SRI RAMAKRISHNA MISSION VIDYALAYA

COLLEGE OF ARTS AND SCIENCE

(AUTONOMOUS) COIMBATORE – 641 020.

DEPARTMENT OF COMPUTER SCIENCE

B.Sc. Computer Science

Mapping of Course Outcomes with Programme Outcomes and Programme Specific Outcomes

B.Sc Computer Science Programme

(2018-2019 Onwards)

Program Educational Objectives:

1. To acquire a sound technical foundation in computer science and creatively apply computer related

technologies in practical problems.

2. To make the students to establish themselves as competent professionals.

3. To craft the graduates technically competent to pursue higher studies

4. To make students competent in programming languages.

5. To provide necessary mathematical and accounting knowledge to the Computer science students.

6. To know the software development process.

Program Outcomes:

1. Ability to apply the knowledge of Mathematics and Science to develop real time systems.

2. Ability to design and conduct Experiments / Practicals.

3. Ability to function on Multidisciplinary teams.

4. Ability to communicate effectively and engage in lifelong learning.

5. Students recognize the need for continuing Professional development, ethical and social issues and responsibilities.

Program Specific Outcomes:

1. Students enable to apply the fundamental concepts and methodologies of computer system

2. Students enable to write programs on their own to solve real world problems

3. Students use appropriate system design notations and apply system design Engineering process and Technologies in order to design, plan and implement software system.

4. Students enable to establish themselves as the successful entrepreneur.

18UCS/USC1C01 CORE: PROGRAMMING IN C

CO No.	CO Statement	Knowledge level
CO1	Know the logics of solving the problems	K
CO2	Understand the concepts of C programming	U
CO3	Analyze and discover bugs in the program	S
CO4	Apply the concepts and develop programs to solve real-time problems	S

MAPPING WITH PROGRAMME OUTCOMES

COS	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4
CO1	M	S	M	S	M	S	S	M	L
CO2	M	S	M	S	M	S	S	M	L
CO3	S	S	M	S	M	S	S	S	S
CO4	S	S	M	S	M	S	S	S	S

18UCS/USC1CP1 CORE PRACTICAL: PROGRAMMING LAB IN C

CO Number	CO Statement	Knowledge level
CO1	Understand the fundamental programming concepts	U
CO2	Illustrate the programming technique to analyze software problems	U
CO3	Apply the concepts to find solution for the problems	S
CO4	Design and develop the simple application.	S

MAPPING WITH PROGRAMME OUTCOMES

COS	PO1	PO2	PO3	PO4	PO5	PSO1	PS0O2	PSO3	PS04
CO1	M	S	M	M	M	S	M	L	L
CO2	M	S	M	S	M	S	M	L	L
CO3	S	S	M	S	M	S	M	M	L
CO4	S	S	M	S	M	S	M	M	L

18UCS/USC2C02 CORE : OBJECT ORIENTED PROGRAMMING WITH C++

CO Number	**CO Statement**	**Knowledge Level**
CO1	Understand the OOPS concepts.	U
CO2	Learn data types and control structures in C++	K
CO3	Demonstrate the Reusability by applying the types of Inheritance and know Polymorphism	S
CO4	Demonstrate the use of pointers in virtual functions.	S
CO5	Analyse the features of C++ including templates, exceptions and file handling.	S

	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PSO1**	**PSO2**	**PSO3**	**PSO4**
CO1	**S**	**S**	**L**	**M**	**S**	**S**	**S**	**M**	**L**
CO2	**S**	**S**	**L**	**M**	**L**	**S**	**S**	**M**	**L**
CO3	**M**	**S**	**L**	**M**	**M**	**S**	**S**	**M**	**L**
CO4	**S**	**S**	**L**	**M**	**M**	**S**	**S**	**L**	**L**
CO5	**S**	**S**	**M**	**M**	**M**	**S**	**S**	**S**	**L**

18UCS/USC2CP2 CORE PRACTICAL : PROGRAMMING LAB IN C++

CO Number	**CO Statement**	**Knowledge level**
CO1	Developing programs for Mathematical problems	S
CO2	Develop the programs to implement OOPS Concept	S
CO3	Understand and implement File concepts	K
CO4	Understand and implement Exception Handling features	U

18UCS/USC3C03 CORE: DATABASE MANAGEMENT SYSTEM

COS	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4
CO1	S	S	M	M	M	S	S	M	M
CO2	S	S	M	M	M	S	S	M	S
CO3	S	S	M	M	M	S	S	M	L
CO4	S	M	M	L	L	S	S	M	L

CO Number	CO Statement	Knowledge Level
CO1	know and practice the data models and schemas in DBMS	K
CO2	develop the database designs and apply normalization techniques to normalize the database	S
CO3	use SQL to structure the database to handle data	U
CO4	use PL/SQL to create, secure, maintain, and query a database.	U

MAPPING WITH PROGRAMME OUTCOMES

COS	PO1	PO2	PO3	PO4	PO5	PSO1	PS0O2	PSO3	PS04
CO1	S	M	S	M	S	S	M	M	M
CO2	S	S	L	M	S	S	M	S	S
CO3	S	S	S	M	S	S	S	S	M
CO4	S	S	M	L	S	S	S	S	S

18UCS/USC3C04 CORE: DATA STRUCTURES AND ALGORITHMS

CO Number	**CO Statement**	**Knowledge Level**
CO1	Know the characteristics of various data structure.	K
CO2	Understand and develop applications using various data structures	U
CO3	Apply appropriate internal sorting methods	U
CO4	Analyze the concept of files and its various organization	S

	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PSO1**	**PSO2**	**PSO3**	**PSO4**
CO1	S	S	L	M	M	S	S	M	L
CO2	S	S	L	M	M	S	S	M	L
CO3	S	S	L	M	M	S	S	M	L
CO4	S	S	M	S	M	S	S	S	M

18UCS/USC3C05 CORE: JAVA PROGRAMMING

CO Number	**CO Statement**	Knowledge Level
CO1.	Understand the Packages and Multithreaded applications	U
CO2.	Understand error handling and Applets	U
CO3.	apply AWT controls in the Applications	S
CO4.	Demonstrate the use of servlets	S

MAPPING WITH PROGRAMME OUTCOMES

COS	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4
CO1	S	S	M	M	M	S	M	M	M
CO2	S	S	M	M	M	S	S	M	L
CO3	S	M	M	M	M	S	M	M	M
CO4	S	S	L	M	M	S	M	M	M

18UCS/USC3CP3 CORE PRACTICAL: JAVA PROGRAMMING

CO Number	**CO Statement**	Knowledge Level
CO1	Develop program to implement packages and interfaces	S
CO2	Apply the concepts in exception handling and multithreading	S
CO3	Understand the window based applications using applet	U
CO4	Develop the program using servlets	S

MAPPING WITH PROGRAMME OUTCOMES

COS	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4
CO1	S	S	M	M	M	S	M	M	L
CO2	S	M	M	M	M	S	S	M	L
CO3	S	M	L	M	M	S	M	M	M
CO4	S	S	M	L	L	S	M	M	M

18UCS/USC3CP4 CORE PRACTICAL: RDBMS LAB

CO Number	CO Statement	Knowledge Level
CO1	design and implement databases for given problem domain	S
CO2	Know to write programs for exception handling and indexes	K
CO3	Develop programming using DDL, DML Statements	S
CO4	Work with the PL/SQL for windows Applications including procedures and cursors.	U

MAPPING WITH PROGRAMME OUTCOMES

COS	PO1	PO2	PO3	PO4	PO5	PSO1	PS0O2	PSO3	PS04
CO1	S	S	M	M	L	S	S	M	L
CO2	S	S	M	M	L	S	S	M	L
CO3	S	S	S	M	L	S	S	S	L
CO4	S	S	S	M	L	S	S	S	S

18UCS/USC4C06 CORE: .NET TECHNOLOGY (C#)

CO Number	**CO Statement**	Knowledge Level
CO1.	Learn the fundamental concepts in C#	S
CO2.	Develop the Windows Applications using controls	S
CO3.	Work with Object oriented concepts	U
CO4.	Develop Web Applications	S

MAPPING WITH PROGRAMME OUTCOMES

COS	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4
CO1	S	M	M	L	M	S	M	M	L
CO2	S	M	M	M	M	S	S	M	L
CO3	S	S	M	M	M	S	S	M	L
CO4	S	S	M	L	M	S	S	S	M

18UCS/USC4C07 CORE: COMPUTER ORGANIZATION AND ARCHITECTURE

CO Number	**CO Statement**	**Knowledge level**
CO1.	know the number systems and basic logic gates	K
CO2.	understand the CPU, I/O and Memory organizations	U
CO3	Understand the input/output Organization Methods	U
CO4	Understand the concepts of memory and its storing techniques	U

MAPPING WITH PROGRAMME OUTCOMES

COS	PO1	PO2	PO3	PO4	PO5	PSO1	PS0O2	PSO3	PS04
CO1	S	M	L	M	M	S	L	M	L
CO2	M	M	M	M	M	S	L	M	M
CO3	M	M	M	M	M	S	L	M	L
CO4	M	M	L	M	M	S	L	M	M

18UCS/USC4C08 CORE: ANDROID PROGRAMMING

CO Number	CO Statement	Knowledge Level
CO1	understand the concept of android development platform, and configuring and creating android applications.	U
CO2	create an activity, intents, different event handling methods and menus	S
CO3	know working with views, view groups and menus	K
CO4	apply the concept of graphics and animation in developing android application	S

MAPPING WITH PROGRAMME OUTCOMES

COS	PO1	PO2	PO3	PO4	PO5	PSO1	PS0O2	PSO3	PS04
CO1	S	S	M	L	L	S	L	L	L
CO2	S	S	M	S	M	S	M	S	L
CO3	M	S	S	S	M	S	S	M	M
CO4	M	S	S	M	M	S	M	S	S

18UCS/USC4CP5 CORE PRACTICAL: .NET TECHNOLOGY LAB (C#)

CO Number	**CO Statement**	**Knowledge level**
CO1	understand the basic concepts of C# console applications	**U**
CO2	have knowledge about Array and String Function in C# console	**K**
CO3	understand basic concepts about C# windows application with programs	**U**
CO4	Develop programs using ADO.Net	**S**

WITH PROGRAMME OUTCOMES

COS	PO1	PO2	PO3	PO4	PO5	PSO1	PS0O2	PSO3	PS04
CO1	S	S	M	M	L	S	S	M	L
CO2	S	S	M	M	L	S	M	L	L
CO3	S	S	M	M	L	S	M	M	L
CO4	S	S	M	S	M	M	M	M	S

18UCS/USC4CP6 CORE PRACTICAL: ANDROID PROGRAMMING LAB

CO Number	**CO Statement**	**Knowledge level**
CO1	Learn the basic concepts of Android Programming	**K**
CO2	know how to create various user interfaces with Toast messages and simple applications	**U**
CO3	Develop programs using API controls	**S**
CO4	knows working with SQLite database	**U**

WITH PROGRAMME OUTCOMES

COS	PO1	PO2	PO3	PO4	PO5	PSO1	PS0O2	PSO3	PS04
CO1	S	S	M	M	L	S	M	M	L
CO2	M	S	M	M	L	S	M	M	L
CO3	S	S	M	M	S	S	S	M	S
CO4	S	S	L	M	S	L	S	M	S

18UCS/USC5C09 CORE: OPERATING SYSTEM

CO Number	CO Statement	Knowledge Level
CO1	know the usage of various operating systems	K
CO2	Understand the functions of process management and file management to know the various file operations and how these files are processed	U
CO3	Understand the concept and difference between storage management and disk management	U
CO4	Apply the knowledge of the Windows2000 and Windows XP for utilizing other operating systems .	S

MAPPING WITH PROGRAMME OUTCOMES

COS	PO1	PO2	PO3	PO4	PO5	PSO1	PS0O2	PSO3	PS04
CO1	L	L	L	L	L	S	L	L	L
CO2	S	L	M	M	L	S	L	M	L
CO3	M	L	M	M	L	S	L	M	L
CO4	M	L	M	M	L	S	L	M	M

18UCS/USC5C10 CORE: WEB TECHNOLOGY

CO Number	**CO Statement**	**Knowledge level**
CO1.	Know the basic concepts of XML	K
CO2.	Understanding CSS and web services	U
CO3	Apply various controls in PHP	S
CO4	Develop Database applications	S

MAPPING WITH PROGRAMME OUTCOMES

COS	PO1	PO2	PO3	PO4	PO5	PSO1	PS0O2	PSO3	PS04
CO1	M	S	M	M	M	S	L	L	L
CO2	M	S	S	S	M	M	L	S	M
CO3	S	S	S	S	M	M	S	S	M
CO4	S	S	S	S	S	M	S	S	S

18UCS/USC5C11 CORE: OBJECT ORIENTED MODELLING AND DESIGN WITH UML AND SOAD

CO Number	**CO Statement**	**Knowledge level**
CO1	Learn design, document the requirements through usecase, state, and class driven approach.	**K**
CO2	Analyze and modeling the structural and behavioral concepts of the system.	**S**
CO3	Transform the SOAD conceptual model into various scenarios and applications.	**U**
CO4	Understand the Cloud Technologies using SOA by REST and SOAP	**U**

MAPPING WITH PROGRAMME OUTCOMES

COS	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4
CO1	S	S	L	M	L	S	M	S	L
CO2	S	S	M	M	L	S	M	S	L
CO3	M	M	L	M	L	M	S	M	L
CO4	M	L	L	M	L	S	M	L	L

18UCS/USC5CP7 CORE PRACTICAL: WEB TECHNOLOGY LAB

CO Number	**CO Statement**	**Knowledge level**
CO1	Know the concepts of XML	K
CO2	Apply various controls of PHP	S
CO3	Connect PHP with MYSQL	S
CO4	Ability to work with files	S

MAPPING WITH PROGRAMME OUTCOMES

COS	PO1	PO2	PO3	PO4	PO5	PSO1	PS0O2	PSO3	PS04
CO1	L	S	M	S	M	M	S	S	M
CO2	M	S	S	S	M	M	S	S	M
CO3	M	S	S	S	M	M	S	S	S
CO4	S	S	S	S	S	M	S	S	S

18UCS/USC6C12 CORE: SOFTWARE ENGINEERING

CO Number	CO Statement	Knowledge Level
CO1	Apply software engineering techniques.	S
CO2	Develop, maintain and evaluate software systems.	S
CO3	Identify efficient, reliable, robust and cost-effective software solutions.	K
CO4	Develop testing skills	S

MAPPING WITH PROGRAMME OUTCOMES

COS	PO1	PO2	PO3	PO4	PO5	PSO1	PS0O2	PSO3	PS04
CO1	S	M	S	M	L	S	M	M	L
CO2	S	S	M	M	M	S	S	M	S
CO3	S	S	M	M	M	S	S	S	M
CO4	S	M	L	S	M	S	M	S	S

18UCS/USC6C13 CORE: PYTHON AND IOT

CO Number	CO Statement	Knowledge Level
CO1	knows the various data types and control structures	K
CO2	Apply the concepts of File Handling and error handling	S
CO3	Develop database applications and web applications	S
CO4	Know about IoT Applications	K

MAPPING WITH PROGRAMME OUTCOMES

COS	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4
CO1	S	M	L	M	M	S	M	M	L
CO2	S	M	L	M	L	S	S	M	L
CO3	S	M	M	M	M	S	M	M	M
CO4	S	M	M	M	M	S	M	M	M

18UCS/USC6C14 CORE: COMPUTER NETWORKS AND CYBER-SECURITY

CO Number	**CO Statement**	**Knowledge Level**
CO1.	Understand the various topologies and the importance of layers	U
CO2.	Explore Analog and Digital Transmissions and Switching techniques	U
CO3.	Apply the concepts of Routing and Congestion	S
CO4.	Understand the design issues Transport and Session layers	U
CO5.	Know about Cyber Crimes and Cyber laws	K

	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4
CO1	S	M	L	S	M	M	M	M	L
CO2	S	S	L	M	M	S	M	M	M
CO3	S	S	L	M	M	S	M	M	M
CO4	S	S	M	S	S	S	M	M	L
CO5	M	L	S	M	S	S	M	M	L

18UCS/USC6CP8 CORE PRACTICAL: PYTHON LAB

CO Number	**CO Statement**	Knowledge Level
CO1	Understand the essentials of python programming	U
CO2	Develop the simple applications using python	S
CO3	Apply to object oriented concepts	S
CO4	Explore file handling concepts	S

MAPPING WITH PROGRAMME OUTCOMES

COS	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4
CO1	S	M	S	M	M	S	M	M	M
CO2	S	S	S	M	M	S	M	M	L
CO3	S	M	M	M	M	S	M	M	M
CO4	S	M	M	L	L	S	M	M	M

18UCS/USC5EL1 ELECTIVE: ARTIFICIAL INTELLIGENCE AND SOFT COMPUTING

CO Number	CO Statement	Knowledge Level
CO1	Know the various characteristics of AI and Soft Computing	K
CO2	Analyze the strength and weakness of AI approaches to knowledge representation, heuristic searching techniques and applications of AI.	S
CO3	Choose the appropriate representation and appropriate reasoning algorithm, for the chosen AI problem/domain and assess the Soft Computing Components.	U
CO4	Classify the Fuzzy logic control systems	S

MAPPING WITH PROGRAMME OUTCOMES

COS	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	
CO1	S	S	L	M	M	S	M	M	M
CO2	S	M	L	M	L	S	S	M	M
CO3	S	M	M	M	L	S	M	M	M
CO4	M	M	M	M	M	S	M	M	S

18UCS/USC5EL1 ELECTIVE: DISTRIBUTED COMPUTING SYSTEMS

CO Number	CO Statement	Knowledge Level
CO1	Assimilate the workability of distributed systems	K
CO2	Understand the basic communication fundamentals of distributed systems	U
CO3	Analyze the knowledge of data centric consistency models and Security management in distributed systems	S
CO4	Use the distributed environment in web based systems.	S

COS	PO1	PO2	PO3	PO4	PO5	PSO1	PS0O2	PSO3	PS04
CO1	L	L	S	S	S	L	L	L	L
CO2	M	L	M	M	S	S	L	L	L
CO3	M	M	M	M	S	S	M	M	L
CO4	M	M	M	M	M	S	M	M	S

18UCS/USC5EL1 ELECTIVE: MANAGEMENT INFORMATION SYSTEM

CO Number	CO Statement	Knowledge Level
CO1	Use Various design tools	K
CO2	Apply the concept of DSS,EIS,KMS and GIS	U
CO3	Analyse the issues of Vulnerability, Computer Crimes and ethics in IT	S
CO4	Know the Concepts of E-Governance Techniques	K

MAPPING WITH PROGRAMME OUTCOMES

COS	PO1	PO2	PO3	PO4	PO5	PSO1	PS0O2	PSO3	
CO1	L	L	S	S	S	L	L	L	L
CO2	M	L	M	M	S	S	L	L	L
CO3	M	M	M	M	S	S	M	M	L
CO4	M	M	M	M	M	S	M	M	S

18UCS/USC5EL1 ELECTIVE : TCP/IP PROTOCOL SUIT

CO Number	**CO Statement**	**Knowledge Level**
CO1	Know the concepts of data communication	**K**
CO2	Understand ISO - OSI model, TCP/IP model, Network Management and middelewares	**U**
CO3	Apply the IP addressing and subnetting schemes.	**S**
CO4	Analyze various routing algorithms and protocols	**S**

	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4
CO1	M	M	L	S	M	S	L	M	L
CO2	M	M	L	M	M	S	L	L	L
CO3	S	S	M	M	M	M	L	M	M
CO4	S	S	M	S	S	M	L	M	M

18UCS/USC6EL2 ELECTIVE: DATA MINING AND WAREHOUSING

CO Number	**CO Statement**	**Knowledge level**
CO1	Know the concepts of data mining applications	K
CO2	Apply the association rules for mining the data	S
CO3	Design and deploy appropriate Classification techniques	S
CO4	Understanding various algorithms in Data Mining	U

MAPPING WITH PROGRAMME OUTCOMES

COS	PO1	PO2	PO3	PO4	PO5	PSO1	PS0O2	PSO3	PS04
CO1	M	M	M	S	M	S	L	L	L
CO2	M	S	M	S	M	S	S	M	L
CO3	S	S	M	S	M	S	S	M	S
CO4	S	S	M	S	M	S	S	M	S

18UCS/USC6EL2 ELECTIVE: MULTIMEDIA APPLIATIONS

CO Number	**CO Statement**	**Knowledge level**
CO1	Use basic tools of Photoshop.	**K**
CO2	Analyze various file formats for audio, video and text media	**S**
CO3	Understand basic methods of Flash Animation	**U**
CO4	Develop interactive multimedia applications	**S**

COS	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4
CO1	L	S	M	S	M	M	S	M	S
CO2	L	S	M	S	L	L	M	M	L
CO3	L	S	M	S	S	M	M	S	L
CO4	L	S	M	S	S	S	M	S	S

18UCS/USC6EL2 ELECTIVE: SOFTWARE PROJECT MANAGEMENT

CO Number	**CO Statement**	**Knowledge Level**
CO1.	Know the concept of project management and planning	K
CO2.	Analyze and implement methods to plan and control project, have a control over risks.	S
CO3.	Apply the required steps for the decision making.	S
CO4.	Understand the process of Managing the People and member of software engineering team	U

COS	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4
CO1	S	S	M	M	M	S	S	M	M
CO2	S	S	M	M	M	S	S	M	M
CO3	S	S	M	L	L	S	M	M	L
CO4	S	S	M	L	L	S	M	M	L

18UCS/USC6EL2 ELECTIVE: UNIX INTERENALS

CO Number	**CO Statement**	**Knowledge level**
CO1	Know the concepts of kernel and files	**K**
CO2	Use the file management and various system calls	**S**
CO3	Analyze the process architecture, process control, process scheduling and memory management	**S**

COS	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4
CO1	S	M	M	M	S	S	S	M	M
CO2	S	M	M	M	S	S	S	M	S
CO3	S	M	M	M	S	S	S	M	S

Course: 18UCS/USC4AL4 ALLIED:OPERATIONS RESEARCH

CO No.	CO Statement	Knowledge Level
CO1	Know the formulation of Business Problems.	K
CO2	understanding the methods of problem solving	U
CO3	applying the mathematical calculations in Industrial Problems.	S
CO4	analyzing mathematical methods and applications.	S

MAPPING

COS	PO1	PO2	PO3	PO4	PO5		PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	L	M	M	L		L	L	L	L	L
CO2	M	M	M	L	L		M	M	L	L	L
CO3	M	M	M	M	L		L	L	L	L	L
CO4	M	M	M	M	L		L	L	L	L	L

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CORE: PROGRAMMING IN C

Year : I **Semester :** I
Hours / Week : 4 **Subject Code:** 18UCS/USC1C01

Credits : 4

UNIT I

Overview of C: Importance of C – Basic Structure of C programs – Executing a 'C' Program – Sample Programs;

Constants, Variables and Data Types: Character Set – C tokens – Keywords and Identifiers – Constants – Variables – Data Types – Declaration of Variables – Assigning Values to Variables – Declaring a Variable as Constant.

UNIT II

Operators and Expressions: Arithmetic Operators – Relational Operators – Logical Operators – Assignment Operators – Increment and Decrement Operators – Conditional Operator – Bitwise Operators – Special Operators – Arithmetic Expressions – Evaluation of Expressions – Precedence of Arithmetic Operator – Some Computational Problems – Type Conversions in Expressions – Operator Precedence and Associativity – Mathematical Functions;

Managing Input and Output Operations: Reading a Character – Writing a Character – Formatted Input – Formatted Output.

UNIT III

Decision Making and Branching: Decision Making with IF Statement – Simple IF Statement – The IF … ELSE Statement – Nesting of IF … ELSE Statement – The ELSE IF Ladder – The Switch Statement – The ?: Operator – The GOTO Statement;

Decision Making and Looping: The WHILE Statement – The DO Statement – The FOR Statement – Jumps in LOOPS.

UNIT IV

Array: One-dimensional Arrays – Declaration of One-dimensional Arrays – Initialization of One-dimensional Arrays – Two-dimensional Arrays – Initializing Two-dimensional Arrays – Multi-dimensional Arrays;

User-defined Functions: Elements of User-defined Functions – Definition of Functions – Return Values and their Types – Function Calls – Function Declaration – Category of Functions – No Arguments and no Return Values – Arguments with Return Values – No Arguments but Return Multiple Values – Nesting of Functions.

UNIT V

Pointers: Introduction – Understanding pointers – Accessing the Address of a Variable – Declaring Pointer Variables – Initialization of Pointer Variables – Accessing a Variable through its Pointers;

File Management in C: Introduction – Defining and Opening a File – Closing a File – Input /Output Operations on Files – Error Handling During I/O Operations – Random Access to Files – Command Line Arguments.

TEXT BOOK:

1. Programming in ANSI C, Fifth Edition, E. Balagurusamy, Tata McGraw Hill Education Private Limited, New Delhi, 2011.

SRI RAMAKRISHNA MISSION VIDYALAYA
COLLEGE OF ARTS & SCIENCE
COIMBATORE - 641 020

CORE : OBJECT ORIENTED PROGRAMMING WITH C++

Year : I **Semester : II**
Hours / Week : 4 **Subject Code :** 18UCS/USC2C02
Credits : 4

UNIT I

Object Oriented Programming Paradigram: Basic concepts — Benefits — Application — Structure of C++ program — Basic data types — User Defined Data types — Derived data types — Manipulators — Type cast operator — Conversions — Control structures

UNIT II

Functions: Function Prototyping — Call by reference — return by reference — Inline function — Default arguments.

Class & Objects: Specifying a class — Define member function — Arrays within a class - Memory allocation — Arrays of Object — Objects as function Arguments — Constructors Parameterized constructor — Copy Constructor — Dynamic constructor — Destructors.

UNIT III

Operator Overloading & type conversion: Define Operators Overloading — Overloading unary operators — Binary operators — Type conversion.

Inheritance: Defining derived class — Single inheritance — Multi level inheritance — Multiple inheritance — Hierarchical inheritance — Hybrid inheritance — Constructors in derived class.

UNIT IV

Pointers, Virtual functions and polymorphism: Pointer to Objects — this pointer — virtual functions — Pure Virtual Functions.

Files: Opening and Closing a File — Detecting end of file — File pointers and their manipulations — Command — line arguments.

UNIT V

Templates: Class templates — Function templates — Overloading of template function — Member function templates.

Exception Handling: Basics — Exception handling mechanism — Throwing mechanism — Catching mechanism — Specify Exceptions.

TEXT BOOK:

1. Object oriented programming with C++, E. Balagurusamy, Tata McGraw Hill Education Private Limited, N.Delhi, 5th Edition, 2012.

REFERENCE BOOK

Robert Lafore, Object oriented programming in C++, 4th Edition, Pearson, 9th Impression,

SRI RAMAKRISHNA MISSION VIDYALAYA COLLEGE OF ARTS AND SCIENCE (AUTONOMOUS) COIMBATORE – 641 020

For candidates admitted from academic year 2018 - 2019 onwards under New CBCS

B.Sc. COMPUTER SCIENCE (UCS/USC)

CORE: DATABASE MANAGEMENT SYSTEM

Year : II **Semester : III**
Hours / Week : 4 **Subject Code :** 18UCS/USC3C03
Credits : 4

UNIT I

Introduction: – Database System Applications – purpose of database systems - View of Data – Data Models – Database Languages – Relational databases – data storage and querying – Database architecture - Database Users and Administrators – Structure of Relational databases – keys.

UNIT II

The Entity – Relationship model – Entity Relationship Diagram – Relational Database Design: Atomic Domains and First Normal Form – Decomposition using Functional Dependencies (Second Normal Form) – Boyce-Codd Normal Form – Third Normal Form – Decomposition using Multivalued Dependencies - Fourth Normal Form - More Normal Forms.

UNIT III

Interactive SQL: Table fundamentals: (Oracle Data types – create table – viewing data in the tables) – Eliminating duplicate rows when using a select statement – Inserting data into a table from another table – Delete operations – Updating the contents of a table – Modifying the structure of tables – Renaming tables – Truncating tables – Destroying tables. Data constraints – types of data constraints - defining different constraints on a table

UNIT IV

Introduction to PL/SQL Data base objects: Advantages of PL/SQL – The generic PL/SQL block – the PL/SQL execution environment - PL/SQL - The character set – Literals - PL/SQL data types – variables – constants – LOB types – logical comparisons - displaying user messages on the VDU Screen – comments – Control structures. PL/SQL transactions: oracle transactions – processing a PL/SQL block – what is a cursor?

UNIT V

PL/SQL database objects: what are procedures/ functions? Advantages of using procedure or function- procedures versus function – deleting a stored procedures or functions – oracle packages – database triggers – types of triggers.

TEXT BOOKS:

1. A.Silberschatz, H.Korth and S.Sudarsan, Database System Concepts, TATA McGraw Hill Inc, Sixth Edition, 2011.
2. Ivan Bayross, SQL, PL/SQL the programming language of ORACLE, BPB Publications, 4th revised edition, 2009

REFERENCE BOOKS:

1. Bipin.C.Desai, An Introduction to Database System,West Publishing Company, 2004.
2. C.J.Date, An Introduction to Database Systems, Addition – Wesley, eighth edition, 2007.
3. Majumdar & Bhattacharya, Database Management System, TMH, 2007.
4. Gerald V.Post, Database Management System, TMH, 3rd edition, 2004. Nilesh Shah, Database Systems using Oracle, PHI , 2nd edition, 2004.

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SRI RAMAKRISHNA MISSION VIDYALAYA
COLLEGE OF ARTS AND SCIENCE (AUTONOMOUS)
COIMBATORE – 641 020

CORE: DATA STRUCTURES AND ALGORITHMS

Year : II **Semester : III**
Hours / Week : 5 **Subject Code :** 18UCS/USC3C04
Credits : 5

UNIT I

Introduction: Over view — Creation and analyses of programs — Arrays: Basics — Representation of arrays — Sparse Matrices — Stacks: Basics — Functions — Evaluation of expressions— Multiple Stacks — Queues: Basics — Functions — Circular Queues — Multiple Queues.

UNIT II

Linked Lists: Single Linked Lists — Linked Stacks and Queues — Storage Pool — Applications — Polynomial Addition — Equivalence Relations —Double Linked Lists: Dynamic Storage Management —. Garbage collection and Compaction.

UNIT III

Trees: Basic Terminology — Binary Trees — Representation and Traversals — Threaded Binary trees — In order traversal — Binary tree representation of Trees — Sets — Union, Find algorithms — Graphs: Transitive Closure — Warshall ‘s Algorithm — Shortest path problem: Djikstra’s algorithm — Minimum Spanning Trees: Prim’s algorithm.

UNIT IV

Searching Techniques: Binary, Sequential and Fibonacci searches — Sorting Techniques: Internal sorting with tapes and disks — balanced merge sort — Polyphase merge sort.

UNIT V

Symbol Tables: Static tree and dynamic tree implementations — Hash tables. File Organizations — Sequential, ISAM, Random - Linked File organizations: Multilists — Inverted Files — Cellular Partitions.

TEXT BOOKS:

1. Ellis Horowitz and SartajSahni, Fundamentals of Data Structures, Computer Science Press, 2002 (UNITS — I, II, III First Paragraph, IV, V).
3. Tanenbaum A. M. and Augestein M. J, Data Structures Using Pascal, Prentice Hall, 2nd edition, 1996. (UNIT — III Second Paragraph).

REFERENCE BOOKS:

1. Yashwant Kanetkar, Data Structures through C, BPB publications, 2003.
2. SartajSahni, Data Structures, Algorithms & Applications in C++, McGraw-Hill, 1998.
3. Mark Allen Weiss Data Structures & Algorithm Analysis in C, Addison Wesley, 1999.

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SRI RAMAKRISHNA MISSION VIDYALAYA COLLEGE OF ARTS AND SCIENCE (AUTONOMOUS) COIMBATORE – 641 020

For candidates admitted from academic year 2018 - 2019 onwards under New CBCS

B.Sc. COMPUTER SCIENCE (UCS/USC)

CORE: JAVA PROGRAMMING

Year : II **Semester : III**

Hours / Week : 5 **Subject Code :** 18UCS/USC3C05

Credits : 4

UNIT I

Introduction to java- Introduction to Classes- Inheritance Concepts- Packages and Interfaces: Packages – Access protection Importing packages – interfaces. Exception Handling: Fundamentals – Exception types – Using Try and Catch – nested Try – statements – throw, throws, finally.

UNIT II

Multithreaded programming: Thread model – Creating a thread, creating multiple threads – Using Alive ( ) and join ( ) – synchronization – Inter threaded communication. String Handling: String constructors – string operations – character extraction – string comparison – searching – modification.

UNIT III

Input/ Output: File – Stream classes – Byte streams – character streams – **The Applet Class :** Applet Basics - Applet Architecture - Applet Skeleton-Applet Initialization and Termination-Applet Display Methods-The HTML APPLET Tag-Passing Parameters to Applets.

UNIT IV

Introduction the AWT: AWT Classes-Window Fundamentals- Creating Frame Window in an Applet- Handling Events in a Frame Window- Working with Graphics-Working with Color-Working with Fonts-**Using AWT Controls**: Control Fundamentals. **AWT Menus**: Menu Bars and Menus -Dialog Boxes **Image Fundamentals:** Creating, Loading, and Displaying.

UNIT V

J2EE Overview: Distributed Multitiered Applications-J2EE Containers -Packaging - Development Roles. **EJB:** Enterprise Bean-Session Bean- Entity Bean- Message Driven Bean-The Life Cycles of Enterprise Beans. **Servlet:** Servlet Life Cycle-Sharing Information-Initializing a Servlet-Writing Service Methods

TEXT BOOKS

1. Herbert Schildt, The Complete Reference -java 2, TATAMcGraw Hill, Fifth Edition, 2002. (Units I,II,III,IV)
2. Harley Haim, The internet computer reference, TATAMcGraw Hill, Second Edition, 1998, (Unit-V)

REFERENCE BOOKS

1. E.Balagurusamy , Programming with Java, , TATAMcGraw Hill, Third Edition
2. Patrick Naughton, The JAVA Hand Book, TATAMcGraw Hill, 1997

SRI RAMAKRISHNA MISSION VIDYALAYA COLLEGE OF ARTS AND SCIENCE

(AUTONOMOUS) COIMBATORE – 641 020
For candidates admitted from academic year 2018 - 2019 onwards under New CBCS
B.Sc. COMPUTER SCIENCE (UCS/USC)

CORE: .NET TECHNOLOGY (C#)

Year : II **Semester : IV**
Hours / Week : 6 **Subject Code :** 18UCS/USC4C06

Credits : 4

UNIT I

Evaluation of .Net- Overview of .Net Framework- Exploring Visual studio IDE- Basic IDE operations.

C# Fundamentals: Literals- Variables- Data types – Value types – Reference Types- Declaration of variables- Initialization of variables- Default values- constant variables- scope of variables. Operators and expressions: Arithmetic operator-relational operato9r- Logical operator- Assignment operator- Increment and decrement operator- Condition operator- Bitwise operator-type conversions

UNIT II

Decision making and branching: Selection statements: if, If else, Nested If, Else if ladder, Switch statement. Decision making and looping: While, do While, For,for each -Jump Statement: Goto, Break, Continue.

UNIT III

Handling arrays: Introduction- One dimensional array- Creating an array- Two dimensional array- Variable size arrays- system array class- array list class. Manipulating strings: Creating strings- string methods- Inserting methods- Comparing strings- Finding substrings-Mutable of strings- Arrays of strings

UNIT IV

Class and objects: OOPS-Defining a class- Adding variables- Adding methods- Member access modifier- Creating objects- Accessing class members- Constructors- Overload constructors-Static members- Static constructors- private constructor- Copy constructor-Destructor- This reference. Inheritance: Classical inheritance- Defining a sub class- Multi level inheritance-Hierarchical Inheritance-Over riding methods-hiding methods- Abstract class- Abstract methods.

UNIT V

Multithreading: Creating and starting a thread- scheduling threads- thread pooling. Windows forms: Creating windows forms- Customizing form- Creating and running a windows applications- Overview of design pattrerns- Web based application on .Net

TEXT BOOK

1. E.Balagurusamy, Programming in C#:A Primer, 3rd Edition, TATA McGrew Hill Education Pvt Limited, New Delhi, 2012.

REFERENCE BOOK

2. Kevin Hoffman. Microsoft Visual C#, Pearson Education, 2006.
Professional Projects,Prentice Hall of India Private Limited, 2002.
2. Herbert Schildt, C# 4.0 Complete References, 1st Edition, Tata McGraw-Hill, 2010.

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SRI RAMAKRISHNA MISSION VIDYALAYA COLLEGE OF ARTS AND SCIENCE (AUTONOMOUS) COIMBATORE – 641 020

For candidates admitted from academic year 2018 - 2019 onwards under New CBCS

B.Sc. COMPUTER SCIENCE (UCS/USC)

CORE: COMPUTER ORGANIZATION AND ARCHITECTURE

Year : II **Semester : IV**

Hours / Week : 6 **Subject Code :** 18UCS/USC4C07

Credits : 4

UNIT I

Number systems: Binary Number System –Octal Numbers – Hexadecimal Numbers – Number system Conversion from one to another - The Excess-3 Code – The Gray Code. Basic logic gates: AND, OR, NOT – Universal logic gates: NOR, NAND.

UNIT II

Boolean laws and theorems - Multiplexers – Demultiplexers – Decoder – Encoders – Half-Adder – Full-Adder – half subtractor – full subtractor - RS Flip flop - JK Flip-flop.

UNIT III

Central Processing Unit - Stack organization - Instruction formats — Addressing Modes - Data transfer and manipulation — program control – parallel processing — pipelining.

UNIT IV

Input/output Organization: I/O Bus and interface modules —i/o versus memory bus - isolated and memory mapped I/O - asynchronous data transfer – strobe control - handshaking - Direct memory access.

UNIT V

Memory Organization — memory hierarchy – main memory - auxiliary memory — Associative memory — Cache memory – Virtual memory.

TEXT BOOK

1. Donald P Leach, Albert Paul Malvino, Goutam Saha, Digital Principles and Applications, Special Indian edition, 7the Edition, 2011.
2. Computer System Architecture, M. Morris Mano, Pearson Education Inc., Third Edition, 2009.

REFERENCE BOOK

1. Computer organization and architecture Designing for performance, Pearson Education, Dorling Kindersley, 10th Edition, 2016

2. David A. Patterson, John L. Hennessy, Computer Organization and design: The hardware/ Software Interface, Morgan Kaufmann, 4th Edition, 2011.
3. Nicholas P. Carter, Computer Architecture and organization, McGrawHill india, 2nd Edition, 2017.

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SRI RAMAKRISHNA MISSION VIDYALAYA COLLEGE OF ARTS AND SCIENCE (AUTONOMOUS) COIMBATORE – 641 020

For candidates admitted from academic year 2018 - 2019 onwards under New CBCS

B.Sc. COMPUTER SCIENCE (UCS/USC)

CORE: ANDROID PROGRAMMING

Year : II **Semester : IV**

Hours / Week : 5 **Subject Code :** 18UCS/USC4C08

Credits : 4

UNIT I

Fundamentals of Java for Android Application Development: Introduction to Java - Need for Java for Android application development - features of java - Introducing java Dalvik Virtual Machine - Developing a Simple Java Program [using Eclipse IDE]:- writing the java program - compiling and executing the java program.

Introducing android (listing the version history of android platform - discussing android APIs - Describing the android architecture - application framework - exploring the features of android) - The Manifest file.

Downloading and installing android (downloading and installing the android SDK - setting up android virtual device - setting up android physical device)

UNIT II

Developing and executing the first android application (using eclipse IDE to create an application - running your application - exploring the application - using command line tools)

Working with Activities: Creating an activity - starting an activity - managing the lifecycle of an activity - applying themes and styles to an activity.

UNIT III

Using intents: Exploring intent objects - linking the activities using intent - obtaining results from intent - passing data using an intent object.

Working with the user interface using Views and ViewGroups: Working with View Groups - The LinearLayout layout - the RelativeLayout layout - the ScrollView layout - the TableLayout layout - the FrameLayout layout.

UNIT IV

Working with Views (Using the TextView - using EditText view - using the Button view - using the RadioButton view - using the CheckBox view - using the ImageButton view - using the ToggleButton view - using the RatingBar view)

Creating menus - the option menu - the context menu - the submenus

Notifying the user:- Creating the Toast notification - Creating the status bar notification - creating the Dialog notification.

UNIT V

Working with content providers:- Exploring the android provider package - creating user-defined content provider - consuming user-defined content provider.

Working with Graphics:- Drawing Graphics to Canvas. Working with Animations:- The Property Animation - View Animation - Drawable Animation.

TEXT BOOK

1. Pradeep Kothari, Android application development (with KitKat Support) Black Book, dreamtech press, 2018

REFERENCE BOOKS

1. Wallace Jackson, Android Applications for Absolutes Beginners, Apress, 3rd Edition, 2014.
2. W. Frank Ableson, RobiSen, Chris King, "Android in Action", Manning Publications, 2nd Edition, 2011.
3. Shawn Van Every, 'Pro Android Media: Developing Graphics, Music, Video, and Rich Media Apps for Smartphones and Tablets ', Apress Publisher, 2016.

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SRI RAMAKRISHNA MISSION VIDYALAYA COLLEGE OF ARTS AND SCIENCE
COIMBATORE – 641 020

For candidates admitted from academic year 2018-2019 onwards under New CBCS.

CORE: OPERATING SYSTEM

Year : III **Semester : V**

Hours / Week : 4 **Subject Code :** 18UCS/USC5C09

Credits : 5

Unit I

INTRODUCTION: What is an Operating System?-Mainframe Systems-Desktop Systems-Multiprocessor Systems-Distributed Systems-Clustered System-Real-Time Systems-Handheld Systems. Operating-System Structures:-System Components-Operating-System Services-System Calls-System Programs-System Structure-Virtual Machines.(Pages 3-19, 55-80)

Unit II

PROCESS MANAGEMENT: Process Concept-Process Scheduling-Operations on Processes-Cooperating Processes-Inter process Communication. CPU Scheduling:-Basic Concepts-Scheduling Criteria- Scheduling Algorithms-Multiple-Processor Scheduling-Real-Time Scheduling. Deadlocks:-System Model-Deadlock Characterization-Methods for Handling Deadlocks-Deadlock Prevention- Deadlock Avoidance- Deadlock Detection-Recovery from Deadlock. (Pages 95 – 109, 151-170, 243 - 264)

Unit III

STORAGE MANAGEMENT: Memory Management:-Background-Swapping-Contiguous Memory Allocation-Paging-Segmentation- Segmentation with Paging. Virtual Memory:-Background-Demand Paging-Process Creation-Page Replacement-Allocation of Frames-Thrashing. (Pages 273-309, 317 – 348)

Unit IV

File-System Implementation:-File-System Structure- File-System Implementation-Directory Implementation-Allocation Methods-Free-Space Management. Mass-Storage Structure:-Disk Structure-Disk Management-Swap-Space Management-RAID Structure-Disk Attachment-Stable-Storage Implementation-Tertiary-Storage Structure. (Pages 411 – 430, 491 – 516)

Unit V - CASE STUDIES:

Windows2000: History-DesignPrinciples-SystemComponents-Environmental Subsystems-File System-Networking-Programmer Interface. Windows XP: History-Design

Principles-System Components-Environmental Subsystems-File System-Networking-Programmer Interface. (Pages 743-780, 789 – 839)

TEXT BOOK :

1. SILBERSCHATZ, GALVIN, GAGNE, OPERATING SYSTEM CONCEPTS, Wiley India Edition (sixth edition), 2007

REFERENCE BOOKS:

1. Deitel Deitel Choffnes, Operating Systems, Pearson Education (third edition), 2003.
2. Stuart E. Madnick, John J.Donovan, Operating Systems, Tata McGraw Hill (third edition),2003

SRI RAMAKRISHNA MISSION VIDYALAYA COLLEGE OF ARTS AND SCIENCE
COIMBATORE – 641 020

For candidates admitted from academic year 2018-2019 onwards under New CBCS.

CORE: WEB TECHNOLOGY

Year : III **Semester : V**
Hours / Week :4 **Subject Code :** 18UCS/USC5C10
Credits : 4

XML
Unit I

XML Document: Hello XML- Creating, saving, loading XML document- Attributes – Empty Element tags- XSL. Document type definition: DTD files- Internal and External DTDs- Element Declaration.

Unit II

CSS layouts: CSS units- The Display property- Box properties- Size – Positioning – CSS Text styles: Fonts- Color- Text- Backgrounds.

Web Services: WSDL, XML Schema and SOAP**.**

PHP
Unit III

Introduction to PHP: Creating first PHP page – variables- constants-types- Operators and Flow Control: Operators- Conditional Statements- Looping - arrays.

Unit IV

Reading Data in Web Pages: Handling Text Fields, Text Area, Checkboxes, Radio Buttons, List Boxes, Password Controls, Hidden Controls, Image Maps, File Uploads, Buttons.

Unit V

Working with Databases: Creating MYSQL Database, New Table, Putting Data into the New Database, Accessing the Database in PHP, Inserting, Deleting, Updating the Data items into a database using PHP.

TEXT BOOKS:

1. Ellistte Rusty Harold, XML1.1. Bible, IDG Books Pvt Ltd, 3rd Edition, 2007. (Unit I,II)
2. Steven Holzner, The Complete Reference PHP, McGrawHill Education Private Limited, 2010. (Unit III,IV & V)
3. Sandeep Chatterjee, James Webber, Developing Enterprise Web Services, PEARSON, 2008.

REFERENCE BOOKS:

1. Heather Williamson, The Complete Reference XML, TATA McGraw Hill, Fifth Edition, 2002.
2. Vikram Vaswani, A Beginner's Guide PHP, Tata McGraw Hill, Fifth Edition, 2011.

SRI RAMAKRISHNA MISSION VIDYALAYA COLLEGE OF ARTS AND SCIENCE (AUTONOMOUS) COIMBATORE – 641 020

For candidates admitted from academic year 2018-2019 onwards under New CBCS.

CORE: OBJECT ORIENTED MODELLING AND DESIGN WITH UML AND SOAD

Year : III **Semester : V**
Hours / Week : 4 **Subject Code :** 18UCS/USC5C11

Credits : 4

UNIT I REQUIREMENTS MODELING:

Introduction- Overview of object oriented system development – Object basics- The unified Process- Modelling concepts- Modelling as a design technique- Analysis and modelling- UML diagrams- Use case modelling- Class modelling – State modelling- Interaction modelling

Object constraint language- Inception- Evolutionary Requirements – Domain models- System sequence diagrams –Operation contracts

UNIT II DESIGN AND PRINCIPLE OF DESIGN

Requirements to design – Design patterns- Logical architecture- Package diagram- Design patterns- Model, View, Control pattern- Detailed design- Object design with GRASP pattern – Detailed class diagram with visibility

UNIT III MAPPING TO CODE

Mapping design to code- Test driven development and refactoring- UML tools and UML as blueprint.

UNIT IV MORE PATTERNS

More patterns- Analysis update- Objects with responsibilities- applying design patterns- Architectural Analysis- Logical Architecture refinement – Package design- Persistence framework with patterns

UNIT V SOAD:

Key Components of SOA – Service Oriented Enterprise Applications: Consideration, Patterns – Service -Oriented Analysis & Design (SOAD): Principles, design of Services: Activity, Data, Client, business process, CLOUD – Technologies for SOA: REST, SOAP.

TEXT BOOKS:

1. Michael Blaha and James Rumbaugh, Object oriented modeling and design with UML, Pearson, 2nd Edition ,2012
2. Craig Larman, Applying UML and patterns- An introduction to object oriented analysis and design and iterative development", Pearson Education, 3rd Edition ,2016
3. Shankar Kambhampaty, 'SOA for Enterprise & Cloud Applications', Wiley India, 2nd Edition, 2012.

REFERENCE BOOKS:

1. ERICH GAMMA, Richard Helm, Ralph Johnson, John Ulissides, Design patterns: "Elements of Reusable object oriented software Engineering, Pearson Education, 2016.

Alan Shalloway, James R.Trott, Design patterns Explained: A new perspective on object oriented design, Pearson Education, 2010.

SRI RAMAKRISHNA MISSION VIDYALAYA COLLEGE OF ARTS AND SCIENCE (AUTONOMOUS) COIMBATORE – 641 020

For candidates admitted from academic year 2018-2019 onwards under New CBCS.

CORE: SOFTWARE ENGINEERING

Year : III **Semester : VI**

Hours / Week : 5 **Subject Code :** 18UCS/USC6C12

Credits : 5

UNIT I

Introduction — software engineering the software process software process models — the linear sequential model — the proto type model — the RAD model — evolutionary software process models — component based development — the formal methods model — fourth generation techniques.

UNIT II

Requirements analysis — requirements elicitation for software — analysis principles -- software prototyping specification — the software requirements — specification — specification review.

UNIT III

Software design and software engineering — the design process — design principles — design concepts — effective modular design — design heuristics for effective modularity — the design model — design documentation.

UNIT IV

Quality concepts. — the quality movement — software quality assurance — software reviews — formal technical reviews — formal approaches to SQA — statistical software quality assurance — software reliability — mistake proofing for software — the ISO 9000 quality standards — the SQA plan.

UNIT V

Software testing fundamentals — test case design - white box testing — basis path testing — control structure testing — black box testing — unit testing — Integration testing — validation testing — system testing.

TEXT BOOK:

Software Engineering a Practical Approach, Roger S Pressman, McGraw Hill International Edition, Fifth Edition, 2001

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For candidates admitted from academic year 2018-2019 onwards under New CBCS.

CORE: PYTHON AND IOT

Year : III **Semester : VI**

Hours / Week : 5 **Subject Code :** 18UCS/USC6C13

Credits : 5

Unit – I

Variables – Data Types: String, Numeric, Tuples, Sets, Dictionaries,
Control Structures: if, while, for, break and continue, lists.

Unit – II

Functions: passing parameters, variable number of arguments – scope – passing functions – mapping functions in a dictionary – lambda.

Modules: standard – sys – math – time – dir.

Error Handling: Exception hierarchy – handling multiple exceptions.

Unit – III

File handling: Writing and reading / parsing binary data, text& xml files.
Object- oriented programming – inheritance, polymorphism, creating classes.
Processes and threading – delegating work.

Unit – IV

Regular expressions – character classes, grouping and capturing, assertions and flags.
Database Programming: DBM & SQL databases.
Web Programming: Building CGI applications – Django framework.

UNIT – V

IOT – Definition and Overview
Middleware: platform, communication and software
Developing IOT: Case study – Weather Monitoring System.

TEXT BOOKS:

1. Mark Summerfeld, "Programming in PYTHON 3: A Complete introduction to the Python language, Addison – Wesley, 2009.
2. Arshdeep Bagha, Vijay. K. Madisetti, "Internet of Things: A Hands on approach", VPT, 1st Edition, 2014.

REFERENCE BOOKS:

1. Wesley. J. Chun, "Core Python Applications Programming", Prentice Hall, 2012.
2. Allen. B. Downey, "Think python", O'Reilly, 2012.
3. Andrian McEwen, Harm Cassimally, "Designing the IOT", John Wiley, 1ST Edition, 2014.

SRI RAMAKRISHNA MISSION VIDYALAYA

COLLEGE OF ARTS AND SCIENCE (AUTONOMOUS)

COIMBATORE – 641 020

CORE: COMPUTER NETWORKS AND CYBER-SECURITY

Year: III Semester: VI

Course code: 18UCS/USC6C14 Hours / week:5
Credits:5

UNIT I

Uses of Computer Networks — Applications of networks —, network structure — network architectures — ISO reference model example networks.

UNIT II

Transmission and multiplexing — analog transmission — digital transmission — X.2 1 digital interface — circuit, packet switching — terminal. handling — telephone, wireless and satellite communication systems.

UNIT III

Data link layer: Elementary data link protocols — sliding window protocols protocols efficiency and verification. Network layer: Virtual circuits and datagram's — routing algorithms — congestion.

UNIT IV

Transport and Session layers: Transport protocol design issues — interconnection of packets switching networks — session layer design issues teammate procedure call.

UNIT V

Introduction to cyber crime and law: Cyber crimes, Types of Cyber Crime, Hacking, Attack vectors, Cyberspace and Criminal Behavior, Clarification of terms, Traditional problems associated with Computer Crime, Introduction to incident response, Digital forensics, Computer language, Network language, Realms of the cyber world, A brief history of the internet, Recognizing and defining computer crime, Contemporary crimes, Computers as targets, Contaminants and destruction of data, Indian IT ACT 2000.

TEXT BOOK:

1. Andrew S. Tanenbaum,"Computer networks" , Prentice Hall of India Pvt. Ltd, Edition 5, 2015.
2. Nina Godbole and Sunit Belpure, Cyber security understanding cyber crimes, Computer forensics and legal perspectives, Publication Wiley India, 2009.

REFERENCE BOOKS:

1. Vyless D. Black, Data communication networks and distributed processing.

2. Mike Shema , Anti-Hacker Tool kit, Publication Mc Graw Hill, 4th Edition, 2014.