

2019-
20

Multani Mal Modi College

Unit Planning of PGDCA

Computer Science Department



UNIT PLANNING SESSION 2019-20

MULTANI MAL MODI COLLEGE, PATIALA

UNIT PLAN

Class – PGDCA (Semester I)

**Subject : Introduction to Information Technology
101**

Subject Code: PGDCA

Subject Teacher : Dr.Sumeet Kumar

Session : 2019-20

S.No.	Syllabus/Topics	Reference	Mode of Transactions	Additional Resources*
August 2019				
1	Introduction: Historical Evolution of Computer, Block Diagram of computer, characterisation of computers, types of computers, the computer generations Basic Anatomy of Computers: memory unit, input-output unit, arithmetic logic unit, control unit, central processing unit, RAM, ROM, PROM, EPROM	P. K. Sinha: Computer Fundamentals	Lecture,	
2	Input-Output Devices: Keyboard, Mouse, Joy tick, Track Ball, Touch Screen, Light Pen, Digitizer, Scanners, Voice Recognition Devices, Optical Recognition devices, Dot matrix, Character and Line printer, DeskJet printer, Laser printer, and plotters.		Lecture, ICT	PPT by Harsh Raj
September 2019				
3	Computer Codes: weighted and non-weighted code, BCD, EBCDIC, ASCII, Unicode, XS-3, Grey Codes	Satish Jain, Information Technology, BPB,	Lecture,	
4	Number System: Nonpositional and positional number systems, base-conversion, fractional numbers, various operations on numbers. Computer code: BCD, EBCDIC, ASCII	P. K. Sinha: Computer Fundamentals	Lecture, Discussion	Video Lecture by AnkurShrivastava (Unacademy CAT)
5	Binary Arithmetic: Addition, subtraction and multiplication		Lecture, ICT	
October 2019				
6	Computer Software:	P. K. Sinha:	Lecture, Discussion	

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	Introduction, types of software, systems software, GUI, operating system, high level languages, assemblers, compilers and interpreters, system utilities, application packages	Computer Fundamentals		
7	Basic concepts of algorithm and flow charts: Flow charts, algorithm and decision tables, stages in the development of computer program, testing and debugging, program documentation.		Lecture, Discussion	
8	Internet Related Concepts: Internet, Uses of Internet, Basic services of Internet, Email, FTP, TELNET, and WWW. Familiarities with terms: HTTP, HTTPS, URL, Web Browsers, IP Address, Domain Name, ISP, Web Portal, Search Engines, Blog, Surfing, Wiki	Satish Jain, Information Technology, BPB	Lecture,	Practical demonstration on Computer in lab
November 2019				
9	Applications of Information Technology and Trends: IT in Business and Industry, IT in Education & training, IT in Science and Technology, IT and Entertainment, Current Trends in IT Application - AI, Virtual Reality, Voice Recognition, Robots, Multimedia Technology	Anshuman: Fundamental of Information Technology	Lecture,	
10	E-Commerce: Meaning, its advantages & limitations, Infrastructure for E-commerce, Types of E-Commerce Applications		Lecture, Discussion	

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MULTANI MAL MODI COLLEGE, PATIALA

UNIT PLAN

Class – PGDCA (Semester I)

Subject : Operating System

Subject Code: PGDCA 102

Subject Teacher : Dr.SapnaDhiman

Session : 2019-20

S.No.	Syllabus/Topics	Reference	Mode of Transactions	Additional Resources*
August 2019				
1	Introduction to operating System: Definition, its need, services, early systems	Silverschatz& Galvin: Operating system concepts, Pearson education	Lecture, Discussion	
2	Types of operating systems: Batch processing operating system, Multiprogramming operating system, Time Sharing operating system, Multi-tasking operating system, Distributed operating system, Network operating system, Real time operating system, Multi-processor system and parallel processing		Lecture, ICT	Video Lecture by Jenny's Lectures
September 2019				
3	Process Management: Process concept, types of Process scheduling	Silverschatz& Galvin: Operating system concepts, Pearson education	Lecture,	Video Lecture by RavindrababuRavula
4	Basic concept of CPU Scheduling, Scheduling criteria, and Scheduling algorithms: FCFS, SJF, Round Robin & Queue Algorithms		Lecture, ICT	Video Lecture by RavindrababuRavula
5	Deadlocks: Deadlock definition and its characterization		Lecture, ICT	
October 2019				
6	Windows: MS-Windows: Operating system-Definition & functions, basics of Windows	Silverschatz& Galvin: Operating system concepts, Pearson education	Lecture, Discussion	
7	Basic components of windows, icons, types of icons, taskbar, activating windows, using desktop, title bar, running applications,		Lecture, ICT	Practical demonstration on Computer in lab

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	exploring computer, managing files and folders, copying and moving files and folders			
8	Control panel – display properties, adding and removing software and hardware, setting date and time, screensaver and appearance. Using windows accessories		Lecture,	Practical demonstration on Computer in lab
November 2019				
9	Linux: History & Features of Linux, Linux Architecture, File System of Linux, Hardware Requirements of Linux, Various flavours of Linux, Linux Standard Directories, Functions of Profile and Login Files in Linux, Linux Kernel	Richard Petersen: Linux, The Complete Reference	Lecture,	
10	Linux Commands: bc, cal, cat, cd, clear, cmp, cp,mv, date, find, ls, pwd, mkdir, more, rm, rmdir, chgrp, chmod, chown, tty, wc, who, whois, grep, telnet, vi editor etc		Lecture, Discussion	

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MULTANI MAL MODI COLLEGE, PATIALA UNIT PLAN Class – PGDCA (Semester I)

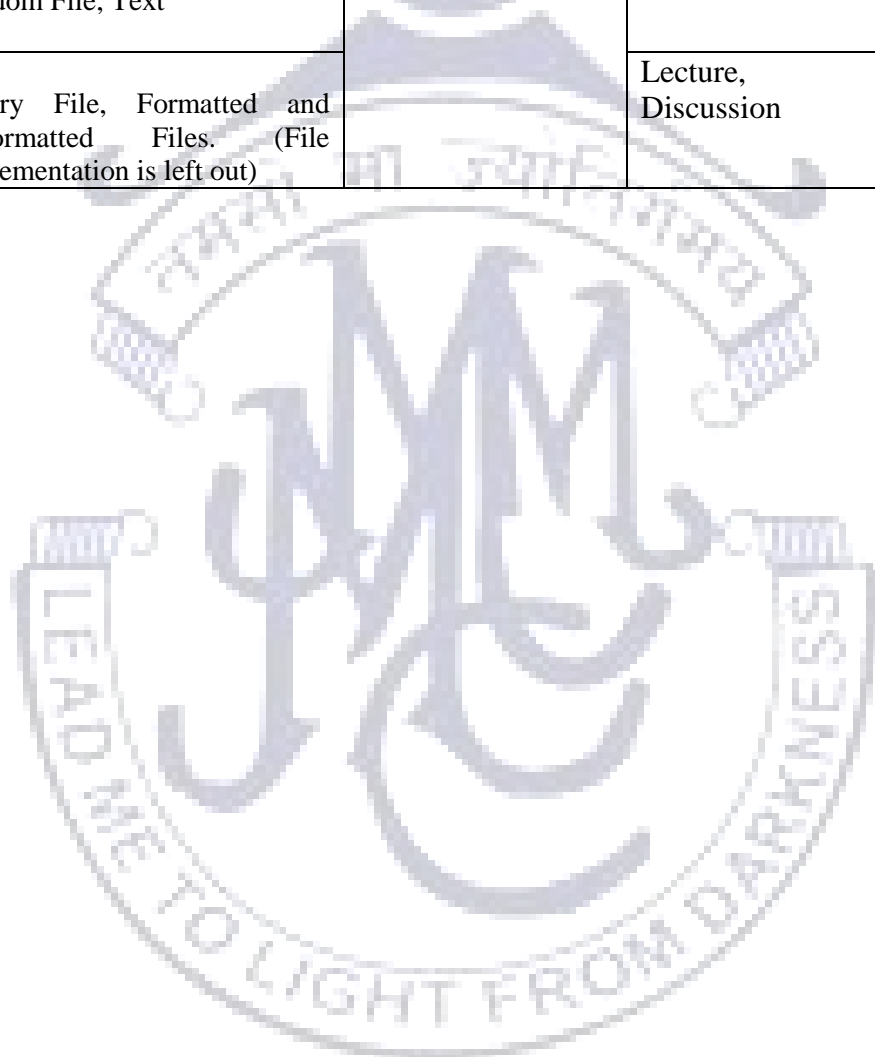
Subject : Problem Solving using C
Subject Teacher : Dr.Sukhdev Singh

Subject Code: PGDCA 103
Session : 2019-20

S.No.	Syllabus/Topics	Reference	Mode of Transactions	Additional Resources*
August 2019				
1	Programming Process: Problem definition, program design, coding, compilation and debugging; Program Development.	Byron Gottfried , JitendraChhabra, “Programming with C, 3rd Edition, Schaum’ s Outline Series, Tata McGraw Hill, 2107	Lecture, ICT	Video Lecture by Rajat
2	Basic Constructs: Identifiers, Keywords, Tokens, Data Types, Constants, Input and Output in C, Type Conversion, Operators and Expressions, Precedence Hierarchy of Operators, Associativity, Library functions.		Lecture, ICT	Video Lecture by Rajat
September 2019				
3	Control Statements: Branching, Looping		Lecture,	PPT
4	Functions: Definition, Prototype, Different types of functions based on arguments and return type, parameter String handling,	Shubhnandan S. Jamwal, Programming in C, Pearson Publications, 2017	Lecture, Discussion	Video Lecture by AnkurShrivastava (Unacademy CAT)
5	Arrays: Definition, accessing elements, initialization, passing to functions, multi-dimensional arrays,		Lecture, ICT	Video lecture by Shrinivas
October 2019				
6	Applications of linear arrays: linear and binary search, Bubble Sort and selection Sort Pointers: address and dereferencing operators, declaration, assignment, passing addresses to functions, using pointer arrays to sort n strings,	C: The Complete Reference by Herbert Schildt	Lecture, Discussion	"C Programming Language: A Step by Step Guide to Learn C Programming in 7 Days " by Darrel L. Graham

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	passing mechanisms			
7	concept of recursive function		Lecture, Discussion	
8	. Storage Classes Different Storage Classes (static, auto, extern, register), global and local variables	Satish Jain, Information Technology, BPB	Lecture,	Practical demonstration on Computer in lab
November 2019				
9	File Handling in C: Processing a text file through C program; Concepts of Sequential File and Random File, Text	C: The Complete Reference by Herbert Schildt	Lecture,	Video lecture by Shrinivas
10	Binary File, Formatted and Unformatted Files. (File Implementation is left out)		Lecture, Discussion	PPT



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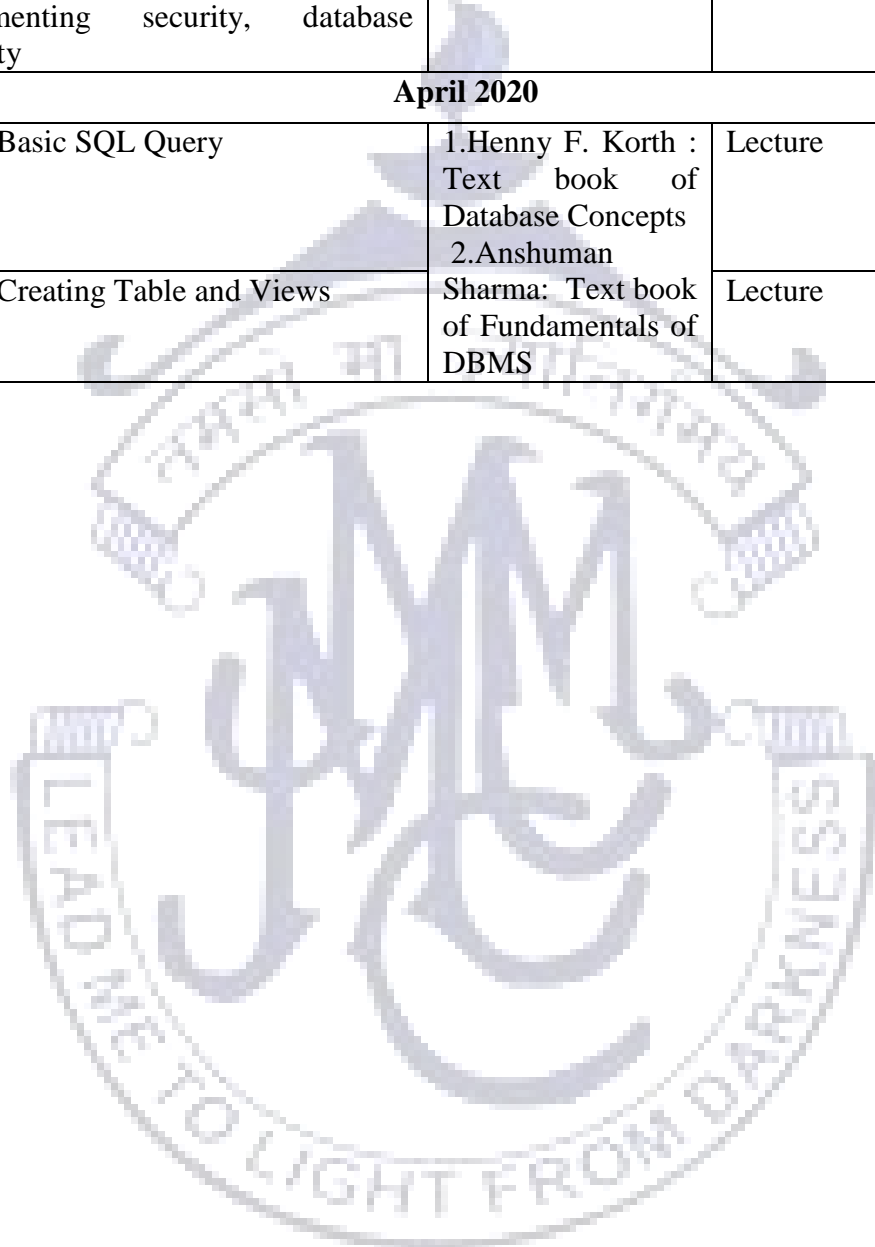
Subject: -Database Management System
Name of Teacher: -Ms. Sunita Gupta

Subject Code: -PGDCA-201
Session: - 2019-2020

S.No	Syllabus Covered	Suggested Reading/Reference Books	Mode of transactions	Additional resources*
January 2020				
1.	Database Management System: definition, characteristics, advantages over traditional file processing system User of database, DBA and its responsibilities	1.Henny F. Korth : Text book of Database Concepts 2.Anshuman Sharma: Text book of Fundamentals of DBMS	Lecture/Discussion	
2.	Database schema, instance. DBMS architecture, data independence		Lecture	ICT Notes
3.	Database languages: DDL, DML, DCL. Database utilities		Lecture	Assignment-I
February 2020				
4.	Data Models: Overview of Network and Hierarchical model.	1.Henny F. Korth : Text book of Database Concepts 2.Anshuman Sharma: Text book of Fundamentals of DBMS	Lecture	Vedio Lecture by Prof. Arnab Bhattacharya(IIT Kanpur)
5.	Relational Data Model: Keys: Super, candidate, primary, unique, foreign Entity relationship model: Concepts, mapping cardinalities, entity relationship diagram, weak entity sets, strong entity set		Lecture	
6.	Entity relationship model: aggregation, generalization, converting ER diagrams to tables.		Lecture	ICT Notes
7.	Relational Data Model: concepts, constraints. Relational algebra: Basic operations Relational Data Model: Relational algebra: Additional operations		Lecture, Discussion	Vedio lecture by Prof. ParthaPratimChakrabarti (IIT KGP)
March 2020				
8.	Database Design: Functional dependency	1.Henny F. Korth : Text book of Database Concepts	Lecture	
9.	Database Design: Normalization (upto3NF)	2.Anshuman Sharma: Text book	Lecture	Assignment - II

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10.	Database concurrency: Definition and problems arising out of concurrency	of Fundamentals of DBMS	Lecture	ICT Notes
11.	Data base recovery, Database security: Authentication, authorization, methods of implementing security, database integrity		Lecture	
April 2020				
12..	SQL: Basic SQL Query	1.Henny F. Korth : Text book of Database Concepts 2.Anshuman Sharma: Text book of Fundamentals of DBMS	Lecture	Vedio Lecture by Dr.S.Srinath, IIT Bangalore
13.	SQL: Creating Table and Views		Lecture	



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Subject: -Introduction of Computer Network, Internet and E-Commerce Subject Code: -PGDCA-202

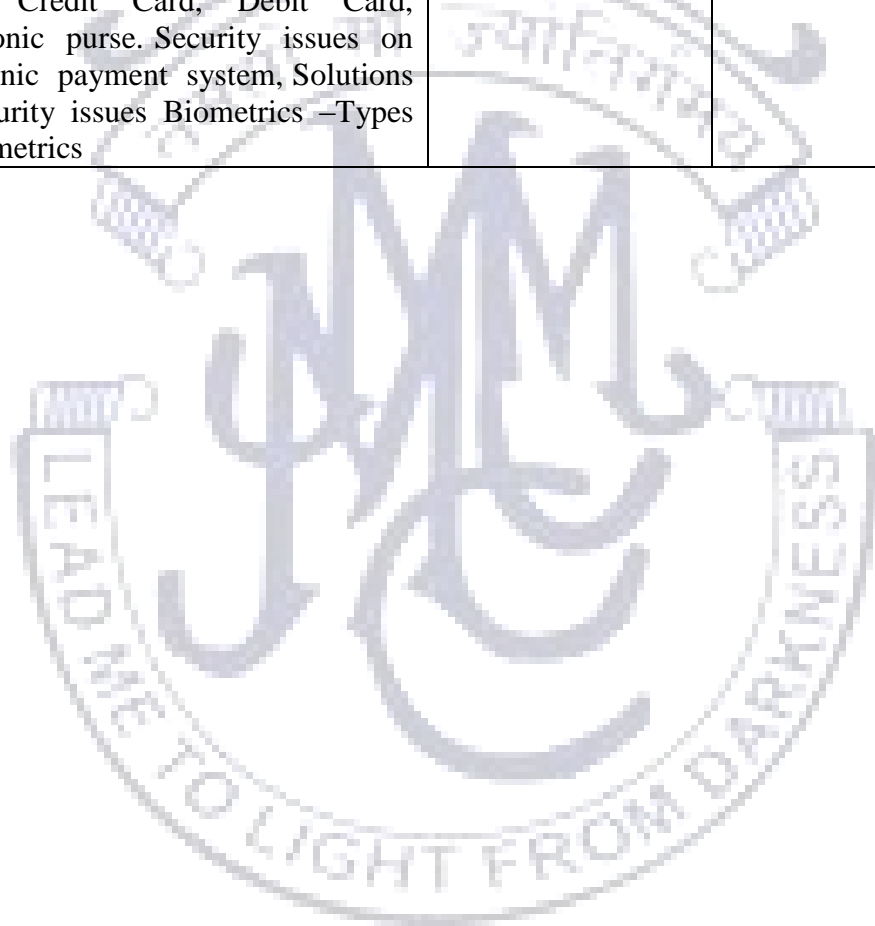
Name of Teacher: -Ms. Gurjeetkaur

Session: - 2019-2020

S.No	Syllabus Covered	Suggested Reading/Reference Books	Mode of transactions	Additional resources*
January 2020				
1.	Networking: Basic, elements in networking, network topology, different types of network LAN, MAN, WAN, GAN, PAN. Networks connecting devices. Open system interconnection model (OSI) Different layers, TCP/IP model and layers. Introduction to intranet and extranet.	B Forouzan, Introduction to data communication and networking/ Charanjeet Singh, Computer Network.	Lecture/Discussion	OSI Model And TCP/IP Model Lec 1,Lec 2,Lec 3 (Prof I.sengupta ,IIT, Kharagpur
2.	Internet Concepts: History of the internet, advantages and disadvantages of internet, WWW, IP addressing, domain name system, introduction and working of e-mail.	B Forouzan, Introduction to data communication and networking/ Charanjeet Singh, Computer Network.	Lecture/Chalk Board	Demonstration /Video :- Email , WWW (Lec1,Lec2) by Prof I.sengupta ,IIT, Kharagpur.
February 2020				
3.	Introduction to Web browser and search engine: Definition features and type internet explorer, Mozilla Firefox and Netscape navigator, search engine (types, features etc.) Electronic meeting system (Audio conferencing, video conferencing, groupware).	B Forouzan, Introduction to data communication and networking/ Charanjeet Singh, Computer Network.	Lecture/Chalk board/Discussion/Assignment	Assignment-1
4.	Data Communication: Introduction, Relays, Repeaters, Bridges, Routers, Gateways Gateways: Idea of SMS, Email and Payment Gateway Integration	B Forouzan, Introduction to data communication and networking/ Charanjeet Singh, Computer Network.	Lecture/Discussion/chalk board	
March 2020				
5.	Overview of E-Commerce Technologies: Ecommerce: Definition, difference with traditional commerce applications, advantages and disadvantages of e-commerce,	. Charanjeet Singh, Computer Network, Internet & E- Commerce	Lecture/Chalk Board	

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	types of ecommerce, infrastructure requirements for e-commerce, different ecommerce website and their features.			
6.	Business models of E-Commerce: Business to Business, Business to customers, Customers to Customers, Business to Government, Business to Employee	Charanjeet Singh, Computer Network, Internet & E- Commerce	Lecture/ Discussion/ chalk board	Assignment-II
April 2020				
7.	Electronic Payment System: Introduction, Online payment systems –prepaid and postpaid payment systems, e-cash, e-cheque, Smart Card, Credit Card, Debit Card, Electronic purse. Security issues on electronic payment system, Solutions to security issues Biometrics –Types of biometrics	Charanjeet Singh, Computer Network, Internet & E- Commerce	Lecture/ Discussion/ chalk board	PPT



UNIT PLANNING SESSION 2019-20

Subject: -OBJECT ORIENTED PROGRAMMIN USING C++Subject Code: -PGDCA-203

Name of Teacher: -Ms. Poonam Sharma

Session: - 2019-2020

S.No	Syllabus Covered	Suggested Reading/Reference Books	Mode of transactions	Additional resources*
January 2020				
1.	EvolutionofOOP:ProcedureOriented Programming,OOPParadigm,AdvantagesanddisadvantagesofOOPoverits predecessorparadigms.Characteristic sofObjectOrientedProgramming.	RobertLafore,“ObjectOrientedProgramminginC++”,GalgotiaPublications.	Lecture and discussions with ICT	web resource
2.	Introductionto C++:Identifier,Keywords,Constants.Operators:Arithmetic,relational,logical,conditionaland assignment.			Web resource
3.	Size ofoperator, Operator precedence and associativity. Inputandoutputstatements,streamI/O,C conditionalandIterativestatements			ASSIGNMENT-I
February 2020				
4.	Type conversion, Variable declaration, expressions,statements,manipulators	RobertLafore,“ObjectOrientedProgramminginC++”,GalgotiaPublications.	Lecture and discussions with ICT	
5.	ParameterPassingbyvalue,byaddressandbyreference			
6.	Functions returning references, Constfunctions, recursion, function overloading, Default Arguments, Constarguments,Pre-processor			Web resource
March 2020				
7.	ClassesandObjects: ClassDeclaration andClassDefinition, Definingmember functions, makingfunctions inline, Nestingofmemberfunctions,Membersaccesscontrol.THISpointer.Objects: Objectasfunctionarguments,arrayof objects, functionsreturning objects, Constmember. Static datamembers and Static member functions, Friend functionsandFriendclasses.	RobertLafore,“ObjectOrientedProgramminginC++”,GalgotiaPublications.	Lecture and discussions with ICT	web resource
8.	Constructors:properties,typesofcon			ASSIGNMENT

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	<p>structors,Dynamicconstructors,multipleconstructorsinclasses.</p> <p>Destructors: Properties,Virtualdestructors.Destroyingobjects,Rulesforconstructorsanddestructors.Arrayofobjects.Dynamic memoryallocationusingnewanddeleteoperators,Nestedandcontainerclasses,Scopes:Local,Global,NamespacesandClass.</p>			T-II
April 2020				
9.	<p>Inheritance:Definingderivedclasses,inheritingprivatemembers,singleinheritance,typesof derivation,function redefining, constructors in derived class, Types of inheritance, Types of base classes, Code Reusability</p>	RobertLafore,“ObjectOrientedProgramminginC++”,GalgotiaPublications.	Lecture and discussions with ICT	ASSIGNMENT-III
10.	<p>Polymorphism:Methodsofachievingpolymorphicbehavior.</p> <p>Operatoroverloading:overloadingbinaryoperator,overloadingunaryoperators,rulesforoperatoroverloading,</p> <p>Operatoroverloadingusingfunction.</p> <p>Functionoverloading:earlybinding, Polymorphismwithpointers,virtual functions,latebinding,purevirtualfunctionsandabstractbaseclass.Differencebetweenfunctionoverloading, redefining,andoverriding.</p>			
11	<p>Templates:GenericFunctionsandGenericClasses,Overloadingoftemplatefunctions.ExceptionHandlingcatching classtypes,handlingderivedclassexceptions,catchingexceptions,restrictingexception</p> <p>Revision tests and Problem discussion</p>			Web resource