR REFERENCES:

- P.Naughton and H.Schildt (1999), “Java 2 The Complete Reference”, TMH, 3rd Edition
- Jaison Hunder & William Crawford (2002),”Java Servlet Programming”, O'Reilly

Jim Keogh (2002), “J2EE: The Complete Reference”, Tata McGraw Hill Edition.

WEB RESOURCES:

- **http://www.tutorialspoint.com/cprogramming/**
- **http://www.cprogramming.com/**
- **http://www.programmingsimplified.com/c-program-examples**
- **http://www.programiz.com/c-programming**
- **http://www.cs.cf.ac.uk/Dave/C/CE.html**
- **http://fresh2refresh.com/c-programming/c-function/**

Nature of Course	EMPLOYABILITY		SKILL ORIENTED	✓	ENTREPRENEURSHIP			
Curriculum Relevance	LOCAL		REGIONAL		NATIONAL		GLOBAL	✓
Changes Made in the Course	Percentage of Change		No Changes Made		New Course	✓		
***Treat 20% as each unit (20*5=100%) and calculate the percentage of change for the course.**								

COURSE OUTCOMES:		**K LEVEL**
After studying this course, the students will be able to:		
CO1	Identify and explain the way of solving the simple problems	**K1 to K4**
CO2	Use appropriate software development environment to write, compile and execute object-oriented Java programs	**K1 to K4**
CO3	Analyze and identify necessary mechanisms of Java needed to solve real-world problem	**K1 to K4**
CO4	Test for defects and validate a Java program with different inputs	**K1 to K4**
CO5	Design, develop and compile Core Java , GUI , JDBC and servlet applications that utilize OOP and data structure concepts	**K1 to K4**

MAPPING WITH PROGRAM OUTCOMES:

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	M	M	S	M	M				
CO2	M	M	S	S	M	M				
CO3	S	M	S	S	S	S				
CO4	S	S	S	S	S	M				
CO5	S	S	S	S	S	S				

S- STRONG **M – MEDIUM** **L - LOW**

CO / PO MAPPING:

COS	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO 1	3	2	3	3	2	2
CO 2	3	3	3	3	2	2

CO 3	**3**	**3**	**3**	**2**	**2**	**3**
CO 4	**3**	**3**	**3**	**3**	**3**	**2**
CO 5	**3**	**3**	**2**	**3**	**2**	**2**
WEIGHTAGE	**15**	**14**	**14**	**14**	**11**	**11**
WEIGHTED PERCENT OF COURSE CONTRIBUTION TO POS	**100**	**93**	**93**	**93**	**73**	**73**

LESSON PLAN: JAVA PROGRAMMING & DATA STRUCTURES LAB			
S.NO	**CONTENTS**	**Hours**	**Pedagogy**
1.	Basic Programs	**75**	**Laboratory Experiments**
2.	Arrays		
3.	Strings		
4.	ArrayList, HashSet and Vector collection classes		
5.	Classes and Objects		
6.	Interfaces		
7.	Inheritance		
8.	Packages		
9.	Exception Handling		
10.	Threads		
11.	Linked List		
12.	Stacks		
13.	Queue		
14.	Sorting		
15.	Binary Tree Representation		
16.	Working with Database using JDBC		
17.	Web application using Servlet		

Learning Outcome Based Education & Assessment (LOBE) Formative Examination - Blue Print Articulation Mapping – K Levels with Course Outcomes (COs)							
Internal	**Cos**	**K Level**	**Syntax & Semantics**	**Programming principles**	**Concept Applications**	**Coding& Implementation**	**Debugging & Output**
CI AI	**CO1**	**K1**	**5**				
	CO2	**K2**		**5**			
	CO3	**K3**			**5**		
	CO4	**K4**				**5**	
	CO5	**K5**					**5**
Question Pattern CIA		**No. of Questions to be asked**	**2**	**2**	**2**	**2**	**2**
		No. of Questions to be answered	**2**	**2**	**2**	**2**	**2**
		Marks for each question	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**
		Total Marks for each section	**5**	**5**	**5**	**5**	**5**

Distribution of Marks with K Level CIA									
	K Level	**Syntax & Semantics**	**Programming principles**	**Concept Applications**	**Coding**	**Debugging & Output**	**Total Marks**	**% of (Marks without choice)**	**Consolidated %**
CIA	**K1**	**5**					**5**	**20**	**20**
	K2		**5**				**5**	**20**	**20**
	K3			**5**			**5**	**20**	**20**
	K4				**5**		**5**	**20**	**20**
	K5					**5**	**5**	**20**	**20**
	Marks						**25**	**100**	**100**

K1- Remembering and recalling facts with specific answers

K2- Basic understanding of facts and stating main ideas with general answers

K3- Application oriented- Solving Problems

K4- Examining, analyzing, presentation and make inferences with evidences

CO will be allotted for individual Assignment which carries five marks as part of CIA component.

Distribution of Marks with K Level								
K Level	Syntax & Semantics	Programming principles	Concept Applications	Coding	Debugging & Output	Total Marks	% of (Marks without choice)	Consolidated %
K1	15					15	20	20
K2		15				15	20	20
K3			15			15	20	20
K4				15		15	20	20
K5					15	15	20	20
Marks						75	100	100

Course Name	STATISTICAL AND NUMERICAL METHODS - I			
Course Code	23UMTEA23	L	P	C
Category	ALLIED	4	-	3

COURSE OBJECTIVES:

- Understand the concept of basic statistics
- Know the curve fitting and errors in computation
- Understand the concepts of skewness and Interpolation.

UNIT - I	**Measures of averages**	**12**

Measures of dispersion– Skewness based on moments

UNIT - II	**Correlation and Regression**	**12**

Correlation and regression-Rank correlation coefficient.

UNIT - III	**Numbers**	**12**

Index numbers and Curve fitting (all types of curves)

UNIT - IV	**Errors in Computation**	**12**

Errors in Numerical Computation–Iteration method–Bisection method –Regulafalsi method–Newton Raphson method.

UNIT - V	**Interpolation**	**12**

Interpolation: Newton's Interpolation formulae–CentralDifferenceInterpolation formulae(Gaussforwardandbackwardformulaeonly)–Lagrange's Interpolation formula–Inverse Interpolation.

Total Lecture Hours	**60**

BOOKS FOR STUDY:

- Dr.S.Arumugam&Isaac,**Statistics**,New GammaPublications,Reprint2012.
- S. Arumugam and A. Thanga Pandi Isaac, A. Soma Sundaram, **Numerical Methods**, ScitechPublication, Third Edition, 2007.

BOOKS FOR REFERENCES:

- S.C.Gupta,V.K.Kapoor,**ElementsofMathematicalStatistics,**SultanChand&SonsPublications,NewDelhi,2001.
- T.VeerarajanandT.Ramachandran,**NumericalMethods,**TataMcGrawHill,SecondEdition,NewDelhi,2006.
- S.S.Sastry,**IntroductoryMethodsofNumericalAnalysis**,PrenticeHallIndiaPrivateLimited, Fourth Edition, NewDelhi, 2008.

WEB RESOURCES:

- **http://www.numerical-methods.com/**
- **https://www.khanacademy.org/math**

Nature of Course	EMPLOYABILITY		SKILL ORIENTED	✓	ENTREPRENEURSHIP			
Curriculum Relevance	LOCAL		REGIONAL		NATIONAL		GLOBAL	✓
Changes Made in the Course	Percentage of Change		No Changes Made		New Course	✓		
***Treat 20% as each unit (20*5=100%) and calculate the percentage of change for the course.**								

COURSE OUTCOMES:		**K LEVEL**
After studying this course, the students will be able to:		
CO1	Make the student sunders and the Statistical and Numerical Methods concepts.	**K1 to K4**
CO2	To design and conduct experiments as well as toan alyze and interpret data.	**K1 to K4**
CO3	To Identify formulate and solve the problems.	**K1 to K4**
CO4	Thiscourseenablethestudentstousetheproblemsolvingskillsinawidevariety ofsituations.	**K1 to K4**
CO5	Enables them to understand the concepts of Interpolation.	**K1 to K4**

MAPPING WITH PROGRAM OUTCOMES:

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	M			S	S				
CO2	M		S	M	S	S				
CO3	S	S	S	M	M	M				
CO4	S	S	M	M	M	S				
CO5	S	M	M	S	S	S				

S- STRONG **M – MEDIUM** **L - LOW**

CO / PO MAPPING:						
COS	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**	**PSO6**
CO 1	**3**	**2**	**2**	**2**	**2**	**2**
CO 2	**2**	**3**	**2**	**2**	**2**	**2**
CO 3	**2**	**3**	**3**	**3**	**2**	**2**
CO 4	**2**	**3**	**2**	**2**	**2**	**2**
CO 5	**3**	**3**	**2**	**2**	**2**	**2**
WEIGHTED PERCENTAGE OF COURSE CONTRIBUTION TO POS	**12**	**14**	**11**	**11**	**10**	**10**

LESSON PLAN:

UNIT	STATISTICAL AND NUMERICAL METHODS-I	HRS	PEDAGOGY
I	Measures of dispersion – Skewness based on moments	**12**	**ICT, CHALK & TALK**
II	Correlation and regression-Rank correlation coefficient.	**12**	**ICT, CHALK & TALK**
III	Index numbers and Curve fitting (all types of curves)	**12**	**ICT, CHALK & TALK**
IV	Errors in Numerical Computation – Iteration method–Bisection method –Regulafalsi method–Newton Raph son method.	**12**	**ICT, CHALK & TALK**
V	Interpolation:Newton'sInterpolationformulae–CentralDifferenceInterpolationformulae(Gaussforwardandbackwardformulaeonly)–Lagrange'sInterpolationformula–InverseInterpolation	**12**	**ICT, CHALK & TALK**

Learning Outcome Based Education & Assessment (LOBE) Formative Examination - Blue Print Articulation Mapping – K Levels with Course Outcomes (COs)						
Internal	Cos	K Level	Section A		Section B Either or Choice	Section C Either or Choice
			MCQs			
			No. of. Questions	K - Level		
CI AI	CO1	2	2	K1,K2	2(K3)	2(K4)
	CO2	2	2	K1,K2	2(K3)	2(K4)
CI AII	CO3	2	2	K1,K2	2(K3)	2(K4)
	CO4	2	2	K1,K2	2(K3)	2(K4)
Question Pattern CIA I & II		No. of Questions to be asked	4		4	4
		No. of Questions to be answered	4		2	2
		Marks for each question	1		5	8
		Total Marks for each section	4		10	16

Distribution of Marks with K Level CIA I & CIA II							
	K Level	Section A (Multiple Choice Questions)	Section B (Either / Or Choice)	Section C (Either / Or Choice)	Total Marks	% of (Marks without choice)	Consolidate of %
CIA I	K1	2			2	3.6	7.2
	K2	2			2	3.6	
	K3		20		20	35.7	35.7
	K4			32	32	57.1	57.1
	Marks	4	20	32	56	100	100
CIA II	K1	2			2	3.6	7.2
	K2	2			2	3.6	
	K3		20		20	35.7	35.7
	K4			32	32	57.1	57.1
	Marks	4	20	32	56	100	100

K1- Remembering and recalling facts with specific answers

K2- Basic understanding of facts and stating main ideas with general answers

K3- Application oriented- Solving Problems

K4- Examining, analyzing, presentation and make inferences with evidences

CO5 will be allotted for individual Assignment which carries five marks as part of CIA component.

Summative Examination – Blue Print Articulation Mapping – K Level with Course Outcomes (COs)						
S. No	COs	K - Level	Section A (MCQs)		Section B (Either / or Choice) With K - LEVEL	Section C (Either / or Choice) With K - LEVEL
			No. of Questions	K – Level		
1	CO1	K1-K4	2	K1,K2	2 (K3)	2(K4)
2	CO2	K1-K4	2	K1,K2	2 (K3)	2(K4)
3	CO3	K1-K4	2	K1,K2	2 (K3)	2(K4)
4	CO4	K1-K4	2	K1,K2	2 (K3)	2(K4)
5	CO5	K1-K4	2	K1,K2	2 (K3)	2(K4)
No. of Questions to be Asked			10		10	10
No. of Questions to be answered			10		5	5
Marks for each question			1		5	8
Total Marks for each section			10		25	40
(Figures in parenthesis denotes, questions should be asked with the given K level)						

Distribution of Marks with K Level						
K Level	Section A (Multiple Choice Questions)	Section B (Either or Choice	Section C (Either/ or Choice)	Total Marks	% of (Marks without choice)	Consolidated %
K1	5			5	3.6	3.6
K2	5			5	3.6	3.6
K3		50		50	35.7	35.7
K4			80	80	57.1	57.1
Marks	10	50	80	140	100	100
NB: Higher level of performance of the students is to be assessed by attempting higher level of K levels.						

Summative Examinations - Question Paper – Format

Q. No.	Unit	CO	K-level		
Answer **ALL** the questions				**PART – A**	**(10 x 1 = 10 Marks)**
1.	**Unit - I**	**CO1**	**K1**		
				a)	b)
				c)	d)
2.	**Unit - I**	**CO1**	**K 2**		
				a)	b)
				c)	d)
3.	**Unit - II**	**CO2**	**K 1**		
				a)	b)
				c)	d)
4.	**Unit - II**	**CO2**	**K 2**		
				a)	b)
				c)	d)
5.	**Unit - III**	**CO3**	**K 1**		
				a)	b)
				c)	d)
6.	**Unit - III**	**CO3**	**K 2**		
				a)	b)
				c)	d)
7.	**Unit - IV**	**CO4**	**K 1**		
				a)	b)
				c)	d)
8.	**Unit - IV**	**CO4**	**K 2**		
				a)	b)
				c)	d)
9.	**Unit - V**	**CO5**	**K 1**		
				a)	b)
				c)	d)
10.	**Unit - V**	**CO**	**K 2**		
				a)	b)
				c)	d)

Answer **ALL** the questions **PART – B**				**(5 x 5 = 25 Marks)**
11. a)	**Unit - I**	**CO1**	**K 3**	
		OR		
11. b)	**Unit - I**	**CO 1**	**K 3**	
12. a)	**Unit - II**	**CO 2**	**K 3**	
		OR		
12. b)	**Unit - II**	**CO 2**	**K 3**	
13. a)	**Unit - III**	**CO 3**	**K 3**	
		OR		
13. b)	**Unit - III**	**CO 3**	**K 3**	
14. a)	**Unit - IV**	**CO 4**	**K 3**	
		OR		
14. b)	**Unit - IV**	**CO 4**	**K 3**	
15. a)	**Unit - V**	**CO 5**	**K 3**	
		OR		
15. b)	**Unit - V**	**CO 5**	**K 3**	

Answer **ALL** the questions **PART – C(5 x 8 = 40 Marks)**				
16. a)	**Unit - I**	**CO 1**	**K 4**	
		OR		
16. b)	**Unit - I**	**CO 1**	**K 4**	
17. a)	**Unit - II**	**CO 2**	**K 4**	
		OR		
17. b)	**Unit - II**	**CO 2**	**K 4**	
18. a)	**Unit - III**	**CO 3**	**K 4**	
		OR		
18. b)	**Unit - III**	**CO 3**	**K 4**	
19. a)	**Unit - IV**	**CO 4**	**K 4**	
		OR		
19. b)	**Unit - IV**	**CO 4**	**K 4**	
20. a)	**Unit - V**	**CO 5**	**K 4**	
		OR		
20. b)	**Unit - V**	**CO 5**	**K 4**	

Course Name	BASICS OF INTERNET			
Course Code	23UITNM21	**L**	**P**	**C**
Category	NON MAJOR ELECTIVE	2	-	2

COURSE OBJECTIVES:

- Knowledge of Internet medium
- Internet as a mass medium
- Features of Internet Technology
- Internet as source of infotainment
- Study of internet audiences and about cyber crime

UNIT - I	**World Wide Web**	**6**

The emergence of internet as a mass medium – the world of 'world wide web'.

UNIT - II	**Features**	**6**

Features of internet as a technology

UNIT - III	**Infotainment**	**6**

Internet as a source of infotainment – classification based on content and style.

UNIT - IV	**Demo graph and Psychograph**	**6**

Demographic and psychographic descriptions of internet 'audiences' – effect of internet on the values and life-styles.

UNIT - V	**Present issues**	**6**

Present issues such as cyber-crime and future possibilities.

	Total Lecture Hours	**30**

BOOKS FOR STUDY:

- Douglas E. Comer, The Internet Book**, Taylor and Francis, 2019.**

BOOKS FOR REFERENCES:

- "Mastering HTML5 and CSS3 Made Easy", Teach Comp Inc., 2014.
- Thomas Michaud, "Foundations of Web Design: Introduction to HTML & CSS"

WEB RESOURCES:

- **https://www.teachucomp.com/samples/html/5/manuals/Mastering-HTML5-CSS3.pdf**
- **https://www.teachucomp.com/samples/html/5/manuals/Mastering-HTML5-CSS3.pdf**

Nature of Course	EMPLOYABILITY		SKILL ORIENTED	✓	ENTREPRENEURSHIP			
Curriculum Relevance	LOCAL		REGIONAL		NATIONAL		GLOBAL	✓
Changes Made in the Course	Percentage of Change		No Changes Made		New Course	✓		
***Treat 20% as each unit (20*5=100%) and calculate the percentage of change for the course.**								

COURSE OUTCOMES:		**K LEVEL**
After studying this course, the students will be able to:		
CO1	Knows the basic concept of www	**K1 to K2**
CO2	Understand the concept of technology.	**K1 to K2**
CO3	Understand the infotainment and content.	**K1 to K2**
CO4	Know the concept of creating link to email address, demographic and psychographic descriptions.	**K1 to K2**
CO5	Understand the concept of cyber-crime.	**K1 to K2**

MAPPING WITH PROGRAM OUTCOMES:

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	S	S	-	-	-				
CO2	S	M	M	M	S	-				
CO3	S	M	S	-	M	S				
CO4	S	M	S	S	M	S				
CO5	-	S	S	M	S	S				

S- STRONG **M – MEDIUM** **L - LOW**

CO / PO MAPPING:

COS	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO 1	3	3	3	-	-	3
CO 2	2	3	3	2	3	2
CO 3	2	2	3	3	3	2
CO 4	2	2	3	3	3	2
CO 5	2	2	3	3	2	3
WEIGHTAGE	11	12	15	11	11	12
WEIGHTED PERCENTAGE OF COURSE CONTRIBUTION TO POS	73	80	100	73	73	80

LESSON PLAN:			
UNIT	**BASICS OF INTERNET**	**HRS**	**PEDAGOGY**
I	The emergence of internet as a mass medium – the world of 'world wide web'.	**12**	**ICT, CHALK & TALK**
II	Features of internet as a Technology	**12**	**ICT, CHALK & TALK**
III	Internet as a source of infotainment – classification based on content and style.	**12**	**ICT, CHALK & TALK**
IV	Demographic and psychographic descriptions of internet 'audiences' – effect of internet on the values and life-styles.	**12**	**ICT, CHALK & TALK**
V	Present issues such as cybercrime and future possibilities.	**12**	**ICT, CHALK & TALK**

Learning Outcome Based Education & Assessment (LOBE) Formative Examination - Blue Print Articulation Mapping – K Levels with Course Outcomes (COs)				
Internal	**Cos**	**K Level**	**Section A**	
			MCQs	
			No. of. Questions	**K - Level**
CI AI	**CO1**	**K1 – K2**	**25**	**K1,K2**
	CO2	**K1 – K2**	**25**	**K1,K2**
CI AII	**CO3**	**K1 – K2**	**25**	**K1,K2**
	CO4	**K1 – K2**	**25**	**K1,K2**
Question Pattern CIA I & II		**No. of Questions to be asked**	**50**	
		No. of Questions to be answered	**50**	
		Marks for each question	**1**	
		Total Marks for each section	**50**	

* Two Formative examinations will be conducted as a part of Continuous Internal Assessment under which, 50 MCQ's will be asked [50X1=50 marks] from any 4 CO's. (Ist Test-2 CO's & IInd Test-2 CO's) in equal weightage

Distribution of Marks with K Level CIA I & CIA II					
	K Level	**Section A (Multiple Choice Questions)**	**Total Marks**	**% of (Marks without choice)**	**Consolidate of %**
CIA I	**K1**	**30**	**30**	**60**	**100**
	K2	**20**	**20**	**40**	
	K3				
	K4				
	Marks	**50**	**50**	**100**	**100**
CIA II	**K1**	**30**	**30**	**60**	**100**
	K2	**20**	**20**	**40**	
	K3				
	K4				
	Marks	**50**	**50**	**100**	**100**

K1- Remembering and recalling facts with specific answers

K2- Basic understanding of facts and stating main ideas with general answers

K3- Application oriented- Solving Problems

K4- Examining, analyzing, presentation and make inferences with evidences

CO5 will be allotted for individual Assignment which carries five marks as part of CIA component.

Summative Examination – Blue Print Articulation Mapping – K Level with Course Outcomes (COs)				
S. No	COs	K - Level	Section A (MCQs)	
			No. of Questions	K – Level
1	CO1	K1-K2	15	K1,K2
2	CO2	K1-K2	15	K1,K2
3	CO3	K1-K2	15	K1,K2
4	CO4	K1-K2	15	K1,K2
5	CO5	K1-K2	15	K1,K2
No. of Questions to be Asked			75	
No. of Questions to be answered			75	
Marks for each question			1	
Total Marks for each section			75	
(Figures in parenthesis denotes, questions should be asked with the given K level)				

In summative examinations, 75 MCQ's will be asked [75X1=75 marks] from all 5 CO's in equal weightage.

Distribution of Marks with K Level				
K Level	Section A (Multiple Choice Questions)	Total Marks	% of (Marks without choice)	Consolidated %
K1	40	40	53	100
K2	35	35	47	
K3				
K4				
Marks		75	100	100
NB: Higher level of performance of the students is to be assessed by attempting higher level of K levels.				

Course Name	INTRODUCTION TO HTML LAB			
Course Code	23UITSP21	**L**	**P**	**C**
Category	SKILL	-	2	2

COURSE OBJECTIVES:

- Insert a graphic within a web page.
- Create a link within a web page.
- Create a table within a web page.
- Insert heading levels within a web page.
- Insert ordered and unordered lists within a web page. Create a web page.

Contents **30**

1. Create a web page
2. Insert a image in the webpage
3. Create a link to a webpage
4. Create marquee in a webpage
5. Create a table within a web page.
6. Insert heading levels within a web page.
7. Insert ordered and unordered lists within a web page

Total Lecture Hours **30**

BOOKS FOR STUDY:

- "Mastering HTML5 and CSS3 Made Easy", TeachUComp Inc., 2014.
- Thomas Michaud, "Foundations of Web Design: Introduction to HTML & CSS"

BOOKS FOR REFERENCES:

- David Du Rocher **"HTML& CSS Quick start Guide",** Clyde Bank Media**, First Edition.**

WEB RESOURCES:

- **https://www.teachucomp.com/samples/html/5/manuals/Mastering-HTML5-CSS3.pdf**
- **https://www.w3schools.com/html/default.asp**

Nature of Course	EMPLOYABILITY		SKILL ORIENTED		ENTREPRENEURSHIP	✓
Curriculum Relevance	LOCAL		REGIONAL		NATIONAL		GLOBAL	✓
Changes Made in the Course	Percentage of Change		No Changes Made		New Course	✓

***Treat 20% as each unit (20*5=100%) and calculate the percentage of change for the course.**

COURSE OUTCOMES:		K LEVEL
On completion of this course, students will		
CO1	Know the basic concept in HTML and the concept of resources in HTML	K1 to K4
CO2	Knows the design concept of Meta Data, Understand the concept of save the files.	K1 to K4
CO3	Understand the concept of page formatting and list.	K1 to K4
CO4	Creating Links and know the concept of creating link to email address	K1 to K4
CO5	Concept of adding images and understands the table creation.	K1 to K4

MAPPING WITH PROGRAM OUTCOMES:

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	L	S	S	-	-	-				
CO2	S	-	S	M	S	-				
CO3	S	M	S	S	S	-				
CO4	S	M	S	S	S	S				
CO5	-	M	S	S	M	S				

S- STRONG M – MEDIUM L - LOW

CO / PO MAPPING:

COS	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO 1	3	3	3	3	3	3
CO 2	3	3	2	3	3	3
CO 3	2	3	3	3	3	3
CO 4	3	3	3	3	3	3
CO 5	3	3	3	2	3	3
Weightage	14	15	14	14	15	15
WEIGHTED PERCENTAGE OF COURSE CONTRIBUTION TO POS	93	100	93	93	100	100

LESSON PLAN:

UNIT	INTRODUCTION TO HTML	HRS	PEDAGOGY
1.	Create a web page	30	Laboratory Program
2.	Insert a image in the webpage		
3.	Create a link to a webpage		

4.	Create marquee in a webpage		
5.	Create a table within a web page.		
6.	Insert heading levels within a web page.		
7.	Insert ordered and unordered lists within a web page		

Learning Outcome Based Education & Assessment (LOBE) Formative Examination - Blue Print Articulation Mapping – K Levels with Course Outcomes (COs)							
Internal	**Cos**	**K Level**	**Syntax & Semantics**	**Programming principles**	**Concept Applications**	**Coding& Implementation**	**Debugging & Output**
CIAI	**CO1**	**K1**	**5**				
	CO2	**K2**		**5**			
	CO3	**K3**			**5**		
	CO4	**K3**				**5**	
	CO5	**K4**					**5**
Question Pattern CIA		**No. of Questions to be asked**	**2**	**2**	**2**	**2**	**2**
		No. of Questions to be answered	**2**	**2**	**2**	**2**	**2**
		Marks for each question	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**
		Total Marks for each section	**5**	**5**	**5**	**5**	**5**

Distribution of Marks with K Level CIA									
	K Level	**Syntax & Semantics**	**Programming principles**	**Concept Applications**	**Coding**	**Debugging & Output**	**Total Marks**	**% of (Marks without choice)**	**Consolidated %**
CIA	**K1**	**5**					**5**	**20**	**20**
	K2		**5**				**5**	**20**	**20**
	K3			**5**	**5**		**10**	**40**	**40**
	K4					**5**	**5**	**20**	**20**
	Marks						**25**	**100**	**100**

K1- Remembering and recalling facts with specific answers

K2- Basic understanding of facts and stating main ideas with general answers

K3- Application oriented- Solving Problems

K4- Examining, analyzing, presentation and make inferences with evidences

CO will be allotted for individual Assignment which carries five marks as part of CIA component.

Summative Examination – Blue Print Articulation Mapping – K Level with Course Outcomes (COs)							
Internal	**Cos**	**K Level**	**Syntax & Semantics**	**Programming principles**	**Concept Applications**	**Coding& Implementation**	**Debugging & Output**
CI AI	**CO1**	**K1**	**15**				
	CO2	**K2**		**15**			
	CO3	**K3**			**15**		
	CO4	**K3**				**15**	
	CO5	**K4**					**15**
Question Pattern		**No. of Questions to be asked**	**2**	**2**	**2**	**2**	**2**
		No. of Questions to be answered	**2**	**2**	**2**	**2**	**2**
		Marks for each question	**7.5**	**7.5**	**7.5**	**7.5**	**7.5**
		Total Marks for each section	**15**	**15**	**15**	**15**	**15**

Distribution of Marks with K Level								
K Level	**Syntax & Semantics**	**Programming principles**	**Concept Applications**	**Coding**	**Debugging & Output**	**Total Marks**	**% of (Marks without choice)**	**Consolidated %**
K1	**15**					**15**	**20**	**20**
K2		**15**				**15**	**20**	**20**
K3			**15**	**15**		**30**	**40**	**40**
K4					**15**	**15**	**20**	**20**
Marks						**75**	**100**	**100**

K1- Remembering and recalling facts with specific answers

K2- Basic understanding of facts and stating main ideas with general answers

K3- Application oriented- Solving Problems

K4- Examining, analyzing, presentation and make inferences with evidences

CO will be allotted for individual Assignment which carries five marks as part of CIA component.