

- (A) **COURSE TITLE & CODE** : **PERSONALITY DEVELOPMENT, G – 305**
 (B) **LEVEL** : **THREE**
 (C) **BRANCH/ DISCIPLINE** : **INFORMATION TECHNOLOGY**
 (D) **RATIONALE** :

In people centered occupations, the human element – the smiling face, the thoughtful words, the warm voice and welcoming posture – is the added value. A pleasing personality, well-groomed outlook and a pleasant smile is appreciated by every one.

The students after studying this subject will be able to manage customer problems with understanding and sensitivity; communicate effectively; develop positive working relationship with employees demonstrate etc.

(E) TEACHING AND EXAMINATION SCHEME:

Sl. No.	Course Code	Name of Course	Teaching Scheme					Examination Scheme				Total Marks
			Pre-requisite	L	T	P	C	Theory		Practical		
								ET	PA	ET	PA	
1.	G- 305	Personality Development		3	2	-	5	75	25	-	-	100

(F) DETAILED COURSE CONTENTS

CHAPTER-1.0 FACTORS INFLUENCING PERSONALITY DEVELOPMENT

- Internal factors
 - Knowledge
 - Values
 - Skills
 - Self confidence
- External factors
 - Communication
 - Dress
 - Personality traits

CHAPTER-2.0 SELF DEVELOPMENT

- Stages of learning
 - Information
 - Knowledge
 - Skills
 - Insight
 - Foresight

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- Wisdom
 - SWOT Analysis
 - S & W – Internal
 - O & T – External
 - Meditation
 - Yoga
 - Exercise

CHAPTER 3.0 NON-VERBAL LANGUAGE

- Touch
- Proximity & spatial behaviour
- Body movement & gestures
- Eye contact
- Appearance
- Voice
- Facial expression
- Silence

CHAPTER-4.0 MOTIVATION

- Commitment & willingness
 - Towards job
 - Towards higher authorities
 - Towards Tourism industry

CHAPTER-5.0 SOCIAL ETIQUETTES

- Etiquette & mannerisms
- Politeness & courtesy

CHAPTER-6.0 SELF IMPROVEMENT

- Grooming
- Dress code
- Posture
- Make-up
- Saree draping
- Jewellery
- Etiquette at the table

(G) SPECIFICATION TABLE SHOWING DISTRIBUTION OF MARKS AND HOURS

Sl. No.	Chapter No.	Chapter Title	Hours	Marks			
				K	C	A	Total Mark
1.	1.0	FACTORS INFLUENCING PERSONALITY DEVELOPMENT	15	6	6	2	14
2.	2.0	SELF DEVELOPMENT	12	4	3	5	12
3.	3.0	NON-VERBAL LANGUAGE	15	4	4	5	13
4.	4.0	MOTIVATION	12	4	4	4	12
5.	5.0	SOCIAL ETIQUETTES	13	4	3	5	12
6.	6.0	SELF IMPROVEMENT	13	4	3	5	12
Total			80	26	23	26	75

Abbreviations: K=Knowledge level, C= Comprehension Level, A=Application level

(H) SUGGESTED IMPLEMENTATION STRATEGIES:

- Importance of the human element in service industry should be highlighted.
- Emphasis on listening and speaking skills.
- Interactive sessions to help build confidence.
- Role-play should be stressed at all levels in the organisation.
- Personal grooming should be checked daily

(I) SUGGESTED LEARNING RESOURCES :

(a) Reference Books:

S. No	Title	Author, Publisher, Edition & year
1.	Interpersonal Skills for Hospitality Management	Mona Clark International Thomson Business Press, 1996

(b) Others:

- P.A. System
- Internet
- Microphone

HOURS:

MARKS:

SUGGESTED LIST OF PRACTICAL:

Not Applicable

- (A) **COURSE TITLE AND CODE** : **ELECTRONICS WORKSHOP (IT-403)**
 (B) **LEVEL** : **FOUR**
 (C) **BRANCH/DISCIPLINE** : **INFORMATION TECHNOLOGY**
 (D) **RATIONALE** :

This subject envisages to develop practical skills in handling various tools, accessories, equipment used in the manufacturing and testing electronic circuits. It will also make the students familiar with the measuring techniques used in electrical/electronics systems. The student will also be able to implement, test electronics circuits on breadboard and prepare PCB.

(A) TEACHING AND EXAMINATION SCHEME:

Course Code	Name of Course	Teaching Scheme					Examination Scheme				Total Marks
		Pre-requisite	L	T	P	C	Theory		Practical		
							ET	PA	ET	PA	
IT-403	Electronic Workshop	IT-201	1	-	3	4	--	--	100	25	125

(F) DETAILED COURSE CONTENT

CHAPTER – 1.0 IDENTIFICATION AND USE OF DIFFERENT TOOLS AND ACCESSORIES USED IN MANUFACTURING OF ELECTRONIC CIRCUITS

- Different types of cutters.
- Nose pliers.
- Wire strippers
- Screw drivers
- Lead straightners
- Extracters
- Soldering Iron
- Desoldering Pump
- Crimping tool.

CHAPTER – 2 POWER SUPPLY, VOLTMETER AND AMETER

- a) Study of regulated power supply.
 - Front panel controls and their functions.
- b) Study and use of DC and AC voltmeter to measure DC and AC voltage.
- c) Study and use of DC and AC ammeter to measure DC and AC current.
- d) Study and use analog multi-meter to measure:
 - AC and DC voltage.
 - AC and DC current
 - Different resistor
 - Continuity testing

CHAPTER-3 STUDY AND USE DIGITAL MULTIMETER

Study and use digital multimeter to measure:

- AC and DC voltage
- AC and DC current
- Different resistor
- Continuity testing

CHAPTER – 4 STUDY OF FUNCTION GENERATOR.

- Front panel controls and there uses.
- Frequency changes and amplifies.

CHAPTER – 5 STUDY OF CRO

- Front panel control and their functions.
- Observing different waveforms.
- Measurement of amplitude and frequencies

CHAPTER - 6 STUDY OF DIFFERENT CABLES

- Co-axial cable
- Twisted pair cable
- Flat ribbon cable
- Fibre optic cable

CHAPTER - 7 STUDY OF DIFFERENT CONNECTORS

- BNC connector
- Banana connector
- Crocodile connector
- Male and female Dtype connector
- Flat cable connector
- Printed circuit connector
- UTP connector

CHAPTER - 8 STUDY OF DIFFERENT SWITCHES

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- Toggle switches-SPST, SPDT,DPST,DPDT
 - Thumb-wheel switches
 - Rotary switches
 - Push on/Push off switches
 - Keyboard switches-mechanical, capacitive, membrane
 - DIP switches

STUDY OF DIFFERENT DISPLAY DEVICES

- LED display
- Seven segment display
- LCD display

CHAPTER – 9 STUDY OF DIFFERENT DISPLAY DEVICES

- LED display
- Seven segment display
- LCD display

CHAPTER – 10 PREPARING CABLES AND BOARDS

- Prepare computer network cable (use different type of cable and connectors stated as in chapter 6 and 7).
- Study and use bread boards to implement simple electronic circuits using resistors/ capacitors/ diodes/transistors/switches/display devices.
- Prepare two simple electronic circuits using general purpose PCBs.
- Prepare two PCBs for simple electronic circuits

(G) IMPLEMENTATION STRATEGIES

The subject content is expected to be taught by the teacher from electronics department. The teacher is expected to explain functions of the front panel controls of all electronic instruments/equipments along with measuring techniques. Teacher in the electronic workshop should demonstrate and guide students for developing the skills of soldering and PCB manufacturing.

(H) LEARNING RESOURCES SUGGESTED TO BE USED

1. Lab manuals if available
2. CAI packages
3. OHP transparencies

(I) SUGGESTED LIST OF PRACTICALS:

- Total paper is Practical based and the entire practical, as given in content should be first demonstrated by the tutor and then performed by the students.

(J) REFERENCE BOOKS

Author	Title	Edition	Year of Publication	Publisher & Address
S.M.Dhir	Electronic Component and Materials			Tata McGraw Hills publishing company Ltd., N.Delhi
W.C.Bosshart	Printed circuit boards design and technology			Tata McGraw Hills publishing company Ltd., N.Delhi

- (A) **COURSE TITLE AND CODE** : **DATA STRUCTURE (IT-404)**
 (B) **LEVEL** : **FOUR**
 (C) **BRANCH/DISCIPLINE** : **INFORMATION TECHNOLOGY**
 (D) **RATIONALE** :

The study of data structure is an essential part of computer science. In system programming, application programming the methods & techniques of data structures are widely used. The study of data structure helps the students in developing logic & structured programs.

(B) TEACHING AND EXAMINATION SCHEME:

Code	Name of Course	Teaching Scheme					Examination Scheme				Total Marks
		Pre-req.	L	T	P	C	Theory		Practical		
							<i>ET</i>	PA	ET	PA	
IT-404	Data Structure	IT-407	3	1	2	6	75	25	50	25	175

(F) DETAILED COURSE CONTENT

CHAPTER – 1.0 INTRODUCTION TO DATA STRUCTURE

- General concept of
 - Data,
 - Data types,
 - Data variable,
 - Constants & their storage representation,
 - Data types of C,
- Data Structure and their types,
 - Linear data type,
 - Non- Linear data type,
 - Primitive data type,

Non primitive data type etc.

CHAPTER – 2.0 SEARCHING & SORTING

- Searching
 - Linear Search,
 - Binary Search,
 - Hash Search.
- Sorting
 - Bubble Sort,
 - Selection Sort,
 - Merge Sort,
 - Radix Sort,
 - Bucket Sort,
 - Heap Sort.

CHAPTER – 3 STRUCTURE & UNION

- Structure
 - Declaration and initialization of structure
 - Assigning values and accessing member data
 - Arrays as member data
 - Arrays of structure
- Union
 - Declaration of union
 - Characteristics of union
 - Similarity and differences of union with structure

CHAPTER – 4.0 STACKS

- Definitions & examples of stack,
- Primitive operations
 - Push,
 - Pop
- Overflow & underflow of stack.
- Representing Stacks in C as an array
- Applications of stack.
 - In-fix,
 - Post-fix,
 - Pre-fix,
- Converting in-fix to Post-fix and Pre-fix,
Concept of recursion (with example Such as factorial, fibonacci sequence,
multiplication of natural numbers).

CHAPTER – 5 QUEUES.

- Introduction to queues,
- Definition of Queue
- Concept of queues
 - Front,
 - Rear,
 - FIFO,
 - Overflow
 - Underflow.
- Operations on queue
 - Searching
 - Insertion,
 - Deletion.
- Types of queue
 - Priority queue,
 - Circular queue

CHAPTER – 6.0 LINKED LIST

- Introduction,
- Terminologies: Node, Address, Pointer, Information, Next, Null pointer, Empty list etc.
- Operations on list
 - Searching,
 - Insertion and
 - Deletion
- Types of lists
 - Linked list and
 - Circular list
- Array stacks, queues, implementation -using list.

CHAPTER – 7.0 TREES

- Introduction,
- Terminology (tree sub-tree, root leaf (node), left, right, parent, child, ancestor, descendant, brother, level, depth).
- Type of tree
 - Binary tree,
 - Height balanced trees and,
 - Weight balanced tree
- Operations on trees,
- Searching
 - Depth-first search and
 - Breadth-first search
- Traversing
 - Pre-order,
 - In-order and
 - Post-order
- Insertion,
- Deletion,
- 'C' representation of tree.

CHAPTER – 8 GRAPHS

- Introduction,
- Terminology: graph, node (vertices), arcs (edge), directed graph, in-degree, out-degree, adjacent, successor, predecessor, relation, weight, path, length
- Types of graphs
 - Directed graph and
 - Weighted graph and
 - Un-directed graph
- Operations on graphs
 - Finding length of path and
 - Finding shortest path
- Representation of graph using list, conversion of graph to tree.

(G) SPECIFICATION TABLE SHOWING DISTRIBUTION OF MARKS AND HOURS

S. No.	Chapt er No.	Name of Chapter	Hours	Marks			
				K	C	A	Total Mark
1.	1.0	Introduction to data structure	2	1	2	1	4
2.	2.0	Searching & sorting	10	2	4	2	8
3.	3.0	Structure & Union	6	2	2	4	8
4.	4.0	Stacks	6	2	3	3	8
5.	5.0	Queues	10	2	3	3	8

6.	6.0	Linked list	10	3	5	4	12
7.	7.0	Trees	10	6	4	2	12
8.	8.0	Graphs	10	4	6	5	15
Total			64	22	29	24	75

Abbreviations: K=Knowledge level, C= Comprehension Level, A=Application level

(H) IMPLEMENTATION STRATEGIES

Implementation Strategy: - Data Structure is a subject, which deals with data & their structures (definition, initialization, storage, operations & applications.) To implement the methods of data structure C is found to be appropriate language, since it contains all data types & control structures.

The methods mentioned in the syllabus can be implemented in C either by arrays or using Pointers. The student/teacher has to study/teach data structures & their methods using algorithms & should be implemented in practical using C. While implementing this one should give the algorithm/program, assignments just after the completion of related topic. One also can give more assignments based on the topic as per the availability of time. Searching & sorting methods can be implemented as per the need in the required topics.

(I) LEARNING RESOURCES SUGGESTED TO BE USED

4. Lab manuals if available
5. CAI packages
6. OHP transparencies

(J) SUGGESTED LIST OF PRACTICALS: HOURS:32

Marks: 25

- Assignments on searching and sorting
- Sorting an array element.
- Searching a particular element in an array
- Program based on structure union.
- One program based on
 - In fix to post fix or infix to prefix using stack concept
 - Recursion using stack.
- Program based on queue & their operations for an application.
- Program based on list operations for any one application.
- Program based on pointers in C.
- Implementation of tree using linked list.
- Implementation of Binary search Algorithm using Binary tree
- Assignment based on graph theory.

(K) REFERENCE BOOKS:

S.No.	Title	Edition Year of Publication	Author Publisher & Address
1.	Data Structure Using C++		Tanenbaum PHI
2.	Data structures, Algorithms and OOPs	1996	Gregory Heilman Mc-Graw Hills
3.	Data Structure Using C lab workbook		Shukla BPB Publication
4.	Teach Yourself data Structure and Algorithms in 24 Hrs.		Robert Lafore BPB Publication

- (A) **COURSE TITLE AND CODE** : **OPERATING SYSTEM (IT-402)**
 (B) **LEVEL** : **FOUR**
 (C) **BRANCH/DISCIPLINE** : **INFORMATION TECHNOLOGY**
 (D) **RATIONALE** :

The subject on ‘Operating System’ intends to teach the students various services of an operating system, organized in various layers to perform different functions. It will enable the student to understand the Computer system structures, Operating system structures, Processes and CPU scheduling , memory management, file system , Mass storage structure etc. of the operating system. These basic concepts will help the students to properly understand the design of single user and multi-user operating systems.

(C) TEACHING AND EXAMINATION SCHEME

Code	Name of Course	Teaching Scheme					Examination Scheme				Total Marks
		Pre-req.	L	T	P	C	Theory		Practical		
							<i>ET</i>	PA	ET	PA	
IT-402	Operating System	G-202	4	1	-	5	100	25	-	-	125

(F) DETAILED COURSE CONTENT

CHAPTER – 1.0 INTRODUCTION

- Introduction to an operating system.
- Evolution of operating systems.
 - Sequential processing.
 - Batch processing.
 - Multi programming
 - Real time.
 - Multi tasking
 - Multi threading.
- Multi programming operating system
 - Hardware requirements
 - I/O channels and Interrupt H/W
- Storage protection.

CHAPTER – 2 OPERATING SYSTEM SERVICES

- Types of service
- System calls
- Process and job control
- File manipulation
- Device management
- Information management

CHAPTER – 3 PROCESSES AND MULTITHREADING

- Process Concept
- Process Scheduling
- Operations on Processes
- Cooperating Processes
- Interprocess Communication
- **Communication in Client –Server Systems**
- **Multithreading Models**

CHAPTER – 4 SCHEDULING

- Basic Concept
 - I/O burst cycle, Scheduling queries, Scheduling preference criteria, First come first served, Shortest job first, Priority, Round Robin, Multiprocessor scheduling

CHAPTER – 5 MEMORY MANAGEMENT

- Basics of Memory Management
 - Bare machine, Resident monitor, Swapping, Multiple partition, Paging-Segmentation

CHAPTER – 6 I/O SYSTEMS & MASS STORAGE STRUCTURE

- **I/O systems**
 - I/O Hardware
 - Application I/O Interface
 - Kernel I/O Subsystem
 - Transforming I/O to Hardware Operations
 - STREAMS
 - Performance
- **Mass storage structure**
 - Disk Structure
 - Disk Scheduling
 - Disk Management
 - Swap-Space Management

(G) SPECIFICATION TABLE SHOWING DISTRIBUTION OF MARKS AND HOURS

Chapter No.	Name of Chapter	Hours	Marks			
			K	C	A	Total Mark
9.0	Introduction	8	4	4	2	10
10.0	Operating System Services	10	4	8	2	14
11.0	Processes And Multithreading	8	4	6	2	12
12.0	Scheduling	14	4	8	4	16
13.0	Memory Management	14	5	7	4	16
14.0	File Systems	12	4	8	4	16
15.0	I/O Systems & Mass Storage Structure	14	5	6	5	16
Total:		80	30	47	23	100

Abbreviations: K=Knowledge level, C= Comprehension Level, A=Application level

(H) IMPLEMENTATION STRATEGIES

The subject operating systems starts with the origin of operating systems and their subsequent developments. This paper provides the overall design approach of operating system. Concept of operating system design should be followed by the case studies and demonstration of relevant OS by the tutor.

(I) LEARNING RESOURCES SUGGESTED TO BE USED(if available)

7. Lab manuals if available
8. CAI packages
9. OHP transparencies

(J) SUGGESTED LIST OF TUTORIALS: Hours :16 Marks :25

• **Tutorials**

Tutorial must be based on the Case studies of Various Operating systems for elaborating the features of

- **Memory management**
- **Processes and Threads**
- **CPU Scheduling algorithm**
- **I/O Control**
- **File System and Their Implementations**

(K) REFERENCE BOOKS

S.No.	Title	Edition, Year of Publication	Author, Publisher & Address
1.	Operating System Concepts	Fifth Edition	Abraham Silberschatz, Bell Laboratories Peter Galvin, Corporate Technologies, Inc.
2.	Operating Systems	2000	Achyut S. Godbole Tata McGraw Hill Publication, N.Delhi
3.	Operating system	IIInd 2000	William Stallings PHI

- (A) **COURSE TITLE AND CODE** : **NETWORK ESSENTIALS (IT-409)**
 (B) **LEVEL** : **FOUR**
 (C) **BRANCH/DISCIPLINE** : **INFORMATION TECHNOLOGY**
 (D) **RATIONALE** :

Today is the age of information Technology. The day-to-day business transactions in banks, railway reservations, industrial sale, purchase, industrial automation / process and educational environments are all dependent on computers that are connected on networks. This subject will enable the students to learn the basic concepts of digital communication, computer network and its applications, topologies, communication media and devices, protocols used for communication.

(D) TEACHING AND EXAMINATION SCHEME:

Code	Name of Course	Teaching Scheme					Examination Scheme				Total Marks
		Pre-req.	L	T	P	C	Theory		Practical		
							<i>ET</i>	PA	ET	PA	
IT-409	Network Essentials	G-202	3	2	1	6	100	50	25	-	175

(F) DETAILED COURSE CONTENT

CHAPTER – 1.0 NETWORKING BASICS

- Introduction to computer networks
- Network services
Basic Connectivity, File Service, File Transfer Service, application and security service, Sharing of multimedia elements
- Models of Network Computing:
- Centralized, Distributed, Collaborative Computing
- Application of computer networks.
- Local Area Networks
- Wide Area Networks
- Metropolitan Area Networks.
- Network Architecture.
Feature and applications of :
- Peer to Peer Networks
- Client Server Networks
- Internets and Intranets

CHAPTER – 2.0 NETWORK TOPOLOGY

- Bus Topology
- Ring Topology
- Star Topology
- Mesh Topology

CHAPTER-3.0 PROTOCOLS

- TCP / IP Protocols.
 - ISO reference model vs. TCP/IP
 - IP addressing scheme
 - Sub netting
- Data Link Protocol.
 - CSMA Protocol
 - Persistent and Non Persistent CSMA.
 - CSMA with collision detection

CHAPTER – 4.0 DIGITAL COMMUNICATION

- Basic concepts, uses of channel, communication channels characteristics, modulators, de-modulators, synchronous & asynchronous modulators,
- Analog and digital communicators, Simplex, Half Duplex & Full Duplex Communications

CHAPTER – 5.0 COMMUNICATION MEDIA AND DEVICES

- Transmission Media and channels
 - Magnetic media
 - Twisted pair
 - Co-axial cable
 - Optical Fiber.
 - Line of site Transmission
 - Communication satellites
- Network Control Drivers
 - Hubs, Switches, Routers, Bridges, Repeaters, Gateways.

CHAPTER- 6.0 NETWORK REFERENCE MODELS AND PROTOCOLS

- OSI reference model of data communication:
 - Physical layer
 - Data Link layer
 - Network layer
 - Transport layer
 - Session layer
 - Presentation layer
 - Application layer
- CSMA Protocol
 - Persistent and Non Persistent CSMA.
 - CSMA with collision detection.
 - Collision Free Protocol.
- NetBUI Protocols.
- IPX / SPX Protocols.
- TCP / IP Protocols.
- IEEE Standards
- Data Link Protocol.
- Ethernet, Token Ring, FDI ArcNet Protocol

(G) SPECIFICATION TABLE SHOWING DISTRIBUTION OF MARKS AND HOURS

Chapter No.	Name of Chapter	Hours	Marks			
			K	C	A	Total Mark
16.0	Networking Basics	12	4	6	4	14
17.0	Network Topology	10	4	8	4	16
18.0	Protocols	14	4	8	4	16
19.0	Digital Communication	12	4	6	4	14
20.0	Communication Media And Devices	14	4	10	6	20
21.0	Network Reference Model And Protocols	18	4	10	6	20
	Total	80	24	48	28	100

Abbreviations: K=Knowledge level, C= Comprehension Level, A=Application level

(H) IMPLEMENTATION STRATEGIES

The subject teachers are expected to demonstrate the application of network to the students. They should also demonstrate the network setup with the type of network architecture, topology and communication media, connectors and network devices used. The teacher should allow the students to work on the network environment.

(I) LEARNING RESOURCES SUGGESTED TO BE USED

10. Lab manuals if available
11. CAI packages
12. OHP transparencies

(J) SUGGESTED LIST OF DEMONSTRATIONS: Hours:16 Marks:25

- Demonstration
 - Demonstrate and explain type of architecture used.
 - Demonstrate the topology used with the computer network
 - Demonstrate the transmission media and network connectivity devices used to establish computer network.
 - Demonstrate the particular protocol used for the network adapter installed in the computer system.
 - Demonstrate the installation of Network O.S.

▪ **REFERENCE BOOKS**

S.No.	Title	Edition & Year of Publications	Author, Publisher & Address
1	MCSE Network Essentials	1998	Becky Kirsininkas Tata McGraw Hills Publication, N.Delhi.
2	Using Novell Netware	Latest	Bill Lawrence Loyal S. Short
3	Novell Netware- Tips-Tricks- Techniques	Latest	Rakesh Narang BPB Publication
4.	Introduction to data communications and networking	Latest	Forouzan, behrouz Tata M/c graw hill, N. delhi

- (A) **COURSE TITLE AND CODE** : **OBJECT ORIENTED PROGRAMMING
IN C++ (IT-502)**
- (B) **LEVEL** : **FIVE**
- (C) **BRANCH/DISCIPLINE** : **INFORMATION TECHNOLOGY**
- (D) **RATIONALE** :

This subject intends to teach the students the basic concepts of object-oriented programming (OOP) and C++. Large programs are probably the most complicated entities ever created by humans because of this complexity, programs are prone to error and software errors can be expensive and even life threatening. Object-oriented programming offers a new and powerful way to cope with this complexity. Its goal is clearer, more reliable, more easily maintained programs. This subject will act as backbone to all other subjects that are based on Object Oriented concept.

(E) **TEACHING AND EXAMINATION SCHEME**

Course Code	Name of Course	Teaching Scheme					Examination Scheme				Total Marks
		Pre-requisite	L	T	P	C	Theory		Practical		
							ET	PA	ET	PA	
IT- 502	Object Orineted Programming in C++	IT-407	2	1	3	6	75	25	50	25	175

(F) **DETAILED COURSE CONTENT**

CHAPTER – 1.0 INTRODUCTION TO OBJECT ORIENTED PROGRAMMING

- Introduction
 - Its need and requirements
 - Procedure-oriented programming versus Object-Oriented programming concept
 - Basic concepts of OOPs.
 - Object oriented languages.
- Beginning with C++
 - Concept and structure of C++ programming
- Introduction to structures & Union of C

CHAPTER – 2.0 OBJECTS AND CLASSES.

- Classes
 - Specifying a class and types of class
 - Defining and nesting member functions
 - Arrays within a class
- Objects
 - Creating objects
 - Memory allocation for objects
 - Static data and member function
 - Array of objects
 - Objects as function arguments

CHAPTER – 3.0 CONSTRUCTORS AND DESTRUCTUROS

- Constructors
 - Parameterized
 - Multiple
 - Constructor with detail argument
 - Dynamic
- Destructor
- Operator overloading and type conversion
 - Inline functions overloading
 - Overloading unary and binary operators
 - Rules for overloading operators

CHAPTER – 4.0 INHERITANCE

- Introduction
- Derived classes
- Member declaration: protected
- Types of inheritance
 - Single,
 - Multilevel,
 - Multiple,
 - Hierarchical,
 - Hybrid inheritance
- Virtual base classes
- Abstract classes
- Constructors in derived classes
- Member classes

CHAPTER – 5.0 POLYMORPHISM

- Introduction
 - Polymorphism in programming languages
 - Types of polymorphism
 - Polymorphic variables
- Overloading and overriding
- Virtual functions
- Static and dynamic binding

CHAPTER – 6.0 POINTERS IN C++

- **Concept of Pointers**
 - Pointer declaration
 - Pointer operator
 - Address operator,
 - Pointer expressions
 - Pointer Arithmetic.
- Pointers and Functions
 - Call by value
 - Call by reference
 - Pointer to functions
 - Passing function to another function
- Pointers in Arrays
 - Searching, Insertion and Deletion.
- Pointers To String
 - Searching, Insertion and Deletion
 - Finding length and comparison
- Pointers and objects
 - Pointers to objects
 - This pointer
 - Pointers to derived classes

Introduction to Structures and Unions

CHAPTER – 7.0 INTERNET TECHNOLOGY**I/O SYSTEM BASICS AND FILE PROCESSING**

- I/O system Basics
 - The stream classes
 - Templates classes
 - Character based classes
 - Using manipulator to format I/O
- File Handling
 - File system Basics
 - Opening and closing a file
 - Reading and writing a character from a file using fputs, fgets, rewind(), ferror, erasing file

CHAPTER – 8.0 GRAPHICS IN C++

- Text mode graphics functions
 - Window function, cputs(), clrscr()
- Graphics mode graphics functions:
 - Initgraph, circle, closegraph
- Shapes
 - set colours, set lines styles, set fill style, flood fill
- Colours
 - Lines and Rectangle: Line(), Rectangle()
 - Polygons and Inheritance, shape class, polygons

(G) SPECIFICATION TABLE SHOWING DISTRIBUTION OF MARKS AND HOURS

S. No.	Chapt er No.	Name of Chapter	Hours	Marks			
				K	C	A	Total Mark
9.	22.0	Introduction to object oriented programming	4	2	2	1	5
10.	23.0	Objects and classes	6	3	3	4	10
11.	24.0	Constructors and destructors	6	2	4	4	10
12.	25.0	Inheritance	6	4	4	2	10
13.	26.0	Polymorphism	6	4	2	4	10
14.	27.0	Pointers in C++	8	2	3	5	12
15.	28.0	I/O system basics and file processing	6	3	4	3	10
16.	29.0	Graphics in C++	6	3	3	4	8
Total			48				75

Abbreviations: K=Knowledge level, C= Comprehension Level, A=Application level

(H) IMPLEMENTATION STRATEGIES

To implement Object oriented programming it is assumed that the student is familiar with C programming and its syntax. While implementing this one should give the programming assignment based on the topics just after the completion of theoretical part of the concerned topic. More assignments based on the topics, may be given as per availability of time. For effective teaching/learning it is expected that list of questions based on the topics should be given. It is also expected that the programming assignment should cover the real time problems. The programming assignment should help a student in developing the object oriented programming logic.

Concepts such as inheritance, overloading, polymorphism, abstract classes of OOPs helps in reusability and enhancement. So it is expected that using OOPs principles one should reuse available utility classes of C++.

(I) LEARNING RESOURCES SUGGESTED TO BE USED

13. Lab manuals if available
14. CAI packages
15. OHP transparencies

(J) SUGGESTED LIST OF EXPERIMENTS/ DEMONSTRATIONS/ TUTORIALS:

Hours 48

Marks: 50

- Any two simple C++ programs
- Any two C++ programs based on object and classes
- At least one C++ program based on each
 - Constructors and destructors
 - Overloading unary operator
 - Overloading binary operator
- C++ program based on each
 - Inheritance
 - Multiple Inheritance
- One C++ program based on
 - Polymorphism
 - Overloading
 - Overriding
- Some C++ program should be conducted on each of the following
 - 2 array sorting
 - String manipulation
 - Pointer to objects
 - Use of this pointer
 - Pointers to derived class
- At least two program based on file handling
- At least four C++ programs based on Graphics functions

(K) REFERENCE BOOKS

S.No.	Title	Edition Year of Publication	Author Publisher & Address
1.	C++ The Complete Reference	Ist Edition 2000	Schilt Tata McGraw-Hill Publishing Company Ltd. New Delhi
2.	Object Oriented Programming with C++.	Ist Edition 2000	Balagurusamy Tata McGraw-Hill Publishing Company Ltd. New Delhi
3.	Object Oriented Programming in Turbo C++	Ist.- Edition 2000	Lafore Robert Galgotia Publication
4.	Let Us C++	Latest	Yashwant Kanetkar BPB Publication
5.	Programming with C++	Ist - Edition 2000	D. Ravichandran Tata McGraw-Hill Publishing Company Ltd. New Delhi
6.	Programming with C++ made simple	Ist edition 2002	Dr. M.Kumar, Tata McGraw- Hill Publishing Company Ltd. New Delhi

