

M.Sc. (Computer Science) 2015 – 2016

Program Outcome

- Provides technology-oriented students with the knowledge and ability to develop creative solutions.
- Develop skills to learn new technology.
- Apply computer science theory and software development concepts to construct computing-based solutions.
- Design and develop computer programs/computer-based systems in the areas related to algorithms, networking, web design, cloud computing, Artificial Intelligence, Mobile applications.

Course Outcome

M.Sc. Previous (Computer Science)

Paper 1 – MCST-101: Digital Electronics and Microprocessor

- Define basic logical circuits, Boolean algebra, minimization methods, methods for writing Boolean functions, combinational and sequential circuits, flip-flops, digital automaton, and programmable structures.
- Describe operation methods of combinational and sequential circuits, similarities and differences of writing the Boolean functions and minimizations.
- Select appropriate methods for realization and circuit minimization.
- Pattern recognition for specific circuit realization and error discovery during circuit design process.

Paper 2 – MCST-102: OOPs using JAVA

- Able to apply object oriented programming features and concepts for solving given problem.
- Able to use java standard API library to write complex programs.
- Able to implement object oriented programming concepts using java.
- Able to develop interactive programs using applets and swings.

Paper 3 –MCST-103: Advanced Computer Network

- Configure PCs running Linux so that they receive IP addresses, have default routes, and can resolve host names, and so on. (And similarly for Windows, if time permits.)
- Differentiate between different LAN-based forwarding devices so that they can make thoughtful suggestions on how to build a network.
- Write networking code that uses TCP and UDP in client-server applications.
- Design networking protocols.
- Implement networking protocols.

Paper 4 – MCST-104: Data Structure

- Choose appropriate data structures to represent data items in real world problems.
- Analyze the time and space complexities of algorithms.
- Design programs using a variety of data structures such as stacks, queues, hash tables, binary trees, search trees, heaps, graphs, and B-trees.
- Analyze and implement various kinds of searching and sorting techniques.

Paper 5 – MCST-105: Advanced Operating System

- To design and understand the following OS components: System calls, Schedulers, Memory management systems, Virtual Memory and Paging systems.
- To evaluate, and compare OS components through instrumentation for performance analysis.
- To analyze the various device and resource management techniques for timesharing and distributed systems.
- To develop and analyze simple concurrent programs using transactional memory and message passing, and to understand the trade-offs and implementation decisions.

Paper 6 – MCST-106: Analysis and Design of Algorithm

- To design efficient algorithms using various algorithm designing strategies.
- To analyze the problem and develop the algorithms related to these problems.
- To classify the problem and apply the appropriate design strategy to develop algorithm.
- To design algorithm in context of space and time complexity and apply asymptotic notation.

M.Sc. Final (Computer Science)

Paper 1 – MCST-107: Advanced Database Management System

- Identify the basic concepts and various data model used in database design ER modeling concepts and architecture use and design queries using SQL.
- Apply relational database theory and be able to describe relational algebra expression, tuple and domain relation expression from queries.
- Recognize and identify the use of normalization and functional dependency, indexing and hashing technique used in database design.
- Apply and relate the concept of transaction, concurrency control and recovery in database.

Paper 2 – MCST-108: Advanced Database Management System

- Explain the core concepts of computer graphics, including viewing, projection, perspective, modeling and transformation in two and three dimensions.
- Apply the concepts of color models, lighting and shading models, textures, ray tracing, hidden surface elimination, anti-aliasing, and rendering.
- Interpret the mathematical foundation of the concepts of computer graphics.
- Describe the fundamentals of animation, parametric curves and surfaces, and spotlighting.
- Identify a typical graphics pipeline and apply graphics programming techniques to design and create computer graphics.

Paper 3 – MCST-109: Advanced Computer Architecture

- To understand the structure, function and characteristics of computer systems.
- To understand the design of the various functional units and components of computers.
- To identify the elements of modern instructions sets and their impact on processor design.
- To explain the function of each element of a memory hierarchy,
- To identify and compare different methods for computer I/O.

Paper 4 – MCST-110: .NET Technology

- Understand code solutions and compile C# projects within the .NET framework.
- Design and develop professional console and window based .NET application.

- Demonstrate knowledge of object-oriented concepts Design user experience and functional requirements C#.NET application.
- Understand and implement string manipulation, events and exception handling within .NET application environment.
- Design and Implement Windows Applications using Windows Forms, Control Library, Advanced UI Programming & Data Binding concepts.

Paper 5 – MCST-111: JAVA Programming with Data Structure LAB

- Describe how arrays, records, linked structures, stacks, queues, trees, and graphs are represented in memory and used by algorithms.
- Describe common applications for arrays, records, linked structures, stacks, queues, trees, and graphs.
- Write programs that use arrays, records, linked structures, stacks, queues, trees, and graphs.
- Demonstrate different methods for traversing trees.
- Compare alternative implementations of data structures with respect to performance.