Branch: B.Sc.(IT)	Semester-I
Subject Code: 1101	**Lecture: 04** **Credit: 04**
Subject Title	**COMMUNICATION SKILLS**

Module	Sr. No.	Topic and Details	No of Lectures Assigned	Marks Weight age %
UNIT-I	1	**Modern Day Communication-I** Introduction, Types of communication	2	10
	2	**Modern Day Communication-II** • Media and modes of communication • Methods to improve communication	3	
UNIT-II	3	**Business Correspondence** •Introduction •Types •Parts & layouts	6	12
	4	**Technical Writing** • Introduction • Report Writing • Form, Formats & Types	6	12
UNIT-III	5	**Grammar and Style-I** • Introduction • Parts of speech • Tenses	6	12
	6	**Grammar and Style-II** Vocabulary building	4	8
	7	**Grammar and Style-III** • Confused set of words • Reduction of Sentence length • Improving sentences	2	4
	8	**Grammar and Style-IV** • Summarization • Constructing Paragraphs	6	12
UNIT-III	9	**Oral Communication-I** • Group Discussion • Extempore	5	30
	10	**Oral Communication-II** • Mock Interviews • Personal Interviews	10	
Total			50	100 %

Text and Reference Books:

1. Business correspondence & report writing – R.C. Sharma & Krishna Mohan, Tata McGraw Hill.
2. Business Communication (Revised Edition), Rai & Rai, Himalaya publishing House. Lesikar & Petit : Business Communication – McGraw Hill Publications.
3. Modern Business Correspondence, McCommas & Satterwhite, Sixth Edition, McGraw Hill Publications.
4. English for Engineers & Technologists : A skills approach. (Books 1 & 2) Course Authors (Humanities and Social Sciences Division , Anna University, Madras.Orient Longman. (Mainly for comprehension).
5. Technical Writing, Eisenberg, Anne, McGraw Hill Publications. (Teacher reference only.)
6. Technical Writing & Professional Communication, Hockings, Thomas, McGraw Hill publications

Branch: B.Sc.(IT)	Semester-I
Subject Code: 1102	Lecture: 04 Credit: 04
Subject Title	MATHEMATICS-I

Module	Sr.. No.	Topic and Details	No of Lectures Assigned	Marks Weight age %
UNIT-I	1	**Differential Equations-1:** • Differential Equations of first order and first degree: • Definitions, Variable separable	5	10
	2	**Differential Equations -2:** • Homogeneous equation • Non-homogeneous equation	5	10
UNIT-II	3	**Differential Equations -3:** • Linear equation • Bernoulli's equation	5	10
	4	**Differential Equations -4:** • Partial differentiation,	5	10

		• Exact differential equations		
	5	**Differential Equations -5:** • Equations reducible to exact differential equations, • Integrating factors	5	10
UNIT-III	6	**Matrices -1:** • Operations on Matrices • Singular and non singular matrices • Diagonal, upper and lower triangular matrix, symmetric and orthogonal matrices • Inverse of matrix, adjoint of a matrices, transpose.	5	10
	7	**Matrices -2:** • Linear independence of rows and column • Row and column rank, • Rank of a matrix.	5	10
UNIT-IV	8	**Matrices -3:** • Solving homogeneous and • Non-homogeneous linear system of equation	5	10
	9	**Matrices -4:** • Eigen values and eigen vectors of a matrix	5	10
	10	**Matrices -5:** • Diagonalization • Diagonal forms	5	10
		Total	50	100 %

Text and Reference Books:

1. Murray Spiegal, "Vector Analysis", McGraw Hill, 1974.
2. P. N. Wartikar & J. N. Wartikar, "Elements of Applied Mathematics", 7th, Pune Vidyarthi Graha, 1988.
3. Mathematical methods for Engineer and Science Students by Engle field.   Schaun Series, Vector Analysis, Spigel

Branch: B.Sc.(IT)	**Semester-I**
Subject Code: 1103	**Lecture: 04** **Credit: 04**
Subject Title	**INTRODUCTION TO IT**

Module	Sr.. No.	Topic and Details	No of Lectures Assigned	Marks Weight age %
UNIT-I	1	**INTRODUCTION : INFORMATION** Definition, Characteristics and Interpretation, Data & its logical & physical concepts	2	4
	2	**COMPUTERS:** History of computers and their classification, basic organization, memory:-primary RAM, ROM, EPROM, etc. Secondary- Magnetic- Floppy and Hard disks. Optical:- CD-ROM,WORM, etc. Concept of Virtual Memory and Cache Memory and why are the needed	5	10
	3	**Computer Arithmetic:-** Number systems binary, octal, Hexadecimal, Binary Addition, Subtraction and Multiplication, Flotation point representation and arithmetic, Arithmetic through stacks	3	6
	4	**Computer Language:-** Introduction to computer language, Definition of assembler, compiler and interpreter, Basic concept of Data Base Management system	2	4
UNIT-II	5	**Communication:** Fundamental of communication: Concept of Analog and Digital Signal Types of pulses Channel Capacity (Shannon's Theorem), Transmission Impairments (Attenuation, Dispersion), Concept of signal to Noise ratio, Encoding/Decoding(Concept of Parity bit, Hamming code), Definition and concept of modulation, Digital transmission, Advantages of analog over digital and digital over analog Synchronous and Asynchronous Ways of communication	6	12
	6	**Transmission media :** wired(physical): Twisted pair, Coaxial cable, Optical fiber Wireless: Terrestrial, Microwave Satellite microwave: Broadcast radio, infrared, blue tooth **Multiplexing: TDM, TDMA, FDM:** Static Channel allocation Dynamic Channel allocation	6	12
UNIT-III	7	**SWITCING TECHNIQUES:** Circuit switching, message switching and packet switching- their advantages and disadvantages	6	12
	8	**Transporting of Digital Information-** packaging, reassembling, sequencing and identification of digital information Network Issues- Framing, Error Control, Routing, congestion Types of services- Connection and Reliability	6	12
UNIT-IV	9	**Networks: Type of Networks (LAN, MAN, WAN, etc), Network configuration:** topologies, Layered approach for network Models, TCP/IP and the OSI Reference Model And Working, Comparison of TCP/IP and OSI reference model, WWW, HTTP, e-Mail, GIAS, Search engine, Domain name etc.	5	10

	10	Internet:- WWW, HTTP, e-mail, GIAS, Search engine, Domain name etc	3	6
		Total	50	100

Text and Reference Books:

1. W.Stallings " Data and Computer Communication", 7th Edition, Prentice Hall, 2004
2. Forouzan, "Data Communication and Networking," 3rd Edition, McGraw Hill,2003
3. A.S. Tannenbaum, "Computer Network", 4th edition Prentice Hall of India.
4. Computer Organization & Architecture - Designing & Performance, William Stallings, Prentice Hall of India
5. Computers today by Sanders
6. Computer fundamentals by A.K. Sinha

Branch: B.Sc.(IT)	Semester-I
Subject Code: 1104	Lecture: 04 Credit: 04
Subject Title	PROBLEM SOLVING USING 'C'

Module	Sr.. No.	Topic and Details	No of Lectures Assigned	Marks Weight age %
UNIT-I	1	Concept : problem solving Problem solving techniques, Steps in problem solving (Define Problem, Analyze Problem, Explore Solution), Algorithms and Flowcharts (Definitions , Symbols) Characteristics of an algorithm	2	4
	2	Introduction to 'C' Language, History, Structures of 'C' Programming	2	4
	3	**Language Fundamentals:** Character set, C Tokens, Keywords, Identifiers, Variables, Constant, Data Types, Comments	2	4
UNIT-II	4	**Operators:** Types of operators, Precedence and Associativity, Expression, Statement and types of statements	2	4
	5	**Built-in Operators and function:** Console based I/O , and related built-in I/O function, Concept of header files, Preprocessor directives	4	8

Module	Sr. No.	Topic and Details		
UNIT-III	6	**Control structures:** Decision making structures : If, If-else ,Nested If –else,Switch , Loop Control structures : While, Do-while,, For, Nested for loop	6	12
	7	**Functions:** Basic types of function, Declaration and definition, Function call, Types of function, Parameter passing, Call by value, Call by reference, Scope of variables, Storage classes, Recursion	8	16
UNIT-IV	8	Pointers :Introduction to pointers, Pointer notation, Pointer Arithmetic.	8	16
	9	**Arrays:** Definition. Array Initialization, Bounds checking, Passing array to a function , Two-Dimensional Array	8	16
	10	**Structures:** Declaring Structures, accessing structure elements, how structure elements are stored. Introduction to File Handling	8	16
		Total	50	100

Text and Reference Books:

1. Let us C-Yashwant Kanetkar.
2. Programming in C- Balguruswamy
3. The C programming Lang., Pearson Ecl – Dennis Ritchie
4. Structured programming approach using C-Forouzah &Ceilberg Thomson learning publication.
5. Pointers in C – Yashwant Kanetkar
6. How to solve it by Computer – R. G. Dromy
7. Introduction to algorithms – Cormen, Leiserson, Rivest, Stein

Branch: B.Sc.(IT)	Semester-I
Subject Code: 1201	**Practical: 02** **Credit: 02**
Subject Title	**C PROGRAMMING LAB**

Module	Sr. No.	Topic and Details	No of Lectures/Practical Assigned	Marks Weight age %
UNIT-I	1	**Implementation of Language Fundamentals:** Programs – Data types , Variables , constants, Userdefined Types, Input and output the Data in proper format with precisions, using	2	4

		comments.		
	2	**Implementation of Operators:** Arithmetic, Logical, Relational, Bitwise, unary, binary and ternary, composite operators	2	4
	3	**Implementation of Built-in function:** Console based I/O single character, sequence of characters, and formatted I/O, related built-in I/O function, Concept of header files, Preprocessor directives etc	2	4
UNIT-II	4	**Implementation of Control structures:** Decision making structures : If, If-else ,Nested If –else,Switch , Loop Control structures : While, Do-while,, For, Nested for loop	2	4
	5	**Implementations of Functions:** User defined functions, different function calling mechanisms- Call by value, Call by reference, Testing Scope of variables, Storage classes, Recursion	4	8
	6	**Implementations of Pointers :** Pointer Arithmetic., pointer to pointer	4	8
UNIT-III	7	**Implementations of Arrays:** 1-D Array, 2-D array Initialization, Bounds checking, Passing array to a function, Two-Dimensional Array and pointers.	3	6
	8	**Implementation of Structures:** Declaring Structures, accessing structure elements, how structure elements are stored.	2	4
UNIT-IV	9	File Handling	2	4
	10	Graphics	2	4
		Total	25	50

Branch: B.Sc.(IT)	**Semester-I**
Subject Code: 1202	**Practical: 02** **Credit: 02**
Subject Title	**SOFTWARE TOOLS AND APPLICATIONS LAB**

Module	Sr.. No.	Topic and Details	No of Lectures/Practical Assigned	Marks Weight age %
UNIT-I	1	Office Operational Tools MSOffice, How to Use- MS Word, MS Excel, Power point, Open Office, PDF	2	4
	2	Using Windows OS, Linux, etc Editors such as Vi, Graphics Editor, Paint, Note Pad, Word Pad etc	2	4
	3	Using Internet technology and WWW, How to Search, Save Web Page, Upload and Download, Making Familiar with different Internet Browsers IE, Mozila etc,	3	6
UNIT-II	4	HTML: Introduction to HTML Page Basics, W3 Rules Structure of HTML Document How to print on web page, How to use, -Formatting, -Text, -lists, -Tables, -Objects (images, multimedia contents)	3	6
	5	Meta tags, Links, Presentation of HTML document-style, sheets, Alignment, font, frames, Interactive HTML document-Forms, Scripts, etc	3	6
UNIT-III	6	Technologies for man machine communication Visual Communication, Interface Design, VB, .NET	3	6
	7	Basic functionality of Visual basic: Main Window, Form design window, Tool box window Project explorer window, Form layout window, Visual basic Overview	3	6
UNIT-IV	8	Visual Basic all basic tools : Properties window with default properties and additional settings	3	6
	9	Working with projects, Introduction to basic language Making component available in VB	3	6
		Total	25	50

Text and Reference Books:
1. HTML The complete reference - Thomas A. Powell
2. Dynamic HTML- O'Reilly
3. The Complete Reference – Visual Basic 2006 – Noel Jerke
4. Black Book Visual Basic – Stevan Holzner
5. Visual Basic 2006 - Gotfried
6. Matthew Reynolds Beginning VB.net 2ND Edition, Worx Press
7. Visual basic 2008 -Michael Halvorson

Branch: B.Sc.(IT)	Semester-II
Subject Code: 2101	**Lectures: 04** **Credit: 04**
Subject Title	**ENVIRONMENTAL SCIENCE**

Module	Sr.. No.	Topic and Details	No of Lectures Assigned	Marks Weight age %
UNIT-I	1	The Multidisciplinary nature of environmental studies Definition, scope and importance Need for public awareness	3	6
	2	Natural resources Renewable and non-renewable resources	2	4

UNIT-II	3	Natural resources & associated problem.
		a. Forest resources: Use and over-exploitation, deforestation, case studies.
		    Timber extraction, mining, dams and their effect on forest and tribal people.
		b. Water resources: Use and over-utilization of surface and ground water,
		    Floods, drought, conflicts over water, dams-benefits and problems.
		c. Mineral resources: Use and exploitation, environmental effects of extracting
		    And using mineral resources, case studies.
		d. Food resources: World food problems overgrazing, effect of modern agriculture,
		    Fertilizer-pesticide problem, water logging, salinity, case studies.
		e. Energy resources: Growing energy needs, renewable and non renewable
		    Energy sources, use of alternate energy sources. Case studies.
		f. Land resources: Land as a resources, land degradation, man induced
		    Landslides, soil erosion and desertification.
		g. Role of an individual in conservation of natural resources.
			8	16

UNIT-III	4	Equitable use of resources for sustainable lifestyles • Ecosystems • Concepts of an ecosystem. • Structure and function of an ecosystem. • Producers, consumers and decomposers.	8	16

		• Energy flow in the ecosystem. • Ecological succession. • Food chains, food webs and ecological pyramids. • Introduction, types, characteristic features, structure and function of the 　　following ecosystem: a. Forest ecosystem b. Grassland ecosystem c. Desert ecosystem Aquatic ecosystem (ponds, streams, lakes, rivers, oceans, estuaries)		
	5	Biodiversity and its conservation • Introduction-Definition: genetic species and ecosystem diversity • Bio-geographical classification of India • Value of biodiversity: Consumptive use, productive use, social, 　　ethical, aesthetic and option values • Bio-diversity at global, national, local levels • India as a mega diversity nation • Hot spots of bio-diversity • Threats to biodiversity: Habitat loss, poaching of wild life, man-wildlife conflicts. • Endangered and endemic species of India Conservation of biodiversity: In- situ and Ex-situ conservation of biodiversity	8	16
UNIT-IV	6	Environmental Pollution Definition- • Causes, effects and control measures of: a. Air Pollution b. Water pollution c. Soil pollution d. Marine pollution e. Noise pollution f. Thermal pollution g. Nuclear Hazards 　• Solid waste management: Causes, effect and control 　　measures of urban and industrial wastes 　• Role of an individual in prevention of pollution 　• Pollution case studies Disaster management: floods, earthquake, cyclone and landslides	8	16
	7	• Nuclear accidents and holocaust. Case studies • Wasteland reclamation • Consumerism and waste products • Environment protection act	8	16

		• Air (Prevention and control of pollution) act • Water(Prevention and control of pollution) act • Wildlife protection act • Forest conservation act • Issues involved in enforcement of environmental legislation Public awareness		
	8	Introduction to Green IT. Concepts of green IT, design, management and education. Approaches of green IT such as virtualization, power management, material recycling, telecommuting , electronics disposals, etc. Benefits of green IT	5	10
		Total	50	100

Text and Reference Books:

1. AnubhaKaushik, "Environmental Studies", New Age International (P) Ltd., 2007

Branch: B.Sc.(IT)	Semester-II
Subject Code: 2102	Lectures: 04 Credit: 04
Subject Title	OPERATING SYSTEMS

Module	Sr.. No.	Topic and Details	No of Lectures Assigned	Marks Weight age %
UNIT-I	1	Introduction to O.S., Mainframe systems, Desktop systems, multiprocessor systems, Distributed systems, Real time systems, Handheld systems, computing environment. System components, O.S. services, system calls, system programs	2	4
	2	Processes, process concept, process scheduling, operation on process, communication in client/server system	2	4
	3	Threads, multithreading models threading issues, Linux threads	2	4
	4	Process synchronization, mutual exclusion, semaphores, critical section, Monitors, message passing.	5	10

UNIT-II	5	Deadlocks, system models, Deadlocks characteristics methods for handling Deadlocks, Deadlock prevention, avoidance, detection, recovery from Deadlocks	8	16
	6	Memory management, swapping, contiguous memory allocation, paging, segmentation, segmentation with paging, Virtual memory, demand paging, process creation, page replacement, allocation of frames, thrashing	8	16
UNIT-III	7	Processor scheduling, scheduling criteria, algorithms multi processor scheduling, real time scheduling, process scheduling model	8	16
	8	File concept, access methods, directory structure, file system mounting, and file system implementation, directory implementation, allocation methods, file sharing	3	6
UNIT-IV	9	I/O system, I/O hardware, kernel/O subsystem, streams, disk structure, disk scheduling, swap-space management, RAID structure, disk attachment. Protection and Security, goals of protection, Security threats, intruders, intrusion detection	8	16
	10	Case studies:-Linux systems, Windows 2000 system: Design principles, kernel models, system components, IPC, networking, file system etc.	4	8
Total			50	100

Text and Reference Books:

1. Operating system concepts(7th Ed) by silberschatz and Galvin, Wiley,2000.
2. Operating systems(5th ED) –Internals and Design principles by William Stalling Prentice Hall,2000.
3. Operating system Concepts(2nd ED) by James L.Peterson, Abraham Silberschatz , Addison-   Wesley
4. Computer Organization and Architecture(4th ED) by William Stalling Prentice Hall,India 1996.
5. Modern Operating Systems by Andrew S Tanenbaum, Prentice Hall India, 1992.
6. Operating System- Concept based approach-2nd Edition by D.M.Dhamdhere,TMH.
7. Basics for O.S Unix and Shell Programming-ISRD Group, TMH

Branch: B.Sc.(IT)	Semester-II
Subject Code: 2103	Lectures: 04 Credit: 04
Subject Title	COMPUTER ORGANIZATION AND ARCHITECTURE

Module	Sr.. No.	Topic and Details	No of Lectures Assigned	Marks Weight age %
UNIT-I	1	Introduction modern day Computer Systems:- Organization and architecture Structure and Function.	4	8
	2	System buses: - Computer components, Computer functions.	4	8
	3	PCI:-Features of PCI bus, Why PCI bus is needed? Concept of PCI arbitration	4	8
UNIT-II	4	Internal Memory: - Concept of cache memory, Methods of Cache mapping, concept of need for cache coherency	5	10
	5	External Memory:-RAID	3	6
UNIT-III	6	Input/Output:-I/O Modules (What are I/O modules? Why do we require them? Etc	4	8
	7	Concept of interrupt Driver I/O, DMA	4	8
UNIT-IV	8	Operating system support; - Basic concepts, Batch, Multiprogramming and Time-Sharing, scheduling, Memory Managements	6	12
	9	CPU Organization: - Register Organization (Classification ofRegister), Instruction cycle, Instruction pipelining.	8	16
	10	Concept of Parallel processing:-Multiprocessing:- Organization, Time-Shared bus, Multiport Memory, Central Control unit, Multi processors.	8	16
		Total	50	100

Text and Reference Books:

1. William Stallings, "Computer Organization and Architecture" (4th Edition)-PHI, 1998.
2. John P Hayes, "Computer Architecture and Organization"- McGraw Hill, 1998.
3. Andrew C. Tanenbaum, "Structure Computer Edition) - PHI.
4. Computer System Architecture – M. Morris Memo, PHI, 1998.
5. Digital Computer Fundamentals, Malvino
6. Microprocessor Architecture and Programming and Application with the 8085, R.S.Goankar, (3rd Edition)
7. Digital Computer Fundamentals, Thomas C Bartee, Organization" TMG

Branch: B.Sc.(IT)	Semester-II
Subject Code: 2104	**Lectures: 04** **Credit: 04**
Subject Title	**PROGRAMMING METHODOLOGY AND C++**

Module	Sr.. No.	Topic and Details	No of Lectures Assigned	Marks Weight age %
UNIT-I	1	Evolution of Object Oriented Programming, Procedure-Oriented , Programming, Object-Oriented Programming Various Object-Oriented Languages, Program Structure, Data Types, Operators, C++ Program Structure, Simple Input/Output Program, Program Comments, Identifiers, Literals, String, Character, Integer, Floating Point, Constants, Keywords, Data Types- Char, short, int, bool, long, float, double, wchar_t, enum , Operators in C++ Increment/ Decrement, Mathematical/ Arithmetic, Relational, Logical, Bitwise, Unary, Binary, ternary etc.	5	10
	2	Advanced Language Constructs: Arrays, Declaring Arrays, Accessing and modifying array values, Initializing arrays, Multidimensional arrays, Two-Dimensional arrays, Initializing Two-Dimensional arrays	4	8
UNIT-II	3	**Pointers:** Declaring/Initializing Pointers, Assigning, Printing pointer value, Address of pointer variable, Pointer to Pointer, **Structures:** Accessing structure elements, Structures containing other structure data	3	6
	4	**Constructors:** Definition, Features, declaration, Multiple Constructors, using parameterized Constructors in dynamic objects, Constructors with Default arguments, Default Argument Ambiguities, Ordering Default Parameter List, Default Constructors, Copy Constructors	5	10
	5	**Inheritance:** What is Inheritance?, Single Inheritance, Access Modifiers, Protected Modifier, Multiple level Inheritance, Protected Access Public/ Non-Public Derivations, General Syntax of class Inheritance, Types of Inheritance-Public Inheritance , Private Inheritance, Protected	8	16

		Inheritance, Calling Sequence for Constructors and Destructors, Parameter Passing to constructors Multiple Inheritance: Multiple Inheritance – an Illustration, Constructor Calling Sequence, Destructor Calling Sequence, Parameter Passing to Base-Class constructors, Protected Inheritance, Virtual Classes		
UNIT-III	6	**Polymorphism:** Meaning of Polymorphism, Types of Polymorphism, Static Polymorphism, Function Overloading, Rules for Function Overloading, Function Overloading Example, Operator Overloading, Merits of Static Polymorphism, Dynamic Polymorphism, Using Pointers for calling overridden methods, Virtual Functions , Pure Virtual Functions, Merits of Dynamic Polymorphism, Abstract Classes	8	16
UNIT-IV	7	**Handling Exceptions:** Exceptional Conditions, The Try/ catch / throw constructs, Syntax, Argument types for catch statement, Multiple catch blocks, Throwing exceptions, Rethrowing exceptions, User-defined exception classes, Deriving further from exception classes, Exception processing order, Exception class hierarchy, Catching un-caught exceptions	4	8
	8	**Templates:** Need for Templates, Types of Templates , Function Templates, Templates with Single Arguments, Creating Functions based on Templates, Overriding Function Templates, Templates with Multiple Arguments, Class Templates, Syntax, Creating classes based on Templates, Class Templates for stack data structure, User-defined data types as parameters	5	10
	9	**C++ I/O:** C++ I/O Systems, Streams, Predefined streams, Formatting o/p, The ios class formatting flags, Manipulators, The endl manipulator, The hex/oct/dec/showbase manipulators, Floating point number manipulator,	4	8
	10	**File I/O:** Opening File, Reading and , writing files, Character v/s Binary Mode, The type/cat Utility, File Dump Utility, File copy utility, Random access files	4	8
Total			50	100

Text and Reference Books:

1. Object-Oriented Programming with C++, Poornachandra Sarang, PHI
2. C++ and Object Oriented Programming Paradigm, 2/e, Debabashish Jana, PHI
3. Object Oriented Programming with C++,3rd edition, E. Balagurusamy, TMH
4. Object Oriented Programming with C++,2nd edition, Ira Pohl Pearson
5. C++ Primer 4th Edition, Stanley B, Lippman, Josee Lajoie, Barnara E. Moo, Pearson
6. Thinking in C++ Volume One: Introduction to standard C++ 2nd Edition, Bruce Eckel, Pearson
7. Thinking in C++ Volume Two: Practical Programming, Bruce Eckel, Chuck Allison, Pearson
8. Programming with C++, 2/e, D. Ravichandran, TMH
9. Object Oriented Programming with C++ and JAVA, D. Samanta, PHI

Branch: B.Sc.(IT)	Semester-II
Subject Code: 2201	**Practical: 02** **Credit: 02**
Subject Title	**C++ PROGRAMMING LAB**

Module	Sr.. No.	Topic and Details	No of Lectures/Practical Assigned	Marks Weight age %
UNIT-I	1	Implementation of fundamental and derived data types, Operators.	2	4
	2	Implementations of Advanced Language Constructs: Arrays, declaration, Accessing members, Class implementation, array of objects.	2	4
UNIT-II	3	**Implementations of Pointers:** Poniter to Pointer, pointer to object , pointer to data members and member functions . Using pointer variables in Data members	2	4
	4	**Implementation of Constructors:** **S**imple, Parameterized and copy constructors	2	4
UNIT-III	5	**Implementation of Inheritance:** Single , multiple, multilevel, hybrid inheritance. Use of Public, private and protected in inheritance.	4	8
	6	**Implementations of Polymorphism:** Compile time **,** run time, function overloading, operator	4	8

		overloading ,type conversion, function overriding		
	7	**Implementations of Handling Exceptions:** Use of try, catch and throw in multiple ways.	2	4
UNIT-IV	8	**Implementations of Templates:** Template class definition and declaration, instantiating template class , template functions, overloading template functions.	3	6
	9	**Implementations C++ I/O:** Demonstrations of different I/O functions ,	2	4
	10	**Implementations of File I/O:** Demonstrations of different file handling I/O functions.	2	4
		Total	25	50

Text and Reference Books:

1. Object-Oriented Programming with C++, Poornachandra Sarang, PHI
2. C++ and Object Oriented Programming Paradigm, 2/e, Debashish Jana, PHI
3. Object Oriented Programming with C++,3rd edition, E. Balagurusamy, TMH
4. Object Oriented Programming with C++,2nd edition, Ira Pohl Pearson
5. C++ Primer 4th Edition, Stanley B, Lippman, Josee Lajoie, Barnara E. Moo, Pearson

Branch: B.Sc.(IT)	Semester-II
Subject Code: 2202	**Practical: 02** **Credit: 02**
Subject Title	**UNIX/LINUX LAB**

Module	Sr.. No.	Topic and Details	No of Lectures/Practical Assigned	Marks Weight age %
UNIT-I	1	Background, Different variants of UNIX and their features Getting Started: basic UNIX commands	3	
	2	Working With Files And Directories, Working With Shells And Enhanced Shells, Text Editing basics	4	
UNIT-II	3	Using The Desktop: Gnome, Cde And Other Desktops	3	
UNIT-III	4	VI Editor	5	

	5	Filter and Searching Commands Find, GREP etc	5	
UNIT-IV	6	Shell Programming: Taking Decisions The Loop , Control Structure, Shell Metacharacters , Tricks of The Trade, Shell Miscellany	5	
		Total	25	50

Text and Reference Books:

1. UNIX : The Complete Reference 2nd Edition
2. UNIX Shell Programming 1 Edition: Yashavant Kanetkar
3. Sumitabha Das, "Unix Operating system"
4. P.Koparkar, UNIX for You, Tata McGraw-Hill