M. Sc. Computer Science

Programme Outcomes (POs)

Upon suMMessful completion of the M.Sc. Computer Science, the student should have met the following Outcomes:

PO1 : Students will acquire the ability to identify and formulate research problems, enabling them to contribute to the advancement of knowledge in the field of computer science

PO2: Identify, analyze, and synthesize scholarly literature relevant to the field of computer science. Use software development tools, software systems, and modern computing platforms.

PO3:Employ software development tools, software systems, and modern computing platforms.

PO4: Review the latest technology and tool handling mechanism.

PO5: Apply design and development principles when constructing software systems of varying complexities.

PO6: The program cultivates the ability to effectively communicate and collaborate as part of a team in   multidisciplinary projects, utilizing essential skills for seamless coordination and cooperation.

PO7: Design algorithms and develop software to aid solutions to industry and governments.

Program Specific Outcomes (PSOs)

PSO1:Able to pursue careers in IT industry/ consultancy/ research and development, teaching and allied areas related to computer science.

PSO2: Demonstrate understanding of the principles and working of the hardware and software aspects of computer systems.

PSO3:Apply the practices and strategies of computer science for software project development to deliver a quality software product and contribute to research in the chosen field and perform effectively.

PSO4:Design and develop computer programs/computer-based systems in the areas related to algorithms, networking, web design, cloud computing, Artificial Intelligence, Mobile applications.

PSO5:Be acquainted with the contemporary issues, latest trends in technological development and thereby innovate new ideas and solutions to existing problems.

Course Outcome (COs)

M.Sc.(ComputerScience) Part I Semester I

MMT-101: Design and Analysis of Algorithm

C01:Analyze the asymptotic performance of algorithms.

C02:Demonstrate a familiarity with data structures and algorithms.

C03:Compare algorithms based on time & space complexity.

C04:Employ graphs to model real life problems, when appropriate.Develop algorithms that employ graph computations as key components, and analyze them.

CO5:Mapping of data structures like Stack, Queue and Linked List to real life problems.

CO6:Master the implementation of linked data structures such as linked lists and binary trees.

CO7:Be familiar with advanced data structures such as balanced search trees, hash tables, Red-Black trees, B-trees.

CO8:Understand Divide & Conquer approach, Greedy algorithm, Backtracking approach for algorithm design.

CO9:Be familiar with Branch and Bound & Dynamic programming.

MMT-102 : Advanced Database Management System

CO1:Demonstrate and understanding of the relational data model.

CO2:Formulate, using SQL, solutions to abroad range of query and data update problems.

CO3:Use PL/SQL for handing data in a database as per the user's requirement using programming features

CO4:Define various cursors and its implementation along with procedure and functions.

CO5:To study usage and applications of parallel and distributed databases, object relational database.

CO6:To acquire knowledge on No SQL databases.

MMPR-103: Practical-I

CO1:To become familiar with programming environment.

CO2:To implement advanced datastructures

CO3:Apply datastructures in real life problems.

CO4:Able to create tables and generate queries

CO5:To be familiar with different types of databases.

MMT-104:Web Designing

CO1: Able to understand the basics of web design

CO2: Able to gain proficiency in HTML and CSS coding languages

CO3: Able to understand the importance of CSS

CO4: Utilize the JavaScript with websites

MET-105: Cyber Security

CO1: Realize the need for Cyber Security

CO2: Understand the need for Security in day to day communications

CO3: Understand the vulnerabilities in the Network and Computer System

CO4: Understand the cyber law and Cyber Forensics

CO5: Understand the mobile forensics.

RM-107:Research Methodology

CO1:Understand the fundamental concepts and principles of research methodology in computer science

 CO2:Identify and select appropriate research methodologies based on the research problem

CO3: Formulate research questions and hypotheses in the context of computer science research

CO4:Design and execute research studies using quantitative and qualitative approaches

CO5:Apply ethical considerations in conducting computer science research

CO6:Develop critical thinking and problem-solving skills required for computer science research

M.Sc. (Computer Science) Part I Semester II

MMT -201:Advanced Java

CO1: To become familiar with the features of Java Language.

CO2: To become comfortable with concepts such as Classes, Objects, Inheritance, Polymorphism and Interfaces.

CO3: To understand Database connectivity using JDBC Drivers.

CO4: To design application using JSP, Servlet and RMI

CO5: To familiar with hibernate, struts and spring framework

MMT -202 :Artificial Intelligence

CO1: Apply problem solving by intelligent search approach.

CO2: Represent knowledge using knowledge representation techniques.

CO3: Understand working of Artificial Neural Networks.

CO4: Derive solutions for problems with uncertainty using Fuzzy theory.

CO5: To develop a good understanding of Natural Language Processing and Genetic algorithm

MMPR -203 :Practical-II

CO1.To become acquainted with programming environment.

CO2. Student will be able to use advanced technology in Java such as remote method
Invocation and JDBC.

CO3. Student will learn how to work with Java Frameworks.

CO4. Student will be able to develop web application using Java Servlet and Java Server
Pages technology.

CO5. Design and develop solutions for informed and uninformed search problems in AI.

MMT-204 AngularJS

CO1.Understand the fundamental concepts of AngularJS and its role in web development

CO2.Learn how to setup a development environment for AngularJS projects

CO3.Gain proficiency in using directives, filters, and expressions to manipulate and display dat

MET-206 :Block chain Technology

CO1. Understand the concept of Blockchain Technology, transactions, block, PoW,
Consensus

CO2. Understand the simulation of blockchain technology without any central controlling
or trusted agency and how bitcoin cryptocurrency work.

CO3. Understand the concept of digital currency, how it can be protected against fraud,
scam, hacking and devaluation.

CO4. Understand the concept of bitcoin and Etherum

MSc-II Semester-III (Computer Science)

MMT-301: Advanced PHP

Upon successful completion of this course, the student will be able to:

CO1. To introduce students to the PHP programming language and its role in web development.

CO2. To enable students to write PHP code for web applications.

CO3. To teach students how to integrate PHP with HTML for dynamic web content.

CO4. To provide hands-on experience in working with PHP to interact with MySQL databases.

CO5. To encourage problem-solving and critical thinking through practical coding exercises.

MMT-302: Data Science

Upon successful completion of this course, the student will be able to:

CO1. Learn basic statistics required for data science.

CO2. Visualize the data in different forms.

CO3. Learn and implement different visualization tools for data science.

CO4. Learn, understand and apply the concepts of probability theory for data science.

CO5. Learn and apply various clustering techniques for data science.

CO6. Learn and implement data science concepts in python.

MMPR-303: Practical-III

CO1. To provide students with a basic grasp of PHP as a server-side scripting language.

CO2. To instruct students in PHP syntax and core language features, such as variables, data types, operators, and control structures.

CO3. To enable students to use PHP for web development, including creating dynamic web pages, managing forms, and interacting with databases.

CO4. To teach students how to connect PHP with databases like MySQL and perform CRUD operations.

CO5. To teach students the concept of PHP framework and integration of database system into the framework and perform CRUD (Create, Read, Update, Delete) operations.

CO6. To learn and implement data science concepts using python.

MMT-304: Data Engineering

Upon successful completion of this course, the student will be able to:

CO1. To introduce students to data storage systems and technologies commonly used in data engineering. CO2. To enable students to design and implement databases for efficient data storage and retrieval.

CO3. To teach students how to optimize data storage and access patterns for performance.

CO4. To explore data security and privacy considerations in data engineering.

CO5. To provide experience in using cloud-based storage and database services.

MET-305: Big Data Analytics

Upon successful completion of this course, the student will be able to:

CO1. Understand the key issues in big data management and its associated applications in intelligent business and scientific computing.

CO2. Understanding different tools for Big Data Analytics.

CO3. Develop Big Data Solutions using Hadoop Eco System

RP-307: Research Project

Upon successful completion of this course, the student will be able to:

CO1. find current research domains in computer science

CO2. identify different research journals in computer science domains

CO3. understand citations, impact factors, references etc.

CO4. identification of appropriate societal issues.

CO5. development of applications to address identified societal issue.

MSc-II Semester-IV (Computer Science)

MMT-401: Mobile Application Development

Upon successful completion of this course, the student will be able to:

CO1.Learn about the features and installation of Android and kotlin

CO2.Learn about basic programming with Android Kotlin

CO3.Develop mobile applications using database Connections

CO4.Develop simple mobile applications in Flutter using Dart language

CO5.Learn to Create a full-fledged mobile app and deploy.

MMT-402: Full Stack Development

Upon successful completion of this course, the student will be able to:

CO1. Understand the unique trade-offs present in event-driven programming.

CO2. Create Node.js modules and express code modularity in an application.

CO3. Understand the core flow control patterns in Node.js and know when it is appropriate to use callbacks, event emitters or streams

CO4. Connect with MongoDB to perform various operations

MMPR-403: Practical-IV

Upon successful completion of this course, the student will be able to:
CO1. Understanding Web Development, Front-End Development: Teach students how to create responsive and interactive user interfaces using HTML, CSS, and JavaScript.
CO2. Back-End Development: Introduce students to server-side programming and database management, typically using languages like Node.js, Python, Ruby, Java, or PHP, along with frameworks like Express, Flask, or Django.
CO3. Database Integration: Teach students how to design, create, and manage databases, including SQL and NoSQL databases like MySQL, PostgreSQL, MongoDB, or Firebase.
CO4. Learn about basic programming with Android Kotlin
CO5. Develop mobile applications using database Connections
CO6. Develop simple mobile applications in Flutter using Dart language.
CO7. Learn to Create a full-fledged mobile app and deploy

MET-405: Agile Project Management

Upon successful completion of this course, the student will be able to:
CO1. Understand the principles of Agile Manifesto.
CO2. Learn the project management approaches.
CO3. Understand concept of Scrum its values and roles.
CO4. Apply agile project constraints and trade-offs for estimating project size and schedule.

RP-406: Research Project

Upon successful completion of this course, the student will be able to:
CO1. investigate and design a model for research problem identified.
CO2. implementation of model with appropriate software tools.
CO3. benchmark the experimental results.
CO4. writing a research article.
CO5. identification of appropriate societal issues.
CO6. development of applications to address identified societal issue