VANITA VISHRAM WOMEN'S UNIVERSITY

(Managed By: Vanita Vishram, Surat)

1st Women's University of Gujarat

SCHOOL OF SCIENCE AND TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE

5 YEARS INTEGRATED M.SC. (IT)

SYLLABUS

AS PER NEP-2020

W.E.F 2023-24

INDEX

1 PREAMBLE – VVWU

Vanita Vishram Women's University (VVWU) is the First-ever Women's University of Gujarat approved by the Government of Gujarat under the provisions of the Gujarat Private Universities Act, 2009. It is a university committed to achieve Women's Empowerment through Quality Education, Skill Development, and by providing employment opportunities to its girl students through its model curriculum, integration of technology in pedagogy and best-in-class infrastructure. The focus is on prioritizing practical component and experiential learning supported through academia-industry linkages, functional MoUs, skill development training, internships etc. It aims at providing opportunities to the girl students for holistic development and self-reliance.

VISION

Empowerment of women through quality education and skill development, so as to make them strong pillars of stability in the society.

MISSION

To provide Education & Professional Training to all women for their all-round development, so as to enable them to become economically independent and socially empowered citizens.

2   SALIENT FEATURES

- Based on NEP-2020 & CBCS

- Interdisciplinary as well as multidisciplinary.

- Practical-oriented, skill-based & vocation-based.

- Based on experiential learning.

- Greater exposure to internship, hands-on training, project work, field work, presentation etc.

- Mode of teaching shall be Offline)

- Qualified & Competent Faculty Members for effective teaching-learning

- Employment-Generating

3 INTRODUCTION OF THE PROGRAM

Master of Science in Information Technology is an integrated program offered by VVWU, Surat in Academic Year 2023.This program has a five-years duration with two semesters per year. The program is designed to meet the growing demand for IT professionals who can effectively navigate and contribute to the rapidly evolving technological landscape.

4 PROGRAM OBJECTIVES (PO_S)

PO 1. **Enhancement of Fundamental Knowledge**

Program enables students to enhance the knowledge in the domains of core computer science and Information Technology (IT). It also makes students capable of using core concepts in the conceptualization of domain specific application development.

PO 2. **Development of Critical Thinking**

The program develops the skills of critical thinking, problem solving, evaluative learning of various techniques, and understanding the essence of the problem.

PO 3. **Advanced Emerging Technology and Industrial Awareness**

The program trains students with the latest technologies that is being used in the industry. The continuous syllabus review adds value to the program for the outgoing students and make them ready to face challenging demands of the industry.

PO 4. **Utilization of Advanced Tools**

The students are able to apply the knowledge of advanced tools to solve the real world problems.

PO 5. **Project Planning and Management Capabilities**

The program enables students for designing and conceptualizing the software architecture, planning and managing the product development process of complex and live software projects. It also makes students understand the decision making for selection of an appropriate project management capabilities.

PO 6. **Real World Problem / Project Development**

Real world project provides the candidates exposure to work in the challenging and demanding environment training makes students employable and industry ready.

PO 7. **Team Work and Leadership Development**

Enables the students to work in a team and also to take leadership of the project management team.

5   PROGRAM SPECIFIC OUTCOMES (PSOs)

Upon completion of the Integrated M.Sc. IT program, the students would:

PSO 1.   Students will learn to develop and strengthen the fundamental concepts that are required to solve complex programming problems.

PSO 2.   Students can enable analyze identify and prepare physical solutions for the given challenges.

PSO 3.   Students will be able to apply the concept of project management to solve a real world problems using software engineering.

PSO 4.   Students will be able to learn emerging technologies and apply them for the development of Web applications, Mobile application, etc.

PSO 5.   Students will develop necessary Entrepreneur and Technical skills to start their own startup programs in the field of IT.

6 PROGRAM HIGHLIGHTS:

Program Level	Integrated				
Program	Master in Science Information Technology				
Duration	5 years (10 semesters)				
Examination Type	Semester system (1-10 semesters)				
Intake	200				
Eligibility	10 + 2 in Science stream with A, B or AB group or Commerce				
Mapping between POs and PSOs		PSO 1.	PSO 2.	PSO 3.	PSO 4.	PSO 5.
	PO 1.	▨				
	PO 2.	▨	▨			
	PO 3.		▨	▨		
	PO 4.				▨	▨
	PO 5.			▨	▨	▨
	PO 6.				▨	▨
	PO 7.			▨	▨	▨
Job Positions	Project Manager, IT Manager, System Analyst, Technical Leaders, Software Consultant, Database Designer, Database Administrator, Application Programmer, Network Planning Manager, etc.				

7 SCHEME OF ASSESSMENT

Following is the scheme of assessment followed by the university –

Weightage (%)	Continuous Assessment (CA) (40%)	End Semester Examination (ESE) (60%)
100%	[Internal written Theory Exam] **(20%)** + [Assignments/Presentations/Viva/group discussion/Journal/ MCQ/QUIZ + Attendance] **(20% - Any Three)**	End Semester Examination (ESE) Theory Exams Whole Syllabus

8 CREDIT STRUCTURE

5 Years Integrated M.Sc. IT Credit structure for 2023									
According to Curriculum and Credit Framework for Integrated Programs									
Semester	Major	Minor	Multi-Disciplinary	Ability Enhancement Course (AEC)	Skill Enhancement Course (SEC)	Value Added Courses (VAC)	Summer Internship/ Project/ Online Course	Dissertation	Total
1	13	0	0	4	3	2	0	0	22
2	13	0	3	4	0	2	0	0	22
3	18	0	3	0	3	0	0	0	24
4	18	0	3	0	3	0	0	0	24
5	18	0	0	0	0	2	2	0	22
6	18	0	0	0	0	0	0	0	18
Total	**98**	**0**	**9**	**8**	**9**	**6**	**2**	**0**	**132**
7	22	0	0	0	0	0	3	0	25
8	22	0	0	0	0	0	3	0	25
9	22	0	0	0	0	0	3	0	25
10	25	0	0	0	0	0	0	0	25
Total	**91**	**0**	**0**	**0**	**0**	**0**	**9**	**0**	**100**
Grand Total	**189**	**0**	**9**	**8**	**9**	**6**	**11**	**0**	**232**
* If anyone wants to exit after 2nd/ 4th Sem and wants a certificate/Diploma respectively, should complete an internship of 4 credits (60 hrs.)									

VANITA VISHRAM WOMEN'S UNIVERSITY

(Managed By: Vanita Vishram, Surat)

1st Women's University of Gujarat

SCHOOL OF SCIENCE AND TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE

INTEGRATED M.SC. (IT)

SEMESTER 1

SYLLABUS

AS PER NEP-2020

W.E.F 2023-24

9 COURSE STRUCTURE – PAPER TITLES SEMESTER 1

				Integrated Course structure for year – 2023				
Sem	**Major**	**Minor**	**Multi-Disciplinary**	**Ability Enhancement Compulsory (AEC)**	**Ability Enhancement Elective – Skill based (SEC)**	**Value Added Courses (VAC)**	**Summer Internship/ Project/ Online Course**	**Dissertation**
1	Fundamental of Digital Electronics	-	-	Communicative English	Basic Mathematics	Environmental Science	-	-
	C Programming							
	Fundamental of Database Management System (DBMS)							
	Practical							

10 TEACHING AND EVALUATION SCHEME FOR INTEGRATED M.SC. (IT) ACADEMIC YEAR 2023-24

Semester	Course Code	Course Category	Course Title	Offering Department	Teaching Scheme				Examination Scheme													Total Marks	Total Credits
					Contact Hour				Theory					Practical								
									Credit	CA		ESE		CA+ESE Passing Max.	Credit	CA		ESE		CA+ESE Passing		
					Theory	Practical	Total	Total Credit		Max.	Passing	Max.	Passing			Max.	Passing	Max.	Passing			
1		Core Course (CC)	**Fundamental of Digital Electronics**	Computer Science	3	0	3	3	3	40	14	60	21	35	3	0	0	0	0	0	100	3
		Core Course (CC)	**C Programming**	Computer Science	3	0	3	3	3	40	14	60	21	35	3	0	0	0	0	0	100	3
		Core Course (CC)	**Fundamental of Database Management System (DBMS)**	Computer Science	3	0	3	3	3	40	14	60	21	35	3	0	0	0	0	0	100	3
		Ability Enhancement Compulsory (AEC)	**Communicative English**	Computer Science	4	0	4	4	4	40	14	60	21	35	4	0	0	0	0	0	100	4
		Ability Enhancement Elective – Skill based (SEC)	**Basic Mathematics**	Computer Science	3	0	3	3	3	40	14	60	21	35	3	0	0	0	0	0	100	3
		Value Added Courses (VAC)	**Environmental Science**	Computer Science	2	0	2	2	2	40	14	60	21	35	2	0	0	0	0	0	100	2
			Practical	Computer Science	0	8	8	4	4	0	0	0	0	0	4	40	14	60	21	35	100	4
				TOTAL	18	8	26	22	22	240		360			22	40		60			700	22

5 Years Integrated M.Sc. IT
Syllabus – 2023-24

11 SYLLABUS: SEMESTER 1

VANITA VISHRAM WOMEN'S UNIVERSITY, SURAT
SCHOOL OF SCIENCE AND TECHNOLOGY
Department of Computer Science
M.Sc. IT Program
FY M.Sc. IT
Semester I
COURSE CODE: Fundamental of Digital Electronics

Credit   3   **Contact Hour per week   3**

Outline of the Course:

Course type	Theory
Purpose of Course	The students need to learn basic concepts of digital circuits and system which leads to design of complex digital system such as microprocessors. The students need to know combinational and sequential circuits using digital logic fundamentals. This is the first course by which students get exposure to digital electronics world.
Course Objective	CO 1. To understand the basic of Digital Electronic concepts required in analysis and design of digital electronic circuits and systems. CO 2. To understand the number system, logic gates, Boolean algebra, etc. CO 3. To understand Construction and operation of various digital circuits such as Adder, Subtractor, Multiplexer, Demultiplexer, Decoder, Encoder, Flip-flops, Counters, Registers and memory devices
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Last Review / Revision	June 2023
Pre-requisite	Elementary knowledge of science and mathematics.
Teaching Methodology	Class Room Teaching, Discussion and Assignment
Evaluation Method	40% Continuous Assessment (CA) 60% End Semester Examination (ESE)

Course Content:

Units	Particulars	% Weightage of Unit	Minimum Nos. of Hours
1	**Unit 1. Introduction to Computer** 1.1 Introduction and Timeline of Computer 1.2 Classification and Applications of Computers 1.3 Introduction of Software and Hardware 1.4 Block Diagram & Functional Units of Computer 1.5 Brief about some Hardware components 1.6 Types of Memory 1.7 Central Processing Unit	25%	12

2	**Unit 2. Number System**
	2.1 Analogue Versus Digital
	2.2 Introduction to Number Systems (Binary, Octal, Decimal, Hexadecimal)
	2.3 Number Representation in Binary
	   2.3.1 Sign-Bit Magnitude
	   2.3.2 1's Complement
	   2.3.3 2's Complement
	2.4 Conversion among various number systems
	   (Consider all possible combinations from one number system to other number system)
		22%	10

3	**Unit 3. Digital Arithmetic & Logic Gates** 3.1 Basic Rules of Binary Addition and Subtraction 3.2 Binary Multiplication 3.3 Binary Division 3.4 Floating-Point Arithmetic 3.5 Positive and Negative Logic, Truth Table 3.6 Logic Gates 3.6.1 OR Gate, AND Gate, NOT Gate, EXCLUSIVE-OR Gate, NAND Gate, NOR Gate, EXCLUSIVE-NOR Gate, Universal Gates	20%	09

4	**Unit 4. Arithmetic Circuits & Multiplexer**
	4.1 Combinational Circuits
	4.2 Arithmetic Circuits – Basic Building Blocks
	   4.2.1 Half-Adder,
	   4.2.2 Full Adder
	   4.2.3 Half-Subtractor
	   4.2.4 Full Subtractor
	4.3 Multiplexer and Demultiplexer
	4.4 Encoder & Decoder
		18%	08

5	**Unit 5. Flip-flops** 5.1 Types of flip-flops 5.2 R-S flip-flop 5.3 J-K flip-flop 5.4 Flip flop application	15%	06

REFERENCE

Core references:

1. How computer works: Ron White – Tech media
2. Fundamentals of Computers: V. Rajaraman
3. Digital Electronics: Principles, Devices and Applications Anil K. Maini© 2007 John Wiley & Sons,

Reference books:

1. Digital Principles and Applications By Malvino & Leach, Seventh Edition, McGraw-Hill Education
2. Digital Logic & State Machine Design By David J. Comer, Third Indian Edition, Oxford University Press
3. Digital Logic and Computer Design By M Morris Mano, Fourth Edition, Prentice Hall Publication

Web contents:

COURSE OUTCOMES:

Upon successful completion of the course,

CO 1.	Basic introduction about Computers. Perform conversion between various number systems.
CO 2.	Apply knowledge of Boolean algebra and other minimization techniques for digital circuit design.
CO 3.	Identify, formulate and solve a problem based on combinational and sequential circuits
CO 4.	Select the appropriate hardware and software tools for combinational and sequential circuit design.
CO 5.	Design various counters.

5 Years Integrated M.Sc. IT
Syllabus – 2023-24

COURSE OUTCOMES MAPPING

Unit No.	Title of the Unit	Course Outcomes				
		CO 1.	CO 2.	CO 3.	CO 4.	CO 5.
1	Introduction to Computer	▢				
2	Number System	▢				
3	Digital Arithmetic & Logic Gates		▢			
4	Arithmetic Circuits & Multiplexer			▢	▢	
5	Flip-flops				▢	▢

COURSE ARTICULATION MATRIX

	PSO 1.	PSO 2.	PSO 3.	PSO 4.	PSO 5.	PSO 6.	PSO 7.
CO 1.	▢						
CO 2.		▢			▢		
CO 3.			▢			▢	
CO 4.				▢			
CO 5.							▢

5 Years Integrated M.Sc. IT
Syllabus – 2023-24

VANITA VISHRAM WOMEN'S UNIVERSITY, SURAT
SCHOOL OF SCIENCE AND TECHNOLOGY
Department of Computer Science
M.Sc. IT Program
FY M.Sc. IT
Semester I
COURSE CODE: Programming Using C

Credit   3   **Contact Hour per week   3**

Outline of the Course:

Course type	Theory
Purpose of Course	To studying basic about computer programming to explore concepts and develop basic skills of programming.
Course Objective	CO 1. Introduce students to the essentials of computer Programming and programming methodology using C language. CO 2. Analyse C language code that uses structured programming. CO 3. Apply various programming constructs. CO 4. Understand library and user defined functions.
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Last Review / Revision	June 2023
Pre-requisite	--
Teaching Methodology	Class Room Teaching, Discussion and Assignment
Evaluation Method	40% Continuous Assessment (CA) 60% End Semester Examination (ESE)

Course Content:

Units	Particulars	% Weightage of Unit	Minimum Nos. of Hours
1	**Unit 1. Problem Solving with Computer** 1.1 Problem Analysis, Algorithm and Flowchart, 1.2 Features of C and its Basic Structure, Simple C programs, 1.3 Concepts of Compiler, Interpreter, Editor, Debugging & Testing.	12%	08
2	**Unit 2. Elements of C** 2.1 Character Set, C tokens, Keywords, Constants and variables, 2.2 Data types in C programming	08%	05
3	**Unit 3. Operators and Expressions and basic Input / Output** 3.1 Types of Operators (Unary, Binary and Ternary) and Expressions. 3.2 Arithmetic Operators, Relational and Logical Operators, the Conditional Operator, Bitwise Operators, the Increment and Decrement Operators, Assignment operators, Special Operators. 3.3 Precedence of operators. 3.4 The Size of Operator The type cast Operator, 3.5 The gets() and puts() functions. Basic I/O statements (like scanf, printf), Unformatted I/O statements (like getchar(), getch(), getche(), putchar()).	30%	12
4	**Unit 4. Control Statements and Decision Making** 4.1 The goto statement, if statement, if-else statement, Nesting of if statements, ladder if, switch case statement, 4.2 while loop, do…while loop and for loop. 4.3 The break and continue statement.	25%	10

5	**Unit 5. Array and Strings**
	5.1 Introduction of Array
	   5.1.1 Types of Array
	   5.1.2 Memory representation of array.
	5.2 Array of characters
	   5.2.1 String Operations
	   5.2.2 String library functions
	      (strlen, strcat, strcmp, strrev strlwr, strupr, strcpy, etc.).
		25%	10

REFERENCE

Core references:

1. Programming in C, Balaguruswami – TMH
2. Let us C - 17th Edition, Yashavant Kanetkar, BPB Publication, Noida
3. C Language Programming – Byron Gottfried – TMH
4. The C Programming Language, Brian Kernigham & Dennis Ritchie, Prentice Hall Publications
5. C: The Complete Reference, Herbert Schildt, McGraw Hill Publications, Noida

Reference books:

1. C Programming Language, Kernigham& Ritchie – TMH
2. Programming in C, Stephan Kochan – CBS
3. Mastering Turbo C, Kelly & Bootle – BPB
4. Problem Solving with C, Somashekara – PHI

Web contents:

COURSE OUTCOMES:

Upon successful completion of the course,

CO 1.	Ability to design and develop Computer programs, analyses, and interprets the concept of pointers, declarations, initialization, operations on pointers and their usage.
CO 2.	On completion of this course, student will understand the fundamentals and applications logic in programming.
CO 3.	Student will be able to write code in C language using control statements.
CO 4.	Solve computational problems using basic C language Constructs

COURSE OUTCOMES MAPPING

Unit No.	Title of the Unit	Course Outcomes			
		CO 1	CO 2	CO 3	CO 4
1	Problem Solving with Computer				
2	Elements of C				
3	Operators and Expressions and basic Input / Output				
4	Control Statements and Decision Making				
5	Array and Strings				

COURSE ARTICULATION MATRIX

	PSO 1.	PSO 2.	PSO 3.	PSO 4.	PSO 5.	PSO 6.	PSO 7.
CO 1.							
CO 2.							
CO 3.							
CO 4.							

VANITA VISHRAM WOMEN'S UNIVERSITY, SURAT
SCHOOL OF SCIENCE AND TECHNOLOGY
Department of Computer Science
M.Sc. IT Program
FY M.Sc. IT
Semester I
COURSE CODE: Fundamentals of Database Management System (DBMS)

Credit   3   **Contact Hour per week   3**

Outline of the Course:

Course type	Theory
Purpose of Course	To provide comprehensive understanding of the basic concepts and principles of Database Management Systems (DBMS).
Course Objective	CO 1. Students will learn about the fundamental concepts, architecture, and components of a DBMS, including data models, schema design, and the different types of databases. CO 2. Students will learn how to design and implement a database using different tools and techniques, including entity-relationship diagrams, normalization, and SQL.
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Last Review / Revision	June 2023
Pre-requisite	Concepts of data.
Teaching Methodology	Class Room Teaching, Discussion and Assignment
Evaluation Method	40% Continuous Assessment (CA) 60% End Semester Examination (ESE)

Course Content:

Units	Particulars	% Weightage of Unit	Minimum Nos. of Hours
1	**Unit 1. Concepts of Database** 1.1 Conventional File Organization and its drawbacks 1.2 Introduction of Database and its Need. 1.3 Advantages of DBMS over File system. 1.4 Introduction of 3-Tier Architecture in DBMS Data Abstraction and Data Independence	10%	05
2	**Unit 2. Database Models and Keys** 2.1 Database Models (Hierarchical, Network, E-R, Relational) 2.1.1 E-R model: Entity, Relationship, Attribute 2.1.2 Cardinality: One to one, one to many, many to one, many to many 2.1.3 Strong entity, weak entity 2.1.4 key attribute, derived attribute, multi-valued attribute 2.1.5 Extended E-R features - Generalization, Specialization 2.2 Types of keys 2.2.1 Super key, candidate key, Primary key, Composite key, Foreign key, Unique key.	25%	12
3	**Unit 3. Normalization and Types of Databases** 3.1 Introduction to normalization (Insertion, Updating, Deletion anomalies) 3.2 Normalization Rules: 3.1.1 Concepts of Dependency, Transitive Dependency 3.1.2 1st Normal Form, 2nd Normal Form, 3rd Normal Form, B.C.N.F. 3.3 Types of Databases: Object-based, Object Oriented, Multimedia, Temporal, XML, Parallel database	20%	08
4	**Unit 4. Database Tools** 4.1 Introduction to Open-Source Database tools 4.1.1 MySQL, MongoDB, SQLite, PostgreSQL 4.2 Introduction to Licence tools 4.2.1 Oracle, SQL Server 4.3 NoSQL Database 4.4 Bigdata	20%	08
5	**Unit 5. Concepts of Structure Query Language (SQL)** 5.1 SQL datatypes: int, float, double, char, varchar, number, varchar2, Text, date 5.2 DDL Statements: 5.2.1 Create, Drop, Truncate, Rename, Alter 5.3 DML and DQL (Data Query Language) Statements:	25%	12

5.3.1 Insert, Update, Delete, select
5.4 Using where clause and operators with where clause:
   5.4.1 In, between, like, not in, =, !=, >, =, <=, wildcard operators
   5.4.2 Order by, Group by, Distinct
   5.4.3 AND, OR operators, Exists and not Exists
   5.4.4 Use of Alias
5.5 Constraints (Table level and Attribute Level)
   5.5.1 NOT NULL, CHECK, DEFAULT
   5.5.2 UNIQUE, Primary Key, Foreign Key
   5.5.3 On Delete Cascade
5.6 SQL Functions:
   5.6.1 Aggregate Functions: avg(), max(), min(), sum(), count(), first(), last().
   5.6.2 Scalar Functions: ucase(), lcase(), round(), mid().

REFERENCE

Core references:

1. SQL, PL/SQL THE PROGRAMMING LANGUAGE OF ORACLE - 4TH REVISED EDITION - Ivan Bayross - BPB Publications
2. Database System Concepts: – Henry F. Korth & Abrahim Silberschatz – McGraw Hill Education
3. Introduction to Database Management System– Bipin C. Desai – Galgotia Publication
4. Principles of database systems – Jeffery Ullman – Galgotia Publication
5. An introduction to Database Systems – C. J. Date – Addison Wesley
   Introduction to database Management – Navin Prakash -TMH

Reference books:

Web contents:

COURSE OUTCOMES:

Upon successful completion of the course,

CO 1.	After learning this subject, students will know how to store, retrieve and administer the data easily & efficiently
CO 2.	Students will be able to learn basic concept of database management system and data models
CO 3.	Students will be have the knowledge of various data models
CO 4.	Student will be able work on database management system and perform practical like creating database, tables and manipulating records

COURSE OUTCOMES MAPPING

Unit No.	Title of the Unit	Course Outcomes			
		CO 1.	CO 2.	CO 3.	CO 4.
1	Concepts of Database				
2	Database Models and Keys				
3	Normalization and Types of Databases				
4	Database Tools				
5	Concepts of Structure Query Language (SQL)				

COURSE ARTICULATION MATRIX

	PSO 1.	PSO 2.	PSO 3.	PSO 4.	PSO 5.	PSO 6.	PSO 7.
CO 1.							
CO 2.							
CO 3.							
CO 4.							

VANITA VISHRAM WOMEN'S UNIVERSITY, SURAT
SCHOOL OF SCIENCE AND TECHNOLOGY
Department of Computer Science
M.Sc. IT Program
FY M.Sc. IT
Semester I
COURSE CODE: Practical

Credit   4   **Contact Hour per week   8**

Outline of the Course:

Course type	Practical
Purpose of Course	● Practical implementation of program covered as part of syllabus using required software and learning programming areas. ● Understanding and learning basic concepts, Algorithm, flowchart and programming. ● Practical implementation of Queries of SQL and PL/SQL Programs covered as part of syllabus using required software and learning Relational database Management System. ● Understanding and learning concepts of DBMS.
Course Objective	CO 1. Introduce students to the essentials of computer Programming and programming methodology using C language. CO 2. Analyse C language code that uses structured programming CO 3. Apply various programming constructs. CO 4. Understand library and user defined functions. CO 5. To understand functionality of DBMS using Oracle. CO 6. To make students aware with concepts of DBMS. CO 7. Understand SQL for filtering records in database.
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Last Review / Revision	June 2023
Pre-requisite	Basic of Programming, Spreadsheet and Database
Teaching Methodology	Lab work
Evaluation Method	40% Continuous Assessment (CA) 60% End Semester Examination (ESE)

COURSE OUTCOMES:

Upon successful completion of the course,

CO 1.	Ability to design and develop Computer programs, analyses, and interprets the concept of pointers, declarations, initialization, operations on pointers and their usage.
CO 2.	Student will understand the fundamentals and applications logic in programming, data structures
CO 3.	Student will be able to write code in C language using control statements
CO 4.	
CO 5.	

COURSE ARTICULATION MATRIX

	PSO 1.	PSO 2.	PSO 3.	PSO 4.	PSO 5.	PSO 6.	PSO 7.
CO 1.							
CO 2.							
CO 3.							
CO 4.							

5 Years Integrated M.Sc. IT
Syllabus – 2023-24

12 TEACHING METHODOLOGY

A teaching method comprises the principles and methods used by teachers to enable student learning. In order to achieve its objective of focused process- based learning and holistic development, the teacher/faculty may use a variety of knowledge delivery methods:

12.1 LECTURES/CLASS WORKS:

Lectures should be designed to provide the learners with interesting and fresh perspectives on the subject matter. Lectures should be interactive in a way that students work with their teachers to get new insights in the subject area, on which they can build their own bridges to higher learning. Classwork has the ability to enhance relationships between teachers and students. Create goal- oriented tasks for students to prepare and enable self-learning.

12.2 DISCUSSIONS/ SEMINARS/PRESENTATION:

Discussions / seminars / presentation are critical components of learning and can be used as a platform for students to be creative and critical with old and new ideas. Besides developing critiquing skills, arriving at consensus on various real-life issues and discussion groups lead to innovative problem-solving and ultimately to success.

12.3 CASE STUDIES/ SELF-STUDY:

Real case studies, wherever possible, should be encouraged in order to challenge students to find creative solutions to complex problems of individual, community, society and various aspects of knowledge domain concerned. Technology is transforming higher Education learning and teaching though various case studies to improve overall standards.

12.4   PRACTICAL/PROBLEM SHEET:

Practical ability is the essential requirement for computer science undergraduates' ability structure, and it emphasizes that computer science undergraduates should have a good grasp of theory from practice and then apply the theory to practice, improving them own software developing skills and employ ability.

12.5   ASSIGNMENTS:

Computer science assignments not only help students overcome their fear and stress but also help them learn more interesting facts about the subjects of computer science which are part of their syllabus and also out of curriculum.

12.6   INDUSTRIAL TOURS:

Computer Science students have to know the things practically through interaction, working methods and employment practices. Moreover, it gives exposure from academic point of view. Main aim industrial visit is to provide an exposure to students about practical working environment.

12.7   TEAM WORK:

Teamwork based projects challenge the student to apply the technical knowledge they gain in college to solve meaningful and complex problems. Positive collaboration in the form of team work is critical in the classroom environment, for which it is necessary to transcend one's prejudices and predilections so as to achieve the desired outcomes. In the process of team work, learners will acquire the skills of managing knowledge acquisition and other collaborative learners, thereby understanding how to incorporate and balance personalities.

13 KEYWORDS

- Master of Science in Information Technology
- Basics of Computers
- Office Automation
- Operating System
- Web Development
- Programming Concept
- Database-backend tool
- Web Designing
- Statistical analysis
- Internet
- Algorithms
- Software analysis, coding, design, testing
- Mobile Computing
- Cyber Security
- IT Projects
- Network fundamentals
- Framework
- Frontend tools
- Animation
- Graphics fundamentals