ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR – 625 514
(Reaccredited by NAAC with "A" Grade with a CGPA of 3.66)
DEPARTMENT OF INFORMATION TECHNOLOGY

Programme Specific Outcome (PSO)

1. Learn current techniques and modern tools necessary to develop the software applications.
2. Identify, analyze, formulate and solve technical problems by applying principles of Information Technology to the problem.
3. Take up IT projects and to carry out it as per industry standards.
4. Comprehend and apply the technical solutions in a global and social context.
5. Understand and practice professional, ethical, legal, and social responsibilities as a matured citizen.

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR

DEPARTMENT OF INFORMATION TECHNOLOGY

OBE SYLLABUS (From 2024-2025 onwards)

I SEMESTER				
Part	**Subject Code**	**Subject Title**	**Hours**	**Credits**
I	24UTAL11/ 24UHNL11/ 24USNL11	Tamil Hindi French	6	4
II	24UENB11	English through Prose & Short Story – Stream B	5	4
III	24UITC11	**Core – 1** Digital Principles	4	4
	24UITC21	**Core – 2** Programming in C	3	3
	24UITP11	Programming in C - Lab-1	5	3
	24UITA11	**Allied -1** Principles of Information Technology	5	4
IV	24UFCE11	**FC** – Personality Development	1	1
	24UCSH11	Communication Skill	1	-
	24UBRC11	Bridge Course		1
V	24UNCC/NSS/ PHY.EDU./YRC/ ROT/ACF/NCB12	Extension Activities NSS / NCC / Phy.Edn./ YRC /ROTARACT / AICUF / Nature Club	-	-
		Total	**30**	**24**
II SEMESTER				
I	24UTAL22/ 24UHNL22/ 24USNL22	Tamil Hindi French	6	4
II	24UENB22	English through Prose & Short Story – Stream B	5	4
III	24UITC32	**Core – 3** Programming in C++	3	3
	24UITC42	**Core – 4** Data Structures & Algorithms	4	3
	24UITP22	Programming in C++ - Lab - 2	5	3
	24UITA22	**Allied – 2** Mathematical Foundation	5	4
IV	24UFCH22	**FC**- Social Responsibility and Global Citizenship	1	1
	24UCSH22	Communication Skill	1	1
V	24UNCC/NSS/ PHY.EDU./YRC/ ROT/ACF/NCB12	Extension Activities NSS / NCC / Phy. Edn. / YRC /ROTARACT / AICUF / Nature Club	-	1
		Total	**30**	**24**
III SEMESTER				
I	24UTAL33/ 24UHNL33/ 24USNL33	Tamil Hindi French	5	4
III	24UITC53	**Core – 5 R**DBMS	4	3

	24UITC63	**Core – 6** Dot Net Programming	4	3
	24UITCP33	Dot Net Programming Lab – 3	5	3
	24UITA33	**Allied – 3** Operating Systems	5	4
IV	24UITN13	Basic Tamil / Advanced Tamil / **NME-1** Image Editing Tools	3	2
	24UITS13	**Skill based Elective- 1** Cloud Computing	3	2
	24UFCE33	**FC-**Environmental Studies	1	1
V	24UNCC/NSS/ PHY.EDU./YRC/ ROT/ACF/NCB12	**Extension Activities** NSS / NCC / Phy.Edn./ YRC /ROTARACT / AICUF /Nature Club	-	-
	24UARE14	ARISE	-	-
		Total	**30**	**22**
IV SEMESTER				
I	24UTAL44 24UHNL44 24USNL44	Tamil Hindi French	4	4
III	24UITC74	**Core – 7** Computer Network	5	4
	24UITC84	**Core – 8** Java Programming	4	2
	24UITP44	Programming in Java Lab – 4	5	3
	24UITA44	**Allied–4** Operational Research	5	4
IV	24UITN24	Basic Tamil / Advanced Tamil / **NME- 2** Ethical Hacking	3	2
	24UITS24	**Skill based Elective - 2** Linux Programming	3	2
	24UFCH44	**FC** - Religious Literacy and Peace Ethics	1	1
V	24UNCC/NSS/ PHY.EDU./YRC/ ROT/ACF/NCB12	Extension Activities NSS / NCC / Phy.Edn. / YRC /ROTARACT / AICUF /Nature Club		1
	24UARE14	ARISE	-	1
		Total	**30**	**24**
V SEMESTER				
III	24UITC95	**Core - 9** Software Engineering	5	4
	24UITD05	**Core – 10** Artificial Intelligence	5	4
	24UITD15	**Core – 11** Advanced Java Concepts	5	4
	24UITD25	**Core – 12** Web Technology	5	4
	24UITP55	Programming in Web Technology Lab -4	5	4

	24UITE15	**Core Elective - 1** Data Science	3	3
IV	24UINT15	**Internship** (Holidays)		1
	24USSI16	Soft Skills	2	
		Total	**30**	**24**
VI SEMESTER				
	24UITD36	**Core – 13** Full Stack Development	5	4
	24UITP66	Full Stack Development Lab - 6	5	4
	24UITD46	**Core – 14** Python Programming	5	4
	24UITD56	**Core – 15** Cyber Security	5	4
	24UITD66	**Core – 16** Project	5	4
	24UITE26	**Core Elective– 2** Internet of Things	3	3
	24USSI16	Soft Skills	2	2
		Total	**30**	**25**

Semester	**I**	**II**	**III**	**IV**	**V**	**VI**	**TOTAL**
Credits	24	24	22	24	24	26	144*

Non-Major Electives

For Non-Science Students : Image Editing Tools

For Science Students : Ethical Hacker

Self-Learning Course

Semester	**Subject Code**	**Title of the Paper**	**Credits**
Semester-III	24UITSL3	3D Animation	3
Semester-IV	24UITSL4	Enterprise Resource Planning	3
Semester-V	24UITSL5	Virtual Reality	3
Semester-VI	24UITSL6	Scripting Languages	3

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR

DEPARTMENT OF IT

Class	**: I IT**	**Part**	**: Core - 1**
Semester	**: I**	**Hours**	**: 60**
Subject Code	**: 24UITC11**	**Credits**	**: 04**

DIGITAL PRINCIPLES

Course Educational Objectives (CEO)

- Understand the basic concepts of Analog & Digital Computers, Evolution of Computer Systems.
- Impart the knowledge about the Digital Logic Circuits.
- Analyze and Design the Digital Circuits.
- Understand the Binary number system and its Conversions.
- Analyze the Arithmetic circuits and Flip-Flops, Instruction sets, Addressing Mode.

UNIT	Content	No. of Hours
I	**Logic Circuits** Binary number system – Inverters – OR gates – AND gates – Boolean Algebra – NOR gates – NAND gate.	12
II	**Circuit Analysis and Design** Boolean Laws and theorem – Sum –of-products method- Truth Table to Karnaugh Map- Pairs, Quads, and Octets – Karnaugh simplifications product of sum method.	12
III	**Number System and Codes** Binary to decimal conversion – Decimal to Binary Conversion – Octal numbers – Hexadecimal numbers – The ASCII code – The Excess -3 code –Gray code.	12
IV	**Arithmetic circuits** Binary Addition – Binary subtraction – 2's complement representation – Arithmetic building blocks – Adder-Subtractor. Flip- Flops: RS Flip Flop – D FlipFlop – JK Flip Flop.	12
V	**Instruction set** Introduction to Instruction set, Types of Instruction set – RISC, CISC – Register - Addressing modes. Data type Representation: Signed number, Floating point number, Character.	12

Book for Study:

1. Donald P leach, Albert Paul Malvino, Goutam Saha, "Digital Principles and Applications", McGraw-Hill Education, New Delhi, 1993.

Book for References:

1. Digital Logic and Computer Design, M.Morris Mano,Pearson Publication, New Delhi, 2017.
2. B.Ram, "Computer Fundamentals – Architecture and Organization", New Age International Publishers, New Delhi, 2018.

Teaching Learning Methods:

(PPT, GD, Seminar, Quiz Programme, Brain Storming, Case Study, Assignment etc.)

Course Outcome (CO)

On completion of the course, students should be able to

CO 1: Describe the concepts of Analog & Digital Computers, Evolution of Computer Systems.(k3)

CO 2: Classify comprehend the Digital Logic Circuits. (k3)

CO 3: Describe and Analyze the Design of the Digital Circuits. (k3)

CO 4: Discover the knowledge of the Binary number systems and able to convert the binary numbers as per the requirement. (k3)

CO 5: Describe about the Arithmetic circuits and Filp-Flops, Instruction sets, Addressing Mode. (k3)

Mapping Course outcome

Outcomes	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	Sum of COs with PSOs & POs
CO1	3	2	1	3		3	2	3	1					18
CO2	2	2	3	2	1	2	2	1	3					18
CO3	2	2	3	2		3	1	1	2	1				17
CO4	2	3	2	2	1	2	2	2	3	3				22
CO5	1	3	2	3		3	2	2	2	4				22
Grand Total of COs with PSOs and POs														**97**
Mean Value of COs with PSO and POs(97/45)														**2.15**

*: S-Strong; M-Medium; L-Low

Mapping Scale	1	2	3
Relation	0.01 to 1.0	1.01 to 2.0	2.01 to 3.0
Quality	Low	Medium	Strong
Mean value of Cos with PSOs and POs			**2.15**
Observation	**COs of Digital Principles Strongly related with PSOs and POs**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR

DEPARTMENT OF IT

Class	**: I IT**	**Part**	**: III Core - 2**
Semester	**: I**	**Hours**	**: 45**
Subject Code	**: 24UITC21**	**Credits**	**: 03**

PROGRAMMING IN C

Course Educational Objectives (CEO)

- Understand the concepts of Procedural-Oriented Programming (POP).
- Impart the knowledge of decision making and control statements in C programming.
- Develop Generic programming skills by using array concept.
- Develop the efficient programs using functions.
- Able to understand and apply the concept of pointers in real time applications.

UNIT	Content	No. of Hours
I	**Overview of C** Introduction -Importance of C - Basic structure of C program - Character set - C token - keywords and identifiers – constants - variables and data types - Declaration of variables, operators and expression. **Managing input and output operators:** formatted input and formatted output.	9
II	**Decision making and Branching** If statement, if else statement, nesting if else statement, switch statement, go to statement. **Decision and looping :** the while statement, Do statement, for statement.	9
III	**Arrays** One dimensional array, two dimensional array, multidimensional array. **Handling of character String :**Declaring and initializing string variables, Reading string, writing string, string handling functions.	9
IV	**Functions** Library functions, user defined functions, parameters, function calling, call by value, call by reference, Recursion. **Structure** : Declaring structure, array of structure. **Unions** :case studies.	9

V	**Pointers** Pointer declaration, Pointers and arrays. **File :** opening a file, Closing a file, Input/Outputoperations on files, getw() – putw() functions, fprintf(), fscanf().	9

Book for Study:

1. E. Balagurusamy, "Programming in ANSI C", Tata McGraw Hill, New Delhi, 2017.

Book for References:

1. Brain W.Kernighan, Dennis M.Ritchie, " Programming in C Language", Pearson Education India, New Delhi, 2015.
2. D. Ravichandran, "Programming in C", New Age Publishers, New Delhi ,2006.
3. Yashavant Kanetkar, Let us C", 8th Edition, BPB Publications, New Delhi, 2014.

Teaching Learning Methods:

(PPT, GD, Seminar, Quiz Programme, Brain Storming, Case Study, Assignment etc.)

Course Outcome (CO)

On completion of the course, students should be able to

CO1: Identify the concepts of C programming. (k3)

CO2: Classify the Strong knowledge about the Decision Making and Control Statements in C programming. (k3)

CO3: Convert Write, Compile and Execute the real time programs using C concepts. (k3)

CO4: Classify write the array, functions, pointers and structure programs in C language. (k3)

CO5: Discover the knowledge and write the file operations programs in C language. (k4)

Mapping Course outcome

Outcomes	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	Sum of COs with PSOs & POs
CO1	3	2	1	3		3	2	3	1					18
CO2	2	2	3	2	1	2	2	1	3					18
CO3	2	2	3	2		3	1	1	2	2				18
CO4	2	3	2	2	1	2	3	2	2	1				20
CO5	3	3	2	3		3	2	2	2	1				21

Grand Total of COs with PSOs and POs	**95**
Mean Value of Cos with PSO and POs(95/45)	**2.11**

*: S-Strong; M-Medium; L-Low

Mapping Scale	**1**	**2**	**3**
Relation	0.01 to 1.0	1.01 to 2.0	2.01 to 3.0
Quality	Low	Medium	Strong
Mean value of Cos with PSOs and POs			**2.11**
Observation	**COs of Programming in C Strongly related with PSOs and POs**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR

DEPARTMENT OF IT

Class	**: I IT**	**Part**	**: III Core Lab - 1**
Semester	**: I**	**Hours**	**: 75**
Sub code	**: 24UITP11**	**Credits**	**: 03**

PROGRAMMING IN C LAB

Course Educational Objectives (CEO)

- ❖ Understand the concepts of Procedural-Oriented Programming (POP).
- ❖ Impart the knowledge of decision making and control statements in C programming.
- ❖ Develop Generic programming skills by using array concept.
- ❖ Develop the efficient programs using functions.
- ❖ Able to understand and apply the concept of pointers in real time applications.

UNIT	Content	No. of Hours
I	Tokens, Data-types, Variables and Operators	15
II	Using Decision making and Branching Statements	15
III	Using Arrays and Strings	15
IV	Using Functions. Write a C Program using Call by Value – Call by Reference	15
V	Program Using Pointers and File	15

Book for Study:

1. E. Balagurusamy, "Programming in ANSI C", Tata McGraw Hill, New Delhi, 2017.

Book for References:

1. Brain W.Kernighan, Dennis M.Ritchie, " Programming in C Language", Pearson Education India, New Delhi, 2015.
2. D. Ravichandran, "Programming in C", New Age Publishers, New Delhi ,2006.
3. Yashavant Kanetkar, Let us C", 8th Edition, BPB Publications, New Delhi, 2014.

Teaching Learning Methods:

(PPT, GD, Seminar, Quiz Programme, Brain Storming, Case Study, Assignment etc.)

Course Outcome (CO)

On completion of the course, students should be able to

CO1: Identify the concepts of C programming. (k3)

CO2: Classify the Strong knowledge about the Decision Making and Control Statements in C programming. (k3)

CO3: Convert Write, Compile and Execute the real time programs using C concepts. (k3)

CO4: Classify write the array, functions, pointers and structure programs in C language. (k4)

CO5: Discover the knowledge and write the file operations programs in C language. (k5)

Mapping Course outcome

Outcomes	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	Sum of C0s with PSOs & POs
CO1	3	2	3	3		3	3	3						20
CO2	2	3	3	3	1	2	2	2	3					21
CO3	3	2		2	3	3	2	2	3					20
CO4	2	3	2	3	3	2	3	2						20
CO5	3	2	2	3	2	3	2	2	3					22
Grand Total of COs with PSOs and POs														**103**
Mean Value of Cos with PSO and POs (103/41)														**2.51**

*: S-Strong; M-Medium; L-Low

Mapping Scale	**1**	**2**	**3**
Relation	0.01 to 1.0	1.01 to 2.0	2.01 to 3.0
Quality	Low	Medium	Strong
Mean value of Cos with PSOs and POs			**2.51**
Observation	**COs of Programming in C Lab-1 Strongly related with PSOs and POs**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR

DEPARTMENT OF IT

Class	**: I IT**	**Part**	**: Allied - 1**
Semester	**: I**	**Hours**	**: 75**
Subject Code	**: 24UITA11**	**Credits**	**: 04**

Principles of Information Technology

Course Educational Objectives (CEO)

- Understand the knowledge about Information Technology.
- Understand the basic concepts of Analog & Digital Computers, Evolution of Computer Systems.
- Impart the knowledge about the software types.
- Understand the basic internet concepts.
- Understand the basic internet concepts.

UNIT	Content	No. of Hours
I	**Information Technology:** Introduction – Information systems – Definition of computer and system – Software and Data - IT in business and Industry – IT in the Home and at Play – It in Education and Training – IT in Entertainment and the Arts – IT in Science, Engineering, and Mathematics – Global Positioning System(GPS).	15
II	**Introduction to Digital Computers** Evolution of Digital Computers, Digital and Analog Computers – Classification of Digital Computers - Computer Generations - Major components of a Digital computer, Memory Types.	15
III	**Software**: Introduction to Software - Kinds of Software: Application Software, System Software, Embedded Software. The types of Applications software - Word processing – Spreadsheets - Database software, Presentation graphics software - Communications software- Operating system.	15
IV	**Basic Internet Concepts** What is Internet – A brief history of Internet -Intranet-Modems - ISDN lines, and Cable Modems - The World Wide Web - Browsing the web – Web browser – Uniform Resource Locator (URL) – E-mail communication.	15
V	**Networking** Introduction –Networks - Types of Networks: LAN, WAN, MAN – firewalls - Network Topology: Bus, Ring, Hybrid, Star. Internet address - Domain Name System (DNS) – Search Engines – Chatting and conferencing on the Internet Online Chatting – Messaging.	15

Book for Study:

1. Thomas C.Bartee , "Digital Computer Fundamentals" McGraw Hill Education , New Delhi, 2001
2. B.Ram, "Computer Fundamentals – Architecture and Organization", New Age International Publishers, New Delhi, 2018.

Book for References:

1. Donald P leach, Albert Paul Malvino, Goutam Saha, "Digital Principles and Applications", 8th edition, McGraw-Hill Education, New Delhi, 2014.

Teaching Learning Methods:

(PPT, GD, Seminar, Quiz Programme, Brain Storming, Case Study, Assignment etc.)

Course Outcome (CO)

On completion of the course, students should be able to

CO 1: Describe the concepts of Information Technology & Systems (k3)

CO 2: Describe the concepts of Analog & Digital Computers, Evolution of Computer Systems. (k3)

CO 3: Describe the software types. (k3)

CO 4: Learn to use Internet (k4)

CO 5: Describe the Concepts of Networks (k4)

Mapping Course outcome

Outcomes	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	Sum of COs with PSOs & POs
CO1	3	2	1	3		3	2	3	1					18
CO2	2	2	3	2	1	2	2	1	3					18
CO3	2	2	3	2		3	1	1	2	2				18
CO4	2	3	2	2	1	2	3	2	2	1				20
CO5	3	3	2	3		3	2	2	2	1				21
Grand Total of COs with PSOs and POs														**95**
Mean Value of Cos with PSO and POs(95/45)														**2.11**

*: S-Strong; M-Medium; L-Low

Mapping Scale	1	2	3
Relation	0.01 to 1.0	1.01 to 2.0	2.01 to 3.0
Quality	Low	Medium	Strong
Mean value of Cos with PSOs and POs			**2.11**
Observation	**COs of Principles of Information technology Strongly related with PSOs and POs**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR

DEPARTMENT OF IT

Class	**: I IT**	**Part**	**: III Core - 3**
Semester	**: II**	**Hours**	**: 45**
Subject Code	**: 24UITC32**	**Credits**	**: 03**

PROGRAMMING IN C++

Course Educational Objectives (CEO)

1. Understand difference between Procedural-Oriented Programming (POP) and Object-Oriented Programming (OOP) concepts.
2. Able to apply the object oriented features.
3. Develop Generic programming skills using OOPS concepts.
4. Develop the efficient programs using Class and Inheritance.
5. Able to understand and apply the concept of Polymorphism in real time applications.

UNIT	Content	No. of Hours
I	**Introduction on OOP** Principles of Object Oriented Programming (OOP) – Software Evaluation – OOPParadigm – Basic Concepts of OOP – Benefits of OOP – Applications of OOP.	9
II	**Introduction to C++** Tokens – Keywords – Variables – Operators – Manipulators - Expressions and Control Structures – pointers – Functions – Function prototyping - Parameters Passing in Functions – Values Return by Functions – Inline Functions - Friend and Virtual Functions.	9
III	**Classes, Objects & Constructors and Destructors** Classes and Objects – Constructors and Destructors – Operator overloading - Type Conversions – Type conversions – Type of Constructors – Function Overloading.	9
IV	**Inheritance** Inheritance – Single Inheritance – Multiple Inheritance – Multilevel Inheritance – Hybrid Inheritance – Hierarchical Inheritance.	9
V	**Virtual Functions and Polymorphism** Virtual Functions and Polymorphism – Constructors in inheritance – Mapping Console I/O operations.	9

Book for Study:

1. E. Balagurusamy, "Object Oriented Programming with C++", Tata McGraw Hill, New Delhi, 2014.

Books for References:

1. D. Ravichandran, "Programming with C++", Tata McGraw Hill, New Delhi, 2017.
2. Herbert Schildt, "C++: The Complete Reference", Tata McGraw Hill, New Delhi, 2017.

Teaching Learning Methods:

(PPT, GD, Seminar, Quiz Programme, Brain Storming, Case Study, Assignment etc.)

Course Outcome (CO)

On completion of the course, students should be able to

1: Distinguish the POP and OOPs concepts. (k3)

2: Discover knowledge about the C++ Features. (k3)

3: Classify Write, Compile and Execute and programs using C++ OOPs concepts. (k3)

4: Defend write the reusability codes by using Inheritance. (k3)

5: Convert apply the OOPS concepts in real time applications. (k3)

Mapping Course outcome

Outcomes	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	Sum of COs with PSOs & POs
CO1	3	2	1	3		3	2	3	1					18
CO2	2	2	3	2	1	2	3	1	2					18
CO3	1	2	2	3	2	3	1	2	3	2				21
CO4	2	3	2	2	1	3	3	2	3	1				22
CO5	3	2	3	3	3	2	1	2	2					21
Grand Total of COs with PSOs and POs														**100**
Mean Value of Cos with PSO and POs(100/46)														**2.17**

*: S-Strong; M-Medium; L-Low

Mapping Scale	1	2	3
Relation	0.01 to 1.0	1.01 to 2.0	2.01 to 3.0
Quality	Low	Medium	Strong
Mean value of Cos with PSOs and POs			**2.17**
Observation	**Cos of PROGRAMMING IN C++ Strongly related with PSOs and POs**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR

DEPARTMENT OF IT

Class	**: I IT**	**Part**	**: III Core Lab -2**
Semester	**: II**	**Hours**	**: 75**
Sub code	**: 24UITP22**	**Credits**	**: 03**

PROGRAMMING IN C++ LAB

Course Educational Objectives (CEO)

- ❖ Understand difference between Procedural-Oriented Programming (POP) and Object-Oriented Programming (OOP) concepts.
- ❖ Able to apply the object oriented features.
- ❖ Develop Generic programming skills using OOPS concepts.
- ❖ Develop the efficient programs using Class and Inheritance.
- ❖ Able to understand and apply the concept of Polymorphism in real time applications.

UNIT	Content	No. of Hours
I	Program Using OOPs Concept	15
II	Program Using Variables, Program Control Structures, using Pointers –Functions – Function & Operator Overloading	15
III	using Class & Objects, – Constructors and Destructors, Array of Objects	15
IV	Using Inheritance - Types	15
V	Virtual Functions – Polymorphism	15

Book for Study:

1. E. Balagurusamy, “Object Oriented Programming with C++”, Tata McGraw Hill, New Delhi, 2014.

Books for Reference:

1. D. Ravichandran, “Programming with C++”, Tata McGraw Hill, New Delhi, 2017.
2. Herbert Schildt, “C++: The Complete Reference”, Tata McGraw Hill, New Delhi, 2017.

Teaching Learning Methods:

(PPT, GD, Seminar, Quiz Programme, Brain Storming, Case Study, Assignment etc.)

Course Outcome (CO)

On completion of the course, students should be able to

CO 1: Distinguish the POP and OOPs concepts. (k3)

CO 2: Discover knowledge about the C++ Features. (k3)

CO 3: Classify Write, Compile and Execute and programs using C++ OOPs concepts.(k3)

CO 4: Defend write the reusability codes by using Inheritance. (k4)

CO 5: Convert apply the OOPS concepts in real time applications. (k5)

Mapping Course outcome

Outcomes	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	Sum of C0s with PSOs & POs
CO1	3	3	2	3		3	2	3	2	1				22
CO2	2	3	3	2	2	2	3	2	3					22
CO3	3	2	2	3	2	3	2	2	3	2				24
CO4	2	3	3	2	3	3	3	3	2	2				26
CO5	3	2	3	3	3	2	2	3	3	2				26
Grand Total of COs with PSOs and POs														**120**
Mean Value of Cos with PSO and POs(120/48)														**2.5**

*: S-Strong; M-Medium; L-Low

Mapping Scale	1	2	3
Relation	0.01 to 1.0	1.01 to 2.0	2.01 to 3.0
Quality	Low	Medium	Strong
Mean value of Cos with PSOs and POs			**2.5**
Observation	**Cos of PROGRAMMING IN C++ Lab Strongly related with PSOs and POs**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR

DEPARTMENT OF IT

Class	**: I IT**	**Part**	**: Core - 4**
Semester	**: II**	**Hours**	**: 60**
Subject Code	**: 24UITC42**	**Credits**	**: 03**

DATA STRUCTURES AND ALGORITHMS

Course Educational Objectives (CEO)

- Understand the basic concepts about Stack and Queue.
- Impart the knowledge of the Lists and its types.
- Know the important concepts of Trees.
- Able to develop an Algorithm for real time applications.
- Able to understand and apply the various types of Computer Algorithms in real time problems.

UNIT	Content	No. of Hours
I	**Introduction on Data Structures & Algorithms** Introduction– Algorithms – Specification – Performance Analysis. **Arrays:** Ordered Lists - Representation of arrays. Stacks and Queues fundamentals-evaluation of expressions-multiple stacks and queues.	12
II	**Linked Lists** Singly Linked Lists- Linked stacks and queues- The Storage Pool - Polynomial Addition- More on Linked Lists. Doubly Linked Lists: Node Insertion and Node Deletion.	12
III	**Trees** Basic terminology-Binary trees-Binary tree Representations - Binary tree traversal. Threaded Binary Trees- Binary Tree Representation of Trees.	12
IV	**The Complete Development of an Algorithm** Algorithms – Basic Steps. Algorithm Design Methods: Sub goals – Hill Climbing – Working Backward – Heuristics – Backtrack Programming – Recursion.	12
V	**Computer Algorithms** Sorting – Searching – Parallelism. Mathematical Algorithms Magic Squares.	12

Book for Study:

1. Ellis Horowitz and Sartaj Sahni, “Fundamentals of Data structures”, Galgotia Publications, New Delhi, 1985.
2. S.E. Goodman and S.T. Hedetniemi, “Introduction to the Design and Analysis of

Algorithms", McGraw Hill, International , New Delhi, 1988.

Book for References:

1. Tanenbaum A.M. and Augustein M.J, "Data Structures with Pascal", Prentice Hall of India Limited, New Delhi, 1985.
2. Yashavant Kanetkar, "Data Structures Through C", BPB Publications, New Delhi, 2010.

Teaching Learning Methods:

(PPT, GD, Seminar, Quiz Programme, Brain Storming, Case Study, Assignment etc.)

Course Outcome (CO)

On completion of the course, students should be able to

CO 1: Identify the Data Structure Fundamentals and Stack, Queues concepts. (k3)

CO 2: Generalized the functionalities of different Linked Lists. (k3)

CO 3: Convert and compare the Operations of Tree Structure. (k3)

CO 4: Classify data structures concepts to designing an algorithms. (k4)

CO 5: Locate and compare the various types computer algorithms. (k4)

Mapping Course outcome

Outcomes	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	Sum of COs with PSOs & POs
CO1	3	3	1	2	1	2	3	2	1					18
CO2	2	2	2	3	1	3	1	2	2					18
CO3	1	3	2	3		2	1	2	1	3				18
CO4	2	3	2	3	1	3	2	2	1	1				20
CO5	3	3	3	2		3	2	2	1	1				20
Grand Total of COs with PSOs and POs														**94**
Mean Value of Cos with PSO and POs(94/46)														**2.04**

*: S-Strong; M-Medium; L-Low

Mapping Scale	**1**	**2**	**3**
Relation	0.01 to 1.0	1.01 to 2.0	2.01 to 3.0
Quality	Low	Medium	Strong
Mean value of Cos with PSOs and POs			**2.04**
Observation	**Cos of DATA STRUCTURES AND ALGORITHMS Strongly related with PSOs and POs**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR

DEPARTMENT OF IT

Class	**: I IT**	**Part**	**: Allied - 2**
Semester	**: II**	**Hours**	**: 75**
Subject Code	**: 24UITA22**	**Credits**	**: 4**

MATHEMATICAL FOUNDATION

Course Educational Objectives (CEO)

i. Understand the Basic structure of sets, functions.
ii. Impart the knowledge of Number Theory.
iii. Able to learn permutations, combinations.
iv. Understand the Discrete probability, Relations.
v. Able to learn Graphs, Boolean Algebra.

UNIT	Content	No. of Hours
I	Basic Structures: Sets, Functions, Sequences, Sums, and Matrices : Sets - Set Operations -Functions - Sequences and Summations - Cardinality of Sets - Matrices	15
II	Number Theory and Cryptography Divisibility and Modular Arithmetic - Integer Representations and Algorithms - Primes and Greatest Common Divisors - Solving Congruences - Applications of Congruences - Cryptography .	15
III	Counting The Basics of Counting - The Pigeonhole Principle - Permutations and Combinations - Binomial Coefficients and Identities -Generalized Permutations and Combinations - Generating Permutations and Combinations.	15
IV	Discrete Probability, Relations An Introduction to Discrete Probability-Probability Theory-Bayes' Theorem-Expected Value and Variance. Relations and Their Properties-n-ary Relations and Their Applications-Representing Relations	15
V	Graphs, Boolean Algebra Graphs and Graph Models -Graph Terminology and Special Types of Graphs -Representing Graphs and Graph Isomorphism -Connectivity. Boolean Functions-Representing Boolean Functions-Logic Gates	15

Book for Study:

1. Kenneth H. Rosen "DISCRETE MATHEMATICS AND ITS APPLICATIONS", SEVENTH EDITION Published by McGraw-Hill

Books for References:

1. Richard Johnsonbaugh "DISCRETE MATHEMATICS"– Eighth edition, Copyright @ 2018, by Pearson Education, Inc

Teaching Learning Methods:

(PPT, GD, Seminar, Quiz Programme, Brain Storming, Case Study, Assignment etc.)

Course Outcome (CO)

On completion of the course, students should be able to

CO1: Describe the Basic structure of sets, functions. (k3)

CO2: Discover the knowledge about knowledge of Number Theory (k3)

CO3: Using the concepts permutations, combinations(k3)

CO4: Known the concepts of Discrete Probability, Relations(k3)

CO5: Known the concepts of Graphs, Boolean Algebra(k4)

Mapping Course outcome

Outcomes	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	Sum of COs with PSOs & POs
CO1	3	3	2	1		3	3	3	1					19
CO2	2	2	3	2	2	3	1	2	3					20
CO3	3	2	2	3		2	2	2	3	3				22
CO4	2	3	3	3	1	2	2	2	1	1				20
CO5	3	2	3	2	2	3	2	2	2	1				22
Grand Total of COs with PSOs and POs														**103**
Mean Value of Cos with PSO and POs(103/46)														**2.24**

*: S-Strong; M-Medium; L-Low

Mapping Scale	1	2	3
Relation	0.01 to 1.0	1.01 to 2.0	2.01 to 3.0
Quality	Low	Medium	Strong
Mean value of Cos with PSOs and POs			**2.24**
Observation	**Cos of Mathematical Foundation Strongly related with PSOs and Pos**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR – 625 514

(Reaccredited by NAAC with "A" Grade with a CGPA of 3.66)

DEPARTMENT OF IT & M

Programme Specific Outcome (PSO)

1. Learn current techniques and modern tools necessary to develop the software applications and business.
2. Identify, analyze, formulate and solve technical problems by applying principles of Information Technology and Management to the problem.
3. Take up multidisciplinary projects and to carry out it as per industry standards.
4. Comprehend and apply the technical solutions in a global and social context.
5. Understand and practice professional, ethical, legal, and social responsibilities as a matured citizen.

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR

DEPARTMENT OF IT & M

OBE SYLLABUS (From 2023-24 onwards)

I SEMESTER				
Part	**Subject Code**	**Subject Title**	**Hours**	**Credits**
I	23UTAL11/ 23UHNL11/ 23USNL11	Tamil/ Hindi/ French	6	4
II	23UENA11/ 23UENB11	English through Prose & Short Story – Stream – A English through Prose & Short Story – Stream – B	5	4
III	23UITC11	**Core – 1** Principles of Management	4	4
	23UITC21	**Core – 2** Programming in C	3	3
	23UITP11	Programming in C - Lab-1	5	3
	23UITA11	**Allied -1** Digital Principles	5	4
IV	23UFCE11	**FC** – Personality Development	1	1
	23UCSH12	Communication Skill	1	-
	23UBRC11	Bridge Course		1
V	23UNCC/NSS/ PHY.EDU./YRC/ ROT/ACF/NCB12	Extension Activities NSS/NCC/Phy.Edn./YRC / ROTARACT/AICUF/Nature Club	-	-
		Total	**30**	**24**
II SEMESTER				
I	23UTAL22/ 23UHNL22/ 23USNL22	Tamil/ Hindi/ French	6	4
II	23UENA22 23UENB22	English through Prose & Short Story – Stream – A English through Prose & Short Story – Stream – B	5	4
III	23UITC32	**Core – 3** Programming in C++	3	3
	23UITC42	**Core – 4** Data Structures & Algorithms	4	3
	23UITP22	Programming in C++ - Lab - 2	5	3
	23UITA22	**Allied – 2** Environment of Business	5	4
IV	23UFCH22	**FC**- Social Responsibility and Global Citizenship	1	1
	23UCSH12	Communication Skill	1	1
V	23UNCC/NSS/ PHY.EDU./YRC/ ROT/ACF/NCB12	Extension Activities NSS/NCC/Phy. Edn./YRC / ROTARACT/AICUF/Nature Club	-	1
		Total	**30**	**24**

III SEMESTER				
III	23UTAL33/ 23UHNL33/ 23USNL33	Tamil	6	4
	23UITC53	**Core – 5** Operating Systems	4	3
	23UITC63	**Core – 6** Web Technology	4	3
	23UITP33	Programming in Web Technology Lab -3	5	3
	23UITA33	**Allied – 3** Business Accounting	4	4
IV	23UITN13	Basic Tamil / Advanced Tamil / **NME-1** Image Editing Tools	3	2
	23UITS13	**Skill based Elective- 1** DBMS	3	2
	23UFCE33	**FC-**Environmental Studies	1	1
V	23UNCC/NSS/ PHY.EDU./YRC/ ROT/ACF/NCB24	**Extension Activities** NSS / NCC / Phy.Edn./ YRC /ROTARACT / AICUF /Nature Club	-	-
	23UARE14	ARISE	-	-
		Total	**30**	**22**
IV SEMESTER				
I	23UTAL44/ 23UHNL44/ 23USNL44	**Tamil**	6	4
III	23UITC74	**Core – 7** Computer Network	4	4
	23UITC84	**Core – 8** Dot Net Programming	4	2
	23UITP44	Dot Net Programming Lab - 4	5	3
	23UITA44	**Allied–4** Web Marketing	4	4
IV	23UITN24	Basic Tamil / Advanced Tamil / **NME- 2** Ethical Hacking	3	2
	23UITS24	**Skill based Elective - 2** Organizational Behaviour	3	2
	23UFCH44	**FC** - Religious Literacy and Peace Ethics	1	1
V	23UNCC/NSS/ PHY.EDU./YRC/ ROT/ACF/NCB24	Extension Activities NSS / NCC / Phy.Edn. / YRC /ROTARACT / AICUF /Nature Club	-	1
	23UARE14	ARISE	-	1
		Total	**30**	**24**
V SEMESTER				
	23UITC95	**Core - 9** Software Engineering	5	4
	23UITD05	**Core – 10** Research Methodology	5	4
	23UITD15	**Core – 11** Marketing Management	5	4

III	23UITD25	**Core – 12** Java Programming	5	4
	23UITP55	Programming in Java Lab - 5	5	4
	23UITE15	**Core Elective - 1** Human Resource Management	3	3
IV	23UINT15	**Internship** (Holidays)		1
	23USSI16	Soft Skills	2	
		Total	**30**	**24**
VI SEMESTER				
	23UITD36	**Core – 13** Mobile Application Development	5	4
	23UITP66	Mobile Programming Lab - 6	5	4
	23UITD46	**Core – 14** Advertising and Salesmanship	5	4
	23UITD56	**Core – 15** Entrepreneurship Development	5	4
	23UITD66	**Core – 16** Project	5	4
	23UITE26	**Core Elective– 2** Internet of Things	3	3
	23USSI16	Soft Skills	2	2
		Total	**30**	**25**

Semester	**I**	**II**	**III**	**IV**	**V**	**VI**	**TOTAL**
Credits	24	24	22	24	24	26	144*

Non-Major Electives

For Non-Science Students : Image Editing Tools

For Science Students : Ethical Hacker

Self-Learning Course

Semester	**Subject Code**	**Title of the Paper**	**Credits**
Semester-III	22UITSL3	Scripting Languages	3
Semester-IV	22UITSL4	Stress Management	3
Semester-V	22UITSL5	Cyber Security	3
Semester-VI	22UITSL6	Export and Import Management	3

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR

DEPARTMENT OF IT&M

Class	: II IT&M	Part	: Core- 5
Semester	: III	Hours	: 60
Subject Code	: 23UITC53	Credits	: 3

OPERATING SYSTEMS

1. **Title of the Paper**: **OPERATING SYSTEMS**

2. **Course Educational Objectives (CEO)**

   vi. Understand the structure and functions of Operating System.
   vii. Impart the knowledge of Processes and CPU Scheduling algorithms.
   viii. Know how the operating systems handle the Deadlocks.
   ix. Understand how operating systems manage the Memory and Page Replacement.
   x. Case Study of Linux Operating System.

3. **Five Units of the Syllabus**

UNIT	Content	No. of Hours
I	**Introduction** Operating System – Mainframe Systems – Desktop Systems – Multiprocessor Systems–Distributed Systems–Clustered Systems – Real Time Systems – Handheld Systems. Operating System Structures: - System Components – Operating System Services–System Structure:Simple Structure, Layered Approach.	12
II	**Process Management** Processes:-Process Concept–Process Scheduling–Operation on Processes–Cooperating Processes. CPU Scheduling:-Basic Concepts–Scheduling Criteria–Scheduling Algorithms.	12
III	**Process Synchronization**: -Background –The Critical Section Problem–Semaphores. Deadlocks: System Model–Deadlock Characterization–Methods for handling Deadlocks–Deadlock Prevention–Deadlock Avoidance–Deadlock Detection–Recovery from Deadlock.	12
IV	**Memory Management** Swapping–Paging–Segmentation.Virtual Memory:Demand Paging–Page Replacement Techniques–Thrashing.	12
V	**Case Study:Linux Operating System** History –Design Principles–Kernel-Process Management–File System–Network Structure–Security.	12

4. **Book for Study:**

Silberschatz, Galvin, Gagne, "Operating System Concepts", 8th Edition John Wiley & Sons Inc, 8th Edition, New Delhi, 2009.

5. **Books for References:**

I. Andrew S.Tanenbaum, Albert S Wood Hull, "Operating Systems–Design and Implementation", Prentice Hall, New Delhi, 1997.

II. Milan Milenkovic, "Operating Systems Concepts and Design", Tata Mcgraw Hill, New Delhi, 1992.

6. **Teaching Learning Methods:**

(PPT, GD, Seminar, Quiz Programme, Brain Storming, Case Study, Assignment etc.)

7. **Course Outcome (CO)**

On completion of the course, students should be able to

CO1:Describe with basic concepts of Operating Systems.

CO2:Discover the knowledge about the Process Management & CPU Scheduling concepts.

CO3:Identify Deadlock problems and its Prevention mechanism.

CO4:Describe the Memory Management concepts.

CO5:Discover Knowledge about the Linux Operating System.

8. **Course Outcome Level** (preferable one for each objective)

CO_1 - K_3

CO_2 - K_3

CO_3 - K_3

CO_4 - K_4

CO_5 - K_3

9. **Mapping Course outcome with**

(i) Programme Specific Objectives –**PSO (put tick mark in the correlating box)**

(ii) Programme Objectives -**PO (put tick mark in the correlating box)**

Outcomes	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	Sum of COs with PSOs & POs
CO1	3	3	2	1		3	3	3	1					19
CO2	2	2	3	2	2	3	1	2	3					20
CO3	3	2	2	3		2	2	2	3	3				22
CO4	2	3	3	3	1	2	2	2	1	1				20
CO5	3	2	3	2	2	3	2	2	2	1				22
Grand Total of COs with PSOs and POs														**103**
Mean Value of COs with PSO and POs														**2.24**

*:S-Strong; M-Medium; L-Low

Mapping Scale	1	2	3
Relation	0.01 to 1.0	1.01 to 2.0	2.01 to 3.0
Quality	Low	Medium	Strong
Meanvalue of COs With PSOs and POs			**2.24**
Observation	**COs of OPERATING SYSTEMS Strongly related with PSOs and POs**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR

DEPARTMENT OF IT & M

Class	: B.Sc IT&M	Part	: III Core - 6
Semester	: III	Hours	: 60
Subject Code	: 23UITC63	Credits	: 3

WEB TECHNOLOGY

1.Title of the Paper: WEB TECHNOLOGY

2. Course Educational Objectives (CEO)

- Understand the internet basics and its related technologies
- Understand the Tags in Hyper Text Markup language to design the static webpage
- Understand the importance of client side scripting language in web development
- Understand the fundamentals of server side scripting language to design a dynamic webpage
- Understand the techniques of data manipulation with JDBC Concepts

3. Five Units of the Syllabus

UNIT	Content	No. of Hours
I	Internet Principles: Introduction to Internet - Client Server Model- Protocol - Internet IP Address- Domain Name - Internet Services - Electronic Mail - World Wide Web - Internet Security - ECommerce - EDI.	**12**
II	Introduction to HTML: HTML Tags - HTML Documents - Headings - Hyperlinks using Anchor Tag-Formatting Characters - Font - Images and Pictures - Listing - Tables in HTML Tags – Frameset: Frame Definition- Nested framesets - HTML Forms – Form Elements	**12**
III	JavaScript : Data Types - Variables - Operators - Conditional statements using Javascript– Document Objects - Image Objects using Javascript - Forms and Elements - Event Handling - Browser Object -Submit Event and Data Validation -parseInt() Function – parse Float() Function - Recursive Function.	**12**
IV	Server Side Script with JSP: Client Responsibilities -Server Responsibilities - Introduction to JSP – JSP Architecture - JSP Servers - JSP Tags - Request Object - Response Object - JSP Page.	**12**
V	JSP with JDBC : Creating ODBC Data Source Name - Introduction to JDBC -Telephone Directory with JDBC - Servlet Environment and Role - Protocol Support - HTML	**12**

	Support - Servelt Life Cycle - HTML to Servlet Communication	

4.Book for Study:

i. C.Xavier, Web Technology and Design, First Edition, New Age International, 2011

5.Book for Reference

i. H.M.Deitel, P.J.Deitel, Internet and World Wide Web - How to Program", Third Edition, Pearson Publication, 2006.

1. Teaching Learning Methods:

(PPT, GD, Seminar, Quiz programme, Brain Storming, Case Study, Assignments etc.,)

2. Course Outcome (CO)

On Successful completion of the course the students able to

1. Understand the working principles of Internet and its related technologies
2. Apply the HTML tags to develop the static web page
3. Apply the event handling methods in client-side scripting language
4. Understand the features of server-side scripting languages in web development
5. Create dynamic web sites using the knowledge of data manipulating skills.

8. Course Outcome Level (preferable one for each objective)

CO_1 - K_1 (Knowledge)

CO_2 - K_2 (Understanding)

CO_3 - K_3 (Application)

CO_4 - K_4 (Analysis)

CO_5 - K_5 (Synthesis & Evaluation)

9. Mapping Course outcome with

(i) Programme Specific Objectives -**PSO(put tick mark in the correlating box)**

(ii) Programme Objectives -**PO(put tick mark in the correlating box)**

Outcomes	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	Sum of COs with PSOs & POs
CO1	3	2	1		3	3	3	2	1					18
CO2	2	2	3	3	1	2	1	2	2					18
CO3	3	3	2	2		2	1	2	3	3				18
CO4	2	3	2	2	2	2	3	1	2	1				19
CO5	3	3	3	2		3	3	2	1	1				19
Grand Total of COs with PSOs and POs														**98**
Mean Value of COs with PSO and POs														**2.18**

*:S-Strong; M-Medium; L-Low

Mapping Scale	1	2	3
Relation	0.01to1.0	1.01to2.0	2.01to3.0
Quality	Low	Medium	Strong
Mean value of COs With PSOs and POs			**2.18**
Observation	**COs of WEB TECHNOLOGY Strongly related with PSOs and POs**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR – 625 514.
DEPARTMENT OF IT&M

Class	: B.Sc IT&M	Part	: III Lab-3
Semester	: III	Hours	: 75
Subject Code	: 23UITP33	Credits	: 3

PROGRAMMING IN WEB TECHNOLOGY LAB

1. **Title of the Paper: PROGRAMMING IN WEB TECHNOLOGY LAB**
2. **Course Educational Objectives (CEO)**
   1. Understand the internet basics and its related technologies
   2. Understand the Tags in Hyper Text Markup language to design the static webpage
   3. Understand the importance of client side scripting language in web development
   4. Understand the fundamentals of server side scripting language to design a dynamic webpage
   5. Understand the techniques of data manipulation with JDBC Concepts
3. **Five Units of the Syllabus**

UNIT	Content	No. of Hours
I	HTML Tags - Headings - Hyperlinks using Anchor Tag- Formatting Characters - Font - Images and Pictures - Listing - Tables in HTML Tags – Frameset: Frame - Nested framesets - HTML Forms – Form Elements	**15**
II	JavaScript - Conditional statements using Javascript– Document Objects - Image Objects using Javascript-Function using Javascript	**15**
III	Forms and Elements - Event Handling - Browser Object - Submit Event and Data Validation -parseInt() Function – parse Float() Function - Recursive Function.	**15**
IV	Server Side Script with JSP: Client Responsibilities -Server Responsibilities - - JSP Tags - Request Object - Response Object - JSP Page.	**15**
V	JSP with JDBC : Creating ODBC Data Source Name - Introduction to JDBC -Telephone Directory with JDBC - Servlet Environment and Role - Protocol Support - HTML Support - Servelt Life Cycle - HTML to Servlet Communication	**15**

4.Book for Study:

1. C.Xavier, Web Technology and Design, First Edition, New Age International, 2011.

5.Book for Reference

1. H.M.Deitel, P.J.Deitel, Internet and World Wide Web - How to Program", Third Edition, Pearson Publication, 2006.

6.Teaching Learning Methods:

(PPT, GD, Seminar, Quiz programme, Brain Storming, Case Study, Assignments etc.,)

7. Course Outcome (CO)

On Successful completion of the course the students able to

1. Understand the working principles of Internet and its related technologies
2. Apply the HTML tags to develop the static web page
3. Apply the event handling methods in client side scripting language
4. Understand the features of server side scripting languages in web development
5. Create dynamic web sites using the knowledge of data manipulating skills.

8. Course Outcome Level (preferable one for each objective)

CO_1 - K_1 (Knowledge)

CO_2 - K_2 (Understanding)

CO_3 - K_3 (Application)

CO_4 - K_4 (Analysis)

CO_5 - K_5 (Synthesis & Evaluation)

9. Mapping Course outcome with

i) Programme Specific Objectives –**PSO (put tick mark in the correlating box)**

ii) Programme Objectives -**PO (put tick mark in the correlating box)**

Outcomes	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	Sum of COs with PSOs & POs
CO1	3	2	2		3	3	3	2	1					19
CO2	2	2	3	3	1	2	1	2	2					18
CO3	3	2	2	2		2	1	2	3	3				20
CO4	2	3	2	2	1	2	3	1	2	1				19
CO5	3	3	3	2		3	3	2	1	1				21
Grand Total of COs with PSOs and POs														**97**
Mean Value of COs with PSO and POs														**2.16**

*:S-Strong; M-Medium; L-Low

Mapping Scale	1	2	3
Relation	0.01to1.0	1.01to2.0	2.01to3.0
Quality	Low	Medium	Strong
Meanvalue of COs With PSOs and POs			**2.16**
Observation	**COs of PROGRAMMING INWEB TECHNOLOGY LAB Strongly related with PSOs and POs**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR – 625 514.

DEPARTMENT OF IT&M

Class	: III T &M	Part	: Allied-3
Semester	: III	Hours	: 60
Subject Code	: 23UITA33	Credits	: 4

BUSINESS ACCOUNTING

1. **Title of the Paper** : **BUSINESS ACCOUNTING**
2. **Course Educational Objectives (CEO)**

1: Knowing the basic concepts and Introduction of Accounts.
2: Understanding the importance, rules and Preparation of journal.
3: Learning the Ledger and concepts of single entry system.
4: Comprehending the concept of main subsidiary books.
5: To prepare the final accounts.

3. **Five Units of the Syllabus**

Unit	Content	No. of Hours
I	**Introduction of Accounts** Financial Accounting: Definition, objectives, functions, limitations– concepts and conventions –Double entry system of book keeping: Rules.	12
II	**Journal** Journal: Definition-Objectives–importance–advantages and limitations –rules of Journalizing-Preparation of journal.	12
III	**Ledger and Single Entry System** Ledger: Definition- Rules – Advantages- Preparation of Ledger- Single Entry System: Concepts - Features - Merits & Demerits- difference between single entry system and double entry system.	12
IV	**Subsidiary book** Main subsidiary books: purchase book, sales book, purchase return books ales return book, its advantages–Importance, Cash Book– definition – Kinds of cash book, single column, double column.	12
V	**Final Accounts** Final Accounts (without adjustments):Trading a/c–definition-need-preparation-profit & loss a/c and Balance Sheet.	12

4. Book for Study:

1. Dr.Peer Mohamed and Dr.Shazuli Ibrahim, Advanced Accountancy-I, Pass Publications, 2016.

5. Book for Reference:

1. Jain S.P.and Narang K.L, Financial Accounting, Kalyani Publishers, New Delhi, 2010.
2. Maheswari S.N. and Maheswari S.K., Fundamentals of Accounting, Vikas Publishing House, New Delhi, 2005.

6. Teaching Learning Methods:

(PPT, GD, Seminar, Brain Storming, Case Study, Assignments etc.,)

7. Course Outcome (CO)

On completion of the course, students should be able to

1. Describe the students to know the basic concepts of accounting.
2. Identify the skill stop reparing journal entries.
3. Discover the preparation of Ledger and concepts of single entry system.
4. Discover the knowledge in Preparing subsidiary books and cashbooks.
5. Identify the concepts of final accounts and prepare it.

8. Course Outcome Level (Preferable one for each objective)

CO1 - K_3
CO2 - K_3
CO3 - K_3
CO4 - K_3
CO5 - K_3

9. Mapping Course outcome with

(i) Programme Specific Objectives -**PSO(put tick mark in the correlating box)**

(ii) Programme Objectives -**PO(put tick mark in the correlating box)**

Outcomes	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	Sum of COs with PSOs & POs
CO1	3	2	1		3	3	3	2	1					18
CO2	2	2	3	3	1	2	1	2	2					18
CO3	1	2	2	2		2	1	2	3	3				18
CO4	2	3	2	2	1	2	3	1	2	1				19
CO5	3	1	3	2		3	3	2	1	1				19
Grand Total of COs with PSOs and POs														**92**
Mean Value of Cos with PSO and POs														**2.04**

*:S-Strong; M-Medium; L-Low

Mapping Scale	1	2	3
Relation	0.01to1.0	1.01to2.0	2.01to3.0
Quality	Low	Medium	Strong
Meanvalue of Cos With PSOs and POs			**2.04**
Observation	**COs of BUSINESS ACCOUNTING Strongly related with PSOs and POs**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR – 625 514

DEPARTMENT OF IT&M

Class	: II IT &M	Part	: NME- 1
Semester	: III	Hours	: 45
Subject Code	: 23UITN13	Credits	: 2

IMAGE EDITING TOOLS

1. **Title of the Paper** :**IMAGE EDITING TOOLS**

2. **Course Educational Objectives (CEO)**

1: Knowing the basic concepts and Introduction of Photoshop
2: Empathetic the importance, File Formats and Cropping
3: Education the features of Retouching photographs
4: Realizing the concept of main adding Clouds and spot lights
5:Case Study of applying transformation

3. **Five Units of the Syllabus**

UNIT	Content	No. of Hours
I	**Introduction to Photoshop CS:** Image Editing Theory–Photoshop desktop–File Handling– Units & Rulers– Memory and Image Cache–File Browser.	9
II	**Image Management**: How Images Work – Resolution of Screen Images– How to Open – Duplicate and Save Images. File Formats Roundup–Resampling and Cropping.	9
III	**Painting and Retouching:** Selecting and Editing Colors–Working in different Color Modes–Brush Size and Shape–Filling selection with Color or Pattern–Retouching photographs.	9
IV	**Selections and Paths:** Selection Fundamentals–Moving and duplicating Selection-draw and edit path – Filter basics – Noise factors – adding Clouds and spotlights.	9
V	**Working with Layers:**Layer basics – Moving, Linking, Aligning layers-Applying transformations-Modifying and saving effects-Correcting camera raw images–Organizing images for output.	9

4. Book for Study:

1. Deke McClell and, 2005, Photoshop8 CS Bible- Wiley Dream tech India Pvt Ltd.

5. Book for Reference:

1. Barbara Obermeier, 2010, Photoshop CS5 by Wiley Publishing Inc., Indiana polis, Indiana.

6. Teaching Learning Methods:

(PPT, GD, Seminar, Quiz programme, Brain Storming, Case Study, Assignments etc.,)

7. Course Outcome (CO)

On completion of the course, students should be able to

CO1: Distinguish with basic concepts of Photoshop

CO2: Extend knowledge about the How Images Works

CO3: Locate Retouching photographs

CO4: Describe the Filter basics concepts.

CO5: Discover the Knowledge about the Working with Layers in Flash

8. Course Outcome Level (Preferable one for each objective)

CO1 - K_3

CO2 - K_3

CO3 - K_3

CO4 - K_3

CO5 - K_3

9. Mapping Course outcome with

i. Programme Specific Objectives -**PSO(put tick mark in the correlating box)**

ii. Programme Objectives-**PO(put tick mark in the correlating box)**

Outcomes	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	Sum of COs with PSOs & POs
CO1	2	3		1	3	3	3	1	1					17
CO2	3	2	2	3	1		2	3	2					18
CO3	1	3	2	3		2	1	1	2	2				17
CO4	2	2	2	3	1	3	2	2	1					18
CO5	3	3	2	2		1	2	1	2	1				17
Grand Total of COs with PSOs and POs														**87**
Mean Value of COs with PSO and POs														**2.02**

*:S-Strong; M-Medium; L-Low

Mapping Scale	1	2	3
Relation	0.01to1.0	1.01to2.0	2.01to3.0
Quality	Low	Medium	Strong
Meanvalue of Cos With PSOs and POs			**2.02**
Observation	**COs of IMAGE EDITING TOOLS Strongly related with PSOs and POs**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR

DEPARTMENT OF IT & M

Class	: II IT& M	Part	: SB!-1
Semester	: III	Hours	: 45
Subject Code	: 22UITS13	Credits	: 02

DBMS

1. **Title of the Paper** :**DBMS**
2. **Course Educational Objectives (CEO)**
3. Comprehend the basic concepts about DBMS.
4. Impart the knowledge of Entity Relationship Model.
5. Distinguish the important concepts Relational Model.
6. Understand the concept of SQL.
7. Able to understand the Other Relational Languages in DBMS.

3. Five Units of the Syllabus

UNIT	Content	No. of Hours
I	**Introduction** Purpose of Database Systems- view of Data – data models – Database Languages – Transaction Management - Storage Management – Database Administrator-Database users.	9
II	**Entity Relationship Model** Basic concepts – Design issues – Mapping Constraints – keys- Entity Relationship Diagram-Weak Entity sets- Extended E R Features-Design of an E R Database schema- Reduction of and ER Schema to tables.	9
III	**Relational Model** Structure of Relational Database-The Relational Algebra-the Tuple Relational Calculus-The Domain Relational calculus- Extended Relational Algebra Operations- Modification of Database-views.	9
IV	**SQL** Background-Basic Structure- Set Operations-Aggregate Functions-Null values-nested subqueries-derived Relations-views-Modifications of the Database-joined Relations-Data Definition Language Embedded SQL.	9
V	**Other Relational Languages** Queries on One Relation – Queries on Several Relation – Modification of the Database – Quel – Tuple Variables – Aggregate Functions – Insertion & Updates – Set Operations - Datalog – Semantics of Nonrecursive Datalog	9

4. **Book for Study:**

I. Abraham Silberschatz, Henry F. Korth and S. Sudarshan, "Database System Concepts", The McGraw-Hill Companies, Inc Publications, 6th Edition, 2010.

5. **Book for References:**

I. Ramez Elmasri and Shamkant B. Navathe, "Fundamentals of Database Systems" Pearson Education Inc., Publications, 5th Edition, 2008.

6. **Teaching Learning Methods:**

(PPT, GD, Seminar, Quiz Programme, Brain Storming, Case Study, Assignment etc.)

7. **Course Outcome (CO)**

1: Understand the Data Models and Database Language concepts.

2: Understand the Concepts of Entity Relationship Models.

3: Understand the Tuple and Domain Relational Calculus.

4: Analyze SQL Concepts to Modify the Database.

5: Understand the Other Relational Languages in DBMS.

8. **Course Outcome Level** (preferable one for each objective)

CO_1 - K_1 (Knowledge)

CO_2 - K_2 (Understanding)

CO_3 - K_3 (Application)

CO_4 - K_4 (Analysis)

CO_5 - K_5 (Synthesis & Evaluation)

9. **Mapping Course Outcome with**

i) Programme Specific Objectives –**PSO (put tick mark in the correlating box)**

ii) Programme Objectives -**PO (put tick mark in the correlating box)**

Outcomes	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	Sum of COs with PSOs & POs
CO1	3	3	2	1		3	3	3	1					19
CO2	2	2	3	2	1	3	1	2	3					19
CO3	1	3	2	3		2	1	2	3	3				20
CO4	3	3	3	3	1	2	2	2	1	1				21
CO5	3	2	3	2	2	2	2	2	2	1				21
Grand Total of COs with PSOs and POs														**100**
Mean Value of COs with PSO and POs														**2.17**

*:S-Strong; M-Medium; L-Low

Mapping Scale	1	2	3
Relation	0.01to1.0	1.01to2.0	2.01to3.0
Quality	Low	Medium	Strong
Meanvalue of COs With PSOs and POs			**2.17**
Observation	**COs of DBMS Strongly related with PSOs and POs**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR-625 514.

DEPARTMENT OF IT&M

Class	: II IT &M	Part	:Self Learning
Semester	: III	Hours	:-
Subject Code	: 23UITSL3	Credits	:3

SCRIPTING LANGUAGE

1. Title of the Paper: **SCRIPTING LANGUAGE**

2. Course Educational Objectives (CEO)

1: Knowing the basic concepts of HTML
2: Getting to Know the Forms & Frame concepts.
3: Able to learn DHTML & XML
4: Able to learn Basic Java Script.
5: Able to learn the Basic PHP concepts.

3. Five Units of the Syllabus

UNIT	Content	No. of Hours
I	**Introduction to HTML:**–Outline of HTML Document –Head Section: Link– Base–Meta–Script–Style. HTML Body Section: Headers–Paragraphs–Text Formatting–Linking.	-
II	**HTML OtherT ags:** Embedding Images –HTML Lists– Tables–Frames–Forms other special Tags and Characteristics.	-
III	**DHTML & XML:** CSS – coding CSS–Property of Tags– Property values–Backgrounds – DHTML DOM and Collections. XML: Introduction–HTML vs XML–Syntax of XML Document–XML Attributes–Validations.	-
IV	**Java Script:** Need for a Scripting Language–Language Elements: Identifiers, Expressions, Java Script Keywords, Operators, Functions. Objects of Java Script: The Window Object, Document Object, Forms Object.	-
V	**PHP:** Introduction–PHP tags–Comments–Print and echo Statements–Variables–Data Types–Arrays –User defined Functions.	-

4. Book for Study:

1. N .P. Gopalan 2014, Web Technology – A Developer's Perspective, PHI Learning Private Limited, Delhi–110092.

5. Book for Reference:

1. Thomas A Powell, 2006, "HTML: The Complete Reference", Osborne/McGraw-Hill.

6. Teaching Learning Methods:

(PPT, GD, Seminar, Quiz programme, Brain Storming, Case Study, Assignments etc.,)

7.Course Outcome (CO)

On completion of the course, students should be able to

1:Distinguish Strong knowledge about the HTML Features.

2:Demonstrate the Forms &Frame concepts.

3:Illustrate the CSS using DHTML & XML.

4:Discover the Knowledge about the Working with Java Script.

5:Relate Work with PHP concepts.

8. Course Outcome Level (Preferable one for each objective)

CO1 -K_3

CO2 -K_3

CO3 -K_3

CO4 -K_3

CO5 -K_3

9. Mapping Course Outcome with

i. Programme Specific Objectives -**PSO(put tick mark in the correlating box)**

ii. Programme Objectives -**PO(put tick mark in the correlating box)**

Outcomes	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	Sum of COs with PSOs & POs
CO1	2	3	3		2	3	2	1	2					18
CO2	3	2	3	2	3	2	1	1	1					18
CO3	2	3	2	3		1	2	1	2	2				18
CO4	3	2	2	2	1	1	2	1	2	2				18
CO5	2	3	3	2		3	1	2	2	1				19
Grand Total of COs with PSOs and POs														**91**
Mean Value of COs with PSO and POs														**2.02**

Strong-3, Medium-2 & Low-1

Mapping Scale	1	2	3
Relation	0.01to1.0	1.01to2.0	2.01to3.0
Quality	Low	Medium	Strong
Meanvalue of COs with PSOs and POs			**2.02**
Observation	**COs SCRIPTING LANGUAGE Strongly related with PSOs and POs**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR-625 514

DEPARTMENT OF IT&M

Class	: III IT &M	Part	: III Core-7
Semester	: IV	Hours	: 60
Subject Code	: 23UITC74	Credits	: 04

COMPUTER NETWORK

1. **Title of the Paper**: **COMPUTER NETWORKS**
2. **Course Educational Objectives (CEO)**
   1: To be familiar with basic concepts of Communication and Networking.
   2: Impart the knowledge Transmission Media and its types.
   3: Know about the Error Correction and Detection.
   4: To gain comprehensive knowledge about Connecting Devices.
   5: To be aware of Security and Cryptography.
3. **Five Units of the Syllabus**

UNIT	Content	No. of Hours
I	**Introduction** Introduction to data communication and networking – Data Communication - Classification of Network - Protocols and Standards – Standards Organizations –Internet Standards -TCP/IP Protocol Suites –OSI Reference Model.	12
II	**Layers in Networks** Physical Layer – Data Link Layer – Transport Layer – UDP. Transmission Media**:** Guided Media – Unguided Media and its Applications.	12
III	**Connecting Devices** Passive Hubs - Repeaters –Active Hubs –Bridges –Routers – Distance Vector Routing Algorithm – Link State Routing –Gateway – Shortest Path Routing.	12
IV	**Errors** Introduction about Errors - Types of Errors, Detection - Parity Check –Vertical Redundancy Check –Longitudinal Redundancy Check –Cyclic Redundancy Check –Checksum –Error Correction.	12
V	**Security** Cryptography - Two Categories–SYMMETRIC-KEYCRYPTOGRAPHY: Traditional Ciphers - Simple Modem Ciphers -Modern Round Ciphers - Mode of Operation.	12

4. **Book for Study:**
   1. Behrouz A Foruzan, ”Data Communications and Networking” 4th Edition, Tata Mc Graw-Hill, 2009.

5. **Book for References:**
   1. Andrew S.Tanenbaun, "Computers Networks", 4th Edition, Pearson Prentice Hall, 2009.

6. **Teaching Learning Methods:**
   (PPT, GD, Seminar, Quiz Programme, Brain Storming, Case Study, Assignment etc.)

7. **Course Outcome (CO)**
   On completion of the course, students should be able to
   CO1: Describe the basic concepts of Communication and Networking.
   CO2: Discover the knowledge about the Transmission Media.
   CO3: Solve the Error Detection and Correction. CO4: Manipulate the Connecting Devices.
   CO5: Discriminate about the Security.

8. **Course Outcome Level** (preferable one for each objective)

CO_1 - K_3
CO_2 - K_3
CO_3 - K_3
CO_4 - K_4
CO_5 - K_3

9. **Mapping Course Outcome with**
   1. Programme Specific Objectives –**PSO (put tick mark in the correlating box)**
   2. Programme Objectives –**PO (put tick mark in the correlating box)**

Mapping of COs with PSOs and POs

Outcomes	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	Sum of COs with PSOs & Pos
CO1	3	3	1	2		3	3	3	2					20
CO2	3	3	3	2	1	3	3	3	1					22
CO3	2	3	2	3	2	2	3	1	3	2				23
CO4	2	3	3	2		2	2	2	2	1				19
CO5	3	3	2	2	3	3	2	2	2	1				23
Grand Total of COs with PSOs and PO														**107**
Mean Value of COs with PSO and PO														**2.33**

Strong-3, Medium-2 & Low-1

Mapping Scale	1	2	3
Relation	0.01to1.0	1.01to2.0	2.01to3.0
Quality	Low	Medium	Strong
Meanvalue of COs with PSOs and POs			**2.33**
Observation	**COs of COMPUTER NETWORKS Strongly related with PSOs and PO**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR – 625 514

DEPARTMENT OF IT&M

Class : IIIIT &M | Part : Core– 8
Semester : IV | Hours : 60
Subject Code : 23UITC84 | Credits : 2

DOT NET PROGRAMMING

1. **Title of the Paper** : **DOT NET PROGRAMMING**
2. **Course Educational Objectives (CEO)**
   i. Understand Visual C# Features, Environment and Controls.
   ii. Understand C# Essentials and Tokens.
   iii. Able to code in C# Environment
   iv. Able to learn working with C# and Database.
   v. Able to learn web forms.
3. **Five Units of the Syllabus**

Unit	Content	No. of Hours
I	**C# Introduction and Controls** **Introduction:** C# and other Languages – Installing Visual C# - IDE – Your First Application – Toolbox – property Editor -Visual C# forms – events –setting properties in code – A C# adding machine – Dealing with errors. **Controls:** Methods- Buttons, Labels, Text, picture boxes, Check & Radio Boxes - Group, List, Combo boxes - Timer, Open File Dialog and Tab Control- Splitter Control-Using Toolbar-Month Calendar Control.	12
II	**C# Essentials** **Language Essentials:** Parts of C# file – Data types-function and Parameters – variables & scope – IF...Else, do and while, for loops, switch – Arrays, Structs, Usingenum, Understanding reference types-working with parameters. **Visual Studio Tools:** Creating, Customizing a menu, Pop-up menu-outlining& Auto insertion- using Clip board ring – using Find – Debugger –breakpoints – Customizing Tool box – Using Add-in Manager – Setting Visual C# Options–Project Properties- creating Stand Alone applications.	12
III	**C# Techniques** Catching errors with exceptions – user validation-Use tool tips-Printing with Visual C# - Managing multiple forms- Introducing MDI – Starting C# application – How to read and write a file- Drawing Graphics – Creating a shared Event Handler–Interrupt With Do Events-Using a Setup Project.	12

IV	**Creating Database Programs** Introducing Databases- creating Databases with access- Designing a table-Data form Wizard – Improving Data Form- Disconnected data – Data base objects–Showing data in Grid- Styling a Data grid-Dealing with large database-Copying record to clipboard-creating and showing a report.	12
V	**Running C# on the Internet** Introducing Web Forms- Creating a Web Form – How web Forms Work - Web Forms Toolbox-The page Class and code-behind-The Load event and is Post Back –The Session object-ASP.Net and Database-Showing data in a Data Grid.	12

4. Book for Study:

Tim Anderson, "C# Programming in easy steps", Dream Tech Press, New Delhi – 02.

Unit–I:**Chapters 1,2** pages 08 -20 & 28 –47,

Unit–II:**Chapters 4,5** pages 51-73 & 96 -115

Unit–III:**Chapters 6** Pages118–140,

Unit–IV:**Chapters 7** Pages146-169

Unit–IV:**Chapters 8**,Pages 172 –187

5. Book for References:

1. Christian Nagel, Bill Evjen, Jay Glynn, Karli Wats, Morgan Skinner, Allen Jones, 2005-PROFESSIONAL C# WITH.NET3.0-By –Copyright John Wiley.
2. Rudrakash Batra, Charual Shukla-ASP.NET2.0 Black Book-Dream Tech Press, New Delhi–110002.

6. Teaching Learning Methods:

(PPT, GD, Seminar, Quiz Programme, Brain Storming, Case Study, Assignment etc.)

7. Course Outcome (CO)

On completion of the course, students should be able to

1: Utilize the knowledge about ASP C# Dot Net Environments.

2: Apply the basics of C# Essentials (Tokens, control structures).

3: Compute the knowledge about C# Techniques (Error Handling, Multiple Forms, Graphics)

4: Ability to create &Connect Data base using C#.

5: Design Web Forms and web Pages.

8. Course Outcome Level (preferable one for each objective)

CO1 - K_3

CO2 - K_3

CO3 - K_4

CO4 - K_3

CO5 - K_3

9. Mapping Course outcome with

i. Programme Specific Objectives –**PSO (put tick mark in the correlating box)**

ii. Programme Objectives –**PO (put tick mark in the correlating box)**

Mapping of COs with PSOs and POs

Outcomes	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	Sum of COs with PSOs & POs
CO1	3	2	3	2		3	2	2	1					18
CO2	2	2	2	2	1	2	2	2	2	2				19
CO3	2	3	2	3	3	2	2	1	2	2				22
CO4	3	2	3	3	1	3	3	2		1				21
CO5	3	3	2	2		3		3	3	2				21
Grand Total of COs with PSOs and PO														**101**
Mean Value of COs with PSO and PO														**2.24**

Strong-3, Medium-2 & Low-1

Mapping Scale	**1**	**2**	**3**
Relation	0.01to1.0	1.01to2.0	2.01to3.0
Quality	Low	Medium	Strong
Meanvalue of COs with PSOs and POs			**2.24**
Observation	**COs of DOT NET PROGRAMMING Strongly related with PSOs and PO**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR – 625 514

DEPARTMENT OF IT&M

Class	: III IT&M	Part	: III Lab-4
Semester	: IV	Hours	: 75
Code	: 23UITP44	Credit	: 03

PROGRAMMING IN DOT NET LAB

1. **Title of the Paper**: **PROGRAMMING IN DOT NET LAB-5**
2. **Course Educational Objectives (CEO)**
   i. Understand Visual C# Features, Environment and Controls.
   ii. Understand C# Essentials and Tokens.
   iii. Able to code in C# Environment
   iv. Able to learn working with C# and Database.
   v. Able to learn web forms.
3. **Five Units of the Syllabus**

Unit	Content	No. of Hours
I	Your First Application–Visual C# forms–Using Tool Box controls:	12
II	Using Function and Parameters–IF...Else, do and while, for loops, switch –Arrays, Structs, Usingenum.	15
III	Design Stylish attractive Menus –AD Rotator– Rotation Animation– Using CSS, Attractive Background Design.	18
IV	**C**reating Databases with access- Designing a table- Using Grid View - Using Data List -Using Details View - Using Form View - Using List View –Using Repeater & Data Pager.	16
V	Creating a Web Form- Web Forms Tool box-Using Session objects	14

4. **Book for Study:**
   Tim Anderson, "C# Programming in easy steps", Dream Tech Press, New Delhi –02.
5. **Book for References:**
   1. Christian Nagel, Bill Evjen, Jay Glynn, Karli Wats, Morgan Skinner, Allen Jones, 2005-PROFESSIONAL C# WITH.NET3.0-By –Copyright John Wiley.
   2. Rudrakash Batra, Charual Shukla-ASP.NET2.0 Black Book-Dream Tech Press, New Delhi–110002.
6. **Teaching Learning Methods:**
   (PPT, GD, Seminar, Quiz Programme, Brain Storming, Case Study, Assignment etc.)

7. Course Outcome (CO)

On completion of the course, students should be able to

1: Compose the knowledge about ASP C# Dot Net Environments.

2: Apply the basics of C# Essentials (Tokens, control structures).

3: Utilize knowledge about C# Techniques (Error Handling, Multiple Forms, Graphics)

4: Create & Connect Database using C#.

5: Construct Web Forms and web Pages.

8. Course Outcome Level (preferable one for each objective)

CO_1 - K_3

CO_2 - K_4

CO_3 - K_3

CO_4 - K_3

CO_5 - K_3

9. Mapping Course Outcome with

i. Programme Specific Objectives-**PSO (put tick mark in the correlating box)**

ii. Programme Objectives-**PO (put tick mark in the correlating box)**

Mapping of COs with PSOs and POs

Outcomes	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	Sum of COs with PSOs & Pos
CO1	3	3	3	3		3	3	3	1					22
CO2	2	2	3	3	2	2	2	3	3	2				24
CO3	2	3	2	2	3	2	3	2	3	2				24
CO4	3	2	3	3	2	3	3	3	2	1				25
CO5	3	3	3	2	2	3	1	2	3	3				25
Grand Total of COs with PSOs and PO														**120**
Mean Value of COs with PSO and PO														**2.5**

Strong-3, Medium-2 & Low-1

Mapping Scale	**1**	**2**	**3**
Relation	0.01to1.0	1.01to2.0	2.01to3.0
Quality	Low	Medium	Strong
Meanvalue of COs with PSOs and POs			**2.5**
Observation	**COs of PROGRAMMING IN DOT NET LAB -5 Strongly related with PSOs and PO**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR-625 514

DEPARTMENT OF IT&M

Class	: ITM	Part	: Allied - 4
Semester	: IV	Hours	: 60
Subject Code	: 23UITA44	Credits	: 4

WEB MARKETING

1.Title of the Paper: WEB MARKETING

2. Course Educational Objectives (CEO)

1: Understand the Digital Marketing basics.
2: Able to ranking, searching your web data through SEO.
3: Understand the various social media platforms
4: Understand how to influence business through web marketing.
5: Understand the techniques of video advertising.

3. Five Units of the Syllabus

UNIT	Content	No. of Hours
I	**Introduction to Digital Marketing** Principles of Digital Marketing- Digital Marketing Channels- Tools to Create Buyer Persona- Competitor Research Tool- Website Analysis Tools	**12**
II	**Search engine optimization** Search Engine Optimization fundamentals -Keywords and SEO- Content Plan SEO and Business Objectives -Writing SEO Content -On-site and Off-site SEO Optimize -Organic Search Ranking	**12**
III	**Social Media Marketing** Major Social Media Platforms for Marketing- Developing Data-driven Audience & Campaign Insights- social media for Business- Creation & Optimization of Social Media Campaigns	**12**
IV	**Influencer Marketing** Content Marketing Concepts & Strategies- Planning, Creating, Distributing and Promoting Content- Optimize Website UX and Landing Pages- Measure Impact- Metrics & Performance Using Content Research for Opportunities	**12**
V	**Video Advertising** Creating Video Campaigns-Measurement and Optimization-Creating and Managing a YouTube Channel- Targeting Video Campaigns- Digital Marketing Budget and Plan;- Resource Planning- Cost Estimating- Cost Budgeting-Cost Control	**12**

4.Book for Study:

i. https://leverageedu.com/blog/digital-marketing-course-syllabus/

5.Book for Reference

i. https://collegedunia.com/courses/digital-marketing/syllabus#a

6.TeachingLearningMethods:

(PPT, GD, Seminar, Quiz programme, Brain Storming, Case Study, Assignments etc.,)

7.Course Outcome (CO)

On Successful completion of the course the students able to

i. Translate some of the key marketing and business models that will help to shape your Web marketing strategy.
ii. Outline an approach to developing a Web marketing plan
iii. Explain the key web marketing activities needed for competitive success
iv. Discuss the opportunities and risks of integrated web marketing
v. Knowledge about Video advertising.

7. Course Outcome Level (preferable one for each objective)

CO_1 - K_3
CO_2 - K_4
CO_3 - K_3
CO_4 - K_3
CO_5 - K_3

1. **Mapping Course Outcome with**
   iii. Programme Specific Objectives-**PSO (put tick mark in the correlating box)**
   iv. Programme Objectives-**PO (put tick mark in the correlating box)**

Mapping of COs with PSOs and POs

Outcomes	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	Sum of COs with PSOs & POs
CO1	3	3	3	3		3	3	3	1					22
CO2	2	2	3	3	2	2	2	3	3	2				24
CO3	2	3	2	2	3	2	3	2	3	2				24
CO4	3	2	3	3	2	3	3	3	2	1				25
CO5	3	3	3	2	2	3	1	2	3	3				25
Grand Total of COs with PSOs and PO														**120**
Mean Value of COs with PSO and PO														**2.5**

Strong-3, Medium-2 & Low-1

Mapping Scale	1	2	3
Relation	0.01to1.0	1.01to2.0	2.01to3.0
Quality	Low	Medium	Strong
Meanvalue of COs with PSOs and POs			2.5
Observation	COs of Web Marketing Strongly related with PSOs and PO		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR – 625 514
DEPARTMENT OF IT&M

Class	: II	Part	: IV NME-2
Semester	: IV	Hours	: 45
Subject Code	: 23UITN24	Credits	: 2

ETHICAL HACKING

1. Title of the Paper: ETHICAL HACKING

2. Course Educational Objectives (CEO)

1: Understanding the basic Ethical Hacking types.
2: Discriminate Foot printing process.
3: Understanding the Social Engineering and Phishing Types.
4: Able to learn various Hacking Methods.
5: Able to learn various protection systems.

3. Five Units of the Syllabus

UNIT	Content	No. of Hours
I	**Introduction to Ethical Hacking:** Ethical Hacking Overview, Types of Hacking, Advantages of Hacking, Disadvantages of Hacking, Hacker types.	**9**
II	**Reconnaissance & Foot Printing**: Reconnaissance overview Active, Passive Reconnaissance. Foot Printing Overview Domain Name Information - Finding IP Address - Finding Hosting Company - IP Address Ranges - History of the Website.	**9**
III	**Social Engineering, Phishing & DoS:** Social Engineering Overview - Social Engineering Types. Phishing introduction – Phishing types. Denial Of Service Overview – DoS Attack Symptoms – Counter measures against DoS.	**9**
IV	**Ethical Hacking & Hijacking** System Hacking, Hacking Web Application, Hacking Web Servers, Session Hijacking, Hacking Wireless Networks, Hacking Mobile Platforms.	**9**
V	**Network Protection Systems** Understanding Routers – Firewalls – Intrusion detection and Prevention systems – Web Filtering – Security Incident response team – Honey Pots.	**9**

4. Book for Study:

1. "**Hands-On Ethical Hacking and Network Defense**" Michael T. Simpson, Kent Backman, and James E. Corley,ISBN-13: 978-1-133-93561-2, Course Technology, a part of Cengage Learning, 20 Channel, Center Street Boston, MA 02210 USA.

5. Link for Web Reference:

1. https://www.tutorialspoint.com/ethical_hacking/ethical_hacking_wireless.htm
2. https://www.w3schools.in/ethical-hacking

1. Teaching Learning Methods:

(PPT, GD, Seminar, Quiz programme, Brain Storming, Case Study, Assignments etc.,)

8. Course Outcome (CO)

1. Understand the Ethical Hacking types.
2. Applying the knowledge of foot printing to display IP address, Web Location and etc.
3. Knowledge about various phishing and Social Engineering types.
4. Knowledge on the various Hacking methods.
5. knowledge on the protection Systems

9. Course Outcome Level (Preferable one for each objective)

CO1 - K_3
CO2 - K_3
CO3 - K_3
CO3 - K_3
CO3 - K

10. Mapping Course Outcome with

i. Programme Specific Objectives –**PSO (put tick mark in the correlating box)**
ii. Programme Objectives –**PO (put tick mark in the correlating box)**

Outcomes	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	Sum of COs with PSOs & POs
CO1	3	3	1	2		3	3	3	2					20
CO2	3	3	3	2	1	3	3	3	1					22
CO3	2	3	2	2	2	2	3	1	3	2				22
CO4	2	2	2	1		2	2	2	2	1				16
CO5	3	3	2	2	3	3	2	2	2	1				23
Grand Total of COs with PSOs and PO														**103**
Mean Value of COs with PSO and PO														**2.24**

Strong-3, Medium-2 & Low-1

Mapping Scale	1	2	3
Relation	0.01to1.0	1.01to2.0	2.01to3.0
Quality	Low	Medium	Strong
Meanvalue of COs with PSOs and POs			**2.24**
Observation	**COs of Ethical Hacking Strongly related with PSOs and PO**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR – 625 514

DEPARTMENT OF IT&M

Class	: II IT &M	Part	: SBE-2
Semester	: IV	Hours	: 45
Subject Code	: 23UITS24	Credits	: 4

ORGANIZATIONAL BEHAVIOUR

2. Title of the Paper: ORGANIZATIONAL BEHAVIOUR

3. Course Educational Objectives (CEO)

1: Understanding the basic concepts of Organizational Behaviour and Perception
2: Knowing the Principals of Learning and Functions of Attitude
3: Studying the types of Group and sources of Stress
4: Impart the Knowledge of theories of Motivation and Resolving Conflict
5: Comprehending the importance of organizational change and Pre-requisites for OD

4. Five Units of the Syllabus

UNIT	Content	No. of Hours
I	**Introduction of Organizational Behaviour** Organizational Behaviour–Definition-Nature and Scope–Need–Perception Process, determinants, factors affecting perception	9
II	**Individual Behaviour** Individual Behaviour–Personality–Concept Determinants–Types, Learning–Definition–Classical conditioning–Principles of learning–Attitudes—Formation of attitudes-Functions of attitudes.	9
III	**Group Behaviour and Motivation** Group behavior–Definition–Characteristics–Types–Reasoning for joining in group –Stages of group formation–Group norms–Group cohesion–Group decision making-Motivation-Definition and meaning–Maslow's Theory Herzberg Theory.	9
IV	**Organizational conflict and Stress Management** Conflict-Definition-Sources, types, Resolving Conflicts. Stress-Meaning and definition–Causes of stress, Sources of stress–Overcoming the stress.	9
V	**Organizational change and Development** Organizational change–Need for organizational changes, types of changes–Resistance to change managing resistance to change–Organizational Development–objectives of OD – Characteristics of OD.	9

5. Book for Study:

1. K. Aswathappa "Organizational Behaviour", Himalaya publishing House Pvt. Ltd., Mumbai, Ninth Revised Edition, 2010.

6. Book for Reference:

1. L. M. Prasad "Organizational Behaviour", Sultan Chand & Sons, NewDelhi-4th Revised Edition, 2006.
2. S. S. Khanka, "Organizational Behaviour", Sultan Chand & Sons, NewDelhi-3rd Edition, 2005.

7. Teaching Learning Methods:

(PPT, GD, Seminar, Quiz programme, Brain Storming, Case Study, Assignments etc.,)

8. Course Outcome (CO)

On completion of the course, students should be able to

2. Describe the Basic Concepts of Organizational Behaviour
3. Discover learning skills and attitudes
4. Distinguish the different Groups and Norms
5. Compare the theories of Motivation and Resolving Conflict
6. Infer the Organizational Development and Organizational Resistance

8. Course Outcome Level (Preferable one for each objective)

CO1 - K_3
CO2 - K_4
CO3 - K_3
CO4 - K_3
CO5 - K_3

9. Mapping Course Outcome with

i. Programme Specific Objectives –**PSO (put tick mark in the correlating box)**
ii. Programme Objectives-**PO (put tick mark in the correlating box)**

Outcomes	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	Sum of COs with PSOs & POs
CO1	3	3		1	2	3	3	3	1					19
CO2	2	2	2	3	1	2	3		3	1				19
CO3	2	2	2	3		3	1	2	1	3				19
CO4	2	3	3	2	3		2	1	3	1				20
CO5	3	2	3	3		3		2	3	1				20
Grand Total of COs with PSOs and POs														**97**
Mean Value of COs with PSO and POs														**2.26**

*:S-Strong; M-Medium; L-Low

Mapping Scale	1	2	3
Relation	0.01to1.0	1.01to2.0	2.01to3.0
Quality	Low	Medium	Strong
Meanvalue of COs With PSOs and POs			**2.26**
Observation	**COs of ORGANIZATIONAL BEHAVIOUR Strongly related with PSOs and POs**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR – 625 514.

DEPARTMENT OF IT&M

Class	: U.G.(SFC)	Part	: Self Learning
Semester	: IV	Hours	:--
Subject Code	: 23UITSL6	Credits	: 03

STRESS MANAGEMENT

1. Title of the Paper: **STRESS MANAGEMENT**

2. Course Educational Objectives (CEO)

1. Understanding the basic concepts and Introduction of Stress.
2. Knowing the importance of stress influence.
3. To understand the stress effects.
4. To study the various stress influence concepts.
5. To learn the methods of Employer.

3. Five Units of the Syllabus

UNIT	Content	No. of Hours
I	Introduction-causes of Stress–Symptoms-Potential Sources of Stress –Stress Level – Stress Types.	-
II	Stress and its influences on Employee Behavior– Key time Working-Flexibility –Multi Skilling– Sources of work Stress.	-
III	Stress and its effects on employee changes – Effects on Management–Stress Management Strategies–Managing Stress & Reducing the Stress.	-
IV	Influence of stress on occupation – Physiological influences – Coping with Stress–Coping Mode-Burn Out–Causes–Symptoms-Reducing Burn Out.	-
V	Violence at work - Employer Welfare–Stress Interview–Administering the Interview	-

4. Book for Study:

1) Dr.Andrew Goliszek, “Stress Management”, Magna Publishing Company Limited, Chennai.

5. Book for Reference:

1) Barry L.Reece & Rhonda Brandt, “Effective Human relations in Organisations”, 1997, VI Edition, All India Publishers & Distributors, Chennai.
2) Prasad L.M, “Organisation Behaviour”, Sultan Chand & Sons, New Delhi.

6. Teaching Learning Methods:

(PPT, GD, Seminar, Brain Storming, Case Study, Assignments etc.,)

7. Course Outcome (CO)

On completion of the course, students should be able to

1. Illustrate the causes of stress.
2. Describe the concept about Employee Behaviour.
3. Discover to reduce the stress Management.
4. Discover the techniques to rectify the stress.
5. Identify the knowledge of employer welfare.

8. Course Outcome Level (Preferable one for each objective)

CO1 - K_3
CO2 - K_3
CO3 - K_3
CO4 - K_3
CO5 - K_3

9. Mapping Course Outcome with

i. Programme Specific Objectives -**PSO(put tick mark in the correlating box)**

ii. Programme Objectives -**PO (put tick mark in the correlating box)**

Outcomes	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	Sum of COs with PSOs & POs
CO1	3	2	1		2	2	3	2	1	2				18
CO2	3	3	3	3	2	2	1	2		1				20
CO3	2	3	3	3		3	1	3	2					20
CO4	3	2	2	2	3	3	2	2	1	1				21
CO5	3	3	3	3		1	3	2	2	1				21
Grand Total of COs with PSOs and POs														**100**
Mean Value of COs with PSO and POs														**2.22**

*:S-Strong; M-Medium; L-Low

Mapping Scale	**1**	**2**	**3**
Relation	0.01to1.0	1.01to2.0	2.01to3.0
Quality	Low	Medium	Strong
Meanvalue of COs With PSOs and POs			**2.22**
Observation	**COs of Stress Management Strongly related with PSOs and POs**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR
DEPARTMENT OF IT & M
OBE SYLLABUS (From 2022-2023 onwards)

I SEMESTER				
Part	**Subject Code**	**Subject Title**	**Hours**	**Credits**
I	22UTAL11/ 22UHNL11/ 22USNL11	Tamil/ Hindi/ French	6	4
II	22UENA11/ 22UENB11	English through Prose & Short Story – Stream – A English through Prose & Short Story – Stream – B	5	4
III	22UITC11	**Core – 1** Principles of Management	4	4
	22UITC21	**Core – 2** Programming in C	3	3
	22UITP11	Programming in C - Lab-1	5	3
	22UITA11	**Allied -1** Digital Principles	5	4
IV	22UFCE11	**FC** – Personality Development	1	1
	22UCSH12	Communication Skill	1	-
	22UBRC11	Bridge Course		1
V	22UNCC/NSS/ PHY.EDU./YRC/ ROT/ACF/NCB12	Extension Activities NSS/NCC/Phy.Edn./YRC / ROTARACT/AICUF/Nature Club	-	-
		Total	**30**	**24**
II SEMESTER				
I	22UTAL22/ 22UHNL22/ 22USNL22	Tamil/ Hindi/ French	6	4
II	22UENA22 22UENB22	English through Prose & Short Story – Stream – A English through Prose & Short Story – Stream – B	5	4
III	22UITC32	**Core – 3** Programming in C++	3	3
	22UITC42	**Core – 4** Data Structures & Algorithms	4	3
	22UITP22	Programming in C++ - Lab - 2	5	3
	22UITA22	**Allied – 2** Environment of Business	5	4
IV	22UFCH22	**FC**- Social Responsibility and Global Citizenship	1	1
	22UCSH12	Communication Skill	1	1
V	22UNCC/NSS/ PHY.EDU./YRC/ ROT/ACF/NCB12	Extension Activities NSS/NCC/Phy. Edn./YRC / ROTARACT/AICUF/Nature Club	-	1
		Total	**30**	**24**
III SEMESTER				
III	22UITC53	**Core – 5** Operating Systems	5	4
	22UITC63	**Core – 6** DBMS	4	3

	22UITC73	**Core – 7** Web Technology	4	3
	22UITP33	Programming in Web Technology Lab -3	5	3
	22UITA33	**Allied – 3** Business Accounting	5	4
IV	22UITN13	Basic Tamil / Advanced Tamil / **NME-1** Image Editing Tools	3	2
	22UITS13	**Skill based Elective- 1** Business Law	3	2
	22UFCE33	**FC-**Environmental Studies	1	1
V	22UNCC/NSS/ PHY.EDU./YRC/ ROT/ACF/NCB24	**Extension Activities** NSS / NCC / Phy.Edn./ YRC /ROTARACT / AICUF /Nature Club	-	-
	22UARE14	ARISE	-	-
		Total	**30**	**22**
IV SEMESTER				
III	22UITC84	**Core – 8** Organizational Behaviour	4	4
	22UITC94	**Core – 9** Computer Network	5	4
	22UITD04	**Core – 10** Dot Net Programming	4	2
	22UITP44	Dot Net Programming Lab - 4	5	3
	22UITA44	**Allied–4** Web Marketing	5	4
IV	22UITN24	Basic Tamil / Advanced Tamil / **NME- 2** Ethical Hacking	3	2
	22UITS24	**Skill based Elective - 2** Business Statistics	3	2
	22UFCH44	**FC** - Religious Literacy and Peace Ethics	1	1
V	22UNCC/NSS/ PHY.EDU./YRC/ ROT/ACF/NCB24	Extension Activities NSS / NCC / Phy.Edn. / YRC /ROTARACT / AICUF /Nature Club		1
	22UARE14	ARISE	-	1
		Total	**30**	**24**
V SEMESTER				
III	22UITD15	**Core - 11** Software Engineering	5	4
	22UITD25	**Core – 12** Research Methodology	5	4
	22UITD35	**Core – 13** Marketing Management	5	4
	22UITD45	**Core – 14** Java Programming	5	4
	22UITP55	Programming in Java Lab - 5	5	4
	22UITE15	**Core Elective - 1** Human Resource Management	3	3
IV	22UINT15	**Internship** (Holidays)	-	1
	22USSI16	Soft Skills	2	-
		Total	**30**	**24**

VI SEMESTER				
	22UITD56	**Core – 14** Mobile Application Development	5	4
	22UITP66	Mobile Programming Lab - 6	5	4
	22UITD66	**Core – 15** Advertising and Salesmanship	5	4
	22UITD76	**Core – 16** Entrepreneurship Development	5	4
	22UITD86	**Core – 17** Project	5	4
	22UITE26	**Core Elective– 2** Internet of Things	3	3
	22USSI16	Soft Skills	2	2
		Total	**30**	**25**

Semester	**I**	**II**	**III**	**IV**	**V**	**VI**	**TOTAL**
Credits	24	24	22	24	24	26	144*

Non-Major Electives

For Non-Science Students : Image Editing Tools

For Science Students : Ethical Hacker

Self-Learning Course

Semester	Subject Code	Title of the Paper	Credits
Semester-III	22UITSL3	Scripting Languages	3
Semester-IV	22UITSL4	Stress Management	3
Semester-V	22UITSL5	Cyber Security	3
Semester-VI	22UITSL6	Export and Import Management	3

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR

DEPARTMENT OF IT & M

Class	: III IT & M	Part	: III Core-11
Semester	: V	Hours	: 75
Subject Code	: 22UITD15	Credits	: 04

SOFTWARE ENGINEERING

Course Educational Objectives (CEO)

1: To be familiar with basic concepts of Software Engineering.
2: Impart the knowledge about Software Cost Estimation Factors & Techniques.
3: Knowledge about Software Requirement specification and analysis.
4: To gain comprehensive knowledge about Software Design Process.
5: Understand Software Quality Assurance & Maintenance concepts.

UNIT	Content	No. of Hours
I	**Introduction to Software Engineering** Software Features – size factors – Quality and Productivity Factors – Management issues - Planning a software project: Defining the problem – Developing a solution strategy – Planning the development process – Planning an Organizational Structure.	15
II	**Overview of Software Cost Estimation** Software Cost Factors – Software Cost Estimation Techniques – Staffing Level Estimation Estimating Software Maintenance Costs.	15
III	**Software Requirements** The Software Requirement Specification–Formal Specification Techniques: Relational Notations – Languages and Processors for Requirements Specification: PSL/PSA-Structured System Analysis- GIST.	15
IV	**Software Design** Fundamental Design Concepts – Modules and Modularization Criteria – Design Notations – Design Techniques.	15
V	**Verification and Validation Techniques** Quality Assurance – Walkthroughs and Inspections – Static Analysis – Unit Testing and Debugging – System Testing - Software Maintenance: Enhancing Maintainability during Development – Managing aspects of Software Maintenance . Configuration Management, Source Code Metrics.	15

Book for Study:

1. Richard E. Fairly, " Software Engineering Concepts", Tata McGraw-Hill, New Delhi, 1997.

Book for Reference:

1. Roger S Pressman, " Software Engineering", Tata McGraw-Hill, New Delhi , 2005.

Teaching Learning Methods:

(PPT, GD, Seminar, Quiz Programme, Brain Storming, Case Study, Assignment etc.)

Course Outcome (CO)

On completion of the course, students should be able to

CO1: Interpret with basic concepts of Software Engineering.(k3)
CO2: Discover the Strong knowledge about the Software Cost Estimation Techniques.(k3)
CO3: Discover the Software Requirement specification methods. (k3)
CO4: Describe the Software Designing Techniques. (k3)
CO5: Discover the Knowledge about the Software Testing and Software Maintenance Process (k4).

Mapping Course outcome

Outcomes	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	Sum of COs with PSOs & POs
CO1	3	3	2			3	3	3	1					18
CO2	2	2	3	2	1	2	1	2	3					18
CO3	1	3	2	2		1	2	2	2	3				18
CO4	2	2	3	3	1	3	2	1	2	1				20
CO5	3	3	3	3		2	3		2	1				20
Grand Total of COs with PSOs and POs														**94**
Mean Value of Cos with PSO and POs(94/43)														**2.18**

*: S-Strong; M-Medium; L-Low

Mapping Scale	1	2	3
Relation	0.01 to 1.0	1.01 to 2.0	2.01 to 3.0
Quality	Low	Medium	Strong
Mean value of Cos with PSOs and POs			**2.18**
Observation	**COs of Software Engineering Strongly related with PSOs and POs**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR

DEPARTMENT OF IT & M

Class	: III IT & M	Part	: III Core- 12
Semester	: V	Hours	: 75
Subject Code	: 22UITD25	Credits	: 4

RESEARCH METHODOLOGY

Course Educational Objectives (CEO)

1: Knowing the basic concepts of research methodology.
2: Understanding the concept of sampling and data collection.
3: Learning the concepts of Scaling and Tools of Analysis.
4: Knowing the Data Classification and Report Writing.
5: Develop the knowledge in Technology of Research.

UNIT	Content	No. of Hours
I	**Introduction to Research Methodology** Objectives –Characteristics - Types – Significance - Research Process - Criteria of Good Research – Scope of Business Research.	15
II	**Sampling** Definition – Need for sampling – Characteristics – Advantages and disadvantages - Steps - Types – Probability and Non Probability sampling Methods- Factors consider in sampling design.	15
III	**Data Collection** Primary Data – Secondary Data - Advantages and Disadvantages - Methods of Data Collection- Experiment Method – Survey Method - Questionnaire – Merits & Demerits – requisites of good Questionnaire – Kinds of Questions – Steps to Construct Questionnaire.	15
IV	**Scaling Techniques and Hypothesis** Definition – approaches for scale constructions – types of scaling techniques – Hypothesis – types – Features – Steps in Hypothesis testing – Role of Hypothesis.	15
V	**Report Writing** Purpose- Essentials of Good Report – Types – Layout Contents of research report – Problems encountered by researchers in India – Uses of Library – Role of internet in Research	15

Book for Study:

1. C.R. Kothari, 2014 - II Edition, “Research Methodology”, Sultan Chand and Sons, New Delhi.

Book for Reference:

1. Saravanavel, 1987 - I Edition, “Research Methodology”, Prentice Hall Publications.
2. Sharma Ram Nath, VI Edition, “Research Methods in Social Sciences”, Media Promoters and Publishers Pvt Ltd.

Teaching Learning Methods:

(PPT, GD, Seminar, Brain Storming, Case Study, Assignments etc.)

Course Outcome (CO)

On completion of the course, students should be able to

1. Recognize the students to know the basic concepts of Research Methodology.(K3)
2. Compose the knowledge about methods of data collection and sampling. (K3)
3. Manipulate the skills to Scaling and Measurement Techniques. (K3)
4. Practice the students to know the research report writing. (K4)
5. Outline the concepts of Use of Library and internet in Research. (K5)

Mapping Course outcome

Mapping of COs with PSOs and POs

Outcomes	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	Sum of COs with PSOs & POs
CO1	2	3	3	3		2	3	1		1				18
CO2	2	3	2	2	3	3	1	2	2	1				21
CO3	3	3	2	3		3	1	3	3					21
CO4	3	2	3	2	1	2	3	2	2	1				21
CO5	2	2	3	3		3	3	3	2	2				23
Grand Total of COs with PSOs and PO														**104**
Mean Value of COs with PSO and PO(104/45)														**2.31**

Strong-3, Medium-2 & Low-1

Mapping Scale	**1**	**2**	**3**
Relation	0.01 to 1.0	1.01 to 2.0	2.01 to 3.0
Quality	Low	Medium	Strong
Mean value of Cos with PSOs and POs			**2.31**
Observation	**COs of RESEARCH METHODOLOGY Strongly related with PSOs and PO**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR

DEPARTMENT OF IT & M

Class : III IT & M | Part : III Core- 13

Semester : V | Hours : 75

Subject Code : 22UITD35 | Credits : 4

MARKETING MANAGEMENT

Course Educational Objectives (CEO)

1: Knowing the basic concepts of Marketing Management.
2: Understanding the concept of product and its classification.
3: Learning the pricing concepts and its types.
4: Comprehending the concept of channel of distribution and advertising.
5: Develop the knowledge about Personal Selling.

UNIT	Content	No. of Hours
I	**Introduction on Marketing** Marketing-nature and scope - Classification of Markets - Evolution of marketing concept - Functions of marketing - Consumer Behavior - Buying motives – Consumer Decision making.	15
II	**Product** Concept of Product – Features - Product Classification - New product development -Product life cycle – Branding and packaging- Features – Types - Functions of packaging.	15
III	**Pricing** Objectives -Factors affecting Pricing – Pricing Policies - Cost oriented pricing, Demand oriented pricing, Cost-demand based, competitive pricing - Price Discrimination - Kinds of pricing.	15
IV	**Channel of Distribution & Advertising** Functions - importance of channel – types of channel of distribution- Factors to be considered in channel selection- Advertising: Objectives– Types of Advertising- Media Selection.	15
V	**Personal Selling** Concept- Kinds of Salesmanship- Importance- Kinds of Salesman- Personal Selling Process- Selection and recruitment of Sales force- Remunerating Salesmen- Motivating Sales force.	15

Book for Study:

1. Marketing Management by R.S.N.Pillai and Bagavathi, 2010 – Sultan Chand and Sons, New Delhi.

Book for Reference:

1. Marketing Management by Dr. C. B. Gupta, Dr. N. Rajan Nair, 2018, Sultan Chand and Sons, NewDelhi.
2. Marketing Management by Philip Kotler, 2017 –15th Edition, Pearson Education India.

Teaching Learning Methods:

(PPT, GD, Seminar, Brain Storming, Case Study, Assignments etc.,)

Course Outcome (CO)

On completion of the course, students should be able to

1. Label the basic concepts of marketing and its functions. (K3)
2. Develop the skills to new product development. (K3)
3. Match the objectives of pricing and kinds. (K3)
4. Illustrate the knowledge about distribution channels and Advertising. (K4)
5. Utilize the concepts of Personal Selling. (K4)

Mapping Course outcome

Mapping of COs with PSOs and POs

Outcomes	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	Sum of COs with PSOs & Pos
CO1	1	3	3		2	3	2	1	2					17
CO2	3	2	3	3	3	2	2	2	1					21
CO3	2	3	2	3		1	3	2	3	2				21
CO4	3	2	3	3	1	3	2	1	2	2				22
CO5	2	3	3	2		3	3	3	2	1				22
Grand Total of COs with PSOs and PO														**103**
Mean Value of COs with PSO and PO(103/45)														**2.29**

Strong-3, Medium-2 & Low-1

Mapping Scale	1	2	3
Relation	0.01 to 1.0	1.01 to 2.0	2.01 to 3.0
Quality	Low	Medium	Strong
Mean value of Cos with PSOs and Pos			**2.29**
Observation	**COs MARKETING MANAGEMENT Strongly related with PSOs and PO**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR

DEPARTMENT OF IT & M

Class : III IT & M | Part : III Core- 14

Semester : V | Hours : 75

Subject Code : 22UITD45 | Credits : 4

JAVA PROGRAMMING

Course Educational Objectives (CEO)

1. Understand Java Features, Environment and tokens
2. Understand learn class, Methods
3. Able to Develop Inheritance
4. Able to Develop Multi-Tier Programs.
5. Able to learn Applet Graphics & JDBC Concepts.

UNIT	Content	No. of Hours
I	**Introduction to Java** Java History - Java Feature – Comparison of Java and other Languages - Java and Internet, Java Environment - Java Development Kit - API - Byte codes - Java Virtual Machine - Hardware & Software Requirements. Simple Java Program – Comments- Java Tokens - Character Set - Keyword - Identifier - Literals - Operators - Separator - Command Line Arguments.	15
II	**UNIT – II: Classes, Object and Methods** Defining Class - Adding Variables, Methods - Creating Objects - Accessing Methods - Constructors - Method Overloading, Overriding - Nesting of Methods - Static Members - Final Variables, Methods and Classes - Abstract method - Visibility Controls - Arrays - Strings - Vectors.	15
III	**UNIT – III: Inheritance and Interface** **Inheritance:** Inheritance – Introduction - Exception. **Interface -** Defining Interfaces - Extending Interfaces - Implementing interfaces - Accessing Interface variables.	15
IV	**AWT, Threading and Packages** **AWT:** Layout Managers – Basic Controls, Text Box, List Box, Combo Box, Radio Button, Check Box, Button Events, Action Listener. **Multithreading:** Creating Thread - Stopping and blocking a Thread -Life cycle of Thread - Thread priority - Synchronization. **Packages:** Java API Packages - Using System Packages - Creating and Accessing Packages- Using a package - Adding class to package.	15

V	**Applet & JDBC** **Applets and Graphics:** Fundamentals of Applets - Local & Remote Applets - Applet and Application Difference - Building Applet code - Applet Life Cycle - Applet tag - Adding Applet to HTML - Running the Applet - Drawing methods of Graphics Class. **JDBC:** Introduction to JDBC – Creation of Database – Accessing Database through JDBC.	15

Book for Study:

a. E. Balagurusamy, 2nd, 3rd, 4th Edition, "Programming with Java", Tata McGraw Hill Pub. Ltd., New Delhi.

b. Muthu, Second Edition, "Programming with Java" Vijay Nicole Imprints, Chennai. Unit – IV: Chapters 18.

Book for Reference:

Patrick Naughton, Herbert Schildt, 3rd Edition, "The Complete Reference Java2", Tata McGraw Hill Pub. Ltd., New Delhi.

Teaching Learning Methods:

(PPT, GD, Seminar, Quiz Programme, Brain Storming, Case Study, Assignment etc.)

Course Outcome (CO)

On completion of the course, students should be able to

1: Discover the Strong knowledge about Java Features, Tokens.(k3)
2: Identify to create Class & Object Programs. (k3)
3: Discover to create Interface Concepts. (k3)
4: Convert Multi-Tier Programs using AWT, Packages & Multi-Thread.(k4)
5: Estimate to Connect Database & Design Using APPLET Graphics. (k4)

Mapping Course outcome

Outcomes	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	Sum of COs with PSOs & POs
CO1	3	3	1	2		3	3	3	1					19
CO2	2	2	3	2	1	3	2	2	1					18
CO3	2	2	2	3	2	2	1	1	3	2				20
CO4	2	3	3	2		2	2	2	2	1				19
CO5	3	3	2	2	1	3	2	1	2	1				20
Grand Total of COs with PSOs and POs														**96**
Mean Value of Cos with PSO and POs(96/46)														**2.09**

*: S-Strong; M-Medium; L-Low

Mapping Scale	1	2	3
Relation	0.01 to 1.0	1.01 to 2.0	2.01 to 3.0
Quality	Low	Medium	Strong
Mean value of Cos with PSOs and POs			**2.09**
Observation	**Cos of Java Programming Strongly related with PSOs and POs**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR

DEPARTMENT OF IT & M

Class	: III IT&M	Part	: III Core Lab - 5
Semester	: V	Hours	: 75
Sub code	: 22UITP55	Credits	: 04

Programming in JAVA Lab

Course Educational Objectives (CEO)

1. Understand Java Features, Environment and tokens
2. Understand learn class, Methods
3. Able to Develop Inheritance
4. Able to Develop Multi-Tier Programs.
5. Able to learn Applet Graphics & JDBC Concepts.

UNIT	Content	No. of Hours
I	Tokens, Operators, Control Structures, Data Types, Command Line Arguments	15
II	Class & Objects, Methods – Method Overloading, Final Keywords, Strings, Arrays	15
III	Inheritance - Interface and types - Exceptions	15
IV	AWT, Packages. Threads – Set Priority, Thread methods,	15
V	Applets and Graphics – JDBC.	15

Book for Study:

1. E. Balagurusamy, 2nd, 3rd, 4th Edition, "Programming with Java", Tata McGraw HillPub. Ltd., New Delhi.
2. Muthu, Second Edition, "Programming with Java" Vijay Nicole Imprints, Chennai.Unit – IV: Chapters 18.

Book for References:

Patrick Naughton, Herbert Schildt, 3rd Edition, "The Complete Reference Java2", Tata McGraw Hill Pub. Ltd., New Delhi.

Teaching Learning Methods:

(PPT, GD, Seminar, Quiz Programme, Brain Storming, Case Study, Assignment etc.)

Course Outcome (CO)

On completion of the course, students should be able to

1: Discover the Strong knowledge about Java Features, Tokens. (K3)

2: Identify to create Class & Object Programs. (K3)

3: Discover to create Interface Concepts. (K4)

4: Convert Multi-Tier Programs using AWT, Packages & Multi-Thread. (K4)

5: Estimate to Connect Database & Design Using APPLET Graphics. (K5)

Mapping Course outcome

Outcomes	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	Sum of COs with PSOs & POs
CO1	3	3	3	2		3	3	3	1					21
CO2	2	2	3	3	2	3	2	2	2					21
CO3	3	2	2	3	3	2	2	3	3	2				25
CO4	2	3	3	2	3	3	2	2	3	2				25
CO5	3	3	2	3	2	3	3	3	3	1				26
Grand Total of COs with PSOs and POs														**118**
Mean Value of Cos with PSO and POs(118/47)														**2.51**

*: S-Strong; M-Medium; L-Low

Mapping Scale	**1**	**2**	**3**
Relation	0.01 to 1.0	1.01 to 2.0	2.01 to 3.0
Quality	Low	Medium	Strong
Mean value of Cos with PSOs and POs			**2.51**
Observation	**Cos of JAVA PROGRAMMING Lab - 5 Strongly related with PSOs and POs**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR

DEPARTMENT OF IT & M

Class	: III IT & M	Part	: Core Elective 1
Semester	: V	Hours	: 45
Subject Code	: 22UITE15	Credits	: 03

HUMAN RESOURCE MANAGEMENT

Course Educational Objectives (CEO)

1. Understanding the basic knowledge of Human Resource Management
2. Comprehend the Manpower planning and Job Analysis
3. Learning the different wage systems and Training Methods
4. Studying the Industrial Relation and Trade Union
5. Knowing the Performance Appraisal System and Collective Bargaining

UNIT	Content	No. of Hours
I	**Introduction to Human Resource Management** Human Resource Management – Definition – Concepts –Objectives–Functions-Personnel Management vs HRM.	9
II	**Manpower Planning** Manpower Planning – Job Analysis – Job description - Job Specification – Job evaluation - Sources of Recruitment – Steps in Selection process.	9
III	**Employee Training and Development** Need for Training-Importance-Methods of Training Techniques – Principles of Training – Employee Development- Objectives – Method and Techniques of executive development.	9
IV	**Trade Union and Industrial Disputes** Trade union – Features – Objectives- Functions – Industrial Disputes – Causes for Industrial Disputes – Prevention of Industrial Disputes – Settlement of Industrial Disputes.	9
V	**Performance Appraisal and Quality of work life** Performance Appraisal- Methods- Importance - Quality of Work life – Dimensions – Principles – Techniques – Determinants of quality of work life.	9

Book for Study:

1. C.B Gupta, Human Resource Management, Sultan Chand & Sons Publication, New Delhi, Tenth Edition-2009

Book for References:

1. Gary Dessler, "Human Resource Management" Prentice-Hall of India P.Ltd., Pearson, Seventh Edition
2. Dr.S.S.Khanka, "Human Resource Management" S.Chand & Company Ltd., New Delhi-2003.
3. Dr. R.Venkatapathy & Assissi Menacheri, . Industrial Relations & Labour Welfare, Adithya Publications, CBE, 2001.

Teaching Learning Methods:

(PPT, GD, Seminar, Quiz programme, Brain Storming, Case Study, Assignments etc.,)

Course Outcome (CO)

On completion of the course, students should be able to

1. Label the Basic functions of Human Resource Management (k3)
2. Interview the Recruitment and selection process (k3)
3. Adapt the different types of wages system and Training methods(k3)
4. Summarize the Industrial Relations and Grievance Handling system(k4)
5. Relate the best method of Performance appraisal system(k4)

Mapping Course outcome

Mapping of COs with PSOs and POs

Outcomes	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	Sum of COs with PSOs & Pos
CO1	3	3	3			2	3	2	1					17
CO2	3	2	2	2	3		1	2	2					17
CO3	3	2	3	2		2	1	2		3				18
CO4	2	3	2	2	3	3	2	2	1					20
CO5	2	2	3	3		1	3	3	1	2				20
Grand Total of COs with PSOs and PO														**92**
Mean Value of Cos with PSO and PO(92/41)														**2.24**

Strong-3, Medium-2 & Low-1

Mapping Scale	1	2	3
Relation	0.01 to 1.0	1.01 to 2.0	2.01 to 3.0
Quality	Low	Medium	Strong
Mean value of Cos with PSOs and Pos			**2.24**
Observation	**COs of HUMAN RESOURCE MANAGEMENT Strongly related with PSOs and PO**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR

DEPARTMENT OF IT & M

Class	: III IT & M	Part	: IV
Semester	: V	Hours	:
Subject Code	: 22UINT15	Credits	: 01

INTERNSHIP

Course Educational Objectives (CEO)

1. Gain practical experience in their respective fields of study.
2. Become more comfortable working in a professional business setting.
3. Expand their professional networks.
4. Improve their interpersonal and communications skills.

Course Outcome (CO)

On completion of the course, students should be able to

1. Explore the knowledge in Software development.
2. Develop the communication, Inter-personal Skills for job interviewing process.
3. Develop work habits and attitudes necessary for job success.

Description:

- The internship is an integral part of the curriculum for the successful completion of the IT&M programme.
- It is designated for III-year IT&M students to improve their Programming Skills, and analytical skills, and provide them with practical experience.
- The essence of the Internship is to help students gain skills in Programming, quantitative and qualitative techniques such as internee in IT companies, Management Companies, Developing software, observation and note-taking, formal and informal interviewing, surveys, and report writing skills.
- This will help students to imbibe entrepreneurial skills and to develop better perceptions of local culture and business strategies.

Supervision, dates and Duration of the Institutional Training

- Every student has to undergo a field meeting with a company during the summer vacation after the fourth semester. They will have to conduct an interview about their business and submit their report within one month in the department.
- Each student will be attached to one faculty guide, with whom he/she shall be in continuous touch during the Internship.
- The faculty guide will be required to evaluate the report for 25 marks and the corresponding company manager will evaluate the performance and report for 25 marks.
- The evaluation of the remaining 50 marks shall be made by the department during viva voce based on the student's performance

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR
DEPARTMENT OF IT & M

Class	: III IT & M	Part	: Self Learning
Semester	: V	Hours	: -
Subject Code	: 22UITSL5	Credits	: 03

Cyber Security

Course Educational Objectives (CEO)

1: Discuss the basic concepts Cyber Security and Threats.
2: Imagine the importance of Cyber Security Vulnerabilities and Safe Guards.
3: Compute the process of Security in SOAP Services and Identity Management.
4: Discriminate the knowledge of Network based Intrusion detection Systems, Network based Intrusion Prevention Systems.
5: Practice the Concept of Cryptography and Network Security.

UNIT	Content	No. of Hours
I	**Introduction to Cyber Security** Overview of Cyber Security, Internet Governance – Challenges and Constraints, Cyber Threats:- Cyber Warfare-Cyber Crime-Cyber terrorism.	-
II	**Cyber Security Vulnerabilities and Cyber Security Safeguards** Cyber Security Vulnerabilities-Overview, vulnerabilities in software, System administration, Complex Network Architectures, Open Access to Organizational Data, Weak Authentication, Unprotected Broadband communications, Security policy, Threat Management.	-
III	**Securing Web Application, Services and Servers** Introduction, Basic security for HTTP Applications and Services, Basic Security for SOAP Services, Identity Management and Web Services, Authorization Patterns, Security Considerations, Challenges.	-
IV	**Intrusion Detection and Prevention** Intrusion, Physical Theft, Abuse of Privileges, Unauthorized Access by Outsider, Malware infection, Intrusion detection and Prevention Techniques, Anti-Malware software, Network based Intrusion detection Systems, Network based Intrusion Prevention Systems, Host based Intrusion prevention Systems, Security Information Management, Network Session Analysis, System Integrity Validation.	-

V	**Cryptography and Network Security** Introduction to Cryptography, Symmetric key Cryptography, Asymmetric key Cryptography, Message Authentication, Digital Signatures, Applications of Cryptography. Overview of Firewalls- Types of Firewalls, User Management, VPN Security Security Protocols: - security at the Application Layer- PGP and S/MIME, Security at Transport Layer- SSL and TLS, Security at Network Layer-IPsec.	-

Book for Study:

1. Nihad Hassan, Rami Hijazi, 2017 - "Digital Privacy and Security Using Windows: A Practical Guide A Press.

Book for Reference:

1. Lester Evans, 2018-"Cyber Security" An Essential Guide to Computer and Cyber Security for Beginners.

Teaching Learning Methods:

(PPT, GD, Seminar, Quiz programme, Brain Storming, Case Study, Assignments etc.,)

Course Outcome (CO)

1. Understood the Concept of Cyber Security.(k3)
2. Applying the knowledge of Cyber Security Vulnerabilities and Cyber SecuritySafeguards(k3)
3. Developing their managerial skills SOAP Services and Identity Management(k3)
4. Knowing the basic techniques Network based Intrusion detection Systems, Network based Intrusion Prevention Systems(k4)
5. Understanding the Techniques of Cryptography and Network Security. (k4)

Mapping Course outcome

Outcomes	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	Sum of COs with PSOs & POs
CO1	3	3	1	3		2	2	2	1					17
CO2	2	2	2	2	1	2	2	2	2					17
CO3	3	3	2	2		2	1		2	2				17
CO4	3	2	3	2	1	2	2	2	2	1				20
CO5	2	3	3	2		2	2	2	3	1				20
Grand Total of COs with PSOs and PO														**91**
Mean Value of COs with PSO and PO(91/44)														**2.07**

Strong-3, Medium-2 & Low-1

Mapping Scale	**1**	**2**	**3**
Relation	0.01 to 1.0	1.01 to 2.0	2.01 to 3.0
Quality	Low	Medium	Strong
Mean value of Cos with PSOs and Pos			**2.07**
Observation	**COs of CYBER SECURITY Strongly related with PSOs and PO**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR
DEPARTMENT OF IT & M

Class	: III IT & M	Part	: III Core - 15
Semester	: VI	Hours	: 75
Subject Code	: 22UITD56	Credits	: 04

Mobile Application Development

Course Educational Objectives (CEO)

1: Understand the concepts of Mobile Applications development and its Framework.
2: Impart the knowledge of Mobile Application Development Tools.
3: Develop the knowledge of Creating Mobile Applications and Activities.
4: Develop the efficient User Interface of Mobile Applications.
5: Able to understand the Resources of Mobile Application Development Tools.

UNIT	Content	No. of Hours
I	**A Little Background Mobile Applications:** The Future An open platform for mobile development and Nativeandroid applications - Android SDK features - Introducing the Development Framework - Developing for Android – Developing for Mobile Devices.	15
II	**Mobile development tools:** Hardware - Imposed Design Considerations - Environment, Developing for Android and To-Do List Example - The Android Emulator ,Dalvik Debug Monitor Service (DDMS) - The AndroidDebug Bridge (ADB)	15
III	**Creating applications and activities:** The Android Application Life Cycle - Understanding Application Priority and Process States - Extending and Using the Application Class - **Creating an Activity -** Creating an Activity - Android Activity Classes.	15
IV	**Creating user interfaces :** Fundamental android UI design - Introducing Views - Creating Activity User Interfaces with Views - The Android Widget Toolbox - **Introducing layouts -** Using Layouts, Optimizing Layouts – **Creating new views -** Modifying Existing Views - Creating Compound Controls - Creating Custom Views.	15
V	**Resources:** Drawable resources - Shapes, Colors, and Gradients, Color Drawable, Shape Drawable, Gradient Drawable, Composite Drawable - **Creating and using menus -** Introducingthe Android Menu System - Defining an Activity Menu - Menu Item Options - Menu Item Options.	15

Book for Study:

"Reto Meier " Professional Android 2 Application Development John Wiley & Sons,2010

Book for References:

Mark Murphy "Android "A press 2009.

Teaching Learning Methods:

(PPT, GD, Seminar, Quiz Programme, Brain Storming, Case Study, Assignment etc.)

Course Outcome (CO)

On completion of the course, students should be able to

CO1: Summarize the concepts of Mobile Applications Development.(k3)

CO2:Experiment the knowledge about Mobile Application Development Tools.(k3)

CO3: Create New Innovative Android Applications and Activities. (k3)

CO4: invent Android User Interfaces and Views. (k4)

CO5: Formulate how to use the various resources to creating the Mobile Applications. (k4)

Mapping Course outcome

Outcomes	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	Sum of COs with PSOs & Pos
CO1	2	3	3	3		2	2	2	1					18
CO2	3	2	3	2	2	3		2	1					18
CO3	1	3	2	2	1	3		1	2	3				18
CO4	2	2	2	3	1	2	2	3		1				18
CO5	3	2	3	2		2	2	1		3				18
Grand Total of COs with PSOs and PO														**90**
Mean Value of COs with PSO and POs														**2.14**

Strong-3, Medium-2 & Low-1

Mapping Scale	**1**	**2**	**3**
Relation	0.01 to 1.0	1.01 to 2.0	2.01 to 3.0
Quality	Low	Medium	Strong
Mean value of Cos with PSOs and Pos			**2.14**
Observation	**COs of Mobile Application Development Strongly related with PSOs and PO**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR

DEPARTMENT OF IT & M

Class	: III IT & M	Part	: III Lab – 6
Semester	: VI	Hours	: 75
Subject Code	: 22UITP66	Credits	: 04

Mobile Programming Lab

Course Educational Objectives (CEO)

1: Understand the concepts of Mobile Applications development and its Framework.
2: Impart the knowledge of Mobile Application Development Tools.
3: Develop the knowledge of Creating Mobile Applications and Activities.
4: Develop the efficient User Interface of Mobile Applications.
5: Able to understand the Resources of Mobile Application Development Tools.

UNIT	Content	No. of Hours
I	Simple Android Application using Basic SDK - Frameworks and - Services	15
II	Designing Android Applications – Creating Android Applications using Emulators	15
III	Creating Android Applications Using Priority and Process States – Creating Activities in Android Applications	15
IV	Creating Android Applications Using Layouts – Custom Views – Compound Controls.	15
V	Creating Android Applications with Drawable Resources – Shapes – Colors. Creating Menus in Android Applications.	15

Book for Study:

"Reto Meier " Professional Android 2 Application Development John Wiley & Sons,2010

Book for References:

Mark Murphy "Android "A press 2009.

Teaching Learning Methods:

(PPT, GD, Seminar, Quiz Programme, Brain Storming, Case Study, Assignment etc.)

Course Outcome (CO)

On completion of the course, students should be able to
CO1: Infer the concepts of Mobile Applications Development.(K3)
CO2: Criticize knowledge about the Mobile Application Development Tools.(K3)
CO3: Examine New Innovative Android Applications and Activities. (K3)
CO4: Create Android User Interfaces and Views. (K3)
CO5: Test the various resources to creating the Mobile Applications.(K3)

Mapping Course outcome

Outcomes	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	Sum of COs with PSOs & Pos
CO1	2	3	3	3		3	3	2	2					21
CO2	3	2	3	2	2	3	2	3	3	1				24
CO3	2	3	2	2	2	3	2	3	3	3				25
CO4	3	2	3	3	2	2	2	3	3	2				25
CO5	3	2	3	2	3	2	3	2	2	3				25
Grand Total of COs with PSOs and PO														**120**
Mean Value of COs with PSO and PO(120/48)														**2.5**

Strong-3, Medium-2 & Low-1

Mapping Scale	**1**	**2**	**3**
Relation	0.01 to 1.0	1.01 to 2.0	2.01 to 3.0
Quality	Low	Medium	Strong
Mean value of Cos with PSOs and Pos			**2.5**
Observation	**COs of Android Programming Lab - 6 Strongly related with PSOs and PO**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR

DEPARTMENT OF IT & M

Class	: III IT & M	Part	: III Core 16
Semester	: VI	Hours	: 75
Subject Code	: 22UITD66	Credits	: 4

ADVERTISING AND SALESMANSHIP

Course Educational Objectives (CEO)

1. Understanding the basic knowledge of Advertising
2. Comprehend the social and Ethical aspects of Advertising
3. Learning the Advertising Agency and Advertising Media
4. Studying the concept of Salesmanship
5. Knowing the kinds of Negotiable and Non-Negotiable Instruments

UNIT	Content	No. of Hours
I	**Introduction to Advertising** Meaning-Definition-Characteristic-Objectives-Nature Scope –Types-Importance-Functions of Advertising	15
II	**Social and Ethical Aspects of Advertising** Social issues in Advertising-The responsibility of the advertiser-Positive social effects of Advertisements-Advertising and cultural value-Ethical issues in Advertising-improving advertising Ethics	15
III	**Advertising Agencies ,Budget and Expenditure** importance, Role and functions. Organizational structure- Advertising Department - Type of Advertisement Agencies. Advertisement appropriation- Method and current practices- Evaluation of Advertisement Effectiveness.	15
IV	**Salesmanship** Definition-features-Objectives-Nature-Types-Advantages of Salesmanship-–Functions of Salesman--Quality of a Sales Manager-Advertising vs Salesmanship	15
V	**Knowledge of customers** –classification of customers – selling process. CRM—Meaning and significance - Types –CRM process—Benefits.	15

Book for Study:

1. P.Saravanavel and S. Sumathi, Advertising and Salesmanship– Margham Publications, Chennai- Second Edition- 2009.

Book for Reference:

1. M.N. Mishra and P.N.Harikumar, Advertising and Sales Promotion , Himalaya Publishing House, Mumbai First Edition, 2015
2. Frank Jefkins and Daniel Yadin " Advertising", Pearson Education, New Delhi, Revised Edition, 2000.
3. Advertising Theory and Practice, Chunawalla, kumar, Sethuia, Subramanian, suchau, Himalaya publishing House, Mumbai
4. Bholanath Dutta and Dr. Girish.C. – I edition – 2011-Himalaya Publishing House.

Teaching Learning Methods:

(PPT, GD, Seminar, Quiz programme, Brain Storming, Case Study, Assignments etc.,)

Course Outcome (CO)

On completion of the course, students should be able to

1. Infer the Basic knowledge about Advertising and it's functions(K3)
2. Identify the knowledge about the social and ethical aspect of Advertising(K3)
3. Choose the right Advertising Agencies and best Advertising Media(K3)
4. Propose the basic functions of Salesmanship(K4)
5. Plan the sales Techniques, Remuneration and Control of salesmen(K4)

Mapping Course outcome

Outcomes	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	Sum of COs with PSOs & Pos
CO1	3	3	1		3	2	2	2	1		2			19
CO2	2	2	2	2	1	2	2	2	2	2				19
CO3	1	3	3	3	3	2	2	2	2	2	1			24
CO4	3	2	2	2	1	2	2	3	3	2	2			24
CO5	3	3	2	3		3	3	2	3		2			24
Grand Total of COs with PSOs and PO														**110**
Mean Value of COs with PSO and PO(110/50)														**2.2**

Strong-3, Medium-2 & Low-1

Mapping Scale	1	2	3
Relation	0.01 to 1.0	1.01 to 2.0	2.01 to 3.0
Quality	Low	Medium	Strong
Mean value of Cos with PSOs and Pos			2.2
Observation	COs of ADVERTISNG AND SALESMANSHIP Strongly related with PSOs and PO		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR

DEPARTMENT OF IT & M

Class	: III IT & M	Part	: III Core- 17
Semester	: VI	Hours	: 75
Subject Code	: 22UITD76	Credits	: 4

ENTREPRENEURSHIP DEVELOPMENT

Course Educational Objectives (CEO)

1: Knowing the basic concepts of Entrepreneur.
2: Understanding the concept of Women Entrepreneurship and NGO's.
3: Learning the concepts of ownership structure.
4: Knowing the concept of project report formulation.
5: To study the growth strategies in small business.

Unit	Content	No. of Hours
I	**Introduction to Entrepreneur** Concept – Characteristics of entrepreneur - Functions - Types - Entrepreneurship: Concept - Role of Entrepreneurship in Economic Development - Distinction between Entrepreneur and manager – Intrapreneur- concept.	15
II	**Women Entrepreneurship** Concept - Functions - Growth – Recent trends - Problems of women Entrepreneurs - Entrepreneurial competencies - Rural Entrepreneurship**:**Need – Problems - Role of NGO's in development of Rural Entrepreneurship.	15
III	**Form of Business Enterprises and EDP** Ownership Structure - Proprietorship - Partnership - Company - Co-operatives- Advantages and Disadvantages- Selection on appropriate Ownership Structure - Entrepreneurship Development Programme – Objectives- Course Contents – phases - Evaluation.	15
IV	**Project Formulation** Project Report - Significance - Contents - Formulation of a project report - Planning commission Guidelines –Specimen of a project report- Project appraisal – Concept - Methods of project appraisal.	15
V	**Growth Strategies in Small Business** Objectives-Stages-Types of growth strategies-Expansion-Diversification-Joint Venture – Merger - Sub-Contracting - Franchising: Advantages-Disadvantages - Franchising in India.	15

Book for Study:

1. S.S.Khanka, 2020, revised edition, "Entrepreneurial Development", S. Chand & Co., New Delhi, India,

Book for References:

1. CB. Gupta, 2009 - VII Edition, "Entrepreneurial Development", Sultan Chand & Sons
2. Vasanth Desai, 1980 "Entrepreneurial Development", Himalaya Publishing House, Second revised.

Teaching Learning Methods:

(PPT, GD, Seminar, Brain Storming, Case Study, Assignments etc.,)

Course Outcome (CO)

On completion of the course, students should be able to

1. Prepare the students to know the basic concepts of Entrepreneurship.(k3)
2. Survey the knowledge about women Entrepreneurs and Rural Entrepreneurship. (k3)
3. Test for the skills to Form of Business Enterprises. (k3)
4. Plan the students to Formulation of a project report. (k4)
5. Recommend the students to know the growth strategies in small business. (k4)

Mapping Course outcome

Outcomes	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	Sum of COs with PSOs & Pos
CO1	2	2	1	3		3	3	2	1		2			19
CO2	3	2	2	2	1	3	2	2	2	3				22
CO3	2	3	2	3	1	2	1	2	2	2	2			22
CO4	3	2	3	2	3	2	3	1	3	2				24
CO5	3	2	2	3	3	2	3	2	2	2				24
Grand Total of COs with PSOs and PO														**111**
Mean Value of COs with PSO and PO(111/50)														**2.22**

Strong-3, Medium-2 & Low-1

Mapping Scale	**1**	**2**	**3**
Relation	0.01 to 1.0	1.01 to 2.0	2.01 to 3.0
Quality	Low	Medium	Strong
Mean value of Cos with PSOs and Pos			**2.22**
Observation	**COs of ENTREPRENEURSHIP DEVELOPMENT Strongly related with PSOs and PO**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR – 625 514
DEPARTMENT OF IT & M

Class	: III IT&M	Part	: III Core-18
Semester	: VI	Hours	: 75
Subject Code	: 22UITD86	Credits	: 04

PROJECT

Objective:

- Project work aims at exposing the students to various developments taking place in thefield of information technology and management.
- Students will select individually Commercial or Technical Project based on Application Development Technologies.
- Students will get exposed to various management practices and their implications in the companies where they are undergoing the project.
- With the known technologies they can develop the software.

Description:

- In the last semester students avail 30 days for project.
- The Project involves practical work for understanding and solving problems in the field of information technology and management.
- The report has to be submitted within one month, after consulting the faculty guide.
- Students submit the attendance certificate from the company in which they have undergone the project work at the time of submission of the report.

Depending upon the interest of students they are sent for exposure to:

2. For developing open source software's and development of software package for the organizations.
3. Software package development for organizations.
4. Carrying out project work in various functional areas of management.
5. Field study to prepare a report on scope of Entrepreneurship in particular area.

The students who are taking the project work in the field of Management have to submit the report as follows:

- Title of the study
- Identification of research problem
- Collection of review of literature
- Selection of the title of the research
- Identification of the statement of the problem
- List out the objectives of research
- Preparation of tools of research
- Data collection
- Data processing
- Preparation of report
- Submission of report

Project evaluation:

Particulars	Mark Criteria
Report Evaluation	50
VIVA – VOCE Examination	50
Total	**100**

Note *

The viva – voce will be conducted by the Head of the Department, the Faculty Guide and External Expert together.

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR

DEPARTMENT OF IT & M

Class : III IT & M | Part : Core – Elective 2

Semester : VI | Hours : 45

Subject Code : 22UITE26 | Credits : 3

INTERNET OF THINGS

Course Educational Objectives (CEO)

i. Understand the basics of IoT.
ii. Understand Devices and the Architecture of IoT.
iii. Gain Knowledge about Data and Human Interaction.
iv. Ability to understand Living Applications.
v. Learn about Real World Applications of IoT.

Unit	Content	No. of Hours
I	**UNIT – I: INTRODUCTION TO IOT** Definition of the Internet of Things - main assumptions and perspectives- Platform for IoT devices - Economics and Technology of the IoT –Issues in IoT and solutions-Architecture of IoT.	9
II	**UNIT - II IOT DEVICES** Temporary and Ad-hoc devices-Addressing issues-End devices in dedicated networks- Small data Building a web of things-Autonomy and co-ordination-Structuring a tree.	9
III	**UNIT - III DATA AND HUMAN INTERACTION:** Functions of IoT-Analysis and control-Neighborhood - Human interface and control points- Collaborative scheduling tools-Packaging and provisioning-Distributed integrator functions.	9
IV	**UNIT - IV IOT APPLICATIONS:** Moore's Law –Intelligence near the edge- Incorporating legacy devices-Staying in the loop -Social machines-Efficient process control Factory application- Natural sciences- Living applications.	9
V	**UNIT – 5 CASE STUDIES ILLUSTRATING IOT DESIGN:** Home Automation - Cities - Environment - Agriculture - Productivity Applications.	9

Book for Study:

1. Da Francis, Costa, Rethinking the Internet of Things-A scalable approach to connecting everything, 2013, Apress open publication.
2. Waher Peter, Learning Internet of Things, 2015, PACKT Publishing-Birmingham-Mumbai.

Book for References:

1. Bahga Arhdee, Madisetti Vijay, Internet of Things: A Hands on Approach (http://www.internet-ofthings-book.com/). 2015.
2. Pfister Cuno, Getting started with the Internet of Things, O'Rielly Publication. 2011.

Web References:

1. Introduction to IoT:https://www.javatpoint.com/iot-internet-of-things
2. Architecture of IoT:https://www.geeksforgeeks.org/architecture-of-internet-of-things-iot/
   Syllabus 2023-24 Page 1882
3. IoT Devices :https://www.tutorialspoint.com/internet_of_things/index.htm
4. Advanced IoT Applications:https://nptel.ac.in/courses/108108123
5. IoT Human Interaction: https://www.digimat.in/nptel/courses/video/106106177/L01.html
6. IoT designs:https://nlist.inflibnet.ac.in/search/Record/EBC5332124

Teaching Learning Methods:

(PPT, GD, Seminar, Quiz Programme, Brain Storming, Case Study, Assignment etc.)

Course Outcome (CO)

On completion of the course, students should be able to

1: Describe knowledge about Internet Of Things Working Principles (k3)
2: Knowledge about IoT Devices (k3)
3: knowledge about Interaction & Integration(k3)
4: Knowledge about various Iot applications(k3)
5: Maximize knowledge through Case Studies (k3)

vi. Mapping Course outcome

Outcomes	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	Sum of COs with PSOs & Pos
CO1	3	2	1		3	2	2	3	1					17
CO2	2	2	2	2	1	2	2	2	2	2				19
CO3	1	3	2	3	3	3	1	2	3	3				24
CO4	3	3	3	3		3	3	2	3	1				24
CO5	3	2	2	2	3	3	2	2	3	2				24
Grand Total of COs with PSOs and PO														**108**
Mean Value of COs with PSO and PO(108/47)														**2.3**

Strong-3, Medium-2 & Low-1

Mapping Scale	1	2	3
Relation	0.01 to 1.0	1.01 to 2.0	2.01 to 3.0
Quality	Low	Medium	Strong
Mean value of Cos with PSOs and Pos			**2.3**
Observation	**COs of Internet Of Things Strongly related with PSOs and POs**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR

DEPARTMENT OF IT & M

Class	: III IT & M	Part	: Self Learning
Semester	: VI	Hours	:
Subject Code	: 22UITSL6	Credits	: 3

EXPORT AND IMPORT MANAGEMENT

Course Educational Objectives (CEO)

1. Understanding the basic knowledge about Import and Export Policy
2. Comprehend the Role of Foreign Exchange
3. Learning the Foreign Exchange Market and procedures
4. Studying the Export documentation and procedure
5. Knowing the Recent trends in India's Foreign Trade

UNIT	Content
I	**Import Export Policy** Introduction – Objectives – India's recent Trade Policy – New Foreign Trade Policy – Important features of policy changes.
II	**Foreign Exchange** Definition – Rate of exchange - Fluctuations in the rate of exchange – Stable vs. Fluctuating rate of exchange.
III	**Foreign Exchange Market** Meaning – Advantages and limitations of foreign exchange facilities – Payment procedure followed in Foreign exchange.
IV	**Export documentation and procedure** Meaning and Definition – Letter of Credit – Bill of Lading – Certificate of Origin – Export Procedure
V	**Recent trends in India's Foreign Trade** Future of export and import in India – Planning for exports – Role and functions of World Bank.

Book for Study:

1. Balagopal, "Export Management", Himalaya Publishing House, Mumbai, IX Edition-2007

Book for References:

1. Chunnawala Patel, , "Export and Import Management", Anmol Publications Pvt Ltd, Chennai. II Edition – 2003.
2. Nand Kishore Sharma, "Import and Export Management", RBSA Publishers, Jaipur, II Edition-2008.

Teaching Learning Methods:

(PPT, GD, Seminar, Quiz programme, Brain Storming, Case Study, Assignments etc.,)

Course Outcome (CO)

On completion of the course, students should be able to

a. Analyze the Basic knowledge about India's recent Trade Policy
b. Compare the knowledge about Rate of Exchange and stable vs Fluctuating rate ofexchange
c. Discuss the payment procedure system followed in foreign exchange market
d. Predict the basic documentation and procedures in Export
e. Judge the future export in India and role and functions of World Bank

Mapping Course outcome

Outcomes	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	Sum of COs with PSOs &Pos
CO1	3	2	1	3		3	3	2	1	2				20
CO2	1	3	3	1	3	2	3	1	3	1	1			22
CO3	2	2	2	2	2	2	2	2	2	2	2			22
CO4	2	2	2	2	1	2	2	2	2	1				18
CO5	2	2	2	2		2	2	2	2	3				19
Grand Total of COs with PSOs and POs														**101**
Mean Value of COs with PSO and POs(101/50)														**2.02**

Strong-3, Medium-2 & Low-1

Mapping Scale	**1**	**2**	**3**
Relation	0.01 to 1.0	1.01 to 2.0	2.01 to 3.0
Quality	Low	Medium	Strong
Mean value of Cos with PSOs and Pos			**2.02**
Observation	**Cos of EXPORT AND IMPORT MANAGEMENT Strongly related with PSOs and POs**		