

Thiagarajar College

(An Autonomous Institution Affiliated to Madurai Kamaraj University)
Re-Accredited with 'A' Grade by NAAC



Thirty Eighth Academic Council Meeting

Department of Computer Applications and Information Technology

Dr. Rm. Murugappan
Dean – Curriculum Development

THIAGARAJAR COLLEGE, MADURAI – 9
(Re-Accredited with ‘A’ Grade by NAAC)
Curriculum structure for
B.Sc., CS, IT & BCA BBA & B.Com
(For those who join in June 2020 and after)

Category	Course	No. of Courses	Credit Distribution	Hrs/ Week	Total Credits
Part I	Tamil	2	3	-	06
Part II	English	2	3	-	06
		Sub Total			12
Part III	Core			-	84+2
	Elect –Main	2	5	-	10
	Elect – Generic	2+2	5	-	20
		Sub Total		-	116
Part IV	AECC I & II Sem	I sem EVS II Sem. VE	2 + 1	2 I & II Sem	03
	NME III & IV Sem	2	2	2 III & IV Sem	04
	SEC V & VI Sem	3	2	2 V & VI Sem	04
		Sub Total		06	11
	Total				139
Part V	NCC (Army & Navy)/ PE/ NSS / Rotaract/ Quality Circle/ Library/ SSL/ Nature Club/ Value Education/ YRC / WSC				1
	Grand Total				140

AECC – Ability Enhancement Compulsory Course

SEC – Skill Enhancement Course

NME – Non Major Elective

For Choice based credit system (CBCS)

- For NME every department offers two papers (one in each at III & IV semester)
- For SEC every department offer two papers for each course (Sem IV, V & VI)
- For Major elective there may be an option for choice.

Semester	Courses
I	EVS
II	VE
III	NME
IV	NME
V	SEC
VI	SEC

B.C.A.

Programme Code - UCA

Programme outcome-PO (Aligned with Graduate Attributes)- Bachelor of Computer Application

Knowledge

Able to understand and apply the fundamental principles, concepts and methods in diverse areas of computer applications, mathematics, statistics etc.,

Problem analysis and Development of Solutions

Identify, formulate, research literature and analyze real- time problems. Attain substantiated conclusions to solve the problems using fundamental principles of mathematics, computing sciences by adopting various tools and techniques.

Ethics and Social Responsibility

Understand and commit to professional ethics and cyber regulations, responsibilities and norms of professional computing practice.

Communication and Team Building

Possess interpersonal skills and communicate effectively with the professionals and with society at large on system activities. Able to comprehend and write effective reports, design documentation, make effective presentations, and give/understand instructions.

Life-long Learning

Recognize the need and have the ability, to engage in continuous reflective learning in the context of technological advancement. Create, select, adapt and apply appropriate techniques, resources, and computing tools to complex computing activities. Able to learn, adapt and apply emerging tools and technologies to meet the demand.

Innovation, Employability and Entrepreneurial skills

Identify opportunity; pursue that opportunity to create value and wealth for the betterment of the individual and society at large. Develop the capacity to study and research independently that will help to develop skills for transition to employment in hardware/software companies.

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Department of Computer Application and Information Technology

Vision

The Department of Computer Application & Information Technology foster competent and confident student community, enriched with soft skills inculcated with managerial skills and moral values.

Mission

- Empower groomed software professionals with robust knowledgebase
- Achieve employability in Information Technology and non Information Technology sector
- Develop potential individuals
- Promote students to become a successful entrepreneur.

Programme Educational Objectives (PEO)

The objectives of this programme is to equip/prepare the students to

PEO1	Equip the students to meet corporate needs.
PEO2	Professionally educate the students for pursuing higher education.
PEO3	Nurture the students with skills required to become an entrepreneur.
PEO4	Adapt the students with better learning ability in the ever changing software industry.
PEO5	Manage cross culture environment and have peer recognition.

Programme specific outcomes: BCA

On the successful completion of BCA the students will

PSO1	Illustrate the key concepts in Computer Applications.
PSO2	Analyze latest technologies and apply them to solve the issues in Computer Applications.
PSO3	Clarity on both conceptual and application oriented skills in computer technologies with quantitative and qualitative techniques.
PSO4	Build technical, professional, practical and communicative skills to face the industrial with clarity.
PSO5	Develop practical skills to provide solutions for computer oriented problems.

THIAGARAJAR COLLEGE, MADURAI – 9.
DEPARTMENT OF COMPUTER APPLICATION & INFORMATION TECHNOLOGY
BACHELOR OF COMPUTER APPLICATION(w.e.f. 2021 batch onwards)
Programme Code-UCA
Semester – I

Course	Code No.	Subject	Hours	Credits	Total No. of Hours Allotted	Max. Marks CA	Max. Marks SE	Total
Part I	U20P111C	இக்காலத் தமிழும் இடைக்காலத் தமிழும்	5	3	75	25	75	100
Part II	U20EN11	English for Comm. I	4	3	60	25	75	100
Core 1	UCA20C11	Digital Principles and Computer Organization	4	3	60	25	75	100
Core 2	UCA20C12	Programming in C	4	3	60	25	75	100
Core Lab 1	UCA20CL11	Programming in C Lab	3	2	45	40	60	100
Core Lab 2	UCA20CL12	Multimedia Lab	3	2	45	40	60	100
Allied 1	UMA20GE11 I	Mathematical foundation for CS	5	5	75	25	75	100
AECC- I	U20ES11	Environmental Studies	2	2	30	15	35	50
Total			30	23	450	220	530	750

Semester – II

Course	Code No.	Subject	Hours	Credits	Total No. of Hours Allotted	Max. Marks CA	Max. Marks SE	Total
Part I	U20P121C	சமயத் தமிழும் செவ்வியல் தமிழும்	5	3	75	25	75	100
Part II	U20EN21	English for Comm. II	4	3	60	25	75	100
Core 3	UCA20C21	Java Programming	4	3	60	25	75	100
Core 4	UCA20C22	Relational Database Management System	4	3	60	25	75	100
Core Lab 3	UCA20CL21	Java Lab	3	2	45	40	60	100
Core Lab 4	UCA20CL22	RDBMS Lab	3	2	45	40	60	100
Allied II	UMA20GE21I	Probability and Statistics	5	5	75	25	75	100
VE	U20VE21	Value Education	2	1	30	15	35	50
TOTAL			30	23	450	220	530	750

Semester –III

Course	Code No.	Subject	Hours	Credits	Total No. of Hours Allotted	Max. Marks CA	Max. Marks SE	Total
Core 5	UCA20C31	Microprocessor and Assembly Language Programming	5	4	75	25	75	100
Core 6	UCA20C32	Data Structures	5	4	75	25	75	100
Core Lab 5	UCA20CL31	Data Structures Lab Using Java	4	2	60	40	60	100
Core Lab 6	UCA20CL32	Web Designing With PHP Lab	4	2	60	40	60	100
Core Elective I	UCA20CE31 (a/b/c/d/e/f/g)	Options given	5	5	75	25	75	100
Allied III	UMA20GE31I	Computational Methods	5	5	75	25	75	100
NME-I	UCA20 NE31	E-Waste Management	2	2	30	15	35	50
TOTAL			30	24	450	195	455	650

Semester – IV

Course	Code No.	Subject	Hours	Credits	Total No. of Hours Allotted	Max. Marks CA	Max. Marks SE	Total
Core 7	UCA20 C41	Software Engineering	5	4	60	25	75	100
Core 8	UCA20 C42	Mobile Application Development	5	4	60	25	75	100
Core 9	UCA20 C43	Operating System	4	4	60	25	75	100
Core Lab 7	UCA20 CL41	Mobile Application Development Lab	4	2	60	40	60	100
Core ElectiveII	UCA20CE41 (a/b/c/d/e/f/g)	Options given	5	5	75	40	60	100
Allied IV	UMA19GE41I	Operations Research	5	5	75	25	75	100
NME-II	UCA19 NE41	Cybercrime and IPR issues	2	2	30	15	35	50
TOTAL			30	26	450	210	490	700

Semester V

Course	Code No.	Subject	Hours	Credits	Total No. of Hours Allotted	Max. Marks CA	Max. Marks SE	Total
Core 10	UCA20 C51	Data Communication and Network Security	5	4	75	25	75	100
Core 11	UCA20C52	Python Programming	6	5	90	25	75	100
Core 12	UCA20C53	Cloud Computing	6	5	90	25	75	100
Core Lab 8	UCA20CL51	Python Programming Lab	5	3	75	40	60	100
Project	UCA20PJ51	Project	6	4	90	25	75	100
SEC-I	UCA20SE51 (a/b/c/d/e/f/g/h/i/j)	Options given	2	2	30	15	35	50
TOTAL			30	23	450	155	395	550

Semester VI

Course	Code No	Subject	Hours	Credits	Total No of Hrs Allotted	Max Marks CA	Max Marks SE	Total
Core 13	UCA20C61	Data Mining	5	4	75	25	75	100
Core 14	UCA20C62	Big Data and NO SQL	5	4	75	25	75	100
Core 15	UCA20C63	.Net Programming	5	3	75	25	75	100
Core 16	UCA20C64	Fundamentals of Internet of Things	4	3	60	25	75	100
Core Lab9	UCA20CL61	NO SQL Lab	4	2	60	40	60	100
Core Lab10	UCA20CL62	. Net Programming Lab	5	2	75	40	60	100
SEC-II	UCA20SE61 (a/b/c/d/e/f/ g/h/i/j)	Options given	2	2	30	15	35	50
Part _V		Part _V		1				
TOTAL			30	21	450	195	455	650
TOTAL CREDITS FOR SEMESTERS I to VI				140				

A) Consolidation of contact hours and credits: BCA

Semester	Contact Hrs/ Week	Credits
I	30 hrs	23
II	30 hrs	23
III	30 hrs	24
IV	30 hrs	26
V	30 hrs	23
VI	30 hrs	20
Part – V	-	01
Total	180 hrs	140
V	Additional credit (Self study paper)	5

B) Curriculum Credits: Part wise

		No of papers	Credits per paper	Total credits
Part I	Tamil	2	3	06
Part II	English	2	3	06
Part III	Core Theory	16	$\frac{3}{4}$	61
	Core lab	10+ Project 1	2/3/4 - Project	25
	Core Elective	2	5	10
	Generic Elective Theory	4	5	20
Part IV	AECC	2	2+1	3
	NME	2	2	4
	SEC	2	2	4
Part V (NSSNCC/Physical Education)				1
Grand total				140

Skill Based Electives

- a) Logical Reasoning
- b) Problem Solving using C
- c) Machine Learning

- d) Cloud Lab
- e) Digital Image Processing
- f) Data Mining Lab (WEKA Tool)

Non Major Electives

- a) NME I - E-Waste Management
- b) NME II - Cybercrime and (Intellectual Property Rights) IPR issues

Core Electives

- a) Web Designing With PHP
- b) Artificial Intelligence
- c) Ethics in Information Security
- d) Operating System using Linux-Lab

Certificate Course

- a) Software Testing Concepts

Thiagarajar College (Autonomous):: Madurai – 625 009
DEPARTMENT OF COMPUTER APPLICATION & INFORMATION TECHNOLOGY
 (For those joined BCA on or after June 2020)
Programme Code - UCA

CourseCode	Course Title	Category	L	T	P	Credit
UCA20C11	Digital Principles and Computer Organization	Core1	4	-	-	3

L - Lecture T - Tutorial P-Practical

Year	Semester	Max. Marks CA	Max. Marks SE	Total
1	I	25	75	100

Preamble

Principles of digital design provides the basics of digital logic with universal gates , number system, data processing circuits like MUX, DMUX, arithmetic circuits, Flip-flops. In addition to it organization of computer offered the knowledge of memory system and arithmetic operations.

Course Outcomes

On the completion of the course the student will be able to

#	Course Outcome	Knowledge Level
CO1	Identify the gates , Boolean laws and theorems, make use of K-Map and solve number system related problems	K3
CO2	Explain the function of data processing circuits , flip-flops and able to solve binary arithmetic.	K3
CO3	Discuss the computer types , bus structures, addressing modes and identify the procedure for an execution	K1
CO4	Illustrate I/O device accessing , basic concepts of memories and its types	K2
CO5	Demonstrate the design of fast adders, solve multiplication and division of integers and discuss the concept of pipelining and embedded systems	K2

K1–Knowledge K2–Understand K3 -Apply

Mapping of Course Outcome with Programme Specific Outcomes

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	M	S	L	M
CO2	M	S	S	M	M
CO3	S	L	M	M	M
CO4	S	L	M	M	M
CO5	S	M	S	S	S

Strong –S Medium-M Low-L

Mapping of Course Outcome with Programme Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6
CO1	S	S	L	M	L	M
CO2	S	S	L	M	M	L
CO3	S	M	L	M	M	M
CO4	M	M	L	L	M	M
CO5	S	S	L	M	M	M

Blooms taxonomy: Assessment Pattern

	CA		End of Semester
	First	Second	
Knowledge	40%	40%	40%
Understand	40%	40%	40%
Apply	20%	20%	20%

Course Content -Digital Principles and Computer Organization

Unit-I

10hours

Digital Logic: The Basic Gates - Universal Logic Gates - AND-OR Invert Gates. Combinational Logic Circuits: Booleans Laws and Theorems - Sum-of-Products Method - Truth Table to Karnaugh Map - Pairs, Quads, and Octets - Karnaugh Simplifications - Don't care Conditions - Product of Sums Method - Product of sums Simplification. Number Systems and Codes: Binary Number System - Radix Representation of Numbers - Binary-to-decimal Conversion - Decimal-to-binary Conversion - Octal Numbers - Hexadecimal Numbers - The ASCII Code - The Excess-3 Code - The GrayCode.

Unit-II

12hours

Data processing circuits: Multiplexers - Demultiplexers - 1-of-16 Decoder - BCD-to- decimal Decoders - Seven-segment Decoders - Encoders - Exclusive-OR Gates - Parity Generators and Checkers. Arithmetic Circuits: Binary Addition - Binary Subtraction - Unsigned BinaryNumbers- Sign-magnitude Numbers - 2's Complement Representation - 2's Complement Arithmetic - Arithmetic Building Blocks - The Adder – Subtractor. FLIP-FLOPs: RS FLIP-FLOPs - Edge-triggered RS FLIP-FLOPs - Edge-triggered D FLIP-FLOPs - Edge-triggered JK FLIP-FLOPs - JK Master-Slave FLIP-FLOPs.

Unit-III

14hours

Basic Structure of Computers: Computer Types - Functional Units - Basic Operational Concepts - Bus Structures - Basic Processing Unit: Some Fundamental Concepts - Execution of a Complete Instruction -Hardwired Control - Micro programmed Control.

Unit-IV

13hours

Input / Output Organization: Accessing I/O devices - Interrupts - Direct Memory Access.The Memory System: Some Basic concepts - Read-Only Memories- Speed, Size, and Cost - Cache Memories - Virtual memories.

Unit-V**11hours**

Arithmetic: Design of Fast Adders - Multiplication of Positive Numbers - Integer Division.
Pipelining: Basic Concepts - Data Hazards - Instruction Hazards.
Embedded Systems: Examples of Embedded Systems - Processor Chips for Embedded Applications.

Text Books

1. Donald P. Leach , Albert Paul Malvino, GoutamSaha, 2014, Digital Principles and Applications, 8th edition, Tata McGraw – Hill Publication, NewDelhi.
2. Carl Hamacher, ZvonkoVranesic, SafwatZaky, 2013, Computer Organization, 5th edition, Tata McGraw – Hill Publication, NewDelhi.

Unit	Chapters / Sections
I	Book 1: 2 (2.1 - 2.3), 3 (3.1-3.8),5 (5.1 - 5.3, 5.5-5.10)
II	Book 1: 4 (4.1-4.8), 6 (6.1-6.8), 8 (8.1, 8.3-8.5, 8.8)
III	Book 2: 1 (1.1-1.4, 1.8), 2 (2.2.1, 2.2.2, 2.5),7 (7.1, 7.2, 7.4, 7.5)
IV	Book 2: 4 (4.1 ,4.2, 4.4),5 (5.1-5.5, 5.7)
V	Book 2: 6 (6.2, 6.3, 6.6) ,8 (8.1-8.3),9 (9.1, 9.2)

Reference Books

1. Morris Mano, 2012, Digital Logic & Computer Design, 5th edition, Prentice Hall of India publishing.
2. John D. Carpinelli, 2012, Computer System Organization and Architecture, Pearson Indian Education Service Private Limited,Chennai.
3. Morris Mano, 2011, Computer System Architecture, 4th edition, Prentice Hall of India publishing.

Web Resources

1. <https://courses.cs.washington.edu/courses/cse370/08wi/pdfs/lectures/04-Logic%20gates.pdf>
2. <http://www.ee.ncu.edu.tw/~jfli/computer/lecture/ch05.pdf>
3. http://www.pvpsiddhartha.ac.in/dep_it/lecturenotes/CSA/unit-4.pdf

Course Designers

1. Mrs.R.Umamaheswari
2. Dr. S.Abirami

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DEPARTMENT OF COMPUTER APPLICATION & INFORMATION TECHNOLOGY
 (For those joined BCA on or after June 2020)
Programme Code - UCA

CourseCode	Course Title	Category	L	T	P	Credit
UCA20C12	Programming in C	Core2	4	-	-	3
			L - Lecture	T - Tutorial	P-Practical	
Year	Semester	Max. Marks CA	Max. Marks SE	Total		
1	I	25	75	100		

Preamble

C programming procure the core concepts in C language including control structures, arrays, structures, pointers and files.

Course Outcomes

On the completion of the course the student will be able to

#	Course Outcome	Knowl edge Level
CO1	Discuss the data types, character set, symbolic constant and storage Class	K1
CO2	Apply control structures, branching, Conditional and looping statements	K3
CO3	Demonstrate the features of arrays and string handling functions	K3
CO4	Experiment with user defined functions and evaluate the various categories offunctions with structures and union.	K3
CO5	Make use of Pointers. Dynamic Memory Allocation and file management	K3

K1–Knowledge K2–Understand K3 – Apply

Mapping of Course Outcome with Programme Specific Outcomes

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	M	S	S
CO2	S	S	S	M	S
CO3	S	S	S	S	S
CO4	S	S	S	S	S
CO5	S	M	M	S	S

S-Strong

M-Medium

L-Low

Mapping of Course Outcome with Programme Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6
CO1	S	L	L	M	S	M
CO2	S	S	M	L	S	S
CO3	S	S	M	M	S	S
CO4	S	S	M	M	S	S
CO5	S	M	M	M	M	M

Blooms taxonomy: Assessment Pattern

	CA		End of Semester
	First	Second	
Knowledge	40%	40%	40%
Understand	40%	40%	40%
Apply	20%	20%	20%

Course Content- Programming in C

Unit-I 12hours

Overview of C: History of C - Importance of C - Sample Programs 1,2,3,4 and 5-Basic Structure of C Programs - Programming Style - Executing a „C“ Program. Constants, Variables and Data types:Introduction-CharacterSet-CTokens-KeywordsandIdentifiers-Constants-Variables- Data types - Declaration of Variables - Declaration of Storage Class - Assigning Values to Variables - Defining Symbolic Constants - Declaring a Variable as constant-Declaring variable as Volatile. Operators and Expression.

Unit-II 12hours

Managing Input and Output Operations: Introduction - Reading a Character - Writing a Character-Formatted Input-Formatted Output. Decision Making and Branching: Introduction-Decision making with if Statement - Simple if statement - The if...else Statement-Nesting of if...else Statements - The else if ladder - The Switch Statement - The ?: Operator - The goto Statement. Decision Making and Looping: Introduction- The while Statement-The do Statement-The for Statement-Jumps inLoops.

Unit-III 12hours

Array: Introduction - One-dimensional Arrays - Declaration of One-dimensional Arrays - Initialization of One-dimensional Arrays - Two-dimensional Arrays - Initializing Two-dimensional Arrays - Multi-dimensional Arrays - Dynamic Arrays. Character Arrays and Strings: Introduction - Declaring and Initializing String Variables - Reading Strings from Terminal - Writing Strings to Screen - Arithmetic Operation on Characters - Putting Strings Together – Comparison of TwoStrings-String Handling Functions.

Unit-IV 12hours

User-Defined Functions: Introduction - Need for User Defined Functions - A Multi-Function Program - Elements of User-Defined Functions – Definition of functions- Returns Values and Their Types - Function Calls – Function Declaration - Category of Functions - No Arguments and No Return Values - Arguments but No Return Values - Argument with Return Values - No Argument but Returns a Value - Functions that Return Multiple Values - Nesting of Functions - Recursion- Passing Arrays to Functions - Passing Strings to Function - The Scope, Visibility and Lifetime of Variables. Structures and Union.

Unit-V**12hours**

Pointers: Introduction - Understanding Pointers - Accessing the Address of a Variable - Declaring Pointer Variables - Initialization of Pointer Variables - Accessing a Variable through its Pointer - Chain of Pointers. Dynamic Memory Allocation and Linked List: Introduction - Dynamic Memory Allocation - Allocating a Block of Memory: malloc - Allocating Multiple Blocks of Memory: calloc, Releasing the Used Space:free, Altering the Size of a Block: realloc. File Management inC.

Text Books

1. Balagurusamy E, 2017, Programming in ANSI C, 7th edition, Tata McGraw – Hill Education Private Limited, New Delhi.

Unit	Chapters / Page Number
I	1(1-13),2(22-44),3(51-69)
II	4(81-94),5(111-133),6(149-172)
III	7(189-213),8(234-249)
IV	9(267-298),10(320-339)
V	11(353-361),12(391-409),13(415-420)

Reference Books

1. YashwantKanetkar, 2016. Let Us C, 14th edition, BPB Publications, NewDelhi.
2. Byron S. Gottfried, 2010. Programming with C, 3rd edition, Tata McGraw – Hill Publications, NewDelhi.
3. AnanthiSheshasaayee, 2009. Programming Language C with Practical, Margham Publication, Chennai.

Web Resources

- 1.http://people.scs.carleton.ca/~mjhinek/W13/COMP2401/notes/Arrays_and_Pointers.pdf
- 2.https://www.tutorialspoint.com/cprogramming/c_functions.htm
- 3.<http://www.circuitstoday.com/control-structures-in-c-and-cpp>

Course Designers

1. Dr. V. T.Meenatchi
2. Mrs. M.B.C Ashavani

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Programme Code - UCA

CourseCode	Course Title	Category	L	T	P	Credit
UCA20CL11	Programming in C Lab	Core Lab1	-	-	3	2
			L - Lecture	T - Tutorial	P-Practical	
Year	Semester	Max. Marks CA	Max. Marks SE	Total		
1	I	40	60	100		

Preamble

Enable to identify and solve problems that require usage of Decision Making, Branching, Array, User-Defined Functions and pointers in C.

Course Outcomes

On the completion of the course the student will be able to

#	Course Outcome	Knowledge Level
CO1	Write C programs for the designed algorithm with simple problems and control structures	K2
CO2	Implement programs with homogeneous data structures and functions	K1
CO3	Implement programs with heterogeneous data structures and pointers	K3
CO4	Generate programs with file handling functions	K3

K1–Knowledge K2–Understand K3 – Apply

Mapping of Course Outcome with Programme Specific Outcomes

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	S	S	S
CO2	S	S	S	M	M
CO3	S	S	S	M	S
CO4	S	M	M	S	L

S-Strong M-Medium L-Low

Mapping of Course Outcome with Programme Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6
CO1	S	S	M	M	S	M
CO2	S	S	L	M	S	M
CO3	S	M	L	L	S	M
CO4	S	S	M	M	S	M

S-Strong M-Medium L-Low

Blooms taxonomy: Assessment Pattern

	CA		End of Semester
	First	Second	
Knowledge	40%	40%	40%
Understand	40%	40%	40%
Apply	20%	20%	20%

Course Content- Programming in C Lab

Simple Programs:

1. Finding the largest, smallest among threenumbers
2. Finding the roots of a quadratic equation
3. Generate the Fibonacci sequence
4. Convert a decimal number to its binary equivalent

Control Structures:

1. Reverse a number
2. Find whether a number is prime or not
3. Find whether a given number is a perfect or not
4. Find the factorial of a number

Arrays:

1. Program for Sorting
2. Program to search an element
3. Find whether given string is a palindrome or not
4. Perform the addition of two matrices
5. Perform subtraction of two matrices
6. Perform multiplication of two matrices

Functions:

1. Program to apply Recursion
2. Program for Call by Value

Pointers:

1. Program to perform addition
2. Program for Call by Reference

Structures:

1. Program to print student information using structures
2. Program for Array of structures

File:

1. Program for applying File operations
2. Program to get n numbers and find odd and even numbers using file.

Web Resources

1. <http://www.baburd.com.np/books/LabManual-ComputrProgramming.pdf>
2. <http://www.sitttrkerala.ac.in/misc/LabManual/2139.pdf>

Course Designers

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2. Mrs. M.B.C Ashavani

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DEPARTMENT OF COMPUTER APPLICATION & INFORMATION TECHNOLOGY
 (For those joined BCA on or after June 2020)
Programme Code - UCA

CourseCode	Course Title	Category	L	T	P	Credit
UCA20CL12	Multimedia Lab	Core Lab 2	-	-	3	2
			L - Lecture	T - Tutorial	P-Practical	
Year	Semester	Max. Marks CA	Max. Marks SE	Total		
1	I	40	60	100		

Preamble

Facilitates the students to be familiar with multimedia tools and provide ability to develop various multimediapresentations

Course Outcomes

On the completion of the course the student will be able to

#	Course Outcome	Knowledge Level
CO1	Illustrate multimedia technology and tools.	K1
CO2	Create effective audiovisual presentation.	K2
CO3	Prepare multimedia advertisement	K3
CO4	Contribute in a student to develop a flash game.	K3

K1–Knowledge K2–Understand K3 –Apply

Mapping of Course Outcome with Programme Specific Outcomes

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	M	S	S	S
CO2	M	S	M	M	S
CO3	S	S	S	S	M
CO4	S	M	S	M	S

S-Strong

M-Medium

L-Low

Mapping of Course Outcome with Programme Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6
CO1	S	S	L	M	S	S
CO2	S	S	M	M	S	S
CO3	S	S	M	M	S	S
CO4	S	S	M	M	S	S

Blooms taxonomy: Assessment Pattern

	CA		End of Semester
	First	Second	
Knowledge	40%	40%	40%
Understand	40%	40%	40%
Apply	20%	20%	20%

Course Content-Multimedia Lab

PHOTOSHOP

1. To Design a Photoshop using Various selection tools
2. To Create scenery using photo shop brushes
3. To Demonstrate the rules of layer effect
4. To Create text inside a picture
5. To Create a snapshot inside a photo
6. To Coloring a B/W picture
7. To Create photo mount template
8. To Create photo fill template
9. To Create 2D & 3D logos
10. To Animate text using image ready
11. To Create a Christmas tree with blinking lights
12. To Animate a candle flame using liquefy tool
13. To Create slide mount template
14. To Design a visiting card using Photoshop
15. To Design a marriage invitation using Photoshop
16. To create Rain effect using Photoshop
17. To Crop the image using Photoshop
18. To Design Front page of the book using Photoshop
19. To Design a license using Photoshop
20. To Design a ATM card using Photoshop
21. To Design a mark sheet using Photoshop

FLASH

1. To Create Animation using motion tween
2. To Create Animation using shape tween
3. To Create Animation using layer
4. To Create Animation of text in multiple layer
5. To Create Masking text by an object
6. To Masking two images
7. To Create Animation using movie clip object
8. To Create Text morphing using flash
9. To Design a car using flash
10. To Bouncing ball using flash

VIDEO EDITING TOOL (After Effect CS 6)

1. To Create Double acting using Video EditingTool
2. To Create Motion poster using Video EditingTool
3. To Create Video using Video EditingTool
4. To Create Video using Video EditingTool
5. To Create Audio Mixing Technique using Video EditingTool
6. To Edit Green Screen Effects using Video EditingTool

Web Resources

1. <https://www.geeksforgeeks.org/microprocessor-tutorials/>
2. <http://examradar.com/memories-io-interfacing/>

Course Designers

1. Mrs. M.B.C.Ashavani
2. Dr. S.Abirami

Thiagarajar College (Autonomous):: Madurai – 625 009
Department of Computer Application & Information Technology
 (For those joined B.A., B.Sc., B.Com., B.B.A., B.C.A on or after June 2020)

Course Code	Course Title	Category	L	T	P	Credit
U20ES11	Environmental Studies	AECC1	2	-	-	2

Year	Semester	Int. Marks	Ext.Marks	Total
First	First	15	35	50

Preamble

Students acquire knowledge on the basic concepts, components and importance of environment.

Course Outcomes

On the completion of the course the student will be able to

	Course outcomes	Knowledge Level
CO1	Define the structure and functions of ecosystem	K1
CO2	Explain the benefits of biodiversity conservation	K2
CO3	Summarise the sources, effects and control measures of various types of Pollutant and pollutants	K1
CO4	Perceive the environment legislations in India for sustainable development.	K3
CO5	Elaborate the impact of environmental problems on life systems	K3

K1: Knowledge K2: Understand K3: Apply

Mapping of Course Outcomes with Programme Specific Outcomes

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	L	M	L	M
CO2	---	M	M	---	M
CO3	---	L	M	L	L
CO4	---	---	L	L	L
CO5	S	-	L	M	M

Strong –S (+++) Medium-M (++) Low-L (+)

Mapping of Course Outcomes with Programme Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6
CO1	S	S	L	S	S	-
CO2	S	M	L	M	L	L
CO3	S	S	L	S	M	L
CO4	S	S	L	M	S	S
CO5	S	M	-	S	S	S

Strong –S (+++) Medium-M (++) Low-L (+)

Blooms taxonomy: Assessment Pattern

	CA		End of Semester
	First	Second	
<i>Knowledge</i>	40%	40%	40%
<i>Understand</i>	40%	40%	40%
<i>Apply</i>	20%	20%	20%

Course Title: Environmental Studies

Unit I

Definition and Scope of Environmental Studies – Ecology and Ecosystem – Structure of an Ecosystem – Food chains, food webs and ecological pyramids – Causes of Biodiversity Loss – Benefit and Conservation of Biodiversity

Unit II

Environmental problems and Management: Causes, effects and Control measures of : Air Pollution – Water Pollution – Noise pollution – Nuclear Hazards. Solid waste management and Waste Disposal methods. Climate change and Global Warming causes and Measures. Waste and Plastics. Urban environmental problems and measures. Environmental Legislations in India. Sustainable development and Inclusive growth.

Text Book

1. Kanagasabai, C.S. 2005. Environmental Studies. Rasee publishers. Madurai.

Reference Books

1. Yogendra, N. and Srivastava, N. 1998. Environmental Pollution, Ashish Publishing House. New Delhi.
- Sapru R.K. 2001. Environment Management in India, Vol. I & Vol. II Ashish publishers house, New Delhi.

Thiagarajar College (Autonomous):: Madurai – 625 009
DEPARTMENT OF COMPUTER APPLICATION & INFORMATION TECHNOLOGY
 (For those joined BCA on or after June 2020)
Programme Code - UCA

CourseCode	Course Title	Category	L	T	P	Credit
UCA20C21	Java Programming	Core 3	4	-	-	3
			L - Lecture	T - Tutorial	P-Practical	
Year	Semester	Max. Marks CA	Max. Marks SE	Total		
I	II	25	75	100		

Preamble

Describes the basic features of OOPS with java application, applet programmes and inculcate the ability to develop projects in java

Course Outcomes

On the completion of the course the student will be able to

#	Course Outcome	Knowledge Level
CO1	Identify the importance of java with its data types, control statements and class fundamentals.	K1
CO2	Make use of inheritance, method overriding and implement packages and interfaces	K3
CO3	Experiment with exception handling and multithreading	K2
CO4	Apply string and string buffer handling functions and analyze the concept of interfaces and stream classes.	K3
CO5	Build applet programming through awt controls, layout managers and menus.	K3

K1-Knowledge K2-Understand K3 – Apply

Mapping of Course Outcome with Programme Specific Outcomes

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	S	M	M
CO2	S	S	M	M	M
CO3	S	M	L	L	M
CO4	S	M	M	S	L
CO5	S	L	L	L	M

Mapping of Course Outcome with Programme Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6
CO1	S	S	M	S	S	M
CO2	S	S	S	M	S	S
CO3	S	S	S	S	S	M
CO4	S	S	S	S	S	S
CO5	S	M	M	S	S	S

Blooms taxonomy: Assessment Pattern

	CA		End of Semester
	First	Second	
Knowledge	40%	40%	40%
Understand	40%	40%	40%
Apply	20%	20%	20%

Course Content- Java Programing

Unit-I 12hours

The Genesis of Java: Java’s Lineage- The creation of java- Why Java is important to internet- Java’s Magic: The Byte code-The Java buzzwords.An Over View Of Java- Data types, Variables and Arrays. Operators. Control statements.

Unit-II 12hours

Introducing classes: Class Fundamentals-Declaring objects-Assigning object reference variables-Introducing Methods-.Constructors-The this Keyword-Garbage Collection- finalize() Method.**Inheritance** :Inheritance Basics- Using super-Creating a multilevel Hierarchy-When constructors are called--Method overriding-Dynamic method dispatch-Using Abstract classes-using final with inheritance-The Object class.

Unit –III 12hours

Packages and Interfaces: Packages- Access protection- Importing packages-interfaces.**Exception Handling:** Exception Handling Fundamentals- Exception types-Uncaught Exceptions-using try and catch-user – Multiple catch Clauses-Nested try Statements-throw-throws- finally-Java’s built in exceptions-Creating your own exception subclasses.

Unit-IV 12hours

Multithreaded Programming: The Java Thread Model-main thread-creating a Thread-Creating multiple threads- Using isAlive() and join()-Thread priorities.**String handling:** String constructor-Special String operations-character extraction-String comparison-Searching Strings-modifying a String-Date conversion using valueof()-String Buffer.

Unit-V 12hours

Exploring java.lang: Simple type wrappers. Input/Output: Exploring java.io: File-Directory-Stream Classes-File Input Stream-File Output Stream-File Reader-Character Streams-File Reader-File Writer-BufferedReader-Writer. **The Applet Class:** Applet Basics-Architecture-An Applet skeleton- Simple Applet display methods- Requesting repainting- Using the status window-The Html applet Tag-passing parameter to applets-getDocumentBase() and getCodeBase().

Text Books

1. Herbert Schildt, 2014, Java 2: The Complete Reference 5th edition, Tata McGraw Hill Education Private Limited.

UNIT	Chapter /Sections
I	1,2,3,4,5
II	8,9
III	10,11
IV	13,14(Pg. 379-401),17(Pg. 537-551), 17(562-570), 19(Pg. 627-648)
V	22(Pg. 735-775), 20(654-675)

Reference Books

- Adan Dodson, 2016, Java: Java programming for Beginners Teaching You Basic to Advance Java Programming Skills, Create space Independent PublishingPlatform.
- Balagurusamy, 2014, programming with Java, 5th edition, Tata McGraw Hill Education Private Limited.
- Yashwant Kanetkar, 2012, Let Us Java 2nd edition, BPB publications.

Web Resources

1. <https://www.javatpoint.com/exception-handling-in-java>
2. <https://www.edureka.co/blog/java-string/>
3. http://www2.gsu.edu/~matpxp/SwIG/talks/java_applets.pdf

Course Designers

1. Dr. S. Abirami
2. Dr. V.T Meenatchi

Thiagarajar College (Autonomous):: Madurai – 625 009
DEPARTMENT OF COMPUTER APPLICATION & INFORMATION TECHNOLOGY
 (For those joined BCA on or after June 2020)

Programme Code - UCA

CourseCode	Course Title	Category	L	T	P	Credit
UCA20C 22	Relational Database Management System	Core 4	4	-	-	3

L - Lecture T - Tutorial P-Practical

Year	Semester	Max. Marks CA	Max. Marks SE	Total
I	II	25	75	100

Preamble

Walk through the basics of database concepts, data models, relational database design, transaction management, database system architectures, storage methods, querying and managing databases by using sqlcommands.

Course Outcomes

On the completion of the course the student will be able to

#	Course Outcome	Knowledge Level
CO1	Explain the basic concepts of data model and types of keys in relational database system	K1
CO2	Design good relational database based on a data model by considering normalization	K2
CO3	Analyze the requirements of transaction processing, concurrency control and the need for backup and recovery	K2
CO4	Demonstrate the client-server architecture, parallel database and query optimization	K2
CO5	Apply sql commands, group and date functions, cursor ,triggers, procedures, functions and packages.	K3

K1–Knowledge K2–Understand K3 -Apply

Mapping of Course Outcome with Programme Specific Outcomes

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	M	M	S	S
CO2	M	S	L	M	S
CO3	M	S	M	M	M
CO4	S	M	S	S	M
CO5	S	M	S	S	S

S-Strong M-Medium L-Low

Mapping of Course Outcome with Programme Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6
CO1	S	S	L	L	M	M
CO2	S	S	L	L	S	M
CO3	S	L	M	M	M	S
CO4	S	L	M	M	M	S
CO5	S	S	L	M	M	S

Blooms taxonomy: Assessment Pattern

	CA		End of Semester
	First	Second	
Knowledge	40%	40%	40%
Understand	40%	40%	40%
Apply	20%	20%	20%

Course Content- Relational Database Management System

Unit-I **12hours**

Introduction: Database-System Applications - Purpose of Database Systems - View of Data - Database Languages - Relational Databases - Database Design - Data Storage and Querying Transaction Management-Database Architecture –Database Users and Administrators - History of Database Systems. Introduction to the Relational Model: Structure of Relational Databases - Database Schema - keys -Schema Diagrams. Formal Relational Query Languages: The Relational Algebra - Database Design and the E-R Model.

Unit-II **12hours**

Relational Database Design: Features of Good Relational Designs - Atomic Domains and First Normal Form – 2NF-3NF-BCNF-4NFand 5NF-Storage and File Structure-Overview of physical storage media, Magnetic Disc and flash storage, RAID-File Organization - Organization of records in File-Data Dictionary storage-Database Buffer .

Unit-III **12hours**

Transactions: Transaction Concept - A Simple Transaction Model - Storage Structure - Transaction Atomicity and Durability -. **Structured Query Language (SQL):** Introduction – DDL - Naming rules and conventions - Data types-Constraints- Creating a table- Displaying table information - Altering an existing table – Dropping, renaming, and truncating table - Table types.

Unit-IV **12hours**

Working with tables: DML - Adding a new Row/Record - Customized prompts - Updating and deleting an existing rows/records - Retrieving data from table - Arithmetic operations - Restricting data with WHERE clause - Sorting - Substitution variables - DEFINE command - CASE structure. **Functions and Grouping:** Built-in functions - Grouping data. **Joins and Views:** Join - join types- **Views:** Views - Creating a view - Removing a view - Altering a view.

PL/SQL: Fundamentals - Block structure - comments - Data types – Other data types -Variable declaration - Assignment operation - Bind variables - Substitution variables - Printing. - **Control Structures and Embedded SQL:** Control structures - Nested blocks - SQL in PL/SQL - Data manipulation - Transaction control statements. **VARRAY .PL/SQL Cursors and Exceptions:** Cursors - Implicit & explicit cursors and attributes - cursor FOR loops - SELECT...FOR UPDATE - WHERE CURRENT OF Clause - cursor with parameters - Cursor variables - Exceptions - Types of exceptions - Records - Tables –Nested table-Procedures -Functions-Triggers

Text Books

1. Abraham Silberschatz, Henry Korth, S.Sudarshan, 2013, Database System Concepts, 6th edition, McGraw Hill Education Private Limited, NewDelhi.
2. Bob Bryla, Kevin Loney, 2014, Oracle Database 12c: The Complete Reference, McGraw Hill Education Private Limited, New York (<https://www.amazon.com/Oracle-Database-12c-Complete-Reference-ebook/dp/BOODQSTPUE>).

Unit	Chapters/ Section
I	Book1-Chap1-1.1-1.9,1.12,1.13 ,Chap2- 2.1-2.4 ,Chap-6.1 ,Chap-7(full)
II	Book1-Chap 8.1-8.4,Chap 10
III	Book1-14.1-14.4, Book2-7,8
IV	Book2-9,10,12, 15
V	Book2-17,32,34,35

Reference Books

1. RamezElmasri, Shamkant B. Navathe, 2013, Database Systems Models, Languages, Design and Application Programming, 6th edition, PearsonEducation.
2. Date C.J, Kannan.A, Swamynathan.S, 2013, Introduction to Database Systems, 8th edition, , PearsonEducation.
3. Rajesh Narang, 2011, Database Management System, 2nd edition, PHI Learning Private Limited, New Delhi

Web Resources

- 1.<https://www.tutorialspoint.com/dbms/>
- 2.<https://cs.uwaterloo.ca/~tozsu/courses/CS338/lectures/14%20DB%20System.pdf>
- 3.https://docs.oracle.com/cd/B19306_01/server.102/b14357/qstart.htm

Course Designers

1. Mrs. R.Umamaheswari
2. Dr. V.T Meenatchi

Thiagarajar College (Autonomous):: Madurai – 625 009
DEPARTMENT OF COMPUTER APPLICATION & INFORMATION TECHNOLOGY
 (For those joined BCA on or after June 2020)
Programme Code - UCA

CourseCode	Course Title	Category	L	T	P	Credit
UCA20CL21	Java Lab	Core Lab 3	-	-	4	2
			L - Lecture	T - Tutorial	P-Practical	
Year	Semester	Max. Marks CA	Max. Marks SE	Total		
I	II	40	60	100		

Preamble

Provides insight into java through the core concepts and window programming

Course Outcomes

On the completion of the course the student will be able to

#	Course Outcome	Knowledge Level
CO1	Develop simple java programs using control structures and arrays	K2
CO2	Write java code using Package, Thread and Exceptions	K3
CO3	Implement java programs through object oriented programming concepts	K3
CO4	Apply applet to develop window based applications	K3
K1-Knowledge		K2-Understand
		K3 – Apply

Mapping of Course Outcome with Programme Specific Outcomes

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	S	S	L
CO2	S	S	S	S	M
CO3	S	S	S	S	M
CO4	M	M	M	M	S
Strong –S Medium-M Low-L					

Mapping of Course Outcome with Programme Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6
CO1	S	S	M	S	S	M
CO2	S	S	S	M	S	S
CO3	S	S	S	S	S	M
CO4	S	S	S	S	S	S

Blooms taxonomy: Assessment Pattern

	CA		End of Semester
	First	Second	
<i>Knowledge</i>	40%	40%	40%
<i>Understand</i>	40%	40%	40%
<i>Apply</i>	20%	20%	20%

Java Lab- Web Resources

1.<http://www.atri.edu.in/images/pdf/departments/JAVA%20PROGRAMMING%20%20MANUAL.pdf>
2.<http://jnec.org/Lab-manuals/CSE/CSE1/TE-Part-1/Java-LM-SSD-March.pdf>

Course Designers:

1. Dr. S.Abirami
2. Dr. V. T.Meenatchi

Course Content- Java Lab

Simple Programs

1. Write a Java program to print the result of the following operations:
 - i. $-5a + 8 * 6$
 - ii. $b(55+9) \% 9$
 - iii. $20 + (-3*5 / 8)x$
 - iv. $5 x + (15 / 3 * 2)y - 8 \% 3$
2. Write a Java program to print the sum (addition), multiply, subtract, divide and remainder of two numbers.
3. Write a Java program to print the area and perimeter of a rectangle.
4. Write a Java program that reads a number in inches, converts it to meters.
5. Write a Java program that keeps a number from the user and generates an integer between 1 and 7 and displays the name of the weekday.
6. Write a Java program that reads a number and displays the square, cube, and fourth power

Control Structures

1. Write a program in Java to make such a pattern like right angle triangle with a number which will repeat a number in a row.
2. Write a program in Java to make such a pattern like right angle triangle with number increased by 1.
3. Write a program in Java to print the Floyd's Triangle
4. Write a program in Java to print the Floyd's Triangle

```
1
01
101
0101
10101
```

Array

1. Write a Java program to calculate the average value of array elements.
2. Write a Java program to test if an array contains a specific value
3. Write a Java program to find the index of an array element.
4. Write a Java program to remove a specific element from an array.
5. Write a Java program to copy an array by iterating the array
6. Write a Java program to insert an element (specific position) into an array.
7. Write a Java program to find the maximum and minimum value of an array.
Write a Java program to reverse an array of integer values.

String

1. Write a Java program to implement java String functions
2. Write a Java program to implement java String Buffer functions

Oops

1. Write a java program for simple bankingsystem.
2. Write a java program for library managementsystem.
3. Write a java program for inventory management using Array ofobjects.
4. Write a java program forInheritance.
5. Write a java program for Function Overloadingprocess.
6. Write a java program for User-DefinedPackage.
7. Write a java Multi-ThreadedProgram.

Applet

1. Write a java program for the demo of Applet LifeCycle
2. Write a java Applet Program for GraphicImages, Text with Font, Colors
3. Write a java program for Changing Layout ofApplet

Thiagarajar College (Autonomous):: Madurai – 625 009
DEPARTMENT OF COMPUTER APPLICATION & INFORMATION TECHNOLOGY
 (For those joined BCA on or after June 2020)
Programme Code - UCA

CourseCode	Course Title	Category	L	T	P	Credit
UCA20CL22	RDBMS Lab	Core Lab 4	-	-	3	2
			L - Lecture T - Tutorial P-Practical			
Year	Semester	Max. Marks CA	Max. Marks SE	Total		
1	II	40	60	100		

Preamble

Develop practical skills on SQL and PL/SQL

Course Outcomes

On the completion of the course the student will be able to

#	Course Outcome	Knowledge Level
CO1	Create tables and implement DDL and DML commands	K1
CO2	Discuss the concept of join and sub queries	K2
CO3	Implement the concept of cursors, exception handling and triggers	K3
CO4	Apply the concept of functions, procedures and packages	K3

K1–Knowledge K2–Understand K3 –Apply

Mapping of Course Outcome with Programme Specific Outcomes

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	S	S	S
CO2	S	S	S	S	S
CO3	S	M	S	S	M
CO4	S	M	L	M	S

S-Strong M-Medium L-Low

Mapping of Course Outcome with Programme Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6
CO1	S	S	L	L	S	S
CO2	S	S	M	M	S	S
CO3	S	S	S	M	S	S
CO4	S	S	L	M	M	S

Blooms taxonomy: Assessment Pattern

	CA		End of Semester
	First	Second	
Knowledge	40%	40%	40%
Understand	40%	40%	40%
Apply	20%	20%	20%

Course Content- RDBMS Lab

SQL

1. Queries on Studenttable
2. Queries on Employeetable
3. Queries on Hospitaltable
4. Queries on Sportstable
5. Queries on Exporttable
6. Join Queries
7. Subqueries

PL/SQL

1. PL/SQL block to find factorial of a given number
2. PL/SQL block to generate Fibonacci series
3. PL / SQL block using Cursors
4. PL / SQL block using Exception handling
5. PL / SQL block using Triggers
6. PL / SQL block using Packages
7. PL / SQL block using Function
8. PL / SQL block using Procedures
9. PL / SQL block using VARRAY
10. PL / SQL block using Nested tables.

Web Resources

1. <http://www.srmuniv.ac.in/sites/default/files/2017/cse-lab-manual-dbms.pdf>
2. <http://jnec.org/Lab-manuals/CSE/CSE1/TE-Part-1/DBMS-LM-Varsha.pdf>

Course Designers

1. Mrs. R.Umamaheswari
2. Dr. S.Abirami

THIAGARAJAR COLLEGE, MADURAI – 9.
(Re-Accredited with ‘A’ Grade by NAAC)
VALUE EDUCATION

Course Code	Course Title	Category	L	T	P	Credit
U20VE21	Value Education	AECC2	2	-	-	1

Year	Semester	Int. Marks	Ext.Marks	Total
First	Second	15	35	50

Preamble

Students acquire knowledge on the basic concepts, components and importance of environment.

Course Outcomes

On the completion of the course the student will be able to

	Course outcomes	Knowledge Level
CO1	Define the values, Self assessment and values needed for self development	K1
CO2	Explain about the good character and good relationships	K2
CO3	Summarise the types of thoughts, developing thought pattern, external influences on thoughts	K1
CO4	Find out the causes of Illusions, Symptoms and stages of stress	K3

K1: Knowledge K2: Understand K3: Apply

Mapping of Course Outcomes with Programme Specific Outcomes

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	-	M	-	-
CO2	-	L	M	L	-
CO3	M	M	S	-	-
CO4		-	M	L	-

Mapping of Course Outcome with Programme Outcomes

	PSO1	PSO2	PSO3	PSO4	PSO5	PO6
CO1	L	-	M	-	-	-
CO2	-	L	M	L	-	L
CO3	M-	M	S	-	-	-
CO4		-	M	L	-	M

Blooms taxonomy: Assessment Pattern

	CA		End of Semester
	First	Second	
<i>Knowledge</i>	40%	40%	40%
<i>Understand</i>	40%	40%	40%
<i>Apply</i>	20%	20%	20%

Unit I

Self Development – Introduction - Definition and Types of Values – Self Assessment – Values needed for self development - Values needed for family life –Principles of happy living

Character development- Good character – Good relationships - Legendary people of highest character – The quest for character –Developing character -The key to good character.

Unit II:

Positive Thinking and Self Esteem - Types of thoughts - Areas of thinking - Developing thought pattern - External influences on Thoughts - Methods to keep outlook positive – Meaning of Self Esteem – Self empowerment.

Stress free living – Illusions and causes - Symptoms and stages of stress – Self confidence– Role models and leadership qualities – Critical thinking - Communication skills – Happy and successful life.

Reference:

Study material / Course material

1. Values for Excellence in Life Compiled by then Curriculum Development Cell Thiagarajar College, Madurai, in collaboration with the Education wing, Brahma Kumaris, Madurai.

THIAGARAJAR COLLEGE, MADURAI – 9.
(Re-Accredited with ‘A’ Grade by NAAC)
ENVIRONMENTAL STUDIES

Course Code	Course Title	Category	L	T	P	Credit
U20ES11	Environmental Studies	AECC1	2	-	-	2

Year	Semester	Int. Marks	Ext.Marks	Total
First	First	15	35	50

Preamble

Students acquire knowledge on the basic concepts, components and importance of environment.

Course Outcomes

On the completion of the course the student will be able to

	Course outcomes	Knowledge Level
CO1	Define the structure and functions of ecosystem	K1
CO2	Explain the benefits of biodiversity conservation	K2
CO3	Summarise the sources, effects and control measures of various types of Pollutants	K1
CO4	Perceive the environment legislations in India for sustainable development.	K3

K1: Knowledge K2: Understand K3: Apply

Mapping of Course Outcomes with Programme Specific Outcomes

	PO1	PSSO2	PSO3	PSO4	PSO5
CO1	L	L	M	L	M
CO2	-	M	M	-	M
CO3	-	L	M	L	L
CO4	-	-	L	L	L

Mapping of Course Outcomes with Programme Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6
CO1	M	-	M	L	S	-
CO2	M	L	S	M	L	L
CO3	M	M	S	S	M	L
CO4	M	-	M	S	S	S

Blooms taxonomy: Assessment Pattern

	CA		End of Semester
	First	Second	
<i>Knowledge</i>	40%	40%	40%
<i>Understand</i>	40%	40%	40%
<i>Apply</i>	20%	20%	20%

Unit I

Definition and Scope of Environmental Studies – Ecology and Ecosystem – Structure of an Ecosystem – Food chains, food webs and ecological pyramids – Causes of Biodiversity Loss – Benefit and Conservation of Biodiversity

Unit II

Environmental problems and Management: Causes, effects and Control measures of : Air Pollution – Water Pollution – Noise Pollution – Nuclear Hazards. Solid waste management and Waste Disposal methods. Climate change and Global Warming causes and Measures. Waste and Plastics. Urban environmental problems and measures. Environmental Legislations in India. Sustainable development and Inclusive growth.

Text Book

2. Kanagasabai, C.S. 2005. Environmental Studies. Rasee publishers. Madurai.

Reference Books

1. Yogendra, N. and Srivastava, N. 1998. Environmental Pollution, Ashish Publishing House. New Delhi.

Sapru R.K.2001. Environment Management in India, Vol. I & Vol. II Ashish publishers house, New Delhi.

B.Sc. Information Technology

Programme Code - UIT

Programme outcome-PO (Aligned with Graduate Attributes) - Bachelor of Science(B.Sc.)

Scientific Knowledge and Critical Thinking

Apply the knowledge of Life Science, Physical and Chemical Science, Mathematics, statistics, Computer science and humanities for the attainment of solutions to the problems that come across in our day-to-daylife/activities.

Problem Solving

Identify and analyze the problem and formulate solutions for problems using the principles of mathematics, natural sciences with appropriate consideration for the public health, safety and environmental considerations.,

Communication and Computer Literacy

Communicate the fundamental and advanced concepts of their discipline in written and oral form. Able to make appropriate and effective use of information and information technology relevant to their discipline

Life-Long Learning

Recognize the need for and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Ethical, Social and Professional Understanding

Commitment to principles, codes of conduct and social responsibility in order to behave consistently with personal respect. Acquire the responsibility to contribute for the personal development and for the development of the community. Respect the ethical values, social responsibilities and diversity.

Innovative, Leadership and Entrepreneur Skill Development

Function as an individual, and as a member or leader in diverse teams and in multidisciplinary settings. Become an entrepreneur by acquiring technical, communicative, problem solving, intellectual skills.

THIAGARAJAR COLLEGE, MADURAI – 9.
(Re-Accredited with ‘A’ Grade by NAAC)
Department of Computer Application and Information Technology

Vision:

- To exhibit innovative and heuristic knowledge in every IT arena with quality and holistic approach.

Mission:

- To facilitate the students to grab knowledge on various sectors of IT industry.
- To enhance the students to present their wisdom on governmental as well as non-governmental services.
- To equip the student to adapt and apply their skill set to acquire higher education opportunities.

Programme Educational Objectives (PEO)

The objectives of this programme is to equip/prepare the students to

PEO1	Equip the students to grab knowledge on various sectors of IT industry.
PEO2	Promote the students with cumulative skill set to provide solutions to a given real world problem using current trends and technology.
PEO3	Deliver a new generation with proficient on fundamental knowledge and recent trends on different disciplines in Information Technology.
PEO4	Facilitate the student to adapt and apply their skill set to acquire higher education opportunities.
PEO5	Enhance the students to present their wisdom on governmental as well as non-governmental services.

Programme specific outcomes- B.Sc.,Information Technology

On the successful completion of B.Sc., Information Technology the students will

PSO1	Acquire fundamental concepts, methods and practices of Information Technology to develop theoretical and practical skill sets.
PSO2	Justify the optimum technique to allocate memory resources, processors, I/O peripherals to provide optimal programmatic solution to a real world problem.
PSO3	Support to gain skills on basic as well as trendy software languages and packages to design web sites, web apps and real time software projects.
PSO4	Promote the students to generalize and distinguish the characters of different systems for different environment.
PSO5	To trigger the students to enroll in to the research areas of IT industry like cloud computing and data analysis.

THIAGARAJAR COLLEGE, MADURAI – 9.
DEPARTMENT OF COMPUTER APPLICATION & INFORMATION TECHNOLOGY
B.Sc. INFORMATION TECHNOLOGY(w.e.f. 2020 batch onwards)
Programme Code-UIT

Semester – I

Course	Code No.	Subject	Hours	Credits	Total No. of Hours Allotted	Max. Marks CA	Max. Marks SE	Total
Part I	U20P111C	இக்காலத் தமிழும் இடைக்காலத் தமிழும்	5	3	75	25	75	100
Part II	U20EN11	English	4	3	60	25	75	100
Core 1	UIT20C11	Programming in C	4	4	60	25	75	100
Core 2	UIT20C12	Digital Principles and Computer Organization	4	4	60	25	75	100
Core Lab 1	UIT20CL11	Programming in C Lab	3	2	45	40	60	100
Core Lab 2	UIT20CL12	Digital Design Lab	3	2	45	40	60	100
Generic Elective 1	UMA20GE 11I	Mathematical foundation for CS	5	5	75	25	75	100
AECC	U20ES11	Enivironmental Studies	2	2	30	15	35	50
TOTAL			30	25	450	220	530	750

Semester-II

Course	Code No.	Subject	Hours	Credits	Total No. of Hours Allotted	Max. Marks CA	Max. Marks SE	Total
Part I	U20P121C	சமயத் தமிழும் செவ்வியல் தமிழும்	5	3	75	25	75	100
Part II	U20EN22	English	4	3	60	25	75	100
Core 3	UIT20C21	Data Structures	4	4	60	25	75	100
Core 4	UIT20C22	Microprocessor and Assembly Language Programming	4	4	60	25	75	100
Core Lab 3	UIT20CL21	Data Structures using C Lab	3	2	45	40	60	100
Core Lab 4	UIT20CL22	Basics of Web Technology Lab	3	2	45	40	60	100
Generic Elective2	UMA20GE 21I	Probability and Statistics	5	5	75	25	75	100
AECC	U20VE21	Value Education	2	1	30	15	35	50
TOTAL			30	24	450	220	530	750

Semester – III

Course	Code No.	Subject	Hours	Credits	Total No. of Hours Allotted	Max. Marks CA	Max. Marks SE	Total
Core 5	UIT20C31	Java Programming	5	4	75	25	75	100
Core 6	UIT20C32	Relational Database Management System	5	4	75	25	75	100
Core Lab 5	UIT20CL31	Java Programming Lab	4	2	60	40	60	100
Core Lab 6	UIT20CL32	RDBMS Lab	4	2	60	40	60	100
Core Elective I	UIT20CE31 (A/B/C/D)	Options given	5	5	75	25	75	100
Generic Elective 3	UMA20GE31I	Computational Methods	5	5	75	25	75	100
NME I	UIT20NE31	Open Source Technology	2	2	30	15	35	50
TOTAL			30	24	450	195	455	650

Semester – IV

Course	Code No.	Subject	Hours	Credits	Total No. of Hours Allotted	Max. Marks CA	Max. Marks SE	Total
Core 7	UIT20C41	Operating System	5	4	75	25	75	100
Core 8	UIT20C42	Python Programming	5	4	60	25	75	100
Core Lab 7	UIT20CL41	Operating System Lab	4	2	45	40	60	100
Core Lab 8	UIT20CL42	Python Programming Lab	4	2	60	40	60	100
Core Elective II	UIT20CE41 (D/E/F/G)	Options given	5	5	75	25	75	100
Generic Elective 4	UMA20GE41I	Operations Research	5	5	75	25	75	100
NME II	UIT20NE51	Internet Security - Principles and Practices	2	2	30	15	35	50
TOTAL			30	24	450	210	490	700

Semester – V

Course	Code No.	Subject	Hours	Credits	Total No. of Hours Allotted	Max. Marks CA	Max. Marks SE	Total
Core 9	UIT20C51	Web Designing with PHP	5	4	75	25	75	100
Core 10	UIT20C52	Computer Networks	5	4	75	25	75	100
Core 11	UIT20C53	Software Engineering	5	4	75	25	75	100
Core Lab 9	UIT20CL51	Web Designing with PHP Lab	5	2	75	40	60	100
Core Lab 10	UIT20CL52	Networking Lab	4	2	60	40	60	100
Project	UIT20PJ51	Major Project	4	2	60	25	75	100
SEC I	UIT20SE51	Options given	2	2	30	15	35	50
TOTAL			30	20	450	195	455	650

Semester – VI

Course	Code No.	Subject	Hours	Credits	Total No. of Hours Allotted	Max. Marks CA	Max. Marks SE	Total
Core 12	UIT20C61	.Net Technology	6	6	90	25	75	100
Core 13	UIT20C62	Mobile Application Development	5	4	75	25	75	100
Core 14	UIT20C63	Data Warehousing & Mining	6	5	90	25	75	100
Core Lab 11	UIT20CL61	.Net Technology Lab	5	2	75	40	60	100
Core Lab 12	UIT20CL62	Mobile Application Development	6	3	90	40	60	100
SEC II	UIT20SE61	Options given	2	2	30	15	35	50
Part V				1		75	25	100
TOTAL			30	23	450	170	380	550
TOTAL CREDITS FOR SEMESTERS I to VI				140				

A) Consolidation of contact hours and credits: UG

Semester	Contact Hrs/ Week	Credits
I	30 hrs	25
II	30 hrs	24
III	30 hrs	24
IV	30 hrs	24
V	30 hrs	20
VI	30 hrs	22
Part – V	-	01
Total	180 hrs	140
V	Additional credit (Self study paper)	5

B) Curriculum Credits: Part wise

		No of papers	Credits per paper	Total credits
Part I	Tamil	2	3	06
Part II	English	2	3	06
Part III	Core Theory	1+12+1	5/4/3	58
	Core lab	2+10	3/2	26
	Core Elective	2	5	10
	Generic Elective	4	5	20
	Project	1	2	2
Part IV	AECC	2	2+1	3
	NME	2	2	4
	SBE	2	2	4
Part V (NSSNCC/Physical Education)				1
Grand total				140

Core Electives

- A. Soft Computing
- B. E - Commerce
- C. Software Project Management
- D. Digital Image Processing

- E. Cloud Computing
- F. Principles of Data Communication
- G. Computer Forensics
- H. Big Data Analytics

SEC

- A. Robotics
- B. Desk Top Publishing Lab (Photoshop, Corel Draw, Flash)
- C. Embedded System
- D. Cassandra Lab
- E. Logical Reasoning
- F. Software Testing Foundation

NME

1. Open Source Technology – NME I
2. Internet Security - Principles and Practices - NME II

Thiagarajar College (Autonomous):: Madurai – 625 009
DEPARTMENT OF COMPUTER APPLICATION & INFORMATION TECHNOLOGY
 (For those joined B.Sc. IT on or after June 2020)
Programme Code - UIT

Course Code	Course Title	Category	L	T	P	Credit
UIT20C11	Programming in C	Core-1	4	0	0	4
			L - Lecture	T - Tutorial	P-Practicals	
Year	Semester	Max. Marks CA	Max. Marks SE	Total		
First	First	25	75	100		

Preamble

To get knowledge on the basics of C programming and train them to develop user friendly applications code using C.

Course Outcomes

On the completion of the course the student will be able to

#	Course Outcome	Knowledge Level)
CO1	Demonstrate the types of variables constants, datatypes, operators, looping concepts and conditional statements for developing the code.	K1
CO2	Illustrate the structure of storage classes to the various types of variables and operations related with strings.	K2
CO3	Implement the various types of user defined functions and the scope visibility lifetime of variables.	K3
CO4	Develop the code to apply the structures and unions for complicated problems.	K1
CO5	Describe about the Pointers and the impact of address of pointers used in code development, explain the usage of File concepts in C codings.	K2

K1 - Knowledge

K2 - Understand

K3 – Apply

Mapping of Course Outcome with Programme Specific Outcomes

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	M	S	L	L
CO2	S	M	M	M	M
CO3	S	M	S	L	M
CO4	S	M	M	L	L
CO5	S	S	S	M	L

Strong –S (+++) Medium-M (++) Low-L (+)

Mapping of Course Outcome with Programme Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6
CO1	M	M	S	L	L	L
CO2	S	L	M	M	M	L
CO3	L	M	S	L	M	L
CO4	M	S	L	M	M	L
CO5	L	S	M	L	S	S

Strong –S (+++) Medium-M (++) Low-L (+)

Blooms taxonomy: Assessment Pattern

	CA		End of Semester
	First	Second	
<i>Knowledge</i>	40%	40%	40%
<i>Understand</i>	40%	40%	40%
<i>Apply</i>	20%	20%	20%

Programming in C

Unit - I: Overview of C, Constants, Variables and Data Types, Operator, Expressions, I/O operations and branching

12 hours

History of C-Importance of C –Sample Program - Printing a Message-Sample Program - Adding Two Numbers- Sample Program - Interest Calculation-Sample Program - Use of Subroutines Sample Program - Use of Math functions-Basic structure of C programs-Programming Style.

Introduction –Character set-C tokens-Keywords and identifiers-Constants-Variables-Data Types-Declaration of variables-Declaration of storage class-Assigning values to variables-Defining symbolic constants-Declaring a variable as constant.

Arithmetic operators-Relational operators-Logical operators-Assignment operators-Increment and decrement operators- Conditional operator-Bitwise operators-special operators-Arithmetic expressions-Evaluation of expressions-Precedence of arithmetic operators-Type conversions in expressions.

Reading a character-Writing a character-formatted input- formatted output.Introduction-Simple If statement-the If... Else statement –Nesting of If- Else statement –The Else If ladder- The switch statement –The?-operator-The goto statement.

Unit - II: Decision making and looping, Character Arrays and String

12 hours

Introduction-The while statement –The do statement -The for Statement – Jumps In Loops Array:Introduction – One- Dimensional Arrays –Declaration of One- Dimensional Arrays-Initialization of One –Dimensional Arrays-Two Dimensional Arrays-Initializing Two- dimensional Arrays- Multi-dimensional Arrays- Dynamic Arrays

Introduction–Declaring and Initializing String Variables –Reading Strings from Terminal- Writing Strings to Screen – Arithmetic Operations on Characters – Putting Strings Together –Comparison of Two Strings-String -Handling Functions.

Unit - III: User-Defined Functions

12 hours

Introduction- Need for User-Defined Functions –A Multi-Function Program-Elements of User-Defined Functions – Definition of Functions-Return Values and Their Types –Function Calls-Function Declaration– Category of Functions –No Arguments and No Return Values-Arguments but No Return Values-Arguments with Return Values-No Arguments but Returns a Value-Functions that Return Multiple values-Nesting of Functions – Recursion- Passing Arrays to Functions – Passing Strings to Functions.

Unit – IV: Structures and Unions**12 hours**

Introduction– Defining a Structure–Declaring Structure Variables –Accessing Structure Members- Structure Initialization-Copying and Comparing Structure Variables-Operations on Individual Members- Arrays of Structures- Arrays within Structures-Structures within Structures-Unions-Size of Structures-Bit Fields.

Unit - V: Pointers and File Management**12 hours**

Introduction-Understanding Pointers – Accessing the Address of a Variable- Declaring Pointer Variables- Initialization of Pointer Variables. Pointers and arrays. Introduction-Defining and Opening a File-Closing a File-Input/Output Operations on Files-Error Handling During I/O Operations-Random Access to Files.

Text Books

1. Balagurusamy.E 2017.Programming in C, 7th edition, Tata McGraw – Hill Education Private Limited, New Delhi.

Unit	Chapters/Page number
I	1(page-1 to 13.), 2(page22 to 44), 3(page51to 69),4(page 81,82,85,86,94)
II	5(page111 to 136),6(page149,151,153,156,166,173)7(page189,191,192,194,200,204,212) 8(page234,235,236,242,246,248,249)
III	9(page267 to298)
IV	10 (page320 to 339).
V	11(page353 to 358) 12(page391 to 402)

Reference Books:

1.Yashwant Kanetkar, 2016, Let Us C, 14th edition, BPB Publications, New Delhi.

2.Byron S. Gottfried, 2010.Programming with C, 3rd edition, Tata McGraw – Hill Publications, New Delhi.

3.Ananthi Sheshasaayee, 2009. Programming Language C with Practical, Margham Publication, Chennai.

Course Designers:

1. M. Hemalatha,Assistant Professor of CA & IT
2. S. Kumarappan, Assistant Professor of CA & IT

Thiagarajar College (Autonomous):: Madurai – 625 009
DEPARTMENT OF COMPUTER APPLICATION & INFORMATION TECHNOLOGY
 (For those joined B.Sc. IT on or after June 2020)
Programme Code - UIT

CourseCode	Course Title	Category	L	T	P	Credit
UIT20C12	Digital Principles and Computer Organization	Core 2	4	-	-	4

L - Lecture T - Tutorial P – Practicals

Year	Semester	Max. Marks CA	Max. Marks SE	Total
First	First	25	75	100

Preamble

Provides the fundamental knowledge on digital circuits principles and Architecture of computers. Then apply them to useful, meaningful design. It presents digital logic and characteristics of modern-day computer systems.

Course Outcomes

On the completion of the course the student will be able to

#	Course Outcome	Knowledge Level
CO1	Analyze and design combinational systems using standard gates.	K1
CO2	Demonstrate the binary number theory and Boolean algebra	K1
CO3	Illustrate the architecture of modern computer and Execution of micro instruction of a program	K2
CO4	Explain the concept of Input/output organization and the memory system in a computer	K2
CO5	Sketch out the performance and creation of embedded systems	K3

K1 - Knowledge K2 - Understand K3 – Apply

Mapping of Course Outcome with Programme Specific Outcomes

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	M	S	L	L
CO2	S	M	M	M	L
CO3	S	M	S	L	L
CO4	S	M	M	L	L
CO5	S	S	S	M	L

Strong –S (+++) Medium-M (++) Low-L (+)

Mapping of Course Outcome with Programme Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6
CO1	S	M	S	L	L	L
CO2	S	L	M	M	L	L
CO3	M	M	S	L	L	L
CO4	M	S	L	M	M	L
CO5	S	S	M	L	L	M

Strong –S (+++) Medium-M (++) Low-L (+)

Blooms taxonomy: Assessment Pattern

	CA		End of Semester
	First	Second	
<i>Knowledge</i>	40%	40%	40%
<i>Understand</i>	40%	40%	40%
<i>Apply</i>	20%	20%	20%

Digital Principles and Computer Organization

Unit I : Combinational Logic Circuits 10 hours

Boolean Laws and Theorems-Sums-of-Products Method-Truth table to Karnaugh Map-Pairs,Quads,and Octets-Karnaugh Simplifications-Don't care conditions-Product-of-Sums Method-Product-of-sums Simplification.

Unit II: Number Systems and Codes,Arithmetic circuits&Flip-Flops 12 hours

Binary number system-Radix representation of numbers-Binary –to-decimal conversion- Decimal –to-binary conversion-Octal numbers-Hexadecimal numbers-The ASCII code-The Excess -3 code- The Gray code.Binary addition-Binary subtraction- Unsigned Binary numbers-Sign –magnitude numbers-2's complement representation-2's complement arithmetic-Arithmetic building blocks-The adder-subtractor. RS Flip Flops.

Unit III:Basic Structure Of Computers&Machine Instructions and Programs 14 hours

Computer Types– Functional Units – Basic Operational Concepts – Bus Structures-Software-Performance – Multiprocessors and Multicomputers -Historical Perspective Instructions and Instruction sequencing – Addressing modes- Basic input/output operations-Stacks and Queues.

Unit IV: Input/Output organization&TheMemory System 13 hours

Accessing I/O devices– Interrupts – Direct Memory Access– Buses-Interface circuits.The Memory System: Some Basic Concepts – Semiconductor RAM Memories– Read Only Memories– Cache Memories – Virtual memories.

Unit V :Arithmetic,Embedded Systems&Basic ProcessingUnit 11hours

Addition and subtraction of signed numbers– Multiplication of Positive Numbers.Examples of Embedded systems–Processor Chips for Embedded Applications.Some Fundamental Concepts-Execution of a Complete Instruction-Multiple-Bus Organization –Hardwired control.

Text Books:

1. Donald P.Leach , Albert Paul Malvino, Goutam Saha, 2014. Digital Principles and Applications, 8th edition, Tata McGraw – Hill Publications, New Delhi.
2. Carl Hamacher, Zvonko Vranesic, Safwat Zaky, 2013. Computer Organization, 5th edition, Tata McGraw – Hill Publications, New Delhi.

Units	Chapters/Sections
I	Book1-2(2.1--2.4) -3(3.1--3.3,3.4,3.6,3.7,3.8)
II	Book1--5(5.1,5.2,5.3,5.5,5.6,5.7,5.8,5.9,5.10)-6(6.1--6.8),8(8.1--8.3)
III	Book2-1(1.1—1.8), 2(2.4,2.5,2.7,2.8)
IV	Book2-4(4.1,4.2,4.4,4.5,4.6) -5(5.1,5.2,5.3,5.5-5.5,5.7)
V	Book2-(6.1-6.3,6.6,8.1-8.3,9.1,9.2,7.1-7.4)

References:

1. Morris Mano, 2012. Digital Logic & Computer Design, 5th edition , Prentice Hall of India publishing, New Delhi.
2. John P.Hayes, 2012. Computer Architecture and Organization, 3rd edition, Tata Mcgraw-hill education private limited, Delhi.
3. Morris Mano, 2011. Computer System Architecture, 4th edition , Prentice Hall of India publishing. New Delhi.

Web Resources:

1. https://www.tutorialspoint.com/computer_logical.../boolean_algebra.html
2. www.byte-notes.com/number-system-computer

Course Designers:

1. M. Hemalatha, Assistant Professor of CA & IT
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Thiagarajar College (Autonomous):: Madurai – 625 009
DEPARTMENT OF COMPUTER APPLICATION & INFORMATION TECHNOLOGY
 (For those joined B.Sc. IT on or after June 2020)
Programme Code - UIT

CourseCode	Course Title	Category	L	T	P	Credit
UIT20CL11	Programming in C Lab	Core Lab 1	0	0	3	2
			L - Lecture	T - Tutorial	P – Practicals	
Year	Semester	Max. Marks CA	Max. Marks SE	Total		
First	First	40	60	100		

Preamble

To learn programming logics and to develop programs in C. To solve the problems using functions, pointers and files.

Course Outcomes

On the completion of the course the student will be able to

	Course Outcome	Knowledge Level
CO1	Implement the concepts of variables constants and strings in C program.	K1
CO2	Demonstrate the types of arrays using data structure in C programs	K2
CO3	Develop the user defined functions in C programs.	K3
CO4	Make use of pointers and string arrays using C programs.	K2
CO5	Apply and Manipulate the file in C programs	K3

K1 - Knowledge

K2 - Understand

K3 – Apply

Mapping of Course Outcome with Programme Specific Outcomes

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	M	S	L	L
CO2	S	M	M	M	L
CO3	S	M	S	L	M
CO4	S	M	M	L	L
CO5	S	S	S	M	M

Strong –S (+++) Medium-M (++) Low-L (+)

Mapping of Course Outcome with Programme Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6
CO1	S	M	S	L	L	M
CO2	S	L	L	M	L	L
CO3	L	M	S	L	L	L
CO4	M	S	L	M	S	M
CO5	M	L	L	M	M	L

Strong –S (+++) Medium-M (++) Low-L (+)

Blooms taxonomy: Assessment Pattern

	CA		End of Semester
	First	Second	
<i>Knowledge</i>	40%	40%	40%
<i>Understand</i>	40%	40%	40%
<i>Apply</i>	20%	20%	20%

Simple Programs:

1. Simple Interest
2. Find the bigger from two numbers -ordinary/switch case/conditional operator methods
3. Find the biggest from three numbers
4. Check the given number is odd or even-ordinary/switch case/conditional operator methods
5. Prime no checking
6. Print all prime numbers between any two given limits
Check the given character is vowels or not
7. Perform various arithmetic operation using switch case
8. Find the sum of digits of a given number
9. Binary to decimal-decimal to binary conversion

Arrays

1. Arrange "n" numbers in ascending order and descending order
2. Arrange "n" strings in alphabetic order
3. Palindrome checking
4. Matrix addition ,subtraction and multiplication

Function and Structure

1. Calculate the factorial value by recursion
2. Reverse a string by recursion
3. Mark list processing-structure and call by value technique
4. Mark list processing-structure and call by reference technique
5. EB bill calculation- structure and call by value technique
6. EB bill calculation- structure and call by reference technique

Files

1. Create a data file to store 'n' numbers and separate odd and even numbers
2. Create a data file to store 'n' characters and separate vowels and non-vowels

Course Designers:

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Programme Code – UIT

CourseCode	Course Title	Category	L	T	P	Credit
UIT20CL12	Digital Design Lab	Core Lab 2		-	3	2

L - Lecture T - Tutorial P – Practicals

Year	Semester	Max. Marks CA	Max. Marks SE	Total
First	First	40	60	100

Preamble

Introduction to Digital Circuit Ics specifications and Digital lab kit to demonstrate the working logic of digital signals. IC – 7408,7432,7400,7402,7404,74136 are verified by truth tables.

Course Outcomes

On the completion of the course the student will be able to

#	Course Outcome	Knowledge Level
CO1	Identify the basics digital ICs specification and it's functions.	K2
CO2	Implement the Boolean functions using ICs	K3
CO3	Design new simple circuit for the given bollean equation.	K1
CO4	Implement the Decoder and Encoder logics	K2
CO5	Apply the working logic of Flip-Flops	K3

K1 – Knowledge K2 – Understand K3 – Apply

Mapping of Course Outcome with Programme Specific Outcomes

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	M	S	L	L
CO2	S	M	M	M	M
CO3	S	M	S	L	L
CO4	S	M	M	L	L
CO5	S	S	S	M	L

Strong –S (+++) Medium-M (++) Low-L (+)

Mapping of Course Outcome with Programme Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6
CO1	S	S	S	L	L	L
CO2	S	M	M	M	M	M
CO3	L	M	S	L	M	L
CO4	M	S	L	M	L	L
CO5	L	S	M	L	L	M

Strong –S (+++) Medium-M (++) Low-L (+)

Blooms taxonomy: Assessment Pattern

	CA		End of Semester
	First	Second	
<i>Knowledge</i>	40%	40%	40%
<i>Understand</i>	40%	40%	40%
<i>Apply</i>	20%	20%	20%

Digital Design Lab Apparatus Required

Digital lab kit, single strand wires, breadboard, TTL IC's.

Course Designers:

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THIAGARAJAR COLLEGE, MADURAI – 9.
(Re-Accredited with ‘A’ Grade by NAAC)
ENVIRONMENTAL STUDIES

Course Code	Course Title	Category	L	T	P	Credit
U20ES11	Environmental Studies	AECC1	2	-	-	2

Year	Semester	Int. Marks	Ext.Marks	Total
First	First	15	35	50

Preamble

Students acquire knowledge on the basic concepts, components and importance of environment.

Course Outcomes

On the completion of the course the student will be able to

	Course outcomes	Knowledge Level
CO1	Define the structure and functions of ecosystem	K1
CO2	Explain the benefits of biodiversity conservation	K2
CO3	Summarise the sources, effects and control measures of various types of Pollutants	K1
CO4	Perceive the environment legislations in India for sustainable development.	K3

K1: Knowledge K2: Understand K3: Apply

Mapping of Course Outcomes with Programme Specific Outcomes

	PO1	PSSO2	PSO3	PSO4	PSO5
CO1	L	L	M	L	M
CO2	-	M	M	-	M
CO3	-	L	M	L	L
CO4	-	-	L	L	L

Mapping of Course Outcomes with Programme Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6
CO1	M	-	M	L	S	-
CO2	M	L	S	M	L	L
CO3	M	M	S	S	M	L
CO4	M	-	M	S	S	S

Blooms taxonomy: Assessment Pattern

	CA		End Semester of
	First	Second	
<i>Knowledge</i>	40%	40%	40%
<i>Understand</i>	40%	40%	40%
<i>Apply</i>	20%	20%	20%

Unit I

Definition and Scope of Environmental Studies – Ecology and Ecosystem – Structure of an Ecosystem – Food chains, food webs and ecological pyramids – Causes of Biodiversity Loss – Benefit and Conservation of Biodiversity

Unit II

Environmental problems and Management: Causes, effects and Control measures of : Air Pollution – Water Pollution – Noise Pollution – Nuclear Hazards. Solid waste management and Waste Disposal methods. Climate change and Global Warming causes and Measures. Waste and Plastics. Urban environmental problems and measures. Environmental Legislations in India. Sustainable development and Inclusive growth.

Text Book

3. Kanagasabai, C.S. 2005. Environmental Studies. Rasee publishers. Madurai.

Reference Books

2. Yogendra, N. and Srivastava, N. 1998. Environmental Pollution, Ashish Publishing House. New Delhi.
3. Sapru R.K. 2001. Environment Management in India, Vol. I & Vol. II Ashish publishers house, New Delhi.

Thiagarajar College (Autonomous):: Madurai – 625 009
DEPARTMENT OF COMPUTER APPLICATION & INFORMATION TECHNOLOGY
 (For those joined B.Sc. IT on or after June 2020)
Programme Code - UIT

CourseCode	Course Title	Category	L	T	P	Credit
UIT20C21	Data Structures	Core-3	4	0	0	4

L - Lecture T - Tutorial P - Practicals

Year	Semester	Max. Marks CA	Max. Marks SE	Total
First	Second	25	75	100

Preamble

To gain fundamental knowledge on Data Structure Terminology with different implementation techniques.

Course Outcomes

On the completion of the course the student will be able to

	Course Outcome	Knowledge Level
CO1	Explain Basic Concept of Data Structures. With Pointer Arrays. Single Linked List – Circular Linked List – Double Linked List .	K1
CO2	Construct Stack and Queue operation of Data Structure	K2
CO3	Implement the Tree , Binary Tree Traversal and Merging Tree	K2
CO4	Compute the different Searching Techniques.	K3
CO5	Compute the Sorting Techniques.	K3

K1 - Knowledge K2 - Understand K3 – Apply

Mapping of Course Outcome with Programme Specific Outcomes

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	M	S	L	M
CO2	S	M	M	M	M
CO3	S	M	S	L	M
CO4	S	S	S	M	M
CO5	S	S	S	M	M

Strong –S (+++) Medium-M (++) Low-L (+)

Mapping of Course Outcome with Programme Specific Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6
CO1	S	M	S	L	L	L
CO2	S	L	M	M	M	L
CO3	M	M	S	L	M	M
CO4	M	L	S	L	M	M
CO5	S	S	M	L	L	L

Strong –S (+++) Medium-M (++) Low-L (+)

Blooms taxonomy: Assessment Pattern

	CA		End of Semester
	First	Second	
<i>Knowledge</i>	40%	40%	40%
<i>Understand</i>	40%	40%	40%
<i>Apply</i>	20%	20%	20%

Data Structures

Unit I: Introduction

12 hours

Definitions – Concept of Data Structures – Overview of Data Structures –Implementation of Data Structures. Arrays: Definition – Terminology – One-Dimensional Array – Multi-Dimensional Arrays– Pointer Arrays. Linked Lists: Definition – Single Linked List –Circular Linked List – Double Linked List – Circular Double Linked List.

Unit II: Stack and Queues

12 hours

Introduction – Definition – Representation of a Stack – Operations on Stacks. Queues: Introduction - Definition – Representation of Queues.

Unit III: Trees

12 hours

Trees: Basic Terminologies-Definition and Concepts- Representation of Binary Trees – perations on a Binary a Binary Tree-Insertion-Deletion-Traversal-Merging together Two Binary Trees.

Unit-IV: Searching Techniques

12hours

Searching Techniques : Sequential Search - Binary Search - Hash-Based Search – Bloom Filter – Binary Search

Unit-IV: Sorting

12hours

Preliminaries-Insertion Sort -Shell Sort –Merge Sort – Quick Sort-Bucket Sort

Text Books:

1. Samanta.D , 2016, “Classic Data Structures”, Prentice-Hall India Pvt Ltd.
2. Mark Allen Weiss, 2014 Seventeenth Impression, “Data Structures and Algorithm Analysis in C“, Pearson Education, Second Edition.
3. George T. Heineman, Gary Pollice, and Stanley Selkow,2016 “Algorithms in a Nutshell “,O'REILLY, Second Edition.

UNIT	Chapter /Sections
I	Book 1: 1,2, 3(3.1 to 3.5)
II	Book 1: 4(4.1 to 4.4),5 (5.1 to 5.4)
III	Book 1: 7 (7.1 to 7.4)
IV	Book 3: 5 (Page No.91-131)
V	Book 2: 7(7.1 to 7.4, 7.6 ,7.7)

Reference Books:

1. Well Dale, Jones, 2015, C++ Plus Data structures, 6th edn,Bartlett.
2. Varsha H.Patil, 2012, Data Structures using c++ , Oxford University Press

Web Resources :

1. www.tutorialspoint.com/data_structures_algorithms/
2. <http://www.geeksforgeeks.org/binary-tree-data-structure>

Course Designers:

1. Mrs.M.Hemalatha, Assistant Professor of CA & IT
2. Mrs.M.Gayathiri, Assistant Professor of CA & IT

Thiagarajar College (Autonomous):: Madurai – 625 009
DEPARTMENT OF COMPUTER APPLICATION & INFORMATION TECHNOLOGY
 (For those joined B.Sc. IT on or after June 2020)
Programme Code - UIT

CourseCode	Course Title	Category	L	T	P	Credit
UIT20C22	Microprocessor and Assembly Language Programming	Core 4	4	0	0	4

L - Lecture T - Tutorial P – Practical's

Year	Semester	Max. Marks CA	Max. Marks SE	Total
I	II	25	75	100

Preamble

Depict system architecture, Microprocessor, Bus organization and provides training on assembly language programming.

Course Outcomes

On the completion of the course the student will be able to

#	Course Outcome	Knowledge Level
CO1	Describe Microprocessor history and its address and data bus.	K2
CO2	Sketch out the Intel 8085 Microprocessor Architecture and explain various Assembly language Instruction set.	K2
CO3	Depict Intel 8086 Microprocessor Architecture and portray Interrupt Processing and 80186 and 80826 Interrupt Processors.	K1
CO4	Describe the concept assembling, linking and executing a program.	K2
CO5	Develop the assembly language programming logic using various controls.	K3

K1 - Knowledge K2 - Understand K3 – Apply

Mapping of Course Outcome with Programme Specific Outcomes

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	M	M	L	L
CO2	S	M	M	M	L
CO3	S	M	M	L	L
CO4	S	M	M	L	L
CO5	S	S	S	M	L

Strong –S (+++) Medium-M (++) Low-L (+)

Mapping of Course Outcome with Program Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6
CO1	S	L	S	L	M	L
CO2	S	L	M	M	M	M
CO3	L	M	S	L	M	L
CO4	L	S	L	M	L	M
CO5	S	S	M	L	L	M

Strong –S (+++) Medium-M (++) Low-L (+)

Blooms taxonomy: Assessment Pattern

	CA		End of Semester
	First	Second	
<i>Knowledge</i>	40%	40%	40%
<i>Understand</i>	40%	40%	40%
<i>Apply</i>	20%	20%	20%

Microprocessor and Assembly Language Programming

Unit - I: System Design Using Microprocessor

15 hours

Introduction - System Design – Feasibility study- Random logic vs. microprocessor- System Specification – Initial Design – Hardware Design – Software Design- Test and Debug – Integration - Documentation -Development Tools

Computer and its Organization – Programming System – What is microprocessor ? – Address Bus, Data Bus and Control Bus – Tristate Bus - Clock Generation – Connecting Microprocessor to I/O Devices – Data Transfer Schemes – Architectural Advancements of Microprocessors – Evolution of Microprocessors.

Unit - II: Intel 8085 Microprocessor

15 hours

Hardware Architecture: Introduction - Hardware Architecture –The 8085 Pin out – Instruction Execution – Direct Memory Access-Timing Diagram – External Interrupts Timing Diagram –

Instruction Set and Programming: Introduction: Program Status Word – Operand Types – Instructions Format – Addressing Modes– Instruction Set –Arithmetic Instructions – Logical Instructions – Branch Instructions – Stack-I/O and Machine Control Instructions.

UNIT III Intel 8086

15 hours

Hardware Architecture :Introduction – Architecture-Pin Description-External Memory Addressing – Bus Cycles – Some Important Companion Chips – Maximum Mode Bus Cycle – Intel 8086 System Configurations – Memory Interfacing – Minimum/Maximum Mode System Configuration – Interrupt Processing – Direct Memory Access – Halt State – Wait for Test State – Comparison Between the 8086 and the 8088 – Compatibility Between the 8086 and the 8088, the 80186 and 80826 Processors .

Unit –IV : Assembly language, Assembling, linking and executing programs

15 hours

Fundamentals of `Assembly language: Requirements for coding in Assembly language: Introduction-Assembly language features- Conventional segment directives- Simplified segment directives – Initializing for protected mode-Defining types of data .

Assembling , linking and executing programs: Introduction-Preparing a program for assembling and execution- Two-pass assembler- Linking an object program- Executing a program-The cross-reference Linking- Error Diagnostics- The Assembler Location Counter-Writing . com programs.

Unit V Symbolic Instruction and Addressing, Program Logic and control

15 hours

Symbolic Instruction and Addressing: Introduction-The symbolic Instruction set-An Overview – Data transfer Instructions-Basic arithmetic Instructions – Repetitive move instructions- The Int Instruction- Addressing modes .

Program Logic and control : Introduction- Short, Near, and Far Addresses-The JMP Instruction-The LOOP Instruction—The Flags Register- The CMP Instruction-Conditional Jump Instructions – Calling procedures-The effect of program execution on the stack- Boolean operations-Shifting Bits-Rotating Bits- Organizing a Program.

Text Books

1. Krishna Kant, 2016, Microprocessors and Microcontrollers, Second Edition by PHI Learning Private Ltd., New Delhi.
2. Peter Abel, 2015, IBM PC Assembly Language And Programming” Fifth Edition by PEARSON, New Delhi.

UNIT	CHAPTERS/SECTIONS
I	BOOK1-1(1.1- 1.3) , 2(2.1-2.11)
II	Book1-3(3.1- 3.6), 4(4.1-4.6.6)
III	Book1-5(5.1-5.17)
IV	Book2- 4(page 51-65), 5(74-86)
V	Book2-6(page92-100), 7(109-133)

Reference Books:

1. Ramesh Gaonkar, 2015, Microprocessor Architecture programming and applications with the 8085, Sixth edition, PenRam International Publishing (India) Pvt .Ltd, Mumbai.
2. Nagoor Kani.A, 2016, Microprocessor And Microcontroller, Mc –Graw Hill Education(India) Private Limited, New Delhi.

Web References:

1. https://www.tutorialspoint.com/computer_logical.../boolean_algebra.html
2. www.byte-notes.com/number-system-computer

Course Designers:

1. Mrs.M.Hemalatha, Assistant Professor of CA & IT
2. Mrs.P.Praveena, Assistant Professor of CA & IT

Thiagarajar College (Autonomous):: Madurai – 625 009
DEPARTMENT OF COMPUTER APPLICATION & INFORMATION TECHNOLOGY
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Programme Code - UIT

CourseCode	Course Title	Category	L	T	P	Credit
UIT20CL21	Data Structures using C Lab	Core Lab 3	0	0	3	2

L - Lecture T - Tutorial P – Practicals

Year	Semester	Max. Marks CA	Max. Marks SE	Total
I	II	40	60	100

Preamble

Train to write oops concept codings using C++ programs, To solve the problems using constructors, virtual function , polymorphism, pointers and file concepts.

Course Outcomes

On the completion of the course the student will be able to

#	Course Outcome	Knowledge
CO1	Compute the concept of for basic operations of Datastructure using CArray Program.	K3
CO2	Implement Link List, Stack and Queue using C codings.	K2
CO3	Compute Circular Link List and Binary Tree logics	K1
CO4	Apply the Various Searching Techniques in C Program	K2
CO5	Compute numbers with different sorting algorithm.	K3

K1 - Knowledge K2 - Understand K3 – Apply

Mapping of Course Outcome with Programme Specific Outcomes

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	M	S	S	M
CO2	S	M	M	M	M
CO3	S	M	S	L	M
CO4	S	M	M	L	L
CO5	S	S	S	M	L

Strong -S (+++) Medium-M (++) Low-L (+)

Mapping of Course Outcome with Programme Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6
CO1	S	M	S	L	L	L
CO2	S	L	L	M	S	M
CO3	L	M	S	L	M	L
CO4	M	S	L	M	L	L
CO5	S	S	M	L	S	S

Strong -S (+++) Medium-M (++) Low-L (+)

Blooms taxonomy: Assessment Pattern

	CA		End of Semester
	First	Second	
<i>Knowledge</i>	40%	40%	40%
<i>Understand</i>	40%	40%	40%
<i>Apply</i>	20%	20%	20%

Sample Programs

1. Write a C program for basic operations(Insert, Delete and search an element) in one dimensional array .
2. Write a C program for matrix operation(Addition, Subtraction)using two dimensional array.
3. Write a C program to create a Linked List and perform operations such as insert, delete, update.
4. Write a C program for various operations on Double Linked List.
5. Write a C program to create a Circular Linked List and perform operations such as insert and delete.
6. Write a C program to implement Stack and perform Stack operations using array.
7. Write a C program to perform stack operations using linked list.
8. Write a C program to implement Queue and perform Queue operations using Linked List.
9. Write a C program to perform Queue operations using array.
10. Write a C program to perform Binary tree operations.
11. Write a C program to implement Linear/Sequential Search in array.
12. Write a C program to implement Binary Search in array.
13. Write a C program to implement Bubble sort.
14. Write a C program to implement Insertion sort.
15. Write a C program to implement Heap sort.

Course designers :

1. Mrs. M.Hemalatha, Assistant Professor of CA & IT
2. Mrs.M.Gayathiri, Assistant Professor of CA & IT

Thiagarajar College (Autonomous):: Madurai – 625 009
DEPARTMENT OF COMPUTER APPLICATION & INFORMATION TECHNOLOGY
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Programme Code - UIT

CourseCode	Course Title	Category	L	T	P	Credit
UIT20CL22	Basics of Web Technology Lab	Core Lab 4	0	0	3	2
L - Lecture T - Tutorial P – Practicals						
Year	Semester	Max. Marks CA	Max. Marks SE	Total		
I	II	40	60	100		

Preamble

Make known to the basics of web development by using various tags, lists, tables, frames, forms of HTML.

Course Outcomes

On the completion of the course the student will be able to

#	Course Outcome	Knowledge Level
CO1	Describes the structure of html webpage and it's various tags for designing a web page.	K1
CO2	Compute different types of list presentation.	K3
CO3	Create tabular representation of data.	K2
CO4	Project the forms in web page.	K2
CO5	Design a form and execute its methods	K3

K1 - Knowledge K2 - Understand K3 – Apply

Mapping of Course Outcome with Programme Specific Outcomes

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	L	L	S	L
CO2	S	M	M	M	M
CO3	S	L	L	L	L
CO4	M	L	M	L	L
CO5	S	L	L	S	L

Strong –S (+++) Medium-M (++) Low-L (+)

Mapping of Course Outcome with Programme Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6
CO1	S	L	L	L	L	L
CO2	S	M	M	M	M	M
CO3	M	L	M	M	M	M
CO4	S	L	M	L	L	M
CO5	S	M	M	M	M	S

Strong –S (+++) Medium-M (++) Low-L (+)

Blooms taxonomy: Assessment Pattern

	CA		End of Semester
	First	Second	
<i>Knowledge</i>	40%	40%	40%
<i>Understand</i>	40%	40%	40%
<i>Apply</i>	20%	20%	20%

Basics of Web Technology Lab

1. Design a page having suitable background colour and text colour with title “My First Web Page” using all the attributes of the Font tag.
2. Create a HTML document giving details of your [Name, Age], [Address, Phone] and [Register Number, Class] aligned in proper order using alignment attributes of Paragraph tag.
3. Write HTML code to design a page with text in a paragraph by giving suitable heading style.
4. Create a page to show different character formatting (B, I, U, SUB, SUP) tags.
$$\text{viz : } \log_b m^p = p \log_b m$$
5. Write HTML code to create a Web Page that contains an Image at its centre.
6. Create a web page with an appropriate image towards the left hand side of the page, when user clicks on the image another web page should open.
7. Create web Pages using Anchor tag with its attributes for external links.
8. Create a web page for internal links; when the user clicks on different links on the web page it should go to the appropriate locations/sections in the same page.
9. Write a HTML code to create a web page with pink color background and display moving message in red color.
10. Create a web page, showing an ordered list of all second semester courses
11. Create a web page, showing an unordered list of science courses in our college.
12. Create the following table in HTML with Dummy Data:

Reg. Number	Student Name	Year/Semester	Date of Admission

13. Create a web page which divides the page in two equal frames and place the audio and video clips in frame-1 and frame-2 respectively.
14. Create a web page which should generate following output:

FRAME-1	FRAME-2
	FRAME-3

16. Create a Html form which gets user name, pass word from the user.

Reference Books:

1. Thomas Powell, 2017, HTML & CSS Complete Reference, Fifth Edition by McGraw Hill Education, New Delhi.

Course Designers:

1. Mrs. P. Praveena, Assistant Professor of CA & IT
2. Mr. S. Kumarappan, Assistant Professor of CA & IT

THIAGARAJAR COLLEGE, MADURAI – 9.
(Re-Accredited with ‘A’ Grade by NAAC)
VALUE EDUCATION

Course Code	Course Title	Category	L	T	P	Credit
U20VE21	Value Education	AECC2	2	-	-	1

Year	Semester	Int. Marks	Ext.Marks	Total
First	Second	15	35	50

Preamble

Students acquire knowledge on the basic concepts, components and importance of environment.

Course Outcomes

On the completion of the course the student will be able to

	Course outcomes	Knowledge Level
CO1	Define the values, Self assessment and values needed for self development	K1
CO2	Explain about the good character and good relationships	K2
CO3	Summarise the types of thoughts, developing thought pattern, external influences on thoughts	K1
CO4	Find out the causes of Illusions, Symptoms and stages of stress	K3

K1: Knowledge K2: Understand K3: Apply

Mapping of Course Outcomes with Programme Specific Outcomes

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	-	M	-	-
CO2	-	L	M	L	-
CO3	M	M	S	-	-
CO4		-	M	L	-

Mapping of Course Outcome with Programme Outcomes

	PSO1	PSO2	PSO3	PSO4	PSO5	PO6
CO1	L	-	M	-	-	-
CO2	-	L	M	L	-	L
CO3	M-	M	S	-	-	-
CO4		-	M	L	-	M

Blooms taxonomy: Assessment Pattern

	CA		End of Semester
	First	Second	
<i>Knowledge</i>	40%	40%	40%
<i>Understand</i>	40%	40%	40%
<i>Apply</i>	20%	20%	20%

Course Title: Value Education

Unit I Self Development – Introduction - Definition and Types of Values – Self Assessment – Values needed for self development - Values needed for family life –Principles of happy living

Character development- Good character – Good relationships - Legendary people of highest character – The quest for character –Developing character -The key to good character.

Unit II:

Positive Thinking and Self Esteem - Types of thoughts - Areas of thinking - Developing thought pattern - External influences on Thoughts - Methods to keep outlook positive – Meaning of Self Esteem – Self empowerment.

Stress free living – Illusions and causes - Symptoms and stages of stress – Self confidence– Role models and leadership qualities – Critical thinking - Communication skills – Happy and successful life.

Reference:

Study material / Course material

1. Values for Excellence in Life Compiled by then Curriculum Development Cell Thiagarajar College, Madurai, in collaboration with the Education wing, Brahma Kumaris, Madurai.

விழுமியக் கல்வி

கூறு - 1

சுய முன்னேற்றம்

அறிமுகம் - விழுமியங்களின் விளக்கம் மற்றும் வகைகள் - சுயமதிப்பீடு - சுய முன்னேற்றத்திற்கு விழுமியங்களின் தேவை - குடும்ப வாழ்க்கைக்கு விழுமியங்களின் தேவை - மகிழ்ச்சியான வாழ்க்கைக்கான கொள்கைகள்

பண்பு வளர்ச்சி

நற்பண்பு - நல்லுறவு - உயரிய பண்புகளால் உயர்ந்த பெருமக்களாதல் - பண்புகளைத் தேடல் - பண்புகளை வளர்த்தல் - நற்பண்புகளுக்கான திறவுகோல்.

கூறு - 2

சுயமரியாதையும் நேர்மறைச் சிந்தனையும்

சிந்தனையின் வகைகள் - சிந்தனைப் பகுதிகள் - சிந்தனையை வளர்க்கும் முறை - சிந்தனையில் புறத்தாக்கங்கள் - நேர்மறைப் பண்பை வெளித்தோற்றத்தில் காட்டும்முறை - சுயமரியாதையின் பொருள் - சுய அதிகாரமளித்தல்

அழுத்தமில்லா வாழ்க்கை

பிரமைகளும் காரணங்களும் - அழுத்த நிலைகளுக்கான அறிகுறிகள் - தன்னம்பிக்கை - தலைமைப் பண்பில் முன்னுதாரணங்கள் - விமர்சனச் சிந்தனை - தொடர்புத் திறன்கள் - மகிழ்ச்சி மற்றும் வெற்றிகரமான வாழ்க்கை

Reference

Study material / Course material

“Values for Excellence in Life” Compiled by then Curriculum Development Cell Thiagarajar College, Madurai, in collaboration with the Education wing, Brahma Kumaris, Madurai