



**Pragnya education trust's
Pragnya college of management & computer studies,
Handewadi, Pune-411060**

BBA(CA) -- Semester: IV

Teaching Plan 2020-2021

Name of Faculty:
Subject: Networking

Prof. Sunita Kadnikar
(SUBJECT CODE-401)

Sr.No.	Month	Week	Topic
1	JAN		Chapter 1: Introduction to Computer Network
			1.1 Basics of Computer Network 1.1.1 Definition 1.1.2 Goals 1.1.3 Applications, 1.1.4 Network Hardware – Broadcast, Point to Point 1.1.5 Components of Data Communication
		2	1.2 Network Topologies 1.2.1 Mesh 1.2.2 Star, 1.2.3 Bus, 1.2.4 Ring 1.3 Types of Networks 1.3.1 LAN, MAN, WAN, 1.3.2 Internetwork, 1.3.3 Wireless Network
		3	1.4 Modes of Communication 1.4.1 Simplex, 1.4.2 Half Duplex, 1.4.3 Full Duplex 1.5. Server Based LANs & Peer-to-Peer LANs 1.6. Protocols and Standards 1.7. Network Software 1.7.1 Protocol Hierarchies, Layers, Peers, Interfaces 1.7.2 Design Issues of the Layers 1.7.3 Connection Oriented and Connectionless Service & LAB WORK
2	FEB	4	Chapter 2: Network Models 2.1 OSI Reference Model : Functions of each Layer 2.2 TCP/IP Reference Model, Comparison of OSI and TCP/IP Reference Model 2.3 TCP/IP Protocol Suite
		1	2.4 Addressing 2.4.1 Physical Addresses 2.4.2 Logical Addresses 2.4.3 Port Addresses, 2.4.4 Specific Addresses 2.5 IP Addressing 2.5.1 Classful Addressing 2.5.2 Classless Addressing LAB WORK
		2	Chapter 3: Transmission Media 3.1 Introduction, Types of Transmission Media 3.2 Guided Media: 3.2.1 Twisted Pair Cable- Physical Structure, Categories, Connectors & Applications 3.2.2 Coaxial Cable – Physical Structure, Standards, Connectors & Applications
		3	3.2.3 Fiber Optic Cable- Physical Structure, Propagation Modes, Connectors & Applications 3.3 Unguided Media: 3.3.1 Electromagnetic Spectrum for Wireless Communication 3.3.2 Propagation Modes Ground, Sky, Line-of-Sight 3.3.3 Wireless Transmission: Radio Waves, Microwaves, Infrared LAB WORK
4			Chapter 4: Wired and Wireless LAN 4.1 IEEE Standards
		4	4.2 Standard Ethernet MAC Sublayer, Physical Layer 4.3 Fast Ethernet – Goals, MAC Sublayer, Topology, Implementation 4.4 Gigabit Ethernet – Goals, MAC Sublayer, Topology, Implementation LAB WORK

			4.5 Ten-Gigabit Ethernet – Goals, MAC Sublayer, Physical Layer 4.6 Backbone Networks -Bus Backbone, Star Backbone 4.7 Virtual LANs Membership, IEEE standards advantages 4.8 Wireless LAN 4.8.1 IEEE 802.11 Architecture, 4.8.2 Bluetooth Architecture (Piconet, Scatternet)
3	MARCH	1	
		2	Chapter 5: Network Devices 5.1 Network Connectivity Devices 5.1.1 Active and Passive Hubs 5.1.2 Repeaters 5.1.3 Bridges- Types of Bridges 5.1.4 Switches 5.1.5 Router 5.1.6 Gateways Chapter 6: Network Security 6.1 Introduction 6.2 Need for Security 6.3 Security Services : 6.3.1 Message- -Confidentiality, Integrity, Authentication, Non repudiation. 6.3.2 Entity (User)- Authentication. LAB WORK 6.4 Types of Attack 6.5 Cryptography, PlainText,Cipher Text, Encryption,Decryption, Symmetric Key and Asymmetric Key Cryptography
4	APRIL	1	
		2	6.6 SubstitutionTechniques, Caesar Cipher,and Transposition Cipher (Problems should be covered.)
		3	6.7 Firewalls- Packet Filter firewall, Proxy firewall 6.8 Steganography,Copyright LAB WORK
5	MAY	4	Online Viva Conducted
		1	Online University Examination Started



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BBA(CA) -- Semester: IV

Teaching Plan 2020-2021

Name of Faculty:

Subject: Object Oriented Concepts Through CPP

Prof. Shilpa Thakur

(SUBJECT CODE-402)

Sr.No.	Month	Week	Topic
1	JAN		Chapter 1: Introduction to C++
			1.1 Basic concepts, features, advantages and applications of OOP
			1.2 Introduction, applications and features of C++
			1.3 Input and Output operator in C++
			1.4 Simple C++ program LAB
		2	WORK
			Chapter 2: Beginning with C++
			2.1 Data type and Keywords
			2.2 Declaration of variables, dynamic initialization of variables, reference variable
		3	2.3 Operators: 2.3.1 Scope resolution operator 2.3.2 Memory management operators 2.4 Manipulators 2.5 Functions:
2	FEB		2.5.1 Function prototyping, call by reference and return by reference
			2.5.2 Inline functions 2.6 Default arguments
			LAB WORK
			Chapter 3: Classes and Objects
			3.1 Structure and class, Class, Object
			3.2 Access specifiers, defining data member
			3.3 Defining member functions inside and outside class definition.
			3.4 Simple C++ program using class 3.5 Memory allocation for objects 3.6 Static data members and static member functions
		4	3.7 Array of objects, objects as a function argument
			3.8 Friend function and Friend class
			3.9 Function returning objects
			LAB WORK
			Chapter 4: Constructors and Destructors
			4.1 Constructors 4.2 Types of constructor : Default, Parameterized, Copy
		1	4.3 Multiple constructors in a class 4.4 Constructors with default argument
			4.5 Dynamic initialization of constructor 4.6 Dynamic constructor 4.7 Destructor & LAB WORK
			Chapter 6: Inheritance
			6.1 Introduction 6.2 Defining Base class and Derived class
		2	6.3 Types of Inheritance 6.4 Virtual Base Class 6.5 Abstract class
			6.6 Constructors in derived class LAB
			WORK
			Chapter 7 : Polymorphism
			7.1 Compile Time Polymorphism
			7.1.1 Introduction, rules for overloading operators
		3	7.1.2 Function overloading 7.1.3
			Operator Overloading unary and binary
			7.1.4 Operator Overloading using friend function
			7.1.5 Overloading insertion and extraction operators
			7.1.6 String manipulation using operator overloading
		4	7.2 Runtime Polymorphism 7.2.1 this Pointer, pointers to objects, pointer to derived classes 7.2.2 Virtual functions and pure virtual functions
			LAB WORK

			Chapter 8: Managing console I/O operations	
			8.1 C++ streams and C++ streamclasses	
			8.2 Unformatted I/O operations	
		1	8.3 Formatted console I/O operations	
			8.4 Output formatting using manipulators	
			8.5 User defined manipulators	LAB
			WORK	
3	MARCH		Chapter 9: Working with Files	
			9.1 Stream Classes for File operations	
			9.2 File operations - Opening, Closing and updating	
		2	9.3 File updating with random access.	
			9.4 Error handling during File operations	
			9.5 Command Line arguments	LAB
			WORK	
			Chapter 10: Templates	
			10.1 Introduction	
			10.2 Class Template and class template with multiple parameters	
		1	10.3 Function Template and function template with multiple parameter	
4	APRIL	2	10.4 Exception Handling Introduction	
		3	LAB WORK	
		4		Online Viva Conducted
5	MAY	1		Online University Examination Started



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BBA (CA) -- Semester: IV

Teaching Plan 2020-2021

Name of Faculty:
Subject: Operating System

Prof. Sunita kadnikar
(SUBJECT CODE- 403)

Sr.No.	Month	Week	Topic
1	JAN		Chapter 1: Introduction to Operating System
			1.1 What is operating system 1.2 Computer system architecture
			1.3 Services provided by OS 1.4 Types of OS
			1.5 Operating System Structure — Simple structure -Layered approach -Micro kernels -Modules 1.6 Virtual Machines – Introduction, Benefits LAB
		2	WORK
			Chapter 2: System Structure
			2.1 User operating system Interface
			2.2 System Calls– -Process or job control -Device Management -File Management 2.3 System Program 2.4 Operating System Structure LAB
			WORK
		3	
			Chapter 3: Process Management
			3.1 Process Concept – - The process - Process states - Process control block
			3.2 Process Scheduling – - Scheduling queues
			- Schedulers -Context Switch 3.3 Operation on Process –
		4	- Process Creation -Process Termination
			3.4 Interprocess Communication – - Shared memory system - Message passing systems. LAB
			WORK
			Chapter 4: CPU Scheduling
			4.1 What is scheduling
			4.2 Scheduling Concepts –
			- CPU- I/O Burst Cycle - CPU Scheduler
		1	-Preemptive and Non-preemptive scheduling - Dispatcher
			4.3 Scheduling criteria
			4.4 Scheduling Algorithms –
			- FCFS - SJF (Preemptive& non-preemptive)
			- Priority Scheduling (Preemptive& Non- preemptive)
			- Round Robin Scheduling - Multilevel Queues - Multilevel Feedback queues
			LAB WORK
2	FEB		Chapter 5: Process Synchronization
			5.1 Introduction
			5.2 Critical section problem
			5.3 Semaphores – Concept - Implementation - Deadlock & Starvation
		2	- Types of Semaphores
			5.4 Classical Problems of synchronization – -Bounded buffer problem
			- Readers & writers problem - Dining Philosophers problem LAB
			WORK
			Chapter 6: Deadlock
			6.1 Introduction 6.2 Deadlock Characterization
			6.3 Necessary Condition 6.4 Deadlock Handling Technique–
			-Deadlock Prevention - Deadlock Avoidance – - Safe State
		3	- Resource allocation graph algorithm - Bankers algorithm - Deadlock Detection - Recovery from Deadlock – -Process Termination -Resource Preemption LAB
			WORK

		Chapter 7: Memory Management	
		7.1. Background – -Basic hardware - Address binding - Logical versus physical address space - Dynamic loading - Dynamic linking and shared libraries 7.2 Swapping 7.3 Contiguous Memory Allocation – - Memory mapping and protection -Memory allocation - Fragmentation 7.4 Paging –	
4		-Basic Method - Hardware support - Protection - Shared Pages	LAB WORK
		7.5 Segmentation – - Basic concept - Hardware	
		7.6 Virtual Memory Management – - Background - Demand paging - Performance of demand paging Page replacement – - FIFO - OPT - LRU - Second chance page replacement - MFU - LFU	
		Chapter 8: File System	
		8.1 Introduction & File concepts (file attributes, Operations on files) 8.2 Access methods – - Sequential access - Direct access	
3	MARCH	2	8.3 File structure – - Allocation methods - Contiguous allocation - Linked Allocation - Indexed Allocation
		8.4 Free Space Management – - Bit Vector - Linked List - Grouping	
		LAB WORK	
		Chapter 9: I/O System	
		9.1 Introduction 9.2 I/O Hardware	
		9.3 Application of I/O Interface	
		1	9.4 Kernel I/O Subsystem
		2	9.5 Disk Scheduling – - FCFS - Shortest Seek time first - SCAN
4	APRIL	3	- C- SCAN - C- Look
		4	LAB WORK
		Online Viva Conducted	
5	MAY	1	Online University Examination Started



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BBA (CA)-- Semester: IV

Teaching Plan 2020-2021

Name of Faculty:
Subject: NODE JS

Prof. Shilpa Thakur
(SUBJECT CODE-404)

Sr.No.	Month	Week	Topic	
1	JAN		Chapter 1: Introduction to Node JS	1.1
			Introduction	
		2	1.2 What is Node JS?	
			1.3 Advantages of Node JS	
			1.4 Traditional Web Server Model	
			1.5 Node.js Process Model	
		3	1.6 Install Node.js on Windows	
			1.7 Working in REPL	
			LAB WORK	
			Chapter 2: Node JS Modules	
2	FEB	4	2.1 Functions	
			2.2 Buffer	
			2.3 Module	
			2.4 Module Types	
			2.5 Core Modules	
		1	2.6 Local Modules	
			2.7 Module.Exports	LAB
			WORK	
			Chapter 3: Node Package Manager	
		2	3.1 What is NPM ?	
3	MARCH		3.2 Installing Packages Locally	
			3.3 Adding dependency in package.json	
		3	3.4 Installing packages globally	
			3.5 Updating packages	
			LAB WORK	
			Chapter 4: Web server	
		4	4.1 Creating web server	
			4.2 Handling http requests	
			4.3 Sending requests	LAB
			WORK	
			Chapter 5: File System	
			5.1 Fs.readFile	
			5.2 Writing a File	
		1	5.3 Writing a file asynchronously	
			5.4 Opening a file	
			5.5 Deleting a file	
			5.6 Other IO Operations	LAB
			WORK	
			Chapter 6: Events	
		2	6.1 EventEmitter class	
			6.2 Returning event emitter	
			6.3 Inhering events	LAB
			WORK	

			Chapter 7: Database connectivity
			7.1 Connection string
			7.2 Configuring
		1	7.3 Working with select command
4	APRIL	2	7.4 Updating records
			7.5 Deleting records
		3	LAB WORK
		4	Online Viva Conducted
5	MAY	1	Online University Examination Started



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**Name of Faculty:
Subject: Advanced PHP**

Prof. Sunita kadnikar
(SUBJECT CODE-404)

Sr.No.	Month	Week	Topic
1	JAN		Chapter 1: Introduction to Object Oriented Programming in PHP 1.1 Classes 1.2 Objects 1.3 Introspection 1.4 Serialization 1.5 Inheritance 1.6 Interfaces 1.7 Encapsulation
		2	LAB WORK
		3	Chapter 2: Web Techniques 2.1 Server information 2.2 Processing forms 2.3 Sticky forms 2.4 Setting response headers LAB
		4	Chapter 3: XML 3.1 Introduction XML 3.2 XML document Structure 3.3 PHP and XML 3.4 XML parser 3.5 The document object model 3.6 The simple XML extension 3.7 Changing a value with simple XML LAB
2	FEB	1	Chapter 4: Ajax with PHP 4.1 Understanding java scripts for AJAX 4.2 AJAX web application model 4.3 AJAX –PHP framework LAB
		2	4.4 Performing AJAX validation 4.5 Handling XML data using php and AJAX 4.6 Connecting database using php and AJAX
		3	Chapter 5: Introduction to Web Services 5.1 Definition of web services 5.2 Basic operational model of web services, tools and technologies enabling web services 5.3 Benefits and challenges of using web services. 5.4 Web services Architecture and its characteristics
		4	5.5 Core building blocks of web services 5.6 Standards and technologies available for implementing web services 5.7 Web services communication models 5.8 Basic steps of implementing web services. LAB
3	MARCH	1	Chapter 6: PHP Framework (Joomla / Druple) 6.1 Introduction to Joomla/Druple 6.1.1 Introduction 6.1.2 Joomla/Druple features 6.1.3 How joomla/Drupleworks ? 6.1.4 The platformComponents, Modules and Plugins
		2	6.2 Administering Joomla/Druple 6.2.1 Presentation Administration 6.2.2 Content Administration 6.2.3 System Administration LAB WORK

			6.3 Working with Joomla/Drupal
			6.3.1 Adding articles
			6.3.2 Adding menus to point to content
			6.3.3 Installing new templates
		1	6.3.4 Creating templates
			6.3.5 Adding a Module and Component
4	APRIL		6.3.6 Modifying the existing templates
		2	6.3.7 Creating templates with web editors
			6.3.8 Creating real templates
		3	LAB WORK
		4	Online Viva Conducted
5	MAY	1	Online University Examination Started