E.M.G. YADAVA WOMEN'S COLLEGE, MADURAI – 625 014.
(*An Autonomous Institution – Affiliated to Madurai Kamaraj University*)
Re-accredited **(3rd Cycle)** with Grade **A+** & **CGPA 3.51** by NAAC

DEPARTMENT OF INFORMATION TECHNOLOGY

TANSCHE - **CBC**S With OBE

BACHELOR OF SCIENCE

PROGRAMME CODE - I

COURSE STRUCTURE

(w.e.f. 2023 – 2024 Batch onwards)

Annexure - 11

E.M.G. YADAVA WOMEN'S COLLEGE, MADURAI –14.

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TANSCHE - CBCS with OBE

DEPARTMENT OF INFORMATION TECHNOLOGY – UG

(w.e.f. 2023 – 2024 Batch onwards)

VISION

- To create the most favorable environment for quality academic oriented undergraduateand postgraduate education in information technology.
- To develop the programming skills and to meet the current trends of informationtechnology.
- To provide secure seamless access to information resources in all forms through a reliable infrastructure.
- Prepare the students for a technological society and orient them towards serving the society.

MISSION

- To impart high quality professional training at the postgraduate and undergraduate levelwith an emphasis on basic principles of information technology.
- To produce technologically competent and ethically responsible graduates throughbalanced and dynamic curriculum.
- To produce successful graduates with personal and professional responsibilities andcommitment to lifelong learning.
- To take up creative project work in collaboration with IT Industries and professionalsocieties to make the nation as a knowledge-power.

Programme Educational Objectives of B.Sc. Information Technology are:

PEO1	Graduates will be in IT industries as experts or will have completed or will be pursuing research leading to higher degrees.
PEO2	Graduates will be leaders in providing technically feasible and socially acceptable solutions to complex real life problems by virtue of their core competence and communication skills.
PEO3	Graduates will exhibit entrepreneurial skills and professional ethics to take up new ventures.
PEO4	Have strong technical foundation for successful professional careers and to evolve as key- players/ entrepreneurs in the field of information technology.
PEO5	Have leadership skills and awareness on professional ethics and codes.
PEO6	Engage in life-long learning and to remain current in their profession to foster personal and organizational growth.

Annexure - 11

Programme outcomes (PO) for B.Sc Information Technology

On completion of B.Sc., Programmes students will be able to

S. No.	Programme Outcomes
PO1	Develop necessary foundation in fundamentals, aptitude, applications of sciences and other related subjects. Able to clear competitive examinations, appear with confidence and possess basic skills on the related subjects. Secure jobs in employment in Government / Private / Industry and entrepreneurship.
PO2	Receive basic experimental skills in the observation and study of nature, biological techniques, scientific research and demonstrate proficiency in critical analysis or creativity and provide scientific solutions to the problems of the society.
PO3	Enhance the digital knowledge of statistics and to understand its application in interpreting the obtained data.
PO4	Obtain knowledge with emerging trends in their disciplinary and inter-disciplinary areas. Usage of modern tools and software can also be put to use.
PO5	Lead lifelong learning & contribute sustainability to environment, equip students enough to takeup higher studies upto research in various disciplines to become professionals.
PO6	Imbibe democratic, ethical, moral, social & spiritual values in the minds of the learners to become responsible citizens and build a healthy nation.

Programme Specific Outcomes

PSOs	Graduate Attributes	After completion of B.Sc.(Information Technology) the students will be able to	PO Addressed
PSO1	**Knowledge & Proficiency**	Acquire fundamental concepts, methods and practices of Information Technology to develop theoretical and practical skill sets.	PO1
PSO2	**Problem Analysis**	Analyze and recommend the appropriate IT infrastructure required for the implementation of a project.	PO2
PSO3	**Problem Solving**	Design, develop and test software systems for world-wide network computers to provide solutions to real world problems.	PO2
PSO4	**Modern tool usage**	Use modern tools, resources and software and be abreast with the emerging trends in their disciplinary area.	PO4
PSO5	**Social Responsibility**	Excellent adaptability to function in multi-disciplinary work environment in appreciation of professional ethics and societal responsibilities.	PO6
PSO6	**Life-long learning**	Develop strong skills in systematic planning, developing, testing, implementing and providing IT solutions for different domains which helps in the betterment of life.	PO5
PSO7	**Ethical & Moral and Spiritual Values**	Apply ethical principles, responsibility and norms of the technology practice.	PO6
PSO8	**Leadership / Team work / Communication Skills**	An ability to function on different category of teams as a leader and communicate to present effectively.	PO3

Qualification for Admission

Candidates should have passed the Higher Secondary Examination with Mathematics, conducted by the Board of Higher Secondary Education, Government of Tamil Nadu, CBSE & ICSE or any other examinations approved by Madurai Kamaraj University as equivalent.

Duration of the Course

The students shall undergo prescribed course of study for the period of three academic years under TANSCHE - CBCS semester pattern with outcome based education.

Medium of Instruction: English

System: Choice Based Credit System with Outcome Based Model

Nature of the Course

Courses are classified according to the following nature

1. Knowledge and skill oriented
2. Employability oriented
3. Entrepreneurship oriented

Outcome Based Education (OBE) & Assessment

Students understanding must be built on and assessed for wide range of learning activities, which includes different approaches and are classified along several bases, such as

1. **Based on purpose:**
   - Continuous Assessment (internal tests, Assignment, seminar, quiz, Documentation,Case lets, ICT based Assignment, Mini projects administered during the learning process)
   - External Assessment (Evaluation of students' learning at the end of instructional unit)
2. **Based on Domain Knowledge: (for UG Up to K4 levels)**
   Assessment through K1, K2, K3 & K4

Annexure - 11

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TANSCHE – CBCS with OBE
(w.e.f. 2023-2024 batch onwards)

(PART I / PART II / PART III)

Internal (Formative) : 25 marks
External (Summative) : 75 marks
Total :100 marks

Formative Test (CIA-Continuous Internal Assessment) : 25 Marks

Components	Marks
Test (Average of two tests) (Conducted for 100 marks and converted into 10 marks)	**10**
Assignment	**5**
Seminar	**5**
Quiz/ Documentation/ Case lets/ ICT based Assignment/ Mini Projects	**5**
Total	**25**

- ✓ **Centralized system** of Internal Assessment Tests
- ✓ There will be **Two Internal Assessment** Tests
- ✓ Duration of Internal assessment test will be **2 hours for Test I & II**
- ✓ Students shall write **retest** with the approval of HOD on genuine grounds if they are absent.

Question Paper Pattern for Continuous Internal Assessment –Test I and II

Section	Marks
A-Multiple Choice Question (7 x 1 mark)	7
B-Short Answer (4 x 2 marks)	8
C-Either Or Type (3/6 x 5 marks)	15
D- Open Choice Type (2/3 x 10marks)	20
Total	50

- ✓ Conducted for 100 marks and converted into 10 marks

Question Paper Pattern for Summative Examination

Section	Marks
A-Multiple choice Questions without Choice (10 x 1 mark)	10
B-Short Answer without choice (5 x 2 marks)	10
C-Either Or type (5/10 x 5 marks)	25
D-Open Choice type (3/5 x 10 marks)	30
Total	75

In respect of Summative Examinations passing minimum is **36 % for UG.**
Latest amendments and revision as per **UGC** and **TANSCHE** norms is taken into consideration in curriculum preparation.

Annexure - 11

BLUE PRINT FOR INTERNAL ASSESSMENT – I

Articulation Mapping – K Levels with Course Learning Outcomes (CLOs)

Sl. No	CLOs	K- Level	Section A		Section B		Section C	Section D	Total
			MCQs (No Choice)		Short Answers (No Choice)		(Either or Type)	(Open choice)	
			No. of Questions	K-Level	No. of Questions	K-Level			
1	CLO 1	Upto K3	3	(K1/ K2)	3	(K1/ K2)	2 (K2) / 2 (K3) / 2 (K4) (Each set of questions must be in same level)	2 (K3) & 1 (K4)	
2	CLO 2	Upto K3	2	(K1/ K2)					
3	CLO 3	Upto K4	2	(K1/ K2)	1	(K1/ K2)			
No. of Questions to be asked			7		4		6	3	20
No. of Questions to be answered			7		4		3	2	16
Marks for each question			1		2		5	10	-
Total Marks for each section			**7**		**8**		**15**	**20**	**50**

BLUE PRINT FOR INTERNAL ASSESSMENT – II

Articulation Mapping – K Levels with Course Learning Outcomes (CLOs)

Sl. No	CLOs	K- Level	Section A		Section B		Section C	Section D	Total
			MCQs (No Choice)		Short Answers (No Choice)		(Either or Type)	(Open choice)	
			No. of Questions	K-Level	No. of Questions	K-Level			
1	CLO 3	Upto K4	2	(K1/ K2)	1	(K1/ K2)	2 (K2) / 2 (K3) / 2 (K4) (Each set of questions must be in same level)	2 (K3) & 1 (K4)	
2	CLO 4	Upto K3	2	(K1/ K2)	3	(K1/ K2)			
3	CLO 5	Upto K4	3	(K1/ K2)					
No. of Questions to be asked			7		4		6	3	20
No. of Questions to be answered			7		4		3	2	16
Marks for each question			1		2		5	10	-
Total Marks for each section			**7**		**8**		**15**	**20**	**50**

Annexure - 11

Distribution of Marks with K-Levels CIA I and CIA II

CIA	K Levels	Section -A MCQ (No choice)	Section -B Short Answer (No choice)	Section -C (Either or Type)	Section –D (Open choice)	Total Marks	% of Marks
I & II	K1	4	4	-	-	8	10
	K2	3	4	10	-	17	23
	K3	-	-	10	20	30	40
	K4	-		10	10	20	27
	Marks	**7**	**8**	**30**	**30**	**75**	**100**

Annexure - 11

SUMMATIVE EXAMINATION -BLUE PRINT

Articulation Mapping - K Levels with Course Learning Outcomes (CLOs) for External Assessment

Sl. No	CLOs	K-Level	Section A		Section B		Section C (Either/or Type)	Section D (open choice)	Total
			MCQs (No choice)		Short Answers (No choice)				
			No. of Questions	K-Level	No. of Questions	K-Level			
1	CLO 1	Upto K3	2	K1/K2	1	K1/K2	2 (K3& K3)	1(K2)	
2	CLO 2	Upto K3	2	K1/K2	1	K1/K2	2(K2& K2)	1(K3)	
3	CLO 3	Upto K4	2	K1/K2	1	K1/K2	2 (K4&K4)	1(K4)	
4	CLO 4	Upto K3	2	K1/K2	1	K1/K2	2 (K3& K3)	1(K3)	
5	CLO 5	Upto K4	2	K1/K2	1	K1/K2	2 (K4& K4)	1(K4)	
No. of Questions to be asked			10		5		10	5	30
No. of Questions to be answered			10		5		5	3	23
Marks for each question			1		2		5	10	
Total Marks for each section			**10**		**10**		**25**	**30**	**75**

Distribution of Section-wise Marks with K Levels for External Assessment

K Levels	Section A (MCQ'S) (No choice)	Section B (Short Answer) (No choice)	Section C (Either or Type)	Section D (Open Choice)	Total Marks	% of Marks
K1	9	6	--	--	**15**	13
K2	1	4	10	10	**25**	21
K3	-	-	20	20	**40**	33
K4	-	-	20	20	**40**	33
Total Marks	10	10	50	50	**120**	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, Justifying the statement and deriving inferences
K4- Examining, analyzing, presentation and make inferences with evidences

Annexure - 11

EVALUATION (THEORY)

(PART IV - SEC / DSEC)

Internal (Formative) : 25 marks

External (Summative) : 75 marks

Total : 100 marks

Formative Test (CIA-Continuous Internal Assessment) : 25 Marks

Components	Marks
Test (Average of two tests) (Conducted for 60 marks and converted into 20 marks)	**20**
Assignment / Seminar/ Quiz/ Documentation (from Unit 5)	**5**
Total	**25**

- ✓ There will be two Internal Assessment Test
- ✓ Duration of Internal assessment test will be 1 hour for Test

Students shall write retest with the approval of HOD on genuine grounds if they are absent.

Question Paper Pattern for Continuous Internal Assessment Test I & II

Section	Marks
A- Multiple Choice Question (4x1mark)	4
B- Short Answer (3x2marks)	6
C- Either Or type (2/4 x5marks)	10
D- Open choice type (1/2 x10marks)	10
Total	30

Conducted for 60 marks and converted into 20 marks

Question Paper Pattern for External Examination

Section	Marks
A- Multiple Choice Question (10x1mark)	10
B- Short Answer (5x2marks)	10
C- Either Or type (5/5 x5marks)	25
E- Open choice type (3/5 x10marks)	30
Total	75

Annexure - 11

BLUE PRINT FOR INTERNAL ASSESSMENT –I
Articulation Mapping - K Levels with Course Learning Outcomes (CLOs)

Sl. No	CLOs	K- Level	Section A		Section B		Section C	Section D	Total
			MCQs (No Choice)		Short Answers (No Choice)		(Either or Type)	(Open choice)	
			No. of Questions	K-Level	No. of Questions	K-Level			
1	CLO 1	Upto K3	2	K1	3	K1	1 (K2) / 1 (K3) (Each set of questions must be in same level)	1 (K2) & 1 (K3)	
2	CLO 2	Upto K3	2						
No. of Questions to be asked			4		3		4	2	13
No. of Questions to be answered			4		3		2	1	10
Marks for each question			1		2		5	10	-
Total Marks for each section			**4**		**6**		**10**	**10**	**30**

BLUE PRINT FOR INTERNAL ASSESSMENT –II
Articulation Mapping - K Levels with Course Learning Outcomes (CLOs)

Sl. No	CLOs	K- Level	Section A		Section B		Section C	Section D	Total
			MCQs (No Choice)		Short Answers (No Choice)		(Either or Type)	(Open choice)	
			No. of Questions	K-Level	No. of Questions	K-Level			
1	CLO 3	Upto K3	2	K1	3	K1	1 (K2) / 1 (K3) (Each set of questions must be in same level)	1 (K2) & 1 (K3)	
2	CLO 4	Upto K3	2						
No. of Questions to be asked			4		3		4	2	13
No. of Questions to be answered			4		3		2	1	10
Marks for each question			1		2		5	10	-
Total Marks for each section			**4**		**6**		**10**	**10**	**30**

Annexure - 11

Distribution of Marks with K Levels – CIA I & II

CIA	K Levels	Section A MCQ	Section B (Short Answers)	Section C (Either Or Type)	Section D (Open Choice)	Total Marks	% of Marks
I & II	K1	4	6	-	-	10	20
	K2	-	-	10	10	20	40
	K3	-	-	10	10	20	40
	Marks	**4**	**6**	**20**	**20**	**50**	**100**

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Articulation Mapping - K Levels with Course Learning Outcomes (CLOs) for External Assessment

Sl. No	CLOs	K-Level	Section A		Section B		Section C (Either or Type)	Section D (Open Choice)	Total
			MCQs		Short Answers				
			No. of Questions	K-Level	No. of Questions	K-Level			
1	CLO 1	Upto K3	2	K1	1	K1	6(K2) & 4(K3) (Each set of questions must be in same level)	2(K2) & 3(K3)	
2	CLO 2	Upto K3	2		1				
3	CLO 3	Upto K3	2		1				
4	CLO 4	Upto K 3	2		1				
5	CLO 5	Upto K 3	2		1				
No. of Questions to be asked			10		5		10	5	30
No. of Questions to be answered			10		5		5	3	23
Marks for each question			1		2		5	10	
Total Marks for each section			**10**		**10**		**25**	**30**	**75**

Distribution of Section-wise Marks with K Levels for External Assessment

K Levels	Section A (MCQ's)	Section B (Short Answer)	Section C (Either or Type)	Section D (Open Choice)	Total Marks	% of Marks
K1	10	10	-	-	**20**	16
K2	-	-	30	20	**50**	42
K3	-	-	20	30	**50**	42
Total Marks	10	10	50	50	**120**	100

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DEPARTMENT OF INFORMATION TECHNOLOGY – UG

TANSCHE – CBCS with OBE

COURSE STRUCTURE

(w.e.f. 2023 – 2024 Batch onwards)

Semester	Part	Course Code	Course Title	Teaching hrs. (per week)	Duration of Exam (hrs.)	Marks Allotted			CREDITS
						CIA	SE	Total	
I	I	23OU1TA1	Tamil	6	3	25	75	100	3
	II	23OU2EN1	General English- I	6	3	25	75	100	3
	III	23OUIT11	**Core Course-1:** Programming in C	5	3	25	75	100	5
		23OUIT1P	**Core Course-2:** C Programming Practical	5	3	40	60	100	5
		23OUITGEIT1	**GEC 1:** Digital Logic Fundamentals	4	3	25	75	100	3
	IV	23OUITSECN1	**SEC1 (NME):** Office Automation	2	3	25	75	100	2
		23OUITFC1	**FC:** Fundamentals of Computers	2	3	25	75	100	2
II	I	23OU1TA2	Tamil	6	3	25	75	100	3
	II	23OU2EN2	General English-II	6	3	25	75	100	3
	III	23OUIT21	**Core Course–3:** Java Programming and Data Structures	5	3	25	75	100	5
		23OUIT2P	**Core Course-4:** Java Programming and Data Structures Practical	5	3	40	60	100	5
		23OUITDSE2	**DSEC 2:** Big Data Analytics	4	3	25	75	100	3
	IV	23OUITSECN2	**SEC2 (NME):** Advanced Excel	2	3	25	75	100	2
		23OUITSEC3P	**SEC3:** Multimedia Lab	2	3	40	60	100	2
			Total						**46**

Annexure - 11

	DEPARTMENT OF INFORMATION TECHNOLOGY				Class: I B.Sc.			
Sem.	**Category**	**Course Code**	**Course Title**	**Credits**	**Contact Hours / Week**	**CIA**	**SE**	**Total**
I	Core	23OUIT11	Programming in C	5	5	25	75	100

Nature of the Course		
Knowledge and Skill Oriented	Employability Oriented	Entrepreneurship oriented
✔		

Course Objectives:

1. To learn and understand the basics program structure of C.
2. To learn the programming principles of the looping and the statements.
3. To understand the functions used in arrays and string functions.
4. To recall the methods of structures and union to implement in arrays.
5. To study the definition of pointers and different file methods.

Course Content:

Unit- 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

Unit- II:

Decision Making and Branching: Decision Making and Looping - Arrays - Character Arrays and Strings.

Unit- 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

Unit- 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.

Unit- 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**

Text Books:

1. Balagurusamy E. (2010). *Programming in ANSI C*. Fifth Edition. Tata McGraw-Hill.
2. Yashavant, Kanetkar. *(*2021*). Let us C.* BPB Publications.

Reference Book(s)

1. Byron Gottfried, Schaum's. (2018). Outline *Programming with C*. Fourth Edition. Tata McGraw-Hill.
2. Kernighan and Ritchie. (1998). *The C Programming Language*. Second Edition. Prentice Hall.
3. Schildt, Herbert. (2021). *C The Complete Reference*. McGraw-Hill Education.

Websites and e-Learning resources

1. https://www.geeksforgeeks.org/c-programming-language
2. https://www.w3schools.in/C
3. https://www.tutorialspoint.com/cprogramming

Rationale for nature of Course:

- ✓ **Knowledge and Skill:** fundamental knowledge of computing, fluency in a programming language, and excellent debugging and problem-solving skills.
- ✓ **Activities to be given:** Students shall be asked to create a simple program to **use logical variable names to avoid any confusion**

COURSE OUTCOMES:

At the end of the course, the student will be able to:

COs	CLO Statement	Knowledge According to Bloom's Taxonomy (Upto K level)
CO1	Understand the program structure of C with its syntax and semantics	K1 to K3
CO2	Illustrate and examine the programming principles in C (d branching and looping)	K1 to K3
CO3	Apply a user-defined data type consisting of an ordered set of elements of a single data type.	K1 to K4
CO4	Analyze the uses of structures and Unions.	K1 to K3
CO5	Understand Pointers and File Management in C.	K1 to K4

Mapping of Course Learning Outcomes (CLOs) with Programme Outcomes (POs)

	PO1	PO2	PO3	PO4	PO5	PO6
CLO1	3	1	1	2	3	2
CLO2	3	1	1	1	3	2
CLO3	3	1	1	1	3	2
CLO4	3	1	2	3	3	2
CLO5	3	2	1	2	2	3

1-Basic Level 2- Intermediate Level 3- Advanced Level

LESSON PLAN: TOTAL HOURS (75 Hrs.)

UNIT	Details	No. of Hours	Course Objectives	Mode of Teaching
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	CO1	Chalk and Talk, PPT, quiz, on the spot test
II	**Decision Making and Branching**: Decision Making and Looping - Arrays - Character Arrays and Strings.	15	CO2	Chalk and Talk, PPT,

				quiz, on the spot test
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	CO3	Chalk and Talk, PPT, quiz, on the spot test
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	CO4	Chalk and Talk, PPT, quiz, on the spot test
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	CO5	Seminar, PPT presentation , Activity and Model Preparation

Course Designer
Mrs.R.Vishnu Priya

Annexure - 11

	DEPARTMENT OF INFORMATION TECHNOLOGY				Class: I B.Sc.			
Sem.	**Category**	**Course Code**	**Course Title**	**Credits**	**Contact Hours / Week**	**CIA**	**SE**	**Total**
I	Core Practical	23OUIT1P	C Programming Practical	5	5	40	60	100

Nature of the Course		
Knowledge and Skill Oriented	**Employability Oriented**	Entrepreneurship oriented
✔	✔	

Course Objectives:

1. To understand the basic syntax, data types and operators in C.
2. To learn the concepts of decision making statements.
3. To analyze the concepts of Arrays, Functions and Strings.
4. To describe the structure of pointers using different fields.
5. To evaluate the program for the pointers and files used in the list.

Programs List:

1.Evaluation of expression ex: ((x+y) ^2 * (x+z))/w

2.Temperature conversion problem (Fahrenheit to Celsius)

3.Program to convert days to months and days (Ex: 364 days = 12 months and 4 days)

4.Solution of quadratic equation

5.Salesman salary (Given: Basic Salary, Bonus for every item sold, commission on the total monthly sales)

6. Maximum of three numbers
7. Calculate Square root of five numbers (using goto statement)
8. Pay-Bill Calculation for different levels of employee (Switch statement)
9. Fibonacci series
10. Floyds Triangle
11. Pascal's Triangle
12. Prime numbers in an array
13. Sorting data (Ascending and Descending)
14. Matrix Addition and Subtraction
15. Matrix Multiplication
16. Function with no arguments and no return values
17. Function that convert lower case letters to upper case
18. Factorial using recursion.

19. Perform String Operations using Switch Case
20. Structure that describes a Hotel (name, address, grade, avg room rent, number of rooms) Perform some operations (list of hotels of a given grade etc.)
21. Using Pointers in Structures.
22. Cricket team details using Union.
23. Write a macro that calculates the max and min of two numbers
24. Nested macro to calculate Cube of a number
25. Evaluation of Pointer expressions
26. Function to exchange two pointer values
27. Creation, insertion and deletion in a linked list
28. Program to read a file and print the data.
29. Program to receive a file name and a line of text as command line arguments and write the text to the file
30. Program to copy the content of one file to another file.

Text Books:

1. Balagurusamy.E.(2010). *Programming in ANSI C*. Fifth Edition. Tata McGraw-Hill.
2. RemmaThareja.(2016). *Programming in C*. second edition. Oxford university press.

Reference Book(s)

1. Byron Gottfried. (2018). *Schaum's Outline Programming with C*. Fourth Edition. Tata McGraw-Hill. 2018.
2. Kernighan and Ritchie.(1998). *The C Programming Language.* Second Edition. Prentice Hall.
3. YashavantKanetkar. (2021). *Let Us C*. Eighteenth Edition. BPB Publications.

Websites and e-Learning resources

1. https://www.tutorialspoint.com/cprogramming
2. https://www.javatpoint.com/c-programming-language-tutorial
3. https://www.w3schools.in/category/c-tutorial

Rationale for nature of Course:

- **Knowledge and Skill:** C is a procedural programming language with a static system that has the functionality of structured programming, recursion, and lexical variable scoping.
- **Activities to be given:** Each activity will count as a project stage consisting of tasks and subtasks that all contribute to the activity's completion.

COURSE OUTCOMES:

At the end of the course, the student will be able to:

COs	CLO Statement	Knowledge According to Bloom's Taxonomy (Upto K level)
CO1	Remember and understand how to write programs using the basic syntax and semantics in C	K1 to K3
CO2	Analyze and understand programs to make a decision statement.	K1 to K4
CO3	Evaluate the program by using array, function and string execution flow with test cases and apply debugging	K1 to K3
CO4	Apply the concepts of functions, macros, arrays, structures, pointers and files in programs to solve problems	K1 to K4
CO5	Design algorithms and write programs in C language for the given pointer and files expression .	K1 to K4

Mapping of Course Learning Outcomes (CLOs) with Programme Outcomes (POs)

	PO1	PO2	PO3	PO4	PO5	PO6
CLO1	3	1	1	2	3	2
CLO2	3	1	1	1	3	2
CLO3	3	1	1	1	3	2
CLO4	3	1	2	3	3	2
CLO5	3	2	1	2	2	3

1-Basic Level 2- Intermediate Level 3- Advanced Level

LESSON PLAN: TOTAL HOURS (75 Hrs.)

UNIT	Details	No. of Hours	Course Objectives	Mode of Teaching
I	**Variables, Data types, Constants and Operators** 1. Evaluation of expression ex: ((x+y) ^2 * (x+z))/w 2. Temperature conversion problem (Fahrenheit to Celsius) 3. Program to convert days to months and days (Ex: 364 days = 12 months and 4 days) 4. Solution of quadratic equation 5. Salesman salary (Given: Basic Salary, Bonus for every item sold, commission on the total monthly sales)	15	CO1	Chalk and Talk, PPT, quiz, on the spot test

II	**Decision making Statements** 6. Maximum of three numbers 7. Calculate Square root of five numbers (using goto statement) 8. Pay-Bill Calculation for different levels of employee (Switch statement) 9. Fibonacci series 10. Floyds Triangle 11. Pascal's Triangle	15	CO2	Chalk and Talk, PPT, quiz, on the spot test
III	**Arrays, Functions and Strings** 12. Prime numbers in an array 13. Sorting data (Ascending and Descending) 14. Matrix Addition and Subtraction 15. Matrix Multiplication 16. Function with no arguments and no return values 17. Function that convert lower case letters to upper case 18. Factorial using recursion. 19. Perform String Operations using Switch Case.	15	CO3	Chalk and Talk, PPT, quiz, on the spot test
IV	**Structures and Macros** 20.Structure that describes a Hotel (name, address, grade, avg room rent, number of rooms) Perform some operations (list of hotels of a given grade etc.) 21. Using Pointers in Structures. 22. Cricket team details using Union. 23. Write a macro that calculates the max and min of two numbers 24. Nested macro to calculate Cube of a number.	15	CO4	Chalk and Talk, PPT, quiz, on the spot test
V	**Pointers and Files** 25. Evaluation of Pointer expressions 26. Function to exchange two pointer values 27. Creation, insertion and deletion in a linked list 28. Program to read a file and print the data.	15	CO5	PPT presentation, Activity and Model Preparation

	29. Program to receive a file name and a line of text as command line arguments and write the text to the file 30. Program to copy the content of one file to another file.			

Course Designer
Mrs.R.Vishnu Priya

Annexure - 11

	DEPARTMENT OF INFORMATION TECHNOLOGY				Class: I B.Sc.			
Sem.	**Category**	**Course Code**	**Course Title**	**Credits**	**Contact Hours / Week**	**CIA**	**SE**	**Total**
I	Generic Elective Course-**GEC 1**	23OUITGEIT1	Digital Logic Fundamentals	3	4	25	75	100

Nature of the Course		
Knowledge and Skill Oriented	Employability Oriented	Entrepreneurship oriented
✓		

Course Objectives:

1. To understand the basic number systems and digital logic gates.
2. To acquire the knowledge on basic Boolean Algebra and binary arithmetic operations.
3. To recognize the combinatorial circuits.
4. To gain the knowledge on sequential circuits and shift registers.
5. To analyze various counters and its operations.

Course Content:

Unit I:

Number Systems and Codes: Number System–Base Conversion – Binary Codes – Code Conversion. Digital Logic: Logic Gates – Truth Tables – Universal Gates.

Unit II:

Boolean Algebra: Laws and Theorems – SOP, POS Methods – Simplification of Boolean Functions–Using Theorems, K-Map, Prime–Implicant Method–Binary Arithmetic: Binary Addition – Subtraction – Various Representations of Binary Numbers–Arithmetic Building Blocks–Adder–Subtractor.

Unit III:

Combinational Logic: Multiplexers – Demultiplexers – Decoders – Encoders –Code Converters–Parity Generators and Checkers.

Unit IV:

Sequential Logic: RS, JK, D, and T Flip-Flops–Master-Slave Flip-Flops. Registers: Shift Registers–Types of Shift Registers.

Unit V:

Counters: Asynchronous and Synchronous Counters - Ripple, Mod, Up-Down Counters– Ring Counters. Memory: Basic Terms and Ideas –Types of ROMs –Types of RAMs.

Text Books:

1. Rajaraman ,V. & Radhakrishnan. T.(2001).*Digital Computer Design.* Prentice Hall.India.
2. Leachand ,D.P. & Malvino,A.P. (2002). *Digital Principles and Application.* TMH. India. Fifth Edition.
3. MorisMano,M. (2001).*Digital Logic and Computer Design*. PHI.
4. Bartee,.T.C. ,(1991). *Digital Computer Fundamentals*. Sixth Edition. Tata McGraw Hill

Reference Book(s)

1. John M. Yarbrough. (2002). *Digital Logic Applications and Design*. Thomson Learning.
2. Charles H. Roth. (2003). *Fundamentals of Logic Design*. Thomson Learning.

Websites and e-Learning resources

1. www.asic-Worl.com/digital/tutorial.html
2. https://course.ie.cuhk.edu.hk/~ieg2810/.../Lab_tutorial1_08.pdf
3. https://www.electronics-tutorials.ws/logic/
4. Web resources from NDL Library, E-content from open-source libraries

Rationale for nature of Course:

- **Knowledge and Skill:** To make students aware of fundamental concepts and techniques of digital logic.
- **Activities to be given:** Students shall be asked to design of various combinational and sequential circuits.

COURSE OUTCOMES:

At the end of the course , the student will be able to:

COs	CLO Statement	Knowledge According to Bloom's Taxonomy (Upto K level)
CO1	Identify the logic gates and their functionality.	K1 to K3
CO2	Perform number conversions from one system to another system	K1 to K3
CO3	Understand the functions of combinational circuits	K1 to K4
CO4	Perform Sequential Logic and Shift Registers.	K1 to K3
CO5	Perform Counter design and learn its operations	K1 to K4

Annexure - 11

Mapping of Course Learning Outcomes (CLOs) with Programme Outcomes (POs)

	PO1	PO2	PO3	PO4	PO5	PO6
CLO1	3	1	1	2	3	2
CLO2	3	1	1	1	3	2
CLO3	3	1	1	1	3	2
CLO4	3	1	2	3	3	2
CLO5	3	2	1	2	2	3

1-Basic Level 2- Intermediate Level 3- Advanced Level

LESSON PLAN: TOTAL HOURS (60 Hrs.)

UNIT	Details	No. of Hours	Course Objectives	Mode of Teaching
I	**Unit I:** Number Systems and Codes: Number System– Base Conversion – Binary Codes – Code Conversion. Digital Logic: Logic Gates – Truth Tables – Universal Gates.	12	CO1	Chalk and Talk, PPT, quiz, on the spot test
II	**Unit II:** Boolean Algebra: Laws and Theorems – SOP, POS Methods – Simplification of Boolean Functions–Using Theorems, K-Map, Prime–Implicant Method–Binary Arithmetic: Binary Addition – Subtraction – Various Representations of Binary Numbers–Arithmetic Building Blocks–Adder–Subtractor.	12	CO2	Chalk and Talk, PPT, quiz, on the spot test
III	**Unit III:** Combinational Logic: Multiplexers – Demultiplexers – Decoders – Encoders –Code Converters–Parity Generators and Checkers.	12	CO3	Chalk and Talk, PPT, quiz, on the spot test
IV	**Unit IV:** Sequential Logic: RS, JK, D, and T Flip-Flops–Master-Slave Flip-Flops. Registers: Shift Registers–Types of Shift Registers.	12	CO4	Chalk and Talk, PPT, quiz, on the spot test

V	**Unit V:** Counters: Asynchronous and Synchronous Counters - Ripple, Mod, Up-Down Counters– Ring Counters. Memory: Basic Terms and Ideas –Types of ROMs –Types of RAMs.	12	CO5	Seminar, PPT presentation

Course Designer
Mrs.R.Raja Sangeetha

Annexure - 11

DEPARTMENT OF INFORMATION TECHNOLOGY					Class: I B.Sc.			
Sem.	**Category**	**Course Code**	**Course Title**	**Credits**	**Contact Hours / Week**	**CIA**	**SE**	**Total**
I	Skill Enhancement Course- **SEC1 (NME)**	23OUITSECN1	Office Automation	2	2	25	75	100

Nature of the Course		
Knowledge and Skill Oriented	**Employability Oriented**	**Entrepreneurship oriented**
✓	✓	✔

Course Objectives:

1. To understand the basic concepts of a computer system.
2. To know the features of word processing software.
3. To impart the knowledge on create chart and financial statements in Excel.
4. To recognize the database operations in MS-Access.
5. To familiarize with power points slide creation, transition and animation features.

Course Content:

Unit I:

Introductory concepts: Memory unit– CPU. **Input Devices:** Keyboard, Mouse and Scanner. **Output devices:** Monitor, Printer. Introduction to Operating systems & its features: DOS – UNIX –Windows. - Introduction to Programming Languages**.**

Unit II:

Word Processing: Open, Save and close word document; Editing text – tools, formatting, bullets; Spell Checker - Document formatting – Paragraph alignment, indentation, headers and footers, numbering; printing–Preview, options, merge.

Unit III:

Spreadsheets: Excel–opening, entering text and data, formatting, navigating; Formulas–entering, handling and copying; Charts–creating, formatting and printing, analysis tables, preparation of financial statements, introduction to data analytics.

Unit IV:

Database Concepts: The concept of data base management system; Data field, records, and files, Sorting and indexing data; Searching records. Designing queries, and reports; Linking of data files.

Unit V:

Power point: Introduction to Power point - Features – Understanding slide typecasting & viewing slides – creating slide shows. Applying special object – including objects & pictures –

Slide transition–Animation effects, audio inclusion, timers.

Text Books:

1. Peter Norton.(2005). *Introduction to Computers TMH*. India. sixth Edition.
2. Steve Johnson.(2010). *Microsoft Office 2010 On Demand*. Pearson Education. First Edition.

Reference Book(s)

1. Jennifer Ackerman Kettel. Guy Hart-Davis. & Curt Simmons.*(2003). Microsoft office 2003.*TataMcGraw-Hill.

2. Albert Chip man.(2021). *Microsoft Office 365 User Guide: A Complete User Manual for Beginners and Pro with Useful Tips & Tricks to Master the Microsoft Office 365 New Features for Easy Navigation Paperback.* Kindle Edition.

3.Humphrey.M.L.(2021). *Microsoft Office 2019 Beginner: Learn The Basics of Microsoft Word, Excel, and PowerPoint Paperback.* Kindle Edition.

Websites and e-Learning resources

1. https://en.wikipedia.org/wiki/Microsoft_Word
2. https://www.javatpoint.com/excel-tutorial
3. https://www.javatpoint.com/microsoft-access
4. https://www.geeksforgeeks.org/introduction-to-microsoft-powerpoint/

Rationale for nature of Course:

- **Knowledge and Skill:** To make students aware of different components like MS Word, MS Excel and Power point.
- **Activities to be given:** Students shall be asked to digitally create, store, manipulate office information.

COURSE OUTCOMES:

At the end of the course, the student will be able to:

COs	CLO Statement	Knowledge According to Bloom's Taxonomy (Upto K level)
CO1	Understand the basic concepts of input devices, output devices and operating systems.	K1 to K3
CO2	Illustrate and examine the features of word processing software	K1 to K4
CO3	Understand the spreadsheet features to create chart and financial statements.	K1 to K3

CO4	Recognize the database operations like query designing, multiple file linking and sorting.	K1 to K4
CO5	Familiarize with power points slide creation, transition and animation features	K1 to K4

Mapping of Course Learning Outcomes (CLOs) with Programme Outcomes (POs)

	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**
CLO1	3	1	1	2	3	2
CLO2	3	1	1	1	3	2
CLO3	3	1	1	1	3	2
CLO4	3	1	2	3	3	2
CLO5	3	2	1	2	2	3

1-Basic Level 2- Intermediate Level 3- Advanced Level

LESSON PLAN: TOTAL HOURS (30 Hrs.)

UNIT	**Details**	**No. of Hours**	**Course Objectives**	**Mode of Teaching**
I	**Unit I: Introductory concepts:** Memory unit– CPU. **Input Devices:** Keyboard, Mouse and Scanner. **Output devices:** Monitor, Printer. Introduction to Operating systems & its features: DOS – UNIX –Windows.- Introduction to Programming Languages**.**	6	CO1	Chalk and Talk, PPT, quiz, on the spot test
II	**Unit II: Word Processing:** Open, Save and close word document; Editing text – tools, formatting, bullets; Spell Checker - Document formatting – Paragraph alignment, indentation, headers and footers, numbering; printing– Preview, options, merge.	6	CO2	Chalk and Talk, PPT, quiz, on the spot test
III	**Unit III : Spreadsheets :** Excel–opening, entering text and data, formatting, navigating; Formulas–entering, handling and copying; Charts–creating, formatting and printing, analysis tables, preparation of financial statements, introduction to data analytics.	6	CO3	Chalk and Talk, PPT, quiz, on the spot test

IV	**Unit IV: Database Concepts:** The concept of data base management system; Data field, records, and files, Sorting and indexing data; Searching records. Designing queries, and reports; Linking of data files.	6	CO4	Chalk and Talk, PPT, quiz, on the spot test
V	**Unit V:Power point:** Introduction to Power point - Features – Understanding slide typecasting & viewing slides – creating slide shows. Applying special object – including objects & pictures – Slide transition– Animation effects, audio inclusion, timers.	6	CO5	PPT presentation.

Course Designer
Mrs.R.Boomadevi

Annexure - 11

DEPARTMENT OF INFORMATION TECHNOLOGY					Class: I B.Sc.			
Sem.	**Category**	**Course Code**	**Course Title**	**Credits**	**Contact Hours / Week**	**CIA**	**SE**	**Total**
I	Foundation Course	23OUITFC1	Fundamentals of Computers	2	2	25	75	100

Nature of the Course		
Knowledge and Skill Oriented	Employability Oriented	Entrepreneurship oriented
✔		

Course Objectives:

1. To understand the characteristics of Computers.
2. To recognize the main principles of system architecture.
3. To identify the ability to learn problem Solving concepts.
4. To examine the problem with appropriate solving techniques.
5. To analyze the problem solving with decision and loops.

Course Content:

Unit I:

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

Unit III:

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

Unit 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

Unit 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

Text Books:

1. PradeepK.Sinha and PritiSinha, (2004) ―Computer Fundamentals‖, Sixth Edition, BPB Publications. (Unit I : Chapter 1 & 2, Unit II : Chapter 10 & 12)
2. 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)

Reference Book(s)

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

Websites and e-Learning resources

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

COURSE OUTCOMES:

At the end of the course, the student will be able to:

COs	CLO Statement
CO1	Outline the Computer fundamentals and various problem solving concepts in Computers
CO2	Describe the basic computer organization, software, computer languages, software development life cycle and the need of structured programming in solving a computer problem
CO3	Identify the types of computer languages, software, computer problems and examine how to set up expressions and equations to solve the problem.
CO4	Choose most appropriate programming languages, constructs and features to solve the problems in diversified domains.
CO5	Analyze the design of modules and functions in structuring the solution and various Organizing tools in problem solving.

Annexure - 11

Mapping of Course Learning Outcomes (CLOs) with Programme Outcomes (POs)

	PO1	PO2	PO3	PO4	PO5	PO6
CLO1	3	1	1	2	3	2
CLO2	3	1	1	1	3	2
CLO3	3	1	1	1	3	2
CLO4	3	1	2	3	3	2
CLO5	3	2	1	2	2	3

1-Basic Level 2- Intermediate Level 3- Advanced Level

LESSON PLAN: TOTAL HOURS (30 Hrs.)

UNIT	Details	No. of Hours	Course Objectives	Mode of Teaching
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	CO1	Chalk and Talk, PPT, quiz, on the spot test
II	**Computer Software:** Types of Software - System Architecture **Computer Languages:** Machine Language - Assembly Language - High Level Language - Object Oriented Languages	6	CO2	Chalk and Talk, PPT, quiz, on the spot test
III	**Problem Solving Concepts:** Problem Solving in Everyday life - Types of Problems - Problem solving with computers - Difficulties with Problem Solving	6	CO3	Chalk and Talk, PPT, quiz, on the spot test
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	CO4	Chalk and Talk, PPT, quiz, on the spot test

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	O5	Seminar, PPT

Course Designer
Mrs.R.Raja Sangeetha

Annexure - 11

DEPARTMENT OF INFORMATION TECHNOLOGY					Class: I B.Sc.			
Sem.	**Category**	**Course Code**	**Course Title**	**Credits**	**Contact Hours / Week**	**CIA**	**SE**	**Total**
II	Core	23OUIT21	Java Programming and Data Structures	5	5	25	75	100

Nature of the Course		
Knowledge and Skill Oriented	**Employability Oriented**	Entrepreneurship oriented
✔	✔	

Course Objectives:

1. To understand the concepts of Data Structures and basics of object-oriented programming.
2. To solve problems using decision making and branching, looping and Arrays in Java.
3. To analyse the behaviour of simple programs involving different programming language techniques.
4. To develop a high-level applications using various problem-solving strategies involved in Java.
5. To design GUI based JDBC applications and able to develop Servlets using suitable OOP concepts and techniques.

Course Content:

Unit I:

Introduction to Data Structures: Data Structures: Definition- Time & Space Complexity, Arrays, Linear list: Singly linked list implementation, STACKS and QUEUES Operations, array and linked representations of stack, stack applications, Queues: operations on queues, array and linked representations. **Circular Queue**: operations, Trees: Definitions and Concepts- Representation of binary tree, Binary tree traversals.

Fundament also 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

Unit II:

Constants, Variables and Data Types–Operators and Expressions–**Decision making and Branching**–Looping– Arrays - Strings – Collection Interfaces and classes

Unit 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

Unit IV:

Multiple Inheritance: Defining Interfaces–Extending Interfaces–Implementing Interfaces – Packages: Creating Packages – Accessing Packages – Using a Package – Managing Errors and Exceptions- Multithreaded Programming. Layout Managers -JDBC – Java Servlet: - Servlet Environment Role – Servlet API –Servlet Life Cycle

Unit V:

Layout Managers -JDBC – **Java Servlet**: - Servlet Environment Role – Servlet API – Servlet Life Cycle –Servlet Context–HTTP Support–HTML to Servlet Communication

Text Books:

1. Ellis Horowitz & Sartaj Sahni.(2008). *Fundamentals of Data Structures*. Universities Press. Second Edition.
2. E Balagurusamy (2010), *Programming with Java*., Tata McGraw Hill Edition India Private Ltd. Fouth Edition.
3. Xavier.C.(2011) *Java Programming A Practical Approach.* Tata Mc GrawHill Edition Private Ltd

Reference Book(s)

1. P.Naughton and H.Schildt(1999). *Java2 The Complete Reference*, TMH, 3rd Edition India.
2. Jaison Hunder&William Crawford(2002), JavaServlet Programming ,O'Reilly
3. Jim Keogh (2002). *J2EE: The Complete Reference*. Tata McGraw Hill Edition.

Websites and e-Learning resources

http://javabeginnerstutorial.com/core-java/

http://www.tutorialspoint.com/java/

http://beginnersbook.com/java-tutorial-for-beginners-with-examples/

http://www.homeandlearn.co.uk/java/java.html

AWT:

1. www.javatpoint.com/java-awt
2. www.javatpoint.com/awt-program-in-java
3. https://www.geeksforgeeks.org/java-tutorial/

Swing:

1. www.javatpoint.com/java-swing
2. www.tutorialspoint.com/swing/index.htm
3. https://www.geeksforgeeks.org/introduction-to-java-swing/

Rationale for nature of Course:

- **Knowledge and Skill:** To make students developing well-designed, efficient, and testable code. Conducting software analysis, programming, testing, and debugging.
- **Activities to be given:** Student to be designing, building and maintaining Java-based applications & websites.

COURSE OUTCOMES:

At the end of the course, the student will be able to:

COs	CLO Statement	Knowledge According to Bloom's Taxonomy (Upto K level)
CO1	Understand the concepts of Data Structures and simple linear data structure , Outline the basic terminologies of OOP, programming language techniques, JDBC and Internet programming concepts	K1 to K3
CO2	Solve problems using basic constructs, mechanisms, techniques and technologies of Java	K1 to K4
CO3	Analyze and explain the behavior of simple programs involving different techniques such as Inheritance, Packages, Interfaces, Exception Handling and Thread and technologies such as JDBC and Servlets	K1 to K3
CO4	Assess various problem-solving strategies involved in Java to develop a high-level application	K1 to K4
CO5	Design GUI based JDBC applications and able to develop Servlets using suitable OOP concepts and techniques	K1 to K4

Mapping of Course Learning Outcomes (CLOs) with Programme Outcomes (POs)

	PO1	PO2	PO3	PO4	PO5	PO6
CO1	**3**	**2**	**2**	**2**	**2**	**2**
CO2	**2**	**3**	**2**	**2**	**2**	**2**
CO3	**2**	**3**	**3**	**3**	**2**	**2**
CO4	**2**	**3**	**2**	**2**	**2**	**2**
CO5	**3**	**3**	**2**	**2**	**2**	**2**

1-Basic Level 2- Intermediate Level 3- Advanced Level

Annexure - 11

LESSON PLAN: TOTAL HOURS (75 Hrs.)

UNIT	Details	No. of Hours	Course Objectives	Mode of Teaching
I	**Introduction to Data Structures:** Data Structures: Definition- Time & Space Complexity, Arrays, Linear list: Singly linked list implementation, STACKS and QUEUES Operations, array and linked representations of stack, stack applications, Queues: operations on queues, array and linked representations. Circular Queue: operations, Trees: Definitions and Concepts- Representation of binary tree, Binary tree traversals. Fundament also 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	CO1	Chalk and Talk, PPT
II	Constants, Variables and Data Types–Operators and Expressions– Decision making and Branching–Looping– Arrays - Strings – Collection Interfaces and classes	15	CO2	Chalk and Talk, PPT, quiz, on the spot test
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	CO3	Chalk and Talk, PPT, quiz, on the spot test
IV	Multiple Inheritance: Defining Interfaces–Extending Interfaces–Implementing Interfaces – Packages: Creating Packages – Accessing Packages – Using a Package – Managing Errors and	15	CO4	Chalk and Talk, PPT, quiz, on the spot test

	Exceptions- Multithreaded Programming. Layout Managers -JDBC – Java Servlet: - Servlet Environment Role – Servlet API –Servlet Life Cycle			
V	Layout Managers -JDBC – Java Servlet: - Servlet Environment Role – Servlet API –Servlet Life Cycle –Servlet Context–HTTP Support–HTML to Servlet Communication	15	CO5	Seminar, PPT presentation

Course Designer
Mrs.R.Lakshmi

Annexure - 11

DEPARTMENT OF INFORMATION TECHNOLOGY					Class: I B.Sc.			
Sem.	**Category**	**Course Code**	**Course Title**	**Credits**	**Contact Hours / Week**	**CIA**	**SE**	**Total**
II	Core Practical	23OUIT2P	Java Programming and Data Structures Practical	5	5	40	60	100

Nature of the Course		
Knowledge and Skill Oriented	**Employability Oriented**	Entrepreneurship oriented
✔	✔	

Course Objectives:

1. To Identify and explain the way of solving the simple problems
2. To gain practical expertise in coding Core Java programs
3. To organize and manipulate the data with the help of fundamental data structures
4. To impart hands on experience with java programming
5. To design and develop applications using different Java programming language techniques, JDBC &Servlets

Programs List:

1.Basic Programs

2. Arrays

3. Strings

4. Array List, Hash Set and Vector collection classes

5.ClassesandObjects

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

COURSE OUTCOMES:

At the end of the course, the student will be able to:

COs	CLO Statement	Knowledge According to Bloom's Taxonomy (Upto K level)
CO1	Identify and explain the way of solving the simple problems	K1 to K3
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 K3
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 of Course Learning Outcomes (CLOs) with Programme Outcomes (POs)

	PO1	PO2	PO3	PO4	PO5	PO6
CO1	**3**	**2**	**3**	**3**	**2**	**2**
CO2	**3**	**3**	**3**	**3**	**2**	**2**
CO3	**3**	**3**	**3**	**2**	**2**	**3**
CO4	**3**	**3**	**3**	**3**	**3**	**2**
CO5	**3**	**3**	**2**	**3**	**2**	**2**

1-Basic Level 2- Intermediate Level 3- Advanced Level

LESSON PLAN: TOTAL HOURS (75 Hrs.)

Unit	Course Content	Hrs.	Mode of Teaching
I	1.Basic Programs 2. Arrays 3. Strings 4. Array List, Hash Set and Vector collection classes	15	Demo & Practical Session
II	5.ClassesandObjects 6. Interfaces 7. Inheritance 8. Packages	15	Demo & Practical Session
III	9.ExceptionHandling 10. Threads 11. Linked List	15	Demo & Practical Session

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IV	12.Stacks 13. Queue 14. Sorting 15. Binary Tree Representation	15	Demo & Practical Session
V	16.Working with Database using JDBC 17. Web application using Servlet	15	Demo & Practical Session

Course Designer
Mrs.R.Lakshmi

Annexure - 11

DEPARTMENT OF INFORMATION TECHNOLOGY					Class: I B.Sc.			
Sem.	**Category**	**Course Code**	**Course Title**	**Credits**	**Contact Hours / Week**	**CIA**	**SE**	**Total**
II	Discipline Specific Elective – **DSEC 2**	23OUITDSE2	Big Data Analytics	3	4	25	75	100

Nature of the Course		
Knowledge and Skill Oriented	**Employability Oriented**	Entrepreneurship oriented
✔	✔	

Course Objectives:

1. Understand the Big Data Platform and its Use cases, Map Reduce Jobs
2. To identify and understand the basics of cluster and decision tree
3. To study about the Association Rules, Recommendation System
4. To learn about the concept of stream
5. Understand the concepts of NoSQL Databases

Course Content:

Unit I:

Data Explosion and Big Data Analytics: An Overview: Introduction, Evolution of Database Technology and Big Data, Elements of Big Data, Big Data System Components, Big Data Analytics – Data Analytics. Types of Big Data Analytics, Applications of Big Data Technology, Challenges and Skills required with Big Data Technology.

Unit II:

Analytical Theory: Introduction about Classification Algorithms, Regression Techniques, Domain Specific Analytic Techniques: In Database Analytics, Text Analytics.

Real – Time Analysis: Introduction: Real-time System, Types of Real-time System, Characteristics of Real-time Systems, Real-time Processing Systems for Big Data: Introduction, Data Integration and Analytics, Big Data Engine-Hadoop, Real-time System Architecture, Real-time Data Analytics.

Unit III:

Big Data: Hardware, Technology Foundations: Introduction, Big Data Stack, Virtualization and Big Data.

Understanding NoSQL and Hadoop Ecosystem: Introduction, NoSQL: CouchDB, MongoDB, Hadoop Ecosystem – HDFS, HBase, Yarn.

Unit IV:

High Dimensional Data: A Big Data Perspective: Introduction – What is Dimensionality? Dimensionality Reduction: Approaches for Dimensionality Reduction, Dimensionality Reduction Techniques.

User Interface and Visualization: Desirable Properties, Visualization Techniques.

R Programming Basics: Introduction, Data Types, Data Structures and Operators – Basic Data Types in R, R Operators, Vectors, List, Factor, Arrays and Matrix, Data Frame, R Programming Structure – Control Statements of R: if, if-else, if-else ladder, Switch-Case, Return, Loops and Loop Control Statements.

Unit V:

R Programming: Input / Output: Import and Export Data, Handling Missing Values, Statistical Functions and Models of R, R Graphics and Data Visualization.

Case Study: K Means Clustering Algorithm Implementations, Decision Tree Algorithm Implementations, Association Rule Mining Algorithm Implementations, Naïve Bayes Classification Algorithm Implementation, Build the Regression models, Constructing Directed Graph using Adjacency matrix.

Text Books:

Thangaraj.M., Suguna, S. & Sudha. G. (2022). *Big Data Analytics – Concepts, Techniques, Tools and Technologies.* First Edition. PHI Learning Private Limited. Delhi.

Unit I : Chapter 1

Unit II : Chapter 2.2.2, 2.2.4, 2.3.2, 2.3.2
Chapter 3 (3.1.1, 3.1.2, 3.2, 3.3.1 – 3.3.4, 3.4)

Unit III : Chapter 4 (4.1 – 4.3)
Chapter 5 (5.1, 5.2, 5.3.1 - 5.3.3)

Unit IV : Chapter 6.1, 6.3 Chapter 7.3
Chapter 8 (8.1 – 8.3)

Unit V : Chapter 8 (8.4 – 8.7)

Reference Book(s)

1. Jiawei Han., Micheline Kamber. & Jain Pei. (2012). *Data Mining Concepts and Techniques* Morgan Kaufmann Publishers. Third edition.

2. DT Editorial Services. (2016). *Big Data Black Book: Covers Hadoop 2, MapReduce, Hive, Yarn, Pig, R and Data Visualization.* Publisher. Dreamtech Press India Pvt. Ltd.

3. Krishna Rungta (R-tutorial). (2019). *Learn R Programming in 1 Day (Complete Guide for Beginners).* 1st Edition.

4. Soman.K.P., ShyamDiwakar., Ajay.V. &Easter (2006). *Insight into Data Mining Theory and Practice*. Economy Edition, Prentice Hall of India.

5. Gupta. G. K. & Easter.(2006). *Introduction to Data Mining with Case Studies*. Economy Edition. Prentice Hall of India.

Websites and e-Learning resources

- https://www.simplilearn.com
- https://www.sas.com/en_us/insights/analytics/big-data-analytics.html

Rationale for nature of Course:

- **Knowledge and Skill:** To make students developing well-designed, efficient, and testable code. Conducting software analysis, programming, testing, and debugging.
- **Activities to be given:** Student to be designing, building and maintaining Java-based applications & websites.

COURSE OUTCOMES:

At the end of the course, the student will be able to:

COs	CLO Statement	Knowledge According to Bloom's Taxonomy (Upto K level)
CO1	Work with big data tools and its analysis techniques.	K1 to K3
CO2	Analyze data by utilizing clustering and classification algorithms.	K1 to K4
CO3	Learn and apply different mining algorithms and recommendation systems for large volumes of data.	K1 to K3
CO4	Perform analytics on data streams.	K1 to K4
CO5	Learn NoSQL databases and management.	K1 to K4

Mapping of Course Learning Outcomes (CLOs) with Programme Outcomes (POs)

	PO1	PO2	PO3	PO4	PO5	PO6
CO1	**3**	**2**	**2**	**2**	**2**	**2**
CO2	**2**	**3**	**2**	**2**	**2**	**2**
CO3	**2**	**3**	**3**	**3**	**2**	**2**
CO4	**2**	**3**	**2**	**2**	**2**	**2**
CO5	**3**	**3**	**2**	**2**	**2**	**2**

1-Basic Level 2- Intermediate Level 3- Advanced Level

LESSON PLAN: TOTAL HOURS (60 Hrs.)

UNIT	Details	No. of Hours	Course Objectives	Mode of Teaching
I	**Unit I: Data Explosion and Big Data Analytics**: An Overview: Introduction, Evolution of Database Technology and Big Data, Elements of Big Data, Big Data System Components, Big Data Analytics – Data Analytics. Types of Big Data Analytics, Applications of Big Data Technology, Challenges and Skills required with Big Data Technology.	12	CO1	Chalk and Talk, PPT,
II	**Unit II: Analytical Theory:** Introduction about Classification Algorithms, Regression Techniques, Domain Specific Analytic Techniques: In Database Analytics, Text Analytics.	12	CO2	Chalk and Talk, PPT, quiz, on the spot test
III	**Unit III: Big Data: Hardware, Technology Foundations**: Introduction, Big Data Stack, Virtualization and Big Data. **Understanding NoSQL and Hadoop Ecosystem**: Introduction, NoSQL: CouchDB, MongoDB, Hadoop Ecosystem – HDFS, HBase, Yarn.	12	CO3	Chalk and Talk, PPT, quiz, on the spot test
IV	**Unit IV: High Dimensional Data: A Big Data Perspective:** Introduction – What is Dimensionality? Dimensionality Reduction: Approaches for Dimensionality Reduction, Dimensionality Reduction Techniques. **User Interface and Visualization:** Desirable Properties, Visualization Techniques. **R Programming Basics:** Introduction, Data Types, Data Structures and Operators – Basic Data Types in R, R Operators, Vectors, List, Factor, Arrays and Matrix, Data Frame, R Programming	12	CO4	Chalk and Talk, PPT, quiz, on the spot test

	Structure – Control Statements of R: if, if-else, if-else ladder, Switch-Case, Return, Loops and Loop Control Statements.			
V	**Unit V:** R Programming: Input / Output: Import and Export Data, Handling Missing Values, Statistical Functions and Models of R, R Graphics and Data Visualization. Case Study: K Means Clustering Algorithm Implementations, Decision Tree Algorithm Implementations, Association Rule Mining Algorithm Implementations, Naïve Bayes Classification Algorithm Implementation, Build the Regression models, Constructing Directed Graph using Adjacency matrix.	12	CO5	Seminar, PPT presentation

Course Designer
Mrs.S.Sumathi

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DEPARTMENT OF INFORMATION TECHNOLOGY					Class: I B.Sc.			
Sem.	**Category**	**Course Code**	**Course Title**	**Credits**	**Contact Hours / Week**	**CIA**	**SE**	**Total**
II	Skill Enhancement Course – **SEC 2 (NME)**	23OUITSECN2	Advanced Excel	2	2	25	75	100

Nature of the Course		
Knowledge and Skill Oriented	**Employability Oriented**	Entrepreneurship oriented
✔	✔	

Course Objectives:

1. To handle large amounts of data in Excel.
2. To filtering, sorting, and grouping data or subsets of data.
3. To aggregate numeric data and summarize into categories and subcategories.
4. To presenting data in the form of charts and graphs.
5. To create pivot tables to consolidate data from multiple files.

Course Content:

Unit I:

Basics of Excel- Customizing common options- Absolute and relative cells- Protecting and un-protecting worksheets and cells- Working with Functions - Writing conditional expressions - logical functions - lookup and reference functions.

Unit II:

Data Validations - Specifying a valid range of values - Specifying a list of valid values- Specifying custom validations based on formula - Sorting and Filtering Data -Sorting tables- multiple-level sorting- custom sorting- Filtering data for selected view - advanced filter options - Working with Reports Creating subtotals - Multiple-level subtotal.

Unit III:

More Functions Date and time functions - Text functions - Database functions- Power Functions - Formatting Using auto formatting option for worksheets- Using conditional formatting option for rows, columns and cells- WhatIf Analysis - Goal Seek- Data Tables- Scenario Manager.

Unit IV:

Charts - Formatting Charts- 3D Graphs- Bar and Line Chart together - Secondary Axis in Graphs- Sharing Charts with PowerPoint / MS Word, Dynamically- New Features of Excel Spark lines, Inline Charts, data Charts- Overview of all the new features.

Unit V:

Creating Pivot Tables Formatting and customizing Pivot tables- advanced options of Pivot tables- Pivot charts- Consolidating data from multiple sheets and files using Pivot tables- external data sources- data consolidation feature to consolidate data - Show Value as % of Row, % of Column, Running Total, compare with Specific Field- Viewing Subtotal under Pivot- Creating Slicers.

Text Books:

1. Greg Harvey. (2018). *Excel.* All-in-One for Dummies.
2. BillJelen. & Michael Alexander. (2019). *Microsoft Excel 2019 Pivot Table Data Crunching*.Pearson Education
3. Stephen Moffat.(2011). *Excel 2010 Advanced* . The Mouse training Company & Ventus Publishing.

Reference Book(s)

1. Albert Chipman.(2021).*Microsoft Office 365 User Guide: A Complete User Manual for Beginners and Pro with Useful Tips & Tricks to Master the Microsoft Office 365 New Features for Easy Navigation Paperback* .

Websites and e-Learning resources

1.https://docs.microsoft.com/en-us/learn/certifications/courses/55270
2.https://www.tutorialspoint.com/advanced_excel/advanced_excel_external_data_connection
3.https://www.ablebits.com/office-addins-blog/2015/06/10/excel-date-functions/
4.https://www.tutorialspoint.com/advanced_excel/index.htm

Rationale for nature of Course:

- **Knowledge and Skill:** By giving enough practices on Data Management with Interaction & Demonstration
- **Activities to be given:** The most used spreadsheet program in many business activities, educational training and personal data organization.

COURSE OUTCOMES:

At the end of the course, the student will be able to:

Cos	CLO Statement	Knowledge According to Bloom's Taxonomy (Upto K level)
CO1	Describe about the workbook, worksheet and its basic operations.	K1 to K3
CO2	Identify the significance of Data validation.	K1 to K4
CO3	Focus on the importance of function and formulas.	K1 to K3
CO4	Compare various charts in Excel.	K1 to K4
CO5	Correlate different types of pivot table.	K1 to K4

Mapping of Course Learning Outcomes (CLOs) with Programme Outcomes (POs)

	PO1	PO2	PO3	PO4	PO5	PO6
CLO1	3	1	1	2	3	2
CLO2	3	1	1	1	3	2
CLO3	3	1	1	1	3	2
CLO4	3	1	2	3	3	2
CLO5	3	2	1	2	2	3

1-Basic Level 2- Intermediate Level 3- Advanced Level

LESSON PLAN: TOTAL HOURS (30 Hrs.)

UNIT	Details	No. of Hours	Course Objectives	Mode of Teaching
I	**Unit I:** Basics of Excel- Customizing common options- Absolute and relative cells- Protecting and un-protecting worksheets and cells- Working with Functions - Writing conditional expressions - logical functions - lookup and reference functions.	6	CO1	Chalk and Talk, PPT
II	**Unit II:** Data Validations - Specifying a valid range of values - Specifying a list of valid values- Specifying custom validations based on formula - Sorting and Filtering Data -Sorting tables- multiple-level sorting- custom sorting- Filtering data for selected view - advanced filter options - Working with Reports Creating	6	CO2	Chalk and Talk, PPT, quiz, on the spot test

	subtotals - Multiple-level subtotal.			
III	**Unit III:** More Functions Date and time functions - Text functions - Database functions- Power Functions - Formatting Using auto formatting option for worksheets- Using conditional formatting option for rows, columns and cells- What If Analysis - Goal Seek- Data Tables- Scenario Manager.	6	CO3	Chalk and Talk, PPT, quiz, on the spot test
IV	**Unit IV:** Charts - Formatting Charts- 3D Graphs- Bar and Line Chart together - Secondary Axis in Graphs- Sharing Charts with PowerPoint / MS Word, Dynamically- New Features Of Excel Spark lines, Inline Charts, data Charts- Overview of all the new features.	6	CO4	Chalk and Talk, PPT, Discussion
V	**Unit V:** Creating Pivot tables Formatting and customizing Pivot tables- advanced options of Pivot tables- Pivot charts- Consolidating data from multiple sheets and files using Pivot tables- external data sources- data consolidation feature to consolidate data - Show Value As % of Row, % of Column, Running Total, Compare with Specific Field- Viewing Subtotal under Pivot- Creating Slicers.	6	CO5	Assignment, PPT presentation, Discussion

Course Designer

Mrs.S.Sumathi

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DEPARTMENT OF INFORMATION TECHNOLOGY					Class: I B.Sc.			
Sem.	**Category**	**Course Code**	**Course Title**	**Credits**	**Contact Hours / Week**	**CIA**	**SE**	**Total**
II	Skill Enhancement Course – **SEC 3**	23OUITSEC3P	Multimedia Lab	2	2	40	60	100

Nature of the Course		
Knowledge and Skill Oriented	**Employability Oriented**	**Entrepreneurship oriented**
✔	✔	✔

Course Objectives:

1. To understand the basics of multimedia.
2. To acquire knowledge of image editing and animation techniques.
3. To solve various design and implementation issues materialize on the development of multimedia systems.
4. To apply multimedia concepts to real world projects.
5. To design and develop Multimedia Projects Using GIMP animation package and Flash.

PRACTICAL LIST

Unit – I:

GIMP‘s Tools- Taking Advantage of Paths - Working with Layers and masks - Using Channels

Exercises:

1. Enlarge a Logo using path

2. Create an ink drawing using path

3. Replace Background of image using Channels

Unit – II:

Manipulating Images: Transforming Images - Using The Image Tools - Adjusting Colors - Working with Text - Painting in Gimp: Creating new brushes - Enhancing Photos - Exploring Filters and Effects.

Exercises:

1. Design Front Cover for a Book.

2. Create a customized logo

3. Use clone tool to remove text from an image

Unit – III:

Using GIMP animation package - Managing the Frames of Image Sequence with GAP - Morphing - onion skinning - Creating a Storyboard.

Exercises:

1. Morphing - Create smooth transitions from one image to another.

2. Create a Story board for your project

Unit – IV:

Flash: Introduction - Creating and Editing Objects - Color and Text. Animations: Frame- by- frame animation-Motion Tweening- Motion Guides

1. Creating Frame-by-frame Animation

2. Create a Motion Tween for Graphic and Text Object

3. Create a Motion Guide Layer

Unit – V:

Shape Tweening - Masking - Interactivity: Adding Script to Buttons - Testing and Publishing.

Exercises:

1. Create a Shape Tween for Graphic Object

2. Create a Mask Layer

3. Adding buttons with Action Script

Textbooks

1. Jason Van Gumster. & Robert Shimonski. (2010).*GIMP Bible*l. Wiley, Second Edition.

2. Chris Gover.(2010). *Flash CS5* . The missing Manual‖. First Edition. O‟ Reilly India.

Reference Books

1. Juan Manuel Ferreyra (2011), *GIMP 2.6 Cookbook.* PACK publishing Ltd.
2. Robert Reinhard (2003). *Macromedia Flash MX Bible*, Wiley Dream Tech Pvt Ltd. India.

Web Resources

1. https://www.youtube.com/watch?v=T8NIK3RdoIc (Unit IV: Gimp Video Editing)
2. https://www.youtube.com/watch?v=Jz9WrbELGYA

COs	CLO Statement	Knowledge According to Bloom's Taxonomy (Upto K level)
CO1	Demonstrate understanding and use of multimedia fundamentals	K1 to K3
CO2	Implement appropriate techniques required for editing images and designing animated system	K1 to K4
CO3	Solve various design and implementation issues materialize on the development of multimedia systems	K1 to K3
CO4	Assess different Photo Editing, Video Editing and animation tools and select the appropriate tool based on the requirements	K1 to K4
CO5	Design and develop Multimedia Projects	K1 to K4

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LESSON PLAN: TOTAL HOURS (30 Hrs.)

UNIT	Details	No. of Hours	Course Objectives	Mode of Teaching
I	GIMP's Tools- Taking Advantage of Paths - Working with Layers and masks - Using Channels **Exercises:** 1. Enlarge a Logo using path 2. Create an ink drawing using path 3. Replace Background of image using Channels	6	CO1	Chalk and Talk, PPT, quiz, on the spot test
II	Manipulating Images: Transforming Images - Using The Image Tools - Adjusting Colours - Working with Text - Painting in Gimp: Creating new brushes - Enhancing Photos - Exploring Filters and Effects. Exercises: 1. Design Front Cover for a Book. 2. Create a customized logo 3. Use clone tool to remove text from an image	6 6	CO2	Chalk and Talk, PPT, quiz, on the spot test
III	Using GIMP animation package - Managing the Frames of Image Sequence with GAP - Morphing - onion skinning - Creating a Storyboard. **Exercises:** 1. Morphing - Create smooth transitions from one image to another. 2. Create a Story board for your project	6	CO3	Chalk and Talk, PPT, quiz, on the spot test
IV	Flash: Introduction - Creating and Editing Objects - Color and Text. Animations: Frame- by- frame Animation-Motion Twining- Motion Guides 1. Creating Frame-by-frame Animation 2. Create a Motion Tween for Graphic and Text Object 3. Create a Motion Guide Layer	6	CO4	Chalk and Talk, PPT, quiz, on the spot test
V	Shape Twining - Masking - Interactivity: Adding Script to Buttons - Testing and Publishing. **Exercises:** 1. Create a Shape Tween for Graphic Object 2. Create a Mask Layer 3. Adding buttons with Action Script	6	CO5	PPT presentation.

Course Designer
Mrs.G.Amudha

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EVALUATION (PRACTICAL)

Internal (Formative) : 40 marks
External (Summative) : 60 marks
Total : 100 marks

Question Paper Pattern for Internal Practical Examination: 40 Marks

S.No	Components	Marks
1.	I – Major question	15
2.	II - Minor question	08
3.	III-Spotter (4 x 3)	12
4.	IV –Record book	05
Total		**40**

Question Paper Pattern for External Practical Examination (Major) : 60 Marks

S.No	Components	Marks
1.	I – Major question	20
2.	II - Minor question	15
3.	III-Spotter (4 x 5)	20
4.	IV –Record book	5
Total		**60**

In respect of external examinations passing minimum is **35% for Under Graduate Courses** and in total, **aggregate of 40%.**

Latest amendments and revisions as per **UGC** and **TANSCHE** norm is taken into consideration to suit the changing trends in the curriculum.