

Session 2020-21

# Programme and Course Outcome

M.Sc (IT)



***Multani Mal Modi College,  
Patiala***

**Program Outcomes (POs)**

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**PO-1** : Apply knowledge of computer science and programming appropriate to the discipline and to provide effective solution in the area of computing

**PO-2**: Design, implement, and evaluate a computational system to meet desired needs of the industry

**PO-3** :Function effectively in teams or as individual to accomplish shared computing design, evaluation, or implement goals.

**PO-4** : Perform professionally with social, cultural and ethical responsibility as an individual as well as in multifaceted teams with positive attitude

**PO-5** : Capable of adapting to new technologies and constantly upgrade their skills with an attitude towards independent and lifelong learning

## Course Outcomes (COs)

### M.Sc (IT) - I

#### Semester-1st

Code No.	Title of Paper
MS-111	Introduction to Information Technology
MS-112	Computer Programming using C
MS-113	Computer Organization and Architecture
MS-114	Mathematical Foundation of Computer Science
MS-115	Operating Systems
MS-116	Programming Lab – I

#### Semester-2<sup>nd</sup>

Code No.	Title of Paper
MS-121	Object Oriented Programming Using C++
MS-122	Data and File Structures
MS-123	Visual Basic
MS-124	RDBMS and Oracle
MS-125	Programming Lab – II
MS-126	Programming Lab – III

### MSc (Information Technology)

#### Program Specific Outcomes (PSOs)

##### After completion of the course the student will

**PSO-1:** Have fundamental and advance knowledge in Programming Languages, Data Structure, Operating Systems, Computer Networks, Software Engineering, and Research Methods.

**PSO-2:** Have fundamental and advance level knowledge if Computer Science concepts to debug and develop professional solutions.

**PSO-3:** Be able to apply experimental expertise to solve computational problems in computer science

**PSO-4:** Be able to conduct research in the field of Information Technology ethically and professionally.

**PSO-5:** Be able to acquire and adapt to new skills to grow professionally.

#### MS-111 : Introduction to Information Technology

## ***Programme & Course Outcomes of M.Sc(IT) (Session 2020-21)***

**On completion of this course, the students will be able to:**

**CO-1:** Have basic knowledge of computer hardware and software;

**CO-2:** Understand business areas to which computers may be applied;

**CO-3:** Provide an introduction to business organisation and information systems;

**CO-4:** Develop the skills in communication, verbal and written, which play an important part in business computing and information processing;

### **MS-112 : Computer Programming using C & MS-116 : Programming Lab-I**

**On completion of this course, the students will be able to:**

**CO-1:** Write, compile and debug programs in C language. Use different data types, operators and console I/O function in a computer program.

**CO-2:** Design programs involving decision control statements, loop control statements and case control structures.

**CO-3:** Understand the implementation of arrays, pointers and functions and apply the dynamics of memory by the use of pointers.

**CO-4:** Comprehend the concepts of structures and classes: declaration, initialization and implementation.

**CO-5:** Apply basics of object oriented programming, polymorphism and inheritance.

**CO-6:** Use the file operations, character I/O, string I/O, file pointers, pre-processor directives and create/update basic data files.

### **MS-113 :Computer Organization and Architecture**

**On completion of this course, the students will be able to:**

**CO-1:** Understand the basics of number system, computer arithmetic, computer hardware, how software interacts with computer hardware, how computers represent and manipulate data.

**CO-2:** Analyze and evaluate computer performance

**CO-3:** Assemble a simple computer with hardware design including data format, instruction format, instruction set, addressing modes, bus structure, input/output, memory, Arithmetic/Logic unit, control unit, and data, instruction and address flow

**CO-4:** Use Boolean algebra as related to designing computer logic, through simple combinational and sequential logic circuits

**MS-114 :Mathematical Foundation of Computer Science**

**On completion of this course, the students will be able to:**

**CO-1:** Be familiar with the basic terminology of functions, relations, and sets and demonstrate knowledge of their associated operations.

**CO-2:** Master to solve advanced mathematical problems, apply various methods of mathematical proof, and communicate solutions in writing

**CO-3:** Master to comprehend advanced mathematics, and present the material orally and in writing

**CO-4:** Utilize the knowledge of computing and mathematics appropriate to the discipline.

**CO-5:** Evaluate mathematical principles and logic design

**MS-115 :Operating Systems**

**On completion of this course, the students will be able to:**

**CO-1:** Learn and understand the mechanisms of OS to handle processes and threads and their communication, the mechanisms involved in memory management in contemporary OS.

**CO-2:** Gain knowledge on distributed operating system concepts that includes architecture, deadlock detection algorithms and agreement protocols.

**CO-3:** Understand and explain different approaches to memory management, structure and organization of the file system

**CO-4:** Understand the various security threats and their probable solutions.

**MS-121 : Object Oriented Programming Using C++ & MS-125 : Programming Lab-II (based on MS-121)**

**On completion of this course, the students will be able to:**

**CO-1:** Write, compile and debug programs in C++language. Use different data types, operators and console I/O function in a computer program.

**CO-2:** Design programs involving decision control statements, loop control statements and case control structures.

**CO-3:** Understand the implementation of arrays, pointers and functions and apply the dynamics of memory by the use of pointers.

**CO-4:** Comprehend the concepts of structures and classes: declaration, initialization and implementation.

## **Programme & Course Outcomes of M.Sc(IT) (Session 2020-21)**

**CO-5:** Apply basics of object oriented programming, polymorphism and inheritance.

**CO-6:** Use the file operations, character I/O, string I/O, file pointers, pre-processor directives and create/update basic data files.

### **MS-122 :Data and File Structures & MS-125 : Programming Lab-II (based on MS-122)**

**On completion of this course, the students will be able to:**

**CO-1:** Be familiar with basic data structure and algorithms.

**CO-2:** Design and analyze programming problem statements

**CO-3:** Choose appropriate data structures and algorithms and use it to design algorithms for a specific problem.

**CO-4:** Handle operations like searching, insertion, deletion and traversing mechanism

**CO-5:** Come up with analysis of efficiency and proofs of correctness

### **MS-123 : Visual Basic & MS-126 Programming Lab-III(based on MS-123)**

**On completion of this course, the students will be able to:**

**CO-1:** Design, create, build, and debug Visual Basic applications.

**CO-2:** Explore Visual Basic's Integrated Development Environment (IDE).

**CO-3:** Write and apply decision structures for determining different operations.

**CO-4:** Understand and identify the fundamental concepts of object-oriented programming.

**CO-5:** Perform tests, resolve defects and revise existing code.

### **MS-124 : RDBMS and Oracle & MS-126 Programming Lab-III(based on MS-124)**

**On completion of this course, the students will be able to:**

**CO-1:** Gain the knowledge and understanding of Database analysis and design.

**CO-2:** Understand the use of Structured Query Language(SQL) and learn SQL syntax.

**CO-3:** Gain the knowledge of the processes of Database Development and Administration using SQL and PL/SQL.

**CO-4:** Understand and apply the concept of functional dependencies to design the database

**CO-5:** Understand and apply the concept of Transaction and Query processing

**Course Outcomes (COs)**

**M.Sc (IT) – II  
Semester-3rd**

Code No.	Title of the Paper
MS-211	Web Technology
MS-212	Java Programming
MS-213	Software Engineering
MS-214	Computer Networks
MS-215	Programming Lab-IV (Web Technology)
MS-216	Programming Lab-V (Java Programming)

**Semester-4<sup>th</sup>**

Code No.	Semester System-IV
MS-221	Computer Graphics
MS-222	Linux Administration
MS-223	Research Methodology
MS-224	Artificial Intelligence
MS-225	Programming Lab-VI (Computer Graphics)
MS-226	Programming Lab-VII (LINUX Administration)

**MS-211 : Web Technology & MS-215 : Programming Lab-IV (Web Technology)**

**On completion of this course, the students will be able to:**

**CO-1:** Learn and use the knowledge of web publishing and technologies related with the website development.

**CO-2:** Learn client side and server side programming using Java Script and PHP

**CO-3:** Apply the knowledge of website development to design and publish website individually and as a team member.

**CO-4:** Upgrade the knowledge by learning new technologies and languages used for website development.

**MS-212 : Java Programming & MS-216 : Programming Lab-V (Java Programming)**

**On completion of this course, the students will be able to:**

**CO-1:** Learn the Object Oriented Programming concepts to write, compile and debug programs using Java language.

## ***Programme & Course Outcomes of M.Sc(IT) (Session 2020-21)***

**CO-2:** Apply the concepts of object oriented programming like polymorphism, inheritance, Exception Handling, and Multithreading.

**CO-3:** Design and develop console and GUI applications using Java Programming Language.

**CO-4:** Work on programming project as individual or as team member in design, development and implementation phase.

### **MS-213 : Software Engineering**

**On completion of this course, the students will be able to:**

**CO-1:** Understand the basic concepts, models, life cycle of software development.

**CO-2:** Learn higher level concepts like Re-engineering, Reverse Engineering, Forward Engineering, and CASE tools.

**CO-3:** Knowledge of all the steps of software engineering and their use and implementation in real problems

**CO-4:** Understanding of programming language and using it to develop software using all stages of software development.



## **Programme & Course Outcomes of M.Sc(IT) (Session 2020-21)**

### **MS-214 : Computer Networks**

**On completion of this course, the students will be able to:**

**CO-1:** On completion of this course, the students will be able to:

**CO-2:** Understand the basic concepts, types of networks, OSI, and TCP/IP models with working of all the layers in detail

**CO-3:** Learn and understand the working of different hardware components used in networking and various communication protocols

**CO-4:** Learn and understand various issues involved in network security, and methods used to implement network security.

### **MS 221 : Computer Graphics & MS-225 : Programming Lab-VI (Computer Graphics)**

**On completion of this course, the students will be able to:**

**CO-1:** Understand and explain various concepts related to Computer Graphics

**CO-2:** Implement various algorithms to scan, convert the basic geometrical primitives, transformations, Area filling, clipping.

**CO-3:** Describe the importance of viewing and projections.

**CO-4:** Explain various illumination models and surface rendering methods.

### **MS-222 : LINUX Administration & MS-226 : Programming Lab-VII (LINUX Administration)**

**On completion of this course, the students will be able to:**

**CO-1:** Install and configure Linux operating system and understand the basic set of commands and working of editors in Linux.

**CO-2:** Understand and work with Linux file system through terminal and GUI interface

**CO-3:** Discuss various types of commands and variable used in shell programming and write simple shell programs in Linux operating system

**CO-4:** Demonstrate the role and responsibilities of a Linux system administrator and make use of server commands

### **MS-223: Research Methodology**

**On completion of this course, the students will be able to:**

**CO-1:** Understand the basic concepts of research and its methodologies

**Programme & Course Outcomes of M.Sc(IT) (Session 2020-21)**

**CO-2:** Identify and formulate appropriate research problem topics and parameters

**CO-3:** Prepare a research proposal to undertake a research project

**CO-4:** Organize and conduct research in a more appropriate manner

**CO-5:** Write a research paper, research report and thesis and present the research work to audience

**MS- 224 : Artificial Intelligence**

**On completion of this course, the students will be able to:**

**CO-1:** Understand and explain the definition, components, and application areas of Artificial Intelligence

**CO-2:** Understand the concepts of Logical Reasoning and their use in knowledge representation and knowledge processing

**CO-3:** Describe the architecture and working of knowledge based systems (Expert systems)

**CO-4:** Use PROLOG language to write and execute simple program for AI

**CO-5:** Explain various applications and limitations of Artificial Intelligence systems.