

**Guru Nanak Dev Engineering College, Ludhiana**  
**Department of Computer Applications**  
**Date sheet 1<sup>st</sup> Sessional**

**3<sup>rd</sup> Semester**

**Venue: Room No.: S-219**

S. No.	Date	Time	Subject Name	Subject Code	Whether Compulsory/ Elective
1	16/09/19	10:30AM-12:00 Noon	Database Administration	MCA-15301	Compulsory
2	17/09/19	10:30AM-12:00 Noon	System Programming	DEMCA-15307	Elective-I
3	18/09/19	10:30AM-12:00 Noon	Computer Based Optimization Techniques	MCA-15302	Compulsory
4	19/09/19	10:30AM-12:00 Noon	Software Engineering	MCA-15303	Compulsory
5.	20/09/19	10:30AM-12:00 Noon	Java Programming	MCA-15304	Compulsory

**5<sup>th</sup> Semester**

**Venue: Room No.: S-219**

S. No.	Date	Time	Subject Name	Subject Code	Whether Compulsory/ Elective
1	16/09/19	10:30AM-12:00 Noon	Interactive Computer Graphics	MCA-15501	Compulsory
2	17/09/19	10:30AM-12:00 Noon	Web Technologies	MCA-15502	Compulsory
3	18/09/19	10:30AM-12:00 Noon	Network Security & Administration	DEMCA -15507	Elective-III
4	19/09/19	10:30AM-12:00 Noon	Object Oriented Analysis & Design with UML	MCA-15503	Compulsory

## Syllabus for MST-1(Sept.16, 2019 to Sept.20, 2019)

**Semester: 3rd**

Subject Title:- Database Administration

Subject Code:- MCA-15301

Subject Incharge: - Karamvir Kaur

S. No.	Title	Detail
1.	<b>Introduction</b>	Understanding role and responsibilities of DBA Database Environment management (network, CPU, disk and RAM) Installing and upgrading various database packages (MS SQL Server, Oracle, MySQL) Comparing various database packages, Configuring various services and components, Understanding the client/server model, Communication protocols, Database instance management, Creating and managing various database objects (tables, views, indexes)
2.	<b>Managing Database Servers</b>	Understating client tools for administrative tasks, Task Automation, Implementing migration, Consolidation, and upgrade strategy, Hardware resource allocation

**Semester: 3rd**

Subject Title:- Java Programming

Subject Code:- MCA-15304

Subject Incharge: - Amit Jain

S. No.	Title	Detail
1.	<b>Introduction</b>	Object Oriented Concept overview, features and applications of Java, Differences between Java and C++, structure of Java Program, understanding class path.
2.	<b>Building Blocks</b>	Literals, Tokens, Keywords, constants, variables & Data types, scope of variables, Operators, Expressions, Flow Control statements, Arrays, Vectors, Type Conversion, Command Line Arguments, Review of classes and methods, Access specifiers, constructors, Inheritance
3.	<b>Classes</b>	Static Classes, Abstract Classes, Final Classes, Wrapper Classes: Autoboxing and Unboxing, Garbage Collection & Finalize method, Enumerated types and annotations, Handling String and String Buffer classes, Method Overloading and Overriding, Nesting of methods and methods with varargs.

**Semester: 3rd**

Subject Title:- CBOT

Subject Code:- MCA-15302

Subject Incharge: - Rupinderjit Kaur

S. No.	Title	Detail
1.	<b>Introduction to Optimization Techniques</b>	Origin & development of O.R., Nature & Characteristic Features of O.R., Models & Modeling in Operation Research. Methodology of O.R. Linear Programming - Mathematical Model, Assumptions of Linear Programming, Graphical Method, Principles of Simplex method and its Applications, Duality, Dual simplex method- Primal Dual Relationship and sensitivity analysis. Transportation Problems

**Semester: 3rd**

Subject Title:- Software Engineering

Subject Code:- MCA-15303

Subject Incharge: -Dinesh Anand

S. No.	Title	Detail
1.	<b>Software Engineering</b>	The software problem, Evolution of Software Engineering, Principles of software engineering, Software Development vs. Software Engineering.
2.	<b>Software Process:</b>	Selection of appropriate process model, Software Process Models- Waterfall, Spiral, Prototyping, Agile Methodology- Scrum and XP. Analysis Principles, SRS

**Semester: 3rd**

Subject Title:- System Programming

Subject Code:- MCA-15307

Subject Incharge: -Satinder Singh

S. No.	Title	Detail
1.	<b>Assemblers and Macro Processors</b>	Language processors, data structures for language processing, General Design Procedure, Single pass and two pass assembler and their algorithms, assembly language specifications (example MASM). Macro Instructions, Features of Macro Facility: Macro instruction arguments, Conditional macro expansion, Macro calls within macro.
2.	<b>Loaders</b>	Loader Schemes: Compile and go loader.

**Semester: 5<sup>th</sup>**

Subject Title:- Interactive Computer Graphics

Subject Code:- MCA-15501

Subject Incharge: Prof. Dinesh Anand

S. No.	Title	Detail
1.	<b>Review of Computer Graphics</b>	Applications of computer graphics. Introduction to Graphic devices like light pens, Graphic tablets, Graphic Cards, Data Glove, Digitizers, Graphs and types of Graphs. Cathode -Ray tube, Raster Scan displays, Random Scan displays. Architecture of a Raster and Random Graphics System with display processor, Color generating techniques (shadow mask, beam penetration) , 3-D viewing devices, Raster Scan Systems, Random Scan Systems, Graphics Monitors and Workstations, Color Models (RGB and CMY), color lookup
2.	<b>Input and Output primitives</b>	Process and need of Scan Conversion, Scan conversion algorithms for line, circle and ellipse, effect of scan conversion, Bresenham's algorithms for line and circle along with their derivations, midpoint circle algorithm with derivation

**Semester: 5<sup>th</sup>**

Subject Title:- Network Security &amp; Administration

Subject Code:- DEMCA-15507

Subject Incharge: Prof. J.S. Saini

S. No.	Title	Detail
1.	<b>Security Attacks</b>	Passive & Active Attacks, Security Services, Security Mechanisms, Model for Internetwork Security, Man –In – the middle attack, Meet – in – the middle attack Conventional Encryption Principles, Monoalphabetic ciphers, Playfair Ciphers, Transposition Ciphers, Cipher block chaining mode, approaches of message authentication.
2.	<b>Cryptography Principles</b>	Public Key cryptography Principles, RSA algorithm.

**Semester: 5<sup>th</sup>**

Subject Title:- Web Technologies

Subject Code:- MCA-15502

Subject Incharge: Prof. Mandeep Kaur Khalsa

S. No.	Title	Detail
1.	<b>Programming with XML</b>	Introduction to XML, XML Basics, XML Syntax and Editors, Elements, Attributes, Document Type Definitions (DTD), XML Schemas (XSD), XML Namespaces, XML Document Object Model, XSLT, Use of XSLT with XML.
2.	<b>Ajax Introduction</b>	Introduction to Ajax, Use of Ajax in Website.

**Semester: 5<sup>th</sup>**

Subject Title:- Object Oriented Analysis and Design using UML

Subject Code:- MCA-15503

Subject Incharge: Prof. Karamvir Kaur

S. No.	Title	Detail
1.	<b>Object orientation and Development</b>	OO Benefits, Abstraction, OO Modeling, The Three Models: Class Modeling (Objects and Classes, Relationships, Generalization and Inheritance, Association, Aggregation, Constraints, Packages) State Modeling (Events, States, Transitions and Conditions, State and Behavior, Concurrency) Interaction Modeling (Use case models, Sequence and Activity).
2.	<b>System and Process</b>	SDLC, Creation of SRS document: Requirement Specification. Specification, Documentation and SDLC Models Domain and Application Analysis (Class, State and Interaction Models), System Design.