FATIMA COLLEGE (AUTONOMOUS)

Re-Accredited with "A" Grade by NAAC (3rd Cycle)
74th Rank in India Ranking 2021 (NIRF) by MHRD
Maryland, Madurai- 625 018, Tamil Nadu, India

NAME OF THE DEPARTMENT: COMPUTER APPLICATIONS

NAME OF THE PROGRAMME : B.C.A

PROGRAMME CODE   : USCA

ACADEMIC YEAR   : 2023 - 2024

FATIMA COLLEGE (AUTONOMOUS), MADURAI - 625018

THE MINUTES OF THE BOARD OF STUDIES
DEPARTMENT OF COMPUTER APPLICATIONS [BCA & PGDCA]
TO BE IMPLEMENTED FROM 2023-2024 ONWARDS

The board of Studies meet for framing the Syllabus for Department of Computer Applications [BCA & PGDCA] was held on 03.04.2023 at 10.00.Am.

The members of the board were,

UNDERLINE: UNIVERSITY NOMINEE (BCA) :

Dr. K. SUNDARAVADIVELU,
ASSISTANT PROFESSOR,
DEPARTMENT OF COMPUTER SCIENCE,
MADURAI KAMARAJ UNIVERSITY,
MADURAI.

UNDERLINE: UNIVERSITY NOMINEE (PGDCA) :

Dr. R. RATHINASABAPATHY,
ASSOCIATE PROFESSOR,
DEPARTMENT OF COMPUTER APPLICATIONS,
SCHOOL OF INFORMATION TECHNOLOGY,
MADURAI KAMARAJ UNIVERSITY,
MADURAI.

SUBJECT EXPERT :

Dr. M. PUSHPARANI,
PROFESSOR & HEAD,
DEPARTMENT OF COMPUTER SCIENCE,
MOTHER TERESA UNIVERSITY,
RESEARCH EXTENSION CENTRE,
MADURAI.

3/4/2028

SUBJECT EXPERT :

Mr. V. NEETHIDEVAN,
ASSISTANT PROFESSOR,
DEPARTMENT OF MCA,
MEPCO ENGINEERING COLLEGE,
SIVAKASI.

V.Nav 3/4/23

INDUSTRIALIST :

Dr. S. BALAMURUGAN,
MANAGING DIRECTOR,
ESHA TECHNOLOGIES,
MADURAI.

3/4/23

ALUMNA :

Ms. A. DIVYASRI,
SOFTWARE DEVELOPER,
BRICKSTEEL TECHNOLOGIES PVT LTD,
MADURAI-16

A. Divya
3. 4. 23

STAFF MEMBERS :

Ms. S. SELVARANI,
ASSISTANT PROFESSOR & HEAD,
DEPARTMENT OF COMPUTER APPLICATIONS,
FATIMA COLLEGE,
MADURAI - 18.

Ms. RAMYA. R,
ASSISTANT PROFESSOR,
DEPARTMENT OF COMPUTER APPLICATIONS
FATIMA COLLEGE,
MADURAI - 18.

Ms. J. AROCKIA JACKULINE JONI,
ASSISTANT PROFESSOR,
DEPARTMENT OF COMPUTER APPLICATIONS,
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MADURAI - 18.

Ms. K. P. MAHESWARI,
ASSISTANT PROFESSOR,
DEPARTMENT OF COMPUTER APPLICATIONS,
FATIMA COLLEGE,
MADURAI - 18.

Ms. P. RENGANAYAGI,
ASSISTANT PROFESSOR,
DEPARTMENT OF COMPUTER APPLICATIONS,
FATIMA COLLEGE,
MADURAI - 18.

DEAN OF ACADEMIC AFFAIRS :

Dr. K. SANGEETHA,
ASSISTANT PROFESSOR,
DEAN OF ACADEMIC AFFAIRS,
FATIMA COLLEGE,
MADURAI. -18

In the beginning of the meeting the Head of the Department Ms. S. Selvarani welcomed all the members of the board and briefed them about the current updations and progress of the department.

The members of the board expressed their high appreciation and satisfaction about the department.

Action Taken Report for 2022-2023

S. No.	COMMON SUGGESTIONS OFFERED IN THE PREVIOUS BOARD	ACTION TAKEN FOR THE ACADEMIC YEAR 2021-2022
1.	The Non-Major Elective courses, 21J1NME and 21J2NME - Animation Tools and Techniques was introduced for other major student.	To develop animation techniques and create motion movies using Alice.
2.	The Self Learning course 21J2SL1- Open Source Animation Tools was introduced for the first-year BCA students	To develop animation techniques and create motion movies using Alice.
3.	The Self Learning course 21J4SL1J192 Content Writing and Video Making was introduced for the second-year BCA and JMC students.	To create appropriate content while designing webpages and enhance the ability to develop creative videos.
4.	The Self Learning course 21J6SL16- Data Science was introduced for the final-year BCA and IT students.	To know about 'R' Language that is widely used to do analysis and focus on research
For Diploma		
5.	The Lab course 21PDB106 - Design Techniques was introduced.	To get skill in designing and to improve employability skills.
6.	The course 21PDB202 - Python Programming was introduced.	To gain knowledge in python programming and to create real time applications.

Minutes of The Board of Studies

S. No.	Course Code	Course Title with Semester	Relevance To *				Scope for #			Need for Introduction
			L	R	N	G	Emp	Emp er	S D	
1.	23J1CC1	Object Oriented Programming Concepts using C++				*	#		#	All courses are introduced as per the JANSCHE syllabus
2.	23J1CC2	C++ Programming (Pr)				*	#		#	
3.	23J2CC3	Python Programming				*	#			To gain knowledge in Realtime applications of python
4.	23J2CC4	Python Programming (Pr)				*		#		
5.	23J3CC5	Operating Systems				*			#	
6.	23J3CC6	Relational DataBase Management System (Pr)				*	#			To gain knowledge on online Query exe-cutors.
7.	23J4CC7	Data Structures				*	#		#	
8.	23J4CC8	Web Designing (Pr)				*	#			
9.	23J5CC9	Java Programming				*	#			To meet the current trends

S.No	Course Code	Course Title	L	R	N	G	Emp	Enter	SD	Head for Introduction
10.	23J5CC10	Java Programming (Pr)			*		#			
11.	23J5CC11	Software Engineering			*		#			To create dynamic projects & Applications
12.	23J5CC12	Project with Viva Voce			*	#		#		
13.	23J6CC13	R Programming			*	#		#		To know about R-Libraries and implementin projects
14.	23J6CC14	R Programming (Pr)			*	#		#		
15.	23J6CC15	Computer Networks			*		#			

ELECTIVE COURSES INTRODUCED (PART-III)

S. No.	Generic/ Discipline Specific	Course Code	Course Title	Relevance To			Scope For				Head for Introduction
				L	R	N	G	Emp	Enter	SD	
1.	Generic	23J1EC1G1	Programming in C				*	#		#	To meet the future trends of object oriented programming
2.	Generic	23J2EC2G2	Object Oriented Programming in C++				*	#		#	
3.	Generic	23J3EC3AC3	Data Analysis using Spread Sheet				*		#		To create awareness on Analysis

4.	Generic	23J4EC4JM4	Web Security			*	#	To get awareness on Security practices
5.	Discipline Specific	23J5EC51/	Security Practices/			*	#	
		23J5EC52/	Data Mining/			*	#	
		23J5EC53	Cloud Computing			*	#	
6.	Discipline Specific	23J5EC61/	Dot Net Programming/			*	#	To know about the
		23J5EC662/	Android Programming/			*	#	Latest Framework
		23J5EC63	UAx Framework Design			*	#	designs
7.	Discipline Specific	23J6EC71/	Human Computer Interaction/			*	#	To incorporate AI trends
		23J6EC72/	Internet of Things/			*	#	and tools
		23J6EC73	Mobile Computing			*	#	
8.	Discipline Specific	23J6EC81/	Open Source Tools			*	#	To use free and public license tools

Skill Enhancement / Foundation / Ability Enhancement Course (PART-IV)

S. No.	SEC/FC/AECC	Course Code	Course Title	Relevance To *				Scope For #			Need for Introduction
				L	R	N	G	Emp	Ins Y	S D	
1.	SEC	23J1SEC1	Animation Tools And Techniques (Lab)					*			To learn about animations
2.	FC	23J1FC	Problem Solving Using C (Lab)					*			To prepare for competitive Exams.
3.	AECC	23J1AECC1	Non Verbal Reasoning				*				
4.	SEC	23J2SEC2	Animation Tools And Techniques (Lab)				*				To learn and work on frames, Audio & video processing.
5.	SEC	23J2SEC3	Animation Techniques (Lab)					*			
6.	AECC	23J2AECC2	Verbal Reasoning					*			
7.	SEC	23J3SEC4	Spread Sheet (Lab)					*			To work on Analysis
8.	SEC	23J3SEC5	Photo Editing Techniques (Lab)					*			To create and edit images

S.No.		Course Code	Course Title								Course Outcome
9.	AECC	23J3AECC3	Technical Interview Skill				*				To prepare with the skills to face interview
10.	SEC	23J4SEC6	E-Content Creation				*				
11.	SEC	23J4SEC7	Linux (Lab)				*				To get about open source Software
12.	AECC	23J4AECC4	Non-Technical Interview Skills.				*				To train the students and create
13.	SEC	23J6SEC8	Problem Solving Skills				*				problem Solving awareness

1. Introduction of Value-Added Course - Certificate / Diploma / Advanced Diploma

S. No.	Course Code	Course Title	MoU with Industry / Organisation	Skill Sharpened	Course Outcome
	NIL				

2. Introduction of Purely Skill-Embedded Certificate / Diploma / Advanced Diploma Course

S. No.	Course Code	Course Title	MoU with Industry / Organisation	Skills Sharpend	Course Outcome
	NIL				

Revision Of Courses

S. No.	Course Code	Course Title	No. & Title of Units Revised with The Revised Content specified if it is not the whole unit	% of Revisi -on	Need For Revision	Relevant To *						Scope for #	
						L	R	N	G	Emb	Ent	$	
1.	19J3CC6	Lab in Relational DataBase Klanggemar System	Include Lab programs based on DDL, DML & DCL Queries, PL/SQL programmi -ng concepts which comprises of a minimum of 15 Lab Escercises	10%	To get deeper knowledge in the Database Concepts						#	#	
2.	19J4CC8	Lab in Web Programmi -ng	Include Lab programs based on Scripting, CSS and PHP Server side Programming which comprises of a minimum of 15 Lab Escercises	10%	To expertise in the concept of Creating dynamic web pages.						#		#
3.	19J5CC9	Software Engineering	IV & V - Testing was given as a seperate unit which comprises of Online &	10%	To acquire knowlege about Software						*	#	

S. No			Manual Testing Tools.	Testing			
4.	1915CC12	Lab in Dot Net Programming	Program related to dynamic Website Creation using VB.Net & ASP.Net which comprises of 15 Lab programs.	10%.	To expertis in the Concept of Dynamic WebPages.	* #	1
5.	19Jb19E5	Internet of things	Domain specific IoT concepts are added and Machine To Machine ideologies are implemented	70%.	To adapt to the latest Technologies	* #	2
6.	19Jb19Gb	Human Computer Interaction	Latest Searching Algorithms are replaced with the existing algorithms and concepts of Virtual Reality are implemented.	65%	To get knowledge on Current Algorithms.	* #	3

For Diploma:

S. No.	Course Code	Course Title	No. & Titles of Units Revised with the Revised Content Specified if it is not the whole unit.	% of Revision	Need for Revision	Scope for #				Scope for #		
						L	R	H	G	Emr	Emp	SD
1.	19PDB102	Problem Solving Using C	IV & V – Object Oriented Programming in C++ Concepts of classes, objects, Inheritance will be included	20%	To gain the Knowledge of OOPS Concept					*	#	#
2.	19PDB104	Lab – I Programming in C	Object Oriented Programming Concepts with Class, Object, Inheritance Exercises will be included.	20%	To gain knowledge in OOPS Concept					*		#
3.	19PDB103	Web Designing	Include PHP with DataBase Programming	10%	To acquire knowledge about Dynamic Web pages					*		#
4.	19PDB105	Lab – II Web Programming	Include lab programs based on scripting, CSS and PHP server side Programming.	10%	To acquire knowledge about Dynamic Web Pages.					*		#

Other Suggestions:

1. Computer Fundamentals & Architecture can be given as separate course.

2. Data Mining & Human Computer Interaction courses can be replaced by Digital Principles and Computer Organization.

3. Open Source Tools can be included for programming concepts.

4. Minimum of 15 lab exercises can be included for practical courses.

Commandations:

1. Python can be shifted to II year (III or IV Semester)

2. Frameworks like React / Angular Js etc.. can be included in web designing.

3. For Software Engineering course Roger. S. Pressman book can be followed. Testing Manual Automated Tools can be included.

4. Online courses like MOOC, SWAYAM, NPTEL.. courses should be completed by the students.

5. Text Books utilization to be given for all courses.

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12. Dr. K. SANGEETHA
    DEAN OF ACADEMIC AFFAIRS

COLLEGE PROFILE

Fatima College (Autonomous), Mary Land, Madurai, is a Post Graduate and Research Institution for Women affiliated to Madurai Kamaraj University. It is a Catholic Minority institution established and run by St. Joseph's Society of Madurai (of the Congregation of the Sisters of St. Joseph of Lyons, France). This institution came into existence through the tireless efforts of the missionary sisters of St. Joseph of Lyons and the zeal and heroic sacrifice of Rev. Sr. Rose Benedicta, the Foundress of the College.

The College was started in St. Joseph's Campus Madurai as a Second Grade College with 63 students in 1953. It was upgraded into a Post Graduate College in 1964; Autonomous in 1990 and a Research Institute in 2004. The College now offers 21 Undergraduate Programmes, 13 Postgraduate Programmes, 2 Professional Programme, 5 M.Phil. Programmes and 6 Departments have become Research Centres. It has strength of 4134 Students, 206 Teaching Staff and 100 Non-Teaching Staff.

The comprehensive assessment by NAAC in 1999 placed Fatima College in Five Star Status of merit. The college strives to sustain excellence, quality and relevance while equipping the students to meet the demands of higher education in India. In 2004 UGC conferred on Fatima College the status of College with Potential for Excellence. In 2006 and 2013 NAAC Re-Accredited the College with 'A' Grade. The College was ranked 94th in the All India NIRF Ranking in 2019 by MHRD.

VISION OF THE COLLEGE

WOMEN'S EMPOWERMENT THROUGH EDUCATION

The vision of the college is to empower women by developing human capabilities through quality education based on Christian values, making them responsible citizens who can work for the advancement of the society and promote communal harmony in the multi-religious and multi-cultural reality of India eventually evolving into women of communion.

MISSION OF THE COLLEGE

- To enhance quality of life through the development of individuals.
- To enable women to become contributors in the economic, social and political development of India.
- To equip the students with 21st century skill-sets with a focus on problem-solving abilities
- To motivate them to work for social justice
- To give preference to the rural economically backward and first-generation learners
- To enable students to be employed in the technology oriented competitive market

VISION OF THE DEPARTMENT

The vision of the department is to empower women by bringing out their hidden potentials by providing quality computer education to meet excellence and adapt to the challenges of the society.

MISSION OF THE DEPARTMENT

- To bring out the inherent talents of each student & guide them to adapt to the dynamic IT world and make them responsible citizens.

- To be trained with cutting edge technologies in order to improve their personality in a supportive and caring environment.

- To build leadership traits among students.

- To inculcate ethical attitude among computer professionals.

PROGRAMME EDUCATIONAL OBJECTIVES (PEO)

A graduate of B.C.A programme after three years,

PEO 1	Our graduates will be academic, digital and information literates, creative, inquisitive, innovative and desirous for the "more" in all aspects.
PEO 2	They will be efficient individuals and team performers, exhibiting progress, flexibility, transparency and accountability in their professional work
PEO 3	Our graduates will be effective managers in all sorts of real life and professional circumstances, making ethical decisions, pursuing excellence within the time frame and in demonstrating apt leadership skills
PEO 4	They will engage locally and globally evincing social and environmental stewardship, demonstrating civic responsibilities and employing right skills at the right moment

GRADUATE ATTRIBUTES (GA)

Fatima College empowers her women graduates holistically. A Fatimite achieves all-round empowerment by acquiring Social, Professional and Ethical competencies. A graduate would sustain and nurture the following attributes:

	I. SOCIAL COMPETENCE
GA 1	Deep disciplinary expertise with a wide range of academic and digital literacy
GA 2	Hone creativity, passion for innovation and aspire excellence
GA 3	Enthusiasm towards emancipation and empowerment of humanity
GA 4	Potentials of being independent
GA 5	Intellectual competence and inquisitiveness with problem solving abilities befitting the field of research
GA 6	Effectiveness in different forms of communications to be employed in personal and professional environments through varied platforms
GA 7	Communicative competence with civic, professional and cyber dignity and decorum
GA 8	Integrity respecting the diversity and pluralism in societies, cultures and religions
GA 9	All – inclusive skill sets to interpret, analyse and solve social and environmental issues in diverse environments
GA 10	Self awareness that would enable them to recognise their uniqueness through continuous self-assessment in order to face and make changes building on their strengths and improving their weaknesses
GA 11	Finesse to co-operate exhibiting team-spirit while working in groups to achieve goals
GA 12	Dexterity in self-management to control their selves in

	attaining the kind of life that they dream for
GA 13	Resilience to rise up instantly from their intimidating setbacks
GA 14	Virtuosity to use their personal and intellectual autonomy in being life-long learners
GA 15	Digital learning and research attributes
GA 16	Cyber security competence reflecting compassion, care and concern towards the marginalised
GA 17	Rectitude to use digital technology reflecting civic and social responsibilities in local, national and global scenario
	II. PROFESSIONAL COMPETENCE
GA 18	Optimism, flexibility and diligence that would make them professionally competent
GA 19	Prowess to be successful entrepreuners and become employees of trans-national societies
GA 20	Excellence in Local and Global Job Markets
GA 21	Effectiveness in Time Management
GA 22	Efficiency in taking up Initiatives
GA 23	Eagerness to deliver excellent service
GA 24	Managerial Skills to Identify, Commend and tap Potentials
	III. ETHICAL COMPETENCE
GA 25	Integrity and be disciplined in bringing stability leading a systematic life promoting good human behaviour to build better society
GA 26	Honesty in words and deeds
GA 27	Transparency revealing one's own character as well as self-esteem to lead a genuine and authentic life
GA 28	Social and Environmental Stewardship
GA 29	Readiness to make ethical decisions consistently from the galore of conflicting choices paying heed to their conscience
GA 30	Right life skills at the right moment

PROGRAMME OUTCOMES (PO)

On completion (after three years) of B.C.A programme, the students are able to:

PO 1	Model Tool Usage: Understand, analyze and apply the concepts of latest technologies to bring solutions to the problems in the areas of computer applications.
PO 2	Computer Knowledge: Analyze and synthesize computing systems through quantitative and qualitative techniques along with effective verbal and non-verbal communication.
PO 3	Environment Sustainability: Apply technical and professional skills practically to excel in providing solutions for solving complex real life problems satisfying industrial and societal needs.
PO 4	Team Work with Professional Skills: To promote leadership skills and also as an individual on working with multi-disciplinary projects using Modern computing tools and Open-Source Technologies.
PO 5	Ethics: Commit to professional ethics and cyber regulations considering the societal and environmental issues within local and global contexts for sustainable development

PROGRAMME SPECIFIC OUTCOMES (PSO)

On completion (after three years) of B.C.A programme, the students are able:

PSO 1	To achieve significant understanding of theoretical and programming concepts in key areas of Computer Applications.
PSO 2	To expand and sharpen practical and problem solving skills to provide solutions to industry, society and business problems.

PSO 3	To apply modern practices and strategies in software project development using open source and other programming environments.
PSO 4	To inculcate the ability to analyze and interpret problems, make inferences from the resulting data and apply technical skills to solve real time problems.
PSO 5	To make graduates understand various professional, technical and ethical issues prevailing in the industry
PSO 6	To gain exposure in preventive, ethical hacking and security technologies in recent trends
PSO 7	To equip the students to meet the requirement of Corporate world and Industry standards
PSO 8	To engage in professional development and to pursue Post graduate education in the fields of Information Technology and Computer Applications
PSO 9	To generate ideas of innovation and to identify, formulate and solve problems in software solutions, outsourcing services, public and private sectors
PSO 10	To engage the students technically on par with the societal and environmental responsibilities added with professional ethics

FATIMA COLLEGE (AUTONOMOUS), MADURAI-18
DEPARTMENT OF COMPUTER APPLICATIONS (BCA)
For those who joined in June 2023 onwards

PROGRAMME CODE : USCA

S. NO	SEM	COURSE CODE	COURSE TITLE	HRS	CREDIT	CIA Mks	ESE Mks	TOT. Mks
1.	I	23J1CC1	PYTHON PROGRAMMING	5	5	40	60	100
2.	I	23J1CC2	PYTHON PROGRAMMING LAB	5	5	40	60	100
3.	I	23G1GEJ1	DISCRETE MATHEMATICS	5	3	40	60	100
4.	I	23J1FC	STRUCTURED PROGRAMMING IN C	2	2	40	60	100
5.	I	23J1SE1	ANIMATION TOOLS AND TECHNIQUES	2	2	40	60	100
6.	I	23G1VE	PERSONAL VALUES	1	1	40	60	100
7.	II	23J2CC3	OBJECT ORIENTED PROGRAMMING IN C++	5	5	40	60	100
8.	II	23J2CC4	LAB IN C++ PROGRAMMING	5	5	40	60	100
9.	II	23G2GEJ2	OPERATIONS RESEARCH	5	3	40	60	100
10.	II	23J2SE2	ANIMATION TOOLS AND TECHNIQUES	2	2	40	60	100
11.	II	23J2SE3	INTRODUCTION TO HTML	2	2	40	60	100
12.	II	23G2VE	VALUES FOR LIFE	1	1	40	60	100
13.	II	21UG2SLJ	OPEN SOURCE ANIMATION	-	2	40	60	100

		TOOL						

EXTRA CREDIT COURSES

COURSE CODE	SELF LEARNING COURSES for ADVANCED LEARNERS	HRS.	CREDITS	SEMESTER IN WHICH THE COURSE IS OFFERED	CIA MKS	ESE MKS	TOTAL MARKS
21J1SL1	OPEN SOURCEANIMATIONTOOLS	-	2	II	40	60	100
21J2SLST2	STATISTICALDATA SCIENCEUSING PYTHON	-	2	II	40	60	100
21J3SLST3	STATISTICSUSINGR	-	2	II	40	60	100
21J4SLJM4	CONTENT WRITINGANDVIDEO EDITING	-	2	IV	40	60	100
21J5SLAC5	EMERGING TRENDSAND TECHNOLOGIES	-	2	VI	40	60	100
	MOOC COURSES / International Certified online Courses (Department Specific Courses/any other courses) * Students can opt other than the listed course from UGC-SWAYAM UGC / CEC	-	Minimum 2 Credits	I – VI	-	-	

OFF CLASS PROGRAMMES

19UAD2CA - Certificate Course
VB.NET – (Only for First Years – Compulsory)

I B.C.A

SEMESTER – I

For those who joined in 2023 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS	CREDITS
USCA	23J1CC1	PYTHON PROGRAMMING	CORE THEORY	5	5

COURSE DESCRIPTION

To get better understanding in the OOPS Concept and to have basic knowledge in writing programs using Python Programming.

COURSE OBJECTIVES

1. To makestudents understandthe concepts of Python programming.
2. ToapplytheOOPsconceptinPYTHONprogramming.
3. To impart knowledge on demand and supply concepts
4. To make the students learn best practices in PYTHON programming
5. To know the costs and profit maximization

UNITS

UNIT I: BASICS OF PYTHON PROGRAMMING   (15 HRS)

HistoryofPython – FeaturesofPython – Literal – Constants – Variables – Identifiers–Keywords – Built – inDataTypes – OutputStatements –Input Statements – Comments –Indentation – Operators-Expressions – Typeconversions – PythonArrays:DefiningandProcessingArrays – Arraymethods.

UNIT II: CONTROL STATEMENTS   (15 HRS)

Selection/Conditional Branchingstatements – if –if-else – nestedifand if-elif – else statements – Iterative Statements: whileloop – forloop – elsesuiteinloop&nested loops – Jump Statements:break – continue&passstatements.

UNIT III: FUNCTIONS   (15 HRS)

Function Definition – Function Call – Variable Scope & its Lifetime – return Statement.FunctionArguments:RequiredArguments – Keyword Arguments, Default Arguments and Variable LengthArguments – Recursion – PythonStrings:Stringoperations – ImmutableStrings – Built-in String Methods and Functions – String Comparison – Modules: import statement – Python module – dir()function – ModulesandNamespace–Definingourownmodules.

UNIT IV: LISTS   (15 HRS)

Creatingalist – Access valuesin List – Updating values in Lists – Nestedlists – Basic list operations – List Methods – Tuples: Creating – Accessing – UpdatingandDeletingElements–Nestedtuples–Differencebetweenlistsandtuples – Dictionaries:Creating – Accessing – Updating andDeleting – ElementsinaDictionary–DictionaryFunctionsandMethods – DifferencebetweenListsandDictionaries.

UNIT V: PYTHON FILE HANDLING   (15 HRS)

Typesof files in Python – Opening and Closingfiles – Reading and Writing files: write () and writelines() methods – append()method–read()andreadlines()methods–withkeyword–Splittingwords –File Methods – FilePositions – Renaminganddeletingfiles.

TEXT BOOK:

1. ReemaThareja,PythonProgrammingusingproblemsolvingapproach, FirstEdition, 2017,Oxford UniversityPress.
2. Dr.R.NageswaraRao, CorePythonProgramming,FirstEdition,2017, Dreamtech Publishers.

REFERENCE BOOKS:

1. VamsiKurama,PythonProgramming:AModernApproachPearsonEducation.
2. MarkLutz,LearningPython,Orielly.
3. AdamStewarts,PythonProgramming,Online.

4. FabioNelli,PythonDataAnalytics,APress.

5. KennethA. Lambert,FundamentalsofPython–FirstPrograms,CENGAGEPublication.

WEB REFERNECES :

https://www.programiz.com/python-programming
https://www.guru99.com/python-tutorials.html
https://www.w3schools.com/python/python_intro.asp
https://www.geeksforgeeks.org/python-programming-language/
https://en.wikipedia.org/wiki/Python_(programming_language)

OER REFERENCES :

1. https://www.oercommons.org/authoring/14616-c/view

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
PYTHON PROGRAMMING				
UNIT I: BASICS OF PYTHON PROGRAMMING				
1.1	HistoryofPython – FeaturesofPython	2	Chalk & Talk	Black Board
1.2	Literal – Constants – Variables – Identifiers	2	Chalk & Talk	LCD
1.3	Keywords – Built-inDataTypes	2	Lecture	PPT & White board
1.4	OutputStatements –Input Statements – Comments	2	Lecture	Smart Board
1.5	Indentation – Operators –Expressions	2	Lecture	Black Board
1.6	Typeconversions	1	Discussion	Google classroom
1.7	Python Arrays:DefiningandProcessingArrays	2	Lectur	Black

				e	Board
1.8	Array Methods	2	Discussion	Black Board
UNIT-2 CONTROL STATEMENTS					
2.1	Selection/Conditional Branching statements: if	3	Chalk & Talk	Black Board
2.2	if-else – nestedifand if-elif...else statements	3	Chalk & Talk	LCD
2.3	Iterative Statements: while loop	3	Lecture	PPT & White board
2.4	forloop – elsesuiteinloopand nested loops.	2	Lecture	Smart Board
2.5	Jump Statements: break	2	Lecture	Black Board
2.6	Continueand Passstatements.	2	Discussion	Google classroom
UNIT -3 FUNCTION					
3.1	Function Definition – Function Call	3	Chalk & Talk	Black Board
3.2	Variable Scope and its Lifetime – returnStatement	2	Chalk & Talk	LCD
3.3	FunctionArguments:RequiredArguments –Keyword, Arguments – Default Arguments and Variable LengthArguments – Recursion	2	Lecture	PPT & White board
3.4	PythonStrings:Stringoperations – ImmutableStrings	3	Lecture	Smart Board
3.5	Built-in String Methods and Functions – String Comparison	2	Lecture	Black Board
3.6	Modules: import statement– The Python module – dir() function – ModulesandNamespace–Definingourownm	3	Lecture	Black Board

	odules			
UNIT -4 LISTS				
4.1	Lists: Creatingalist-Accessvalues in List	2	Chalk & Talk	Black Board
4.2	Updating values in Lists-Nestedlists-Basiclistoperations-List Methods.	3	Chalk & Talk	LCD
4.3	Tuples: Creating,Accessing,UpdatingandDeletingElementsin a tuple	2	Lecture	PPT & White board
4.4	Nestedtuples–Differencebetweenlistsandtuples.	3	Lecture	Smart Board
4.5	Dictionaries:Creating,Accessing,UpdatingandDeletingElementsina Dictionary	3	Lecture	Black Board
4.6	DictionaryFunctionsandMethods-DifferencebetweenListsandDictionaries.	2	Discussion	Google classroom
UNIT -5 PYTHON FILE HANDLING				
5.1	Types of files in Python	2	Chalk & Talk	Black Board
5.2	Opening and Closingfiles-Reading and Writing files: write() and writelines() methods.	3	Chalk & Talk	LCD
5.3	append()method–read()andreadlines()methods	2	Lecture	PPT & White board
5.4	withkeyword–Splittingwords	3	Lecture	Smart Board
5.5	Filemethods-File Positions	3	Lecture	Black Board
5.6	Renaminganddeletingfiles	2	Discussion	Google classroom

EVALUATION PATTERN

Levels	C1	C2	C3	C4	C5	Total Scholastic Marks	Non Scholastic Marks C6	CIA Total	% of Assessment
	T1 10 Mks.	T2 10 Mks.	Quiz 5 Mks.	Assignment 5 Mks	OBT/PPT 5 Mks	35 Mks.	5 Mks.	40M ks.	
K1	2	2	-	-	-	4	-	4	10 %
K2	2	2	5	-	-	9	-	9	22.5 %
K3	3	3	-	-	5	11	-	11	27.5 %
K4	3	3	-	5	-	11	-	11	27.5 %
Non Scholastic	-	-	-	-	-		5	5	12.5 %
Total	10	10	5	5	5	35	5	40	100 %

CIA	
Scholastic	35
Non Scholastic	5
TOTAL	40

✔ **The levels of CIA Assessment based on Revised Bloom's Taxonomy are :**

K1- Remember, **K2-**Understand, **K3-**Apply, **K4-**Analyse

	SCHOLASTIC	NON - SCHOLASTIC	MARKS

C1	C2	C3	C4	C5	C6	CIA	ESE	Total
10	10	5	5	5	5	40	60	100

COURSE OUTCOMES

On the successful completion of the course, students will be able to:

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED
CO 1	Learn the basics of python, Do simple programs on python, Learn how to use an array.	K1 & K2	PSO1, PSO2
CO 2	Developprogramusingselectionstatement,WorkwithLoopingandjumpstatements,DoprogramsonLoopsandjumpstatements.	K1 & K2	PSO1, PSO2,PSO3
CO 3	Concept of function, function arguments, Implementing theconceptstringsinvariousapplication,SignificanceofModules,Workwithfunctions,Stringsandmodules.	K1, K2, K3 & K4	PSO3, PSO4
CO 4	WorkwithList,tuplesanddictionary, Writeprogramusinglist,tuplesanddictionary.	K1, K2 & K3	PSO3, PSO4
CO 5	UsageofFilehandlingsinpython,Conceptofreadingandwritingfiles,Doprogramsusingfiles.	K1, K3 & K4	PSO3, PSO5

Mapping COs Consistency with PSOs

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8	PSO 9	PSO10
CO1	3	3	1	1	1	1	1	2	1	1
CO2	3	3	3	1	1	1	1	2	1	1

CO3	2	2	3	3	1	1	2	2	1	1
CO4	2	2	3	3	1	1	2	2	1	1
CO5	2	2	3	2	3	1	2	2	1	1

Mapping of COs with POs

CO/ PSO	PO1	PO2	PO3	PO4	PO5
CO1	3	1	1	1	1
CO2	1	1	3	1	2
CO3	1	2	1	3	1
CO4	1	1	1	2	1
CO5	1	3	1	1	1
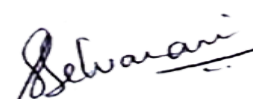
Note:
♦ Strongly Correlated – **3**
♦ Moderately Correlated – **2**
♦ Weakly Correlated -**1**

COURSE DESIGNER:

1. **Staff Name : Ms. MAHESWARI K P**

Forwarded By

(S.Selvarani)

HOD'S Signature & Name

I B.C.A

SEMESTER – I

For those who joined in 2023 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS	CREDITS
USCA	23J1CC2	PYTHON PROGRAMMING LAB	CORE PRACTICALS	5	5

COURSE DESCRIPTION

To get better understanding in the OOPS Concept and to have basic knowledge in writing programs using Python Programming.

COURSE OBJECTIVES

1. BeabletodesignandprogramPythonapplications.
2. Beable tocreateloopsanddecisionstatementsinPython.
3. BeabletoworkwithfunctionsandpassargumentsinPython.
4. BeabletobuildandpackagePythonmodulesfor reusability.
5. BeabletoreadandwritefilesinPython.

PROGRAM LIST:

1. Programusingvariables,constants,I/OstatementsinPython.
2. ProgramusingOperatorsinPython.
3. ProgramusingConditionalStatements.
4. ProgramusingLoops.
5. ProgramusingJumpStatements.
6. ProgramusingFunctions.
7. ProgramusingRecursion.
8. ProgramusingArrays.
9. ProgramusingStrings.
10. <mark>Program using Modules</mark>.
11. ProgramusingLists.
12. ProgramusingTuples.
13. ProgramusingDictionaries.
14. ProgramforFileHandling.

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
PYTHON PROGRAMMING LAB				
1.1	Program using variables, constants, I/O statements in Python	4	Demo & Lab	LCD
1.2	Program using Operators in	4	Demo &	LCD

	Python		Lab	
1.3	Program using Conditional Statements	4	Demo & Lab	LCD
1.4	Program using Loops	4	Demo & Lab	LCD
1.5	Program using Jump Statements	4	Demo & Lab	LCD
1.6	Program using Function	4	Demo & Lab	LCD
1.7	Program using Recursion	4	Demo & Lab	LCD
1.8	Program using Arrays	4	Demo & Lab	LCD
1.9	Program using Strings	4	Demo & Lab	LCD
1.10	Program using Modules	4	Demo & Lab	LCD
1.11	Program using Lists	5	Demo & Lab	LCD
1.12	Program using Tuples	5	Demo & Lab	LCD
1.13	Program using Dictionaries	5	Demo & Lab	LCD
1.14	Program for File Handling	5	Demo & Lab	LCD

EVALUATION PATTERN

Levels	C1	C2	C3	C4	C5	Total Scholastic Marks	Non Scholastic Marks C6	CIA Total	% of Assessment

	T1 10 Mks.	T2 10 Mks.	Quiz 5 Mks.	Assignment 5 Mks	OBT/PPT 5 Mks	35 Mks.	5 Mks.	40Mks.	
K1	2	2	-	-	-	4	-	4	10 %
K2	2	2	5	-	-	9	-	9	22.5 %
K3	3	3	-	-	5	11	-	11	27.5 %
K4	3	3	-	5	-	11	-	11	27.5 %
Non Scholastic	-	-	-	-	-		5	5	12.5 %
Total	10	10	5	5	5	35	5	40	100 %

CIA	
Scholastic	35
Non Scholastic	5
TOTAL	40

✔ **The levels of CIA Assessment based on Revised Bloom's Taxonomy are :**

K1- Remember, **K2-**Understand, **K3-**Apply, **K4-**Analyse

	SCHOLASTIC				NON - SCHOLASTIC	MARKS		
C1	C2	C3	C4	C5	C6	CIA	ESE	Total
10	10	5	5	5	5	40	60	100

COURSE OUTCOMES

On the successful completion of the course, students will be able to:

NO.	COURSE OUTCOMES	KNOWLEDGE	PSOs

		LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	ADDRESSED
CO 1	Demonstratetheunderstandingofsyntaxandsemanticsof Python	K1 & K2	PSO1, PSO2
CO 2	IdentifytheproblemandsolveusingPYTHONprogrammingtechniques.	K1 & K2	PSO1, PSO2,PSO3
CO 3	Identifysuitableprogrammingconstructsforproblemsolving.	K1, K2, K3 & K4	PSO3, PSO4
CO 4	AnalyzevariousconceptsofPYTHONlanguagetosolvetheprobleminanefficient way.	K1, K2 & K3	PSO3, PSO4
CO 5	DevelopaPYTHONprogramfor a givenproblemandtestforitscorrectness.	K1, K3 & K4	PSO3, PSO5

Mapping COs Consistency with PSOs

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8	PSO 9	PSO10
CO1	3	3	1	1	1	1	1	1	2	1
CO2	3	3	3	1	1	1	1	1	1	1
CO3	2	2	3	2	1	1	2	1	2	1
CO4	2	2	3	3	1	1	2	1	1	1
CO5	2	2	3	2	3	1	2	1	1	1

Mapping of COs with POs

CO/ PSO	PO1	PO2	PO3	PO4	PO5
CO1	3	1	1	1	1
CO2	1	1	3	1	2
CO3	1	2	1	3	1

CO4	**3**	**1**	**1**	**2**	**1**
CO5	**1**	**2**	**1**	**1**	**1**
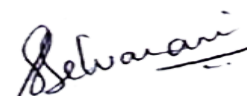
Note:
♦ Strongly Correlated – **3**
♦ Moderately Correlated – **2**
♦ Weakly Correlated -**1**

COURSE DESIGNER:

1. **Staff Name : Ms. MAHESWARI K P**

Forwarded By

(S.Selvarani)
HOD'S Signature & Name

I B.C.A
SEMESTER – II
For those who joined in 2023 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS	CREDITS
USCA	23J2CC3	**OBJECT ORIENTED PROGRAMMING CONCEPTS USING C++**	**CORE THEORY**	**5**	**5**

COURSE DESCRIPTION

To get better understanding in the OOPS Concept and to have basic knowledge in writing programs using C++ Programming.

COURSE OBJECTIVES

1. Describe the procedural and object oriented paradigm with concepts of streams, classes, functions, data and objects

2. Understand dynamic memory management techniques using pointers, constructors, destructors, etc

3. Describe the concept of function overloading, operator overloading, virtual functions and polymorphism

4. Classify inheritance with the understanding of early and late binding, usage of exception handling, generic programming

5. Demonstrate the use of various OOPs concepts with the help of programs

UNITS

UNIT I: INTRODUCTION TO C++ (15 HRS)

Introduction to C++ - key concepts of Object-Oriented Programming –Advantages – Object Oriented Languages – I/O in C++ - C++ Declarations. Control Structures: - Decision Making and Statements: If ..else, jump, goto, break, continue, Switch case statements – Loops in C++ :for, while, do – functions in C++ - inline functions – Function Overloading.

UNIT II: CLASSES AND OBJECTS (15 HRS)

Classes and Objects: Declaring Objects – Defining Member Functions – Static Member variables and functions – array of objects –friend functions – Overloading member functions – Bit fields and classes – Constructor and destructor with static members.

UNIT III: OPERATOR OVERLOADING & INHERITANCE (15 HRS)

Operator Overloading: Overloading unary, binary operators – Overloading Friend functions –type conversion – Inheritance: Types of Inheritance – Single, Multilevel, Multiple, Hierarchal, Hybrid, Multi path inheritance – Virtual base Classes – Abstract Classes.

UNIT IV: POINTERS & ARRAYS (15 HRS)

Pointers – Declaration – Pointer to Class , Object – this pointer –

Pointers to derived classes and Base classes – Arrays – Characteristics – array of classes – Memory models – new and delete operators – dynamic object – Binding, Polymorphism and Virtual Functions.

UNIT V: FILES (15 HRS)

Files – File stream classes – file modes – Sequential Read / Write operations – Binary and ASCII Files – Random Access Operation – Templates – Exception Handling – String – Declaring and Initializing string objects – String Attributes – Miscellaneous functions.

TEXT BOOK:
1. E. Balagurusamy, "Object-Oriented Programming with C++", TMH 2013, 7th Edition

REFERENCE BOOKS:

1. Ashok N Kamthane, "Object-Oriented Programming with ANSI and Turbo C++", Pearson Education 2003.
2. Maria Litvin& Gray Litvin, "C++ for you", Vikas publication 2002.
3. Object-Oriented Programming Using C++ by Alok Kumar Jagadev , Amiya Kumar Rath , SatchidanandaDehuri , PHI Learning, 2017

WEB REFERNECES :

https://alison.com/course/introduction-to-c-plus-plus-programming

https://www.geeksforgeeks.org/object-oriented-programming-in-cpp/

https://www.w3schools.com/cpp/cpp_oop.asp

OER REFERENCES :

1. https://www.oercommons.org/authoring/14616-c/view

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
OBJECT ORIENTED PROGRAMMING CONCEPTS USING C++				

UNITI: INTRODUCTION TO C++				
1.1	Introduction to C++ - key concepts of Object-Oriented Programmi	2	Chalk & Talk	Black Board
1.2	Advantages – Object Oriented Languages – I/O in C++- C++ Declarations	1	Chalk & Talk	LCD
1.3	Control Structures: - Decision Making and Statements	2	Lecture	PPT & White board
1.4	If..else, jump, goto, break, continue	2	Lecture	Smart Board
1.5	Switch case statements	1	Lecture	Black Board
1.6	Loops in C++ :for, while, do	1	Discussion	Google classroom
1.7	functions in C++ - inline functions	2	Lecture	Black Board
1.8	Function Overloading	1	Discussion	Black Board
UNIT-IICLASSES AND OBJECTS				
2.1	Classes and Objects: Declaring Objects	2	Chalk & Talk	Black Board
2.2	Defining Member Functions	2	Chalk & Talk	LCD
2.3	Static Member variables and functions	2	Lecture	PPT & White board
2.4	array of objects - friend functions	2	Lecture	Smart Board
2.5	Overloading member functions - Bit fields and classes	2	Lecture	Black Board
2.6	Constructor and destructor with static members.	2	Discussion	Google classroom

		UNIT -IIIOPERATOR OVERLOADING & INHERITANCE			
3.1	Operator Overloading: Overloading unary, binary operators	2	Chalk & Talk	Black Board
3.2	Overloading Friend functions	2	Chalk & Talk	LCD
3.3	type conversion – Inheritance: Types of Inheritance	2	Lecture	PPT & White board
3.4	Single, Multilevel, Multipleinheritance	2	Lecture	Smart Board
3.5	Hierarchal, Hybrid, Multi path inheritance	2	Lecture	Black Board
3.6	Virtual base Classes – Abstract Classes.	2	Lecture	Black Board
		UNIT -IVPOINTERS & ARRAYS			
4.1	Pointers – Declaration	2	Chalk & Talk	Black Board
4.2	Pointer to Class , Object	2	Chalk & Talk	LCD
4.3	this pointer – Pointers to derived classes and Base classes	2	Lecture	PPT & White board
4.4	Arrays – Characteristics - array of classes	2	Lecture	Smart Board
4.5	Memory models – new and delete operators	2	Lecture	Black Board
4.6	Dynamic object – Binding, Polymorphism and Virtual Functions.	2	Discussion	Google classroom
		UNIT -V FILES			
5.1	Files – File stream classes –	2	Chalk &	Black

							Talk	Board
5.2	Sequential Read / Write operations	2	Chalk & Talk	LCD
5.3	Binary and ASCII Files – Random Access Operation –	2	Lecture	PPT & White board
5.4	Templates – Exception Handling	2	Lecture	Smart Board
5.5	String – Declaring and Initializing string objects –	2	Lecture	Black Board
5.6	String Attributes – Miscellaneousfunctions	2	Discussion	Google classroom

Levels	C1	C2	C3	C4	C5	Total Scholastic Marks	Non Scholastic Marks C6	CIA Total	% of Assessment
	T1 10 Mks.	T2 10 Mks.	Quiz 5 Mks.	Assignment 5 Mks	OBT/ PPT 5 Mks	35 Mks.	5 Mks.	40Mks.	
K1	2	2	-	-	-	4	-	4	10 %
K2	2	2	5	-	-	9	-	9	22.5 %
K3	3	3	-	-	5	11	-	11	27.5 %
K4	3	3	-	5	-	11	-	11	27.5 %
Non Scholastic	-	-	-	-	-		5	5	12.5 %
Total	10	10	5	5	5	35	5	40	100 %

CIA	
Scholastic	35
Non Scholastic	5
TOTAL	40

✔ **The levels of CIA Assessment based on Revised Bloom's Taxonomy are :**

K1- Remember, **K2-**Understand, **K3-**Apply, **K4-**Analyse

	SCHOLASTIC					NON - SCHOLASTIC	MARKS		
C1	C2	C3	C4	C5		C6	CIA	ESE	Total
10	10	5	5	5		5	40	60	100

COURSE OUTCOMES

On the successful completion of the course, students will be able to:

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED
CO 1	Assess the object – oriented concepts in C++	K1 & K2	PSO1, PSO2
CO 2	Illustrate the usage of classes and objects in C++	K1 & K2	PSO1, PSO2,PSO3
CO 3	Analyze polymorphic feature of C++	K1, K2, K3 & K4	PSO3, PSO4
CO 4	Demonstrate on pointers and arrays	K1, K2 & K3	PSO3, PSO4
CO 5	Outline the file operations in C++	K1, K3 & K4	PSO3, PSO5

Mapping COs Consistency with PSOs

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8	PSO9	PSO10
CO1	3	3	1	1	1	2	2	2	1	1
CO2	3	3	3	1	1	1	1	2	1	1
CO3	2	2	3	3	1	1	2	1	1	1
CO4	2	2	3	3	1	1	2	1	1	1
CO5	2	2	3	2	3	1	2	2	1	1

Mapping of COs with POs

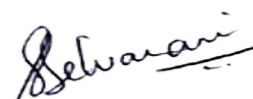| CO/ PSO	PO1	PO2	PO3	PO4	PO5
CO1	3	1	1	1	1
CO2	1	1	3	1	2
CO3	1	1	2	3	1
CO4	1	3	1	2	2
CO5	1	2	3	1	1

Note:
♦ Strongly Correlated – **3**
♦ Moderately Correlated – **2**
♦ Weakly Correlated -**1**

COURSE DESIGNER:

1. **Staff Name : Ms. MAHESWARI K P**

Forwarded By

(S.Selvarani)
HOD'S Signature & Name

I B.C.A

SEMESTER – II

For those who joined in 2023 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS	CREDITS
USCA	23J2CC4	C++ PROGRAMMING LAB	CORE PRACTICALS	5	5

COURSE DESCRIPTION

To get better understanding in the OOPS Concept and to have basic knowledge in writing programs using C++ Programming.

COURSE OBJECTIVES

1. Describe the procedural and object oriented paradigm with concepts of streams, classes, functions, data and objects
2. Understand dynamic memory management techniques using pointers, constructors, destructors, etc
3. Describe the concept of function overloading, operator overloading, virtual functions and polymorphism
4. Classify inheritance with the understanding of early and late binding, usage of exception handling, generic programming
5. Demonstrate the use of various OOPs concepts with the help of programs

PROGRAM LIST:

1. Write a C++ program to demonstrate function overloading, Default Arguments and Inline function.
2. Write a C++ program to demonstrate Class and Objects
3. Write a C++ program to demonstrate the concept of Passing Objects to

Functions

4. Write a C++ program to demonstrate the Friend Functions.

5. Write a C++ program to demonstrate the concept of Passing Objects to Functions

6. Write a C++ program to demonstrate Constructor and Destructor

7. Write a C++ program to demonstrate Unary Operator Overloading

8. Write a C++ program to demonstrate Binary Operator Overloading

9. Write a C++ program to demonstrate:

- Single Inheritance

- Multilevel Inheritance

- Multiple Inheritance

- Hierarchical Inheritance

- Hybrid Inheritance

10. Write a C++ program to demonstrate Virtual Functions.

11. Write a C++ program to manipulate a Text File.

12. Write a C++ program to perform Sequential I/O Operations on a file.

13. Write a C++ program to find the Biggest Number using Command Line Arguments

14. Write a C++ program to demonstrate Class Template

15. Write a C++ program to demonstrate Function Template.

16. Write a C++ program to demonstrate Exception Handling.

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
C++ PROGRAMMING LAB				
1.1	Function overloading	4	Demo & Lab	LCD
1.2	Class and Objects	4	Demo & Lab	LCD
1.3	Objects to Functions	4	Demo & Lab	LCD

1.4	Constructor and Destructor	4	Demo & Lab	LCD
1.5	Unary Operator Overloading	4	Demo & Lab	LCD
1.6	Binary Operator Overloading	4	Demo & Lab	LCD
1.7	Single Inheritance	4	Demo & Lab	LCD
1.8	Multilevel Inheritance	4	Demo & Lab	LCD
1.9	Multiple Inheritance	4	Demo & Lab	LCD
1.10	Hierarchical Inheritance	4	Demo & Lab	LCD
1.11	Hybrid Inheritance	4	Demo & Lab	LCD
1.12	Virtual Functions	4	Demo & Lab	LCD
1.13	File Manipulations	4	Demo & Lab	LCD
1.14	Command Line Arguments	4	Demo & Lab	LCD
1.15	Class Template	4	Demo & Lab	LCD

EVALUATION PATTERN

Levels	C1	C2	C3	C4	C5	Total Scholastic Marks	Non Scholastic Marks C6	CIA Total	% of Assessment
	T1	T2	Quiz	Assignment	OBT/ PPT				
	10 Mks.	10 Mks.	5 Mks.	5 Mks	5 Mks	35 Mks.	5 Mks.	40Mks.	
K1	2	2	-	-	-	4	-	4	10 %

K2	2	2	5	-	-	9	-	9	22.5 %
K3	3	3	-	-	5	11	-	11	27.5 %
K4	3	3	-	5	-	11	-	11	27.5 %
Non Scholastic	-	-	-	-	-		5	5	12.5 %
Total	10	10	5	5	5	35	5	40	100 %

CIA	
Scholastic	35
Non Scholastic	5
TOTAL	40

✔ **The levels of CIA Assessment based on Revised Bloom's Taxonomy are :**

K1- Remember, **K2**-Understand, **K3**-Apply, **K4**-Analyse

SCHOLASTIC					NON - SCHOLASTIC	MARKS		
C1	C2	C3	C4	C5	C6	CIA	ESE	Total
10	10	5	5	5	5	40	60	100

COURSE OUTCOMES

On the successful completion of the course, students will be able to:

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED

CO 1	Read, understand and trace the execution of programs written in C++ language	K1	PSO1, PSO2
CO 2	Demonstrate class and object functions	K1 & K2	PSO1, PSO2,PSO3
CO 3	Assess operator overloading and function overloading to specific problem definition	K1 & K2	PSO3, PSO4
CO 4	Demonstrate file operations in C++.	K1, K2 & K3	PSO4, PSO5
CO 5	Write C++ code to demonstrate Template&Exception Handling concept	K2, K3 & K4	PSO5, PSO6

Mapping COs Consistency with PSOs

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8	PSO 9	PSO 10
CO1	3	3	1	1	2	2	1	2	1	1
CO2	3	3	3	1	2	1	1	1	1	1
CO3	2	2	3	2	2	1	2	1	1	1
CO4	2	1	3	2	1	1	2	2	1	1
CO5	2	1	3	2	3	1	2	2	1	1

Mapping of COs with POs

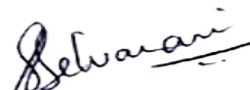| CO/ PSO	PO1	PO2	PO3	PO4	PO5
CO1	2	3	1	1	1
CO2	1	2	3	1	2
CO3	1	2	2	3	1
CO4	1	3	1	2	1
CO5	1	3	2	2	1

Note:
♦ Strongly Correlated – **3**
♦ Moderately Correlated – **2**

♦ Weakly Correlated -**1**

COURSE DESIGNER:

1. **Staff Name : Ms. MAHESWARI K P**

Forwarded By

(S.Selvarani)

HOD'S Signature& Name

I B.C.A

SEMESTER – I

For those who joined in 2023 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS	CREDITS
USCA	23J1SE1	ANIMATION TOOLS AND TECHNIQUES	SKILL ENHANCEMENT COURSE (NON MAJOR ELECTIVE I) PRACTICALS	2	2

COURSE DESCRIPTION

This course helps to become familiar with the elements and tools in Alice that is used to create interactive animated media such as scene creation and movie making.

COURSE OBJECTIVES

1. To develop programming skills and impart animation techniques using Alice.
2. To gain knowledge in interactive scene creation.
3. To create motion movies by animating

PROGRAM LIST:

1. Exploring the Alice interface
2. Setting the scene :Adding an object, Set object properties, Set special effects

3. Learning to program through Alice :Do in Order , Do Together

4. Branching: Conditional execution, Relational Operators, Randomness

5. Looping : Repetition, While loops, Lists

6. Event handling, Methods

7. 3D and billboards (Create 3D Text, Billboards)

TEXT BOOK :

1. Wanda Dann, Stephen Cooper, and Randy Pausch; Learning to Program with Alice, Prentice Hall

REFERENCE BOOK:

1. Joel Adams, Alice 3 in Action with Java

OER REFERENCES :

http://courses.oermn.org/course/view.php?id=224

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
ANIMATION TOOLS AND TECHNIQUES				
1.1	Exploring the Alice interface	4	Demo & Working in Lab	LCD
1.2	Setting the scene (Addinganobject, setobjectproperties, setspecialeffects)	4	Demo & Working in Lab	LCD
1.3	Learning to programthroughAlice (Doinorder ,Dotogether)	4	Demo & Working in Lab	LCD
1.4	Branching: Conditionalexecution, RelationalOperators, Randomness	4	Demo & Working in Lab	LCD

1.5	Looping : Repetition,Whileloops,Lists	4	Demo & Working in Lab	LCD
1.6	Event handling	4	Demo & Working in Lab	LCD
1.7	Methods	3	Demo & Working in Lab	LCD
1.8	3dand billboards (Create 3DText, Billboards)	3	Demo & Working in Lab	LCD

EVALUATION PATTERN

Levels	C1	C2	C3	C4	C5	Total Scholastic Marks	Non Scholastic Marks C6	CIA Total	% of Assessment
	T1 10 Mks.	T2 10 Mks.	Quiz 5 Mks.	Assignment 5 Mks	OBT/PPT 5 Mks	35 Mks.	5 Mks.	40Mks.	
K1	2	2	-	-	-	4	-	4	10 %
K2	2	2	5	-	-	9	-	9	22.5 %
K3	3	3	-	-	5	11	-	11	27.5 %
K4	3	3	-	5	-	11	-	11	27.5 %
Non Scholastic	-	-	-	-	-		5	5	12.5 %
Total	10	10	5	5	5	35	5	40	100 %

CIA	
Scholastic	35

Non Scholastic	5
TOTAL	40

✔ **The levels of CIA Assessment based on Revised Bloom's Taxonomy are :**

K1- Remember, **K2-**Understand, **K3-**Apply, **K4-**Analyse

	SCHOLASTIC				NON - SCHOLASTIC	MARKS		
C1	C2	C3	C4	C5	C6	CIA	ESE	Total
10	10	5	5	5	5	40	60	100

COURSE OUTCOMES

On the successful completion of the course, students will be able to:

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED
CO 1	Apply object properties, methods and events	K1	PSO1& PSO2
CO 2	Design, create and edit animation scenes and interactive movies	K1, K2	PSO3
CO 3	Utilize event handling methods and properties	K1 & K3	PSO5
CO 4	Demonstrate story boards and animation movies	K1, K2, K3	PSO2, PSO3
CO 5	Utilize and understand different sounds and sound formats in alice	K2 & K4	PSO5, PSO8

Mapping COs Consistency with PSOs

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8	PSO9	PSO10
CO1	3	3	1	1	1	1	1	2	1	1
CO2	3	3	3	1	1	1	1	2	1	1
CO3	2	1	3	3	1	1	2	2	1	1
CO4	2	1	3	3	1	2	2	2	1	1
CO5	2	2	3	2	3	2	2	1	1	1

Mapping of COs with POs

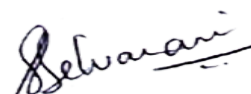| CO/ PSO	PO1	PO2	PO3	PO4	PO5
CO1	3	1	1	1	1
CO2	1	1	3	1	2
CO3	1	1	1	3	2
CO4	1	3	1	2	1
CO5	1	3	1	1	1

Note:
♦ Strongly Correlated – **3**
♦ ModeratelyCorrelated –**2**
♦ WeaklyCorrelated -**1**

COURSE DESIGNER:

1. **Staff Name : Ms. AROCKIA JACKULINE JONI**

Forwarded By

(S.Selvarani)

HOD'S Signature& Name

I B.C.A
SEMESTER – II
For those who joined in 2023 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS	CREDITS
USCA	23J2SE2	**ANIMATION TOOLS AND TECHNIQUES**	**SKILL ENHANCEME NT COURSE (NON MAJOR ELECTIVE II)** **PRACTICALS**	2	2

COURSE DESCRIPTION

This course helps to become familiar with the elements and tools in Alice that is used to create interactive animated media such as scene creation and movie making.

COURSE OBJECTIVES

1. To develop programming skills and impart animation techniques using Alice.
2. To gain knowledge in interactive scene creation.
3. To create motion movies by animating

PROGRAM LIST:

1. Exploring the Alice interface
2. Setting the scene :Adding an object, Set object properties, Set special effects
3. Learning to program through Alice :Do in Order , Do Together
4. Branching: Conditional execution, Relational Operators, Randomness
5. Looping : Repetition, While loops, Lists
6. Event handling, Methods
7. 3D and billboards (Create 3D Text, Billboards)

TEXT BOOK :

2. Wanda Dann, Stephen Cooper, and Randy Pausch; Learning to Program with Alice, Prentice Hall

REFERENCE BOOK:

1. Joel Adams, Alice 3 in Action with Java

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
NON MAJOR ELCTIVE				
1.1	Exploring the Alice interface	4	Demo & Working in Lab	LCD
1.2	Setting the scene (Addinganobject, setobjectproperties, setspecialeffects)	4	Demo & Working in Lab	LCD
1.3	Learning to programthroughAlice (Doinorder ,Dotogether)	4	Demo & Working in Lab	LCD
1.4	Branching: Conditionalexecution, RelationalOperators, Randomness	4	Demo & Working in Lab	LCD
1.5	Looping : Repetition,Whileloops,Lists	4	Demo & Working in Lab	LCD
1.6	Event handling	4	Demo & Working in Lab	LCD
1.7	Methods	3	Demo & Working in Lab	LCD
1.8	3dand billboards (Create 3DText, Billboards)	3	Demo & Working in Lab	LCD

EVALUATION PATTERN

Levels	C1	C2	C3	C4	C5	Total Scholastic Marks	Non Scholastic Marks C6	CIA Total	% of Assessment
	T1 10 Mks.	T2 10 Mks.	Quiz 5 Mks.	Assignment 5 Mks	OBT/ PPT 5 Mks	35 Mks.	5 Mks.	40 Mks.	
K1	2	2	-	-	-	4	-	4	10 %
K2	2	2	5	-	-	9	-	9	22.5 %
K3	3	3	-	-	5	11	-	11	27.5 %
K4	3	3	-	5	-	11	-	11	27.5 %
Non Scholastic	-	-	-	-	-		5	5	12.5 %
Total	10	10	5	5	5	35	5	40	100 %

CIA	
Scholastic	35
Non Scholastic	5
TOTAL	40

✔ **The levels of CIA Assessment based on Revised Bloom's Taxonomy are :**

K1- Remember, **K2-**Understand, **K3-**Apply, **K4-**Analyse

	SCHOLASTIC				NON - SCHOLASTIC	MARKS		
C1	C2	C3	C4	C5	C6	CIA	ESE	Total
10	10	5	5	5	5	40	60	100

COURSE OUTCOMES

On the successful completion of the course, students will be able to:

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED
CO 1	Apply object properties, methods and events	K1	PSO1& PSO2
CO 2	Design, create and edit animation scenes and interactive movies	K1, K2	PSO3
CO 3	Utilize event handling methods and properties	K1 & K3	PSO5
CO 4	Demonstrate story boards and animation movies	K1, K2, K3	PSO2, PSO3
CO 5	Utilize and understand different sounds and sound formats in alice	K2 & K4	PSO5, PSO8

Mapping COs Consistency with PSOs

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8	PSO 9	PSO10
CO1	3	3	1	1	1	1	1	2	1	1
CO2	3	3	3	1	1	1	1	2	1	1
CO3	2	1	3	3	1	1	2	2	1	1
CO4	2	1	3	3	1	2	2	2	1	1
CO5	2	2	3	2	3	2	2	1	1	1

Mapping of COs with POs

CO/ PSO	PO1	PO2	PO3	PO4	PO5
CO1	3	1	1	1	1
CO2	1	1	3	1	2
CO3	1	1	1	3	2
CO4	1	3	1	2	1
CO5	1	3	1	1	1

Note:
♦ Strongly Correlated – **3**
♦ ModeratelyCorrelated –**2**
♦ WeaklyCorrelated -**1**

COURSE DESIGNER:

1. **Staff Name : Ms. AROCKIA JACKULINE JONI**

Forwarded By

Selvarani

(S.Selvarani)

HOD'S Signature& Name

I B.C.A

SEMESTER – II

For those who joined in 2023 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS	CREDITS
USCA	23J2SE3	INTRODUCTION TO HTML	PRACTICALS	2	2

COURSE DESCRIPTION

To understand in the basic web designing Concept and to have basic knowledge in writing programs using HTML Programming.

COURSE OBJECTIVES

1. Understand to inserta graphicwithinawebpage.
2. Describe the concept of link creation in a webpage.
3. Describe the procedure to createatablewithinawebpage.
4. Demonstrate the use of headinglevelswithinawebpage.
5. Classify orderedandunorderedlistswithina webpage.

UNITS

UNIT I: INTRODUCTION TO HTML   (6 HRS)

WebBasics:What   isInternet–Webbrowsers–WhatisWebpage   – HTMLBasics:Understandingtags.

UNIT II: TAGS   (6 HRS)

TagsforDocumentstructure(HTML,Head,Body
Tag).Blockleveltextelements:Headingsparagraph(<p>tag)–Font   style
elements:(bold,italic, font,small,strong,strike,bigtags)

UNIT III: LISTS   (6 HRS)

Lists:Types   oflists:Ordered,Unordered–NestingLists
–Othertags:Marquee,HR,BR-UsingImages–Creating Hyperlinks.

UNIT IV: TABLES   **(6 HRS)**

Tables:CreatingbasicTable,Tableelements,Caption–Tableandcellalignment–Rowspan,Colspan –Cellpadding.

UNIT V: FRAMES   **(6 HRS)**

Frames:Frameset–TargetedLinks–Noframe–Forms:Input,Textarea,Select,Option.

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
C++ PROGRAMMING LAB				
UNIT I – INTRODUCTION TO HTML				
1.1	WebBasics:What is Internet	1	PPT	LCD
1.2	Web browsers	1	PPT	LCD
1.3	WhatisWebpage	1	PPT	LCD
1.4	HTMLBasics:	1	PPT	LCD
1.5	Understandingtags.	2	Demo & Lab	LCD
UNIT II - TAGS				
2.1	TagsforDocumentstructure(HTML,Head,Body Tag).	1	PPT	LCD
2.2	Blockleveltextelements:	1	PPT	LCD
2.3	Headingsparagraph(<p>tag)	2	Demo &	LCD

				Lab	
2.4	Font style elements:(bold,italic, font,small,strong,strike,bigtags	2	PPT		LCD

	UNIT III: LISTS				
3.1	Lists:Types oflists:Ordered, Unordered	1	PPT		LCD
3.2	NestingLists	1	Demo & Lab		LCD
3.3	Othertags:Marquee, HR, BR	1	PPT		LCD
3.4	Using Images	1	Demo & Lab		LCD
3.5	CreatingHyperlinks.	2	PPT		LCD

	UNIT IV: TABLES				
4.1	Tables:Creatingbasic Table	1	PPT		LCD
4.2	Table elements	1	Demo & Lab		LCD
4.3	Caption–Tableandcell alignment	2	PPT		LCD
4.4	Rowspan,Colspan –Cellpadding	2	Demo & Lab		LCD

	UNIT V: FRAMES				
5.1	Frames: Frameset	2	PPT		LCD
5.2	TargetedLinks–Noframe	2	Demo & Lab		LCD
5.3	Forms:Input,Textarea,Select,Option.	2	PPT		LCD

EVALUATION PATTERN

Levels	C1 T1 10 Mks.	C2 T2 10 Mks.	C3 Quiz 5 Mks.	C4 Assignment 5 Mks	C5 OBT/PPT 5 Mks	Total Scholastic Marks 35 Mks.	Non Scholastic Marks C6 5 Mks.	CIA Total 40Mks.	% of Assessment
K1	2	2	-	-	-	4	-	4	10 %
K2	2	2	5	-	-	9	-	9	22.5 %
K3	3	3	-	-	5	11	-	11	27.5 %
K4	3	3	-	5	-	11	-	11	27.5 %
Non Scholastic	-	-	-	-	-		5	5	12.5 %
Total	10	10	5	5	5	35	5	40	100 %

CIA	
Scholastic	35
Non Scholastic	5
TOTAL	40

✔ **The levels of CIA Assessment based on Revised Bloom's Taxonomy are :**

K1- Remember, **K2-**Understand, **K3-**Apply, **K4-**Analyse

	SCHOLASTIC					NON - SCHOLASTIC	MARKS		
C1	C2	C3	C4	C5		C6	CIA	ESE	Total
10	10	5	5	5		5	40	60	100

COURSE OUTCOMES

On the successful completion of the course, students will be able to:

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED
CO 1	Knows the basic concept in HTML conceptof resourcesinHTML	K1	PSO1, PSO2
CO 2	Usageof Tags in Webpage creation	K1 & K2	PSO1, PSO2,PSO3
CO 3	Understand the page formatting using the concept of list	K1 & K2	PSO3, PSO4
CO 4	Analyze the table creation with its various attributes	K1, K2 & K3	PSO4, PSO5
CO 5	Developa framesand understand its various formats.	K2, K3 & K4	PSO5, PSO6

Mapping COs Consistency with PSOs

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8	PSO 9	PSO10
CO1	3	3	1	1	1	1	1	2	1	1
CO2	3	3	3	1	1	1	1	2	1	1
CO3	2	2	3	3	1	1	2	2	1	1
CO4	2	2	3	3	1	1	2	2	1	1
CO5	2	2	3	2	3	1	2	2	1	1

Mapping of COs with POs

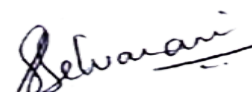| CO/ PSO	PO1	PO2	PO3	PO4	PO5
CO1	3	1	1	1	1
CO2	1	1	3	1	2
CO3	1	2	1	3	1
CO4	1	1	1	2	1
CO5	1	3	1	1	1

Note:
♦ Strongly Correlated – **3**
♦ Moderately Correlated – **2**
♦ Weakly Correlated -**1**

COURSE DESIGNER:

2. **Staff Name : Ms. MAHESWARI K P**

Forwarded By

(S.Selvarani)

HOD'S Signature& Name

I B.C.A

SEMESTER – I

For those who joined in 2023 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS	CREDITS
USCA	23J1FC	STRUCTURED PROGRAMMING LANGUAGE IN C	FOUNDATION COURSE - THEORY	2	2

COURSE DESCRIPTION

To get better understanding in Programming concepts in C.

COURSE OBJECTIVES

1. TofamiliarizethestudentswiththeProgrammingbasicsandthefundamentalsof C
2. DatatypesinC,Mathematicalandlogicaloperations.
3. Tounderstandtheconceptusingifstatementsandloops
4. ThisunitcoverstheconceptofArrays
5. ThisunitcoverstheconceptofFunctions
6. Tounderstandtheconceptofimplementingpointers.

UNITS

UNIT I: OVERVIEW OF C   (6 HRS)

ImportanceofC – sampleCprogram – Cprogramstructure – executingCprogram – Constants – Variables and Data Types: Character set – Ctokens – keywordsandidentifiers – constants – variables – datatypes – declarationofvariables – Assigningvaluestovariables – Assignmentstatement – declaringavariableasconstant – asvolatile – OperatorsandExpression.

UNIT II:DECISION MAKING AND BRANCHING(6 HRS)

Decision making with If –simpleIF,IFELSE,nestedIFELSE,ELSEIFladder – switch,GOTOstatement – DecisionMakingand Looping – While,

Do-While,For,Jumpsinloops.

UNIT III: ARRAYS   (6 HRS)

Declarationandaccessingofone&two – dimensionalarrays –initializingtwo – dimensionalarrays – multidimensionalarrays.

UNIT IV: FUNCTIONS   (6 HRS)

The form of C functions – Return values and types – calling a function – categories of functions – Nested functions – Recursion – functionswitharrays – callbyvalue – callbyreference – storageclasses – characterarraysandstringfunctions.

UNIT V: POINTERS   (6 HRS)

Definition – declaringandinitializingpointers – accessing avariablethroughaddressandthroughpointer – pointer expressions – pointer increments and scale factor – pointers and arrays – pointers and functions –pointers and structures.

TextBook

1.
E.Balagurusamy,ProgramminginANSIC,FifthEdition,TataMcGraw-Hill,2010

ReferenceBooks

1. ByronGottfried,Schaum'sOutlineProgrammingwithC,FourthEdition,

TataMcGraw-Hill,2018.

2. KernighanandRitchie,TheCProgrammingLanguage,SecondEdition,Prentice Hall, 1998
3. YashavantKanetkar,LetUsC,EighteenthEdition,BPBPublications,2021

Web Resources :
    1. https://codeforwin.org/
    2. https://www.geeksforgeeks.org/c-programming-language/

3. http://en.cppreference.com/w/c
4. http://learn-c.org/
5. https://www.cprogramming.com/

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No. of Lectures	Te Pe
STRUCTURED PROGRAMMING LANGUAGE IN C			
UNIT I: OVERVIEW OF C			
1.1	ImportanceofC – SampleC program	1	C
1.2	Cprogramstructure – ExecutingCprogram	1	C
1.3	Constants, Variables and Data Types: Character Set, Ctokens,keywordsandidentifiers, constants	1	I
1.4	variables,datatypes,declarationofvariables,	1	I
1.5	Assigningvaluestovariables-Assignmentstatement,	1	I
1.6	declaringavariableasconstant,asvolatile.OperatorsandExpression.	1	D:
UNIT-IIDECISION MAKING AND BRANCHING			
2.1	Decision making with If,simpleIF	1	C
2.2	IFELSE,nestedIFELSE,ELSEIFladder	1	C
2.3	switch,GOTOstatement.	1	I

2.4	DecisionMakingand Looping: While	1	I
2.5	Do-While, For	1	I
2.6	Jumpsinloops		1	D

	UNIT -IIIARRAYS		
3.1	Declaration of one&two – dimensionalarrays	1	C
3.2	Accessingofone&two – dimensional arrays	1	C
3.3	initializingtwo-dimensional arrays	2	I
3.4	Multidimensionalarrays.	2	I

	UNIT -IVFUNCTIONS		
4.1	The form of C functions, Return values and types	1	C
4.2	calling a function, categories of functions, Nested functions,	1	C
4.3	Recursion,functionswith arrays	1	I
4.4	Callbyvalue	1	I
4.5	Callby reference	1	I
4.6	storageclasses-characterarraysandstringfunctions	1	D

	UNIT -VPOINTERS		
5.1	Definition,declaring pointers	1	C

5.2	Initializing pointers	1	C
5.3	Accessingavariablethroughaddressandthroughpointer,	1	I
5.4	pointer expressions, pointer increments and scale factor	1	I
5.5	pointers and arrays, pointers and functions	1	I
5.6	pointers and structures.	1	D

EVALUATION PATTERN

Levels	C1 T1 10 Mks.	C2 T2 10 Mks.	C3 Quiz 5 Mks.	C4 Assignment 5 Mks	C5 OBT/ PPT 5 Mks	Total Scholastic Marks 35 Mks.	Non Scholastic Marks C6 5 Mks.	CIA Total 40M ks.	% of Assessment
K1	2	2	-	-	-	4	-	4	10 %
K2	2	2	5	-	-	9	-	9	22.5 %
K3	3	3	-	-	5	11	-	11	27.5 %
K4	3	3	-	5	-	11	-	11	27.5 %
Non Scholastic	-	-	-	-	-		5	5	12.5 %
Total	10	10	5	5	5	35	5	40	100 %

CIA	
Scholastic	35
Non Scholastic	5
TOTAL	40

✔ **The levels of CIA Assessment based on Revised Bloom's Taxonomy are :**

K1- Remember, **K2-**Understand, **K3-**Apply, **K4-**Analyse

	SCHOLASTIC				NON - SCHOLASTIC	MARKS		
C1	C2	C3	C4	C5	C6	CIA	ESE	Total
10	10	5	5	5	5	40	60	100

COURSE OUTCOMES

On the successful completion of the course, students will be able to:

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED
CO 1	RemembertheprogramstructureofCwithitssyntaxandsemantics	K1 & K2	PSO1, PSO2
CO 2	UnderstandtheprogrammingprinciplesinC(datatypes, operators, branching and looping, arrays,functions,structures, pointersandfiles)	K1 & K2	PSO1, PSO2,PSO3
CO 3	Applytheprogrammingprincipleslearntinreal-timeproblems	K1, K2, K3 & K4	PSO3, PSO4
CO 4	Analyzethevariousmethodsofsolvingaproblemandchoosethebestmethod	K1, K2 &	PSO3, PSO4

		K3	
CO 5	Code,debugandtesttheprogramswithappropriate Testcases	K1, K3 & K4	PSO3, PSO5

Mapping COs Consistency with PSOs

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8	PSO 9	PSO10
CO1	3	3	1	1	1	1	1	2	1	1
CO2	3	3	3	1	1	1	1	2	1	1
CO3	2	2	3	3	1	1	2	2	1	1
CO4	2	2	3	3	1	1	2	2	1	1
CO5	2	2	3	2	3	1	2	2	1	1

Mapping of COs with POs

CO/ PSO	PO1	PO2	PO3	PO4	PO5
CO1	3	1	1	1	1
CO2	1	1	3	1	2
CO3	1	2	1	3	1
CO4	1	1	1	2	1
CO5	1	3	1	1	1

Note:
♦ Strongly Correlated – **3**
♦ ModeratelyCorrelated –**2**
♦ WeaklyCorrelated -**1**

COURSE DESIGNER:

1. **Staff Name : Ms. SELVARANI S**

Forwarded By

(signature)

(S.Selvarani)

HOD'S Signature& Name