S.Y.B.Sc.I.T Div A & B- Sem – III(2020-21) Teaching Plan
Subject: - Computer Networks

Month	Topics to be covered
July 2020	**Unit-I** **Introduction:** Data communications, networks, network types, Internet history, standards and administration. **Network Models:** Protocol layering, TCP/IP protocol suite, The OSI model. **Introduction to Physical layer:** Data and signals, periodic analog signals, digital signals, transmission impairment, data rate limits, performance. **Digital and Analog transmission:** Digital-to-digital conversion, analog-to-digital conversion, transmission modes, digital-to-analog conversion, analog-to-analog conversion. (PPT)
Aug 2020	**Unit – II** **Bandwidth Utilization: Multiplexing and Spectrum Spreading:** Multiplexing, Spread Spectrum **Transmission media:** Guided Media**, U**nguided Media **Switching:** Introduction, circuit switched networks, packet switching, structure of a switch. **Introduction to the Data Link Layer:** Link layer addressing, Data Link Layer Design Issues, Error detection and correction, block coding, cyclic codes, checksum, forward error correction, error correcting codes, error detecting codes. – Practical -Addressing Problems –Subnetting, Range of IP addresses-----PPT
Sept 2020	**Unit –III** **Data Link Control:** DLC services, data link layer protocols, HDLC, Point-to-point protocol. (Problems Solving/ PPT / Audio- Video technique for network configuration Practical) **Media Access Control**: Random access, controlled access, channelization, Wired LANs – Ethernet Protocol, standard ethernet, fast ethernet, gigabit ethernet, 10 gigabit ethernet, (PPT) **Wireless LANs:** Introduction, IEEE 802.11 project, Bluetooth, WiMAX, Cellular telephony, Satellite networks. Practical-Introduction to Cisco Simulator, Cisco Commands
Oct 2019	**Connecting devices and Virtual LANs.** **Unit-IV** **Introduction to the Network Layer**: Network layer services, packet switching, network layer performance, IPv4 addressing, forwarding of IP packets, Internet Protocol, ICMPv4, Mobile IP, transition from IPv4 to IPv6. **Unicast Routing:** Introduction, routing algorithms, (PPT)unicast routing protocols. Practical -IP static routing, RIP configuration,
Nov 2020	**Next generation IP:** IPv6 addressing, IPv6 protocol, ICMPv6 protocol, transition **Standard Client0Server Protocols:** World wide-web and HTTP, FTP, Electronic mail, Telnet, Secured Shell, Domain name system. Practical – OSPF, DHCP
Dec 2020	**Client0Server Protocols:** World wide-web and HTTP, FTP, Electronic mail, Telnet, Secured Shell, Domain name system. (PPT) Practical –TCP, OSPF multiple area, Wireshark, Revision on addressing problems , algorithms.

Teacher Sign **Coordintor**

Lesson Plan for 2020 -21 (ODD SEM)	**SYBSc-(IT)-Semester III- DBMS**
Unit I (JULY-2020)	**Introduction to Databases and Transactions:** What is database system, purpose of database system, view of data, relational databases, database architecture, transaction management **Data Models** The importance of data models, Basic building blocks, Business rules, The evolution of data models, Degrees of data abstraction. **Database Design, ER Diagram and Unified Modeling Language** **Database design and ER Model:** overview, ER Model, Constraints, ER Diagrams, ERD Issues, weak entity sets, Codd's rules, Relational Schemas, Introduction to UML **[Teaching Methodology: PPT, Scenario based learning]**
Unit II (AUG & SEPT 2020)	**Relational database model:** Logical view of data, keys, integrity rules, Relational Database design: features of good relational database design, atomic domain and Normalization (1NF, 2NF, 3NF, BCNF). **Relational Algebra and Calculus Relational algebra:** introduction, Selection and projection, set operations, renaming, Joins, Division, syntax, semantics. Operators, grouping and ungrouping, relational comparison. **Calculus:** Tuple relational calculus, Domain Calculus **[Teaching Methodology: PPT, Role-Model, Case study]**
Unit III (SEPT & OCT 2020)	**Constraints, Views and SQL** **Constraints:** types of constraints, Integrity constraints, **Views:** Introduction to views, data independence, security, updates on views, comparison between tables and views **SQL:** data definition, aggregate functions. **[Teaching Methodology: PPT, Scenarios, Case study]**
Unit IV (NOV 2020)	**Transaction management and Concurrency Control Transaction management:** ACID properties, serializability and concurrency control, Lock based concurrency control (2PL, Deadlocks), Time stamping methods, optimistic methods, database recovery management. **[Teaching Methodology: PPT, Scenarios, Role-Based learning]**

Unit V **(DEC 2020)**	**PL-SQL:** Beginning with PL / SQL, Identifiers and Keywords, Operators, Expressions, Sequences, Control Structures, Cursors and Transaction, Collections and composite data types, Procedures and Functions, Exceptions Handling, Packages, With Clause and Hierarchical Retrieval, Triggers. **[Teaching Methodology: PPT , Debugging Codes]**

B.Sc.(Information Technology)	Semester-III
Course Name: Applied Mathematics	Course code: USIT 305

Teaching Methodology :

Month	Topic to be covered
July	**Unit 1:Matrices:** Inverse of a matrix, Properties of matrices, Elementary Transformation, Rank of Matrix, Echelon or Normal Matrix, Inverse of matrix, Linear equations, Linear dependence and linear independence of vectors, Linear transformation, Characteristics roots and characteristics vectors, Properties of characteristic vectors, Caley Hamilton Theorem, Similarity of matrices, Reduction of matrix to a diagonal matrix which has elements as characteristics values.
August	**Complex Numbers:** Complex number, Equality of complex numbers, Graphical representation of complex number(Argand's Diagram), Polar form of complex numbers, Polar form of x+iy for different signs of x,y, Exponential form of complex numbers, Mathematical operation with complex numbers and their representation on Argand's Diagram, Circular functions of complex angles, Definition of hyperbolic function, Relations between circular and hyperbolic functions, Inverse hyperbolic functions, Differentiation and Integration, Graphs of the hyperbolic functions, Logarithms of complex quality, j(=i)as an operator(Electrical circuits) **Unit 2:** Equation of the first order and of the first degree: Separation of variables, Equations homogeneous in x and y, Non-homogeneous linear equations, Exact differential Equation, Integrating Factor, Linear Equation and equation reducible to this form, Method of substitution.
September	**Differential equation of the first order of a degree higher than the first:** Introduction, Solvable for p (or the method of factors), Solve for y, Solve for x, Clairaut's form of the equation, Methods of Substitution, Method of Substitution. **Linear Differential Equations with Constant Coefficients:** Introduction, The Differential Operator, Linear Differential Equation f(D) y = 0, Different cases depending on the nature of the root of the equation f(D) = 0, Linear differential equation f(D) y = X, The complimentary Function, The inverse operator 1/f(D) and the symbolic expiration for the particular integral 1/f(D) X; the general methods, Particular integral : Short methods, Particular integral : Other methods, Differential equations reducible to the linear differential equations with constant coefficients.
October	**Unit 3: The Laplace Transform:** Introduction, Definition of the Laplace Transform, Table of Elementary Laplace Transforms, Theorems on Important Properties of Laplace Transformation, First Shifting 12 13 Theorem, Second Shifting Theorem, The Convolution Theorem, Laplace Transform of an Integral, Laplace Transform of Derivatives. **Inverse Laplace Transform**: Shifting Theorem, Partial fraction Methods, Use of Convolution Theorem, Solution of Ordinary Linear Differential Equations with Constant Coefficients, Solution of Simultaneous Ordinary Differential Equations, Laplace Transformation of Special Function, Periodic Functions, Heaviside Unit Step Function, Dirac-delta Function (Unit Impulse Function).
November	**Unit 4:Multiple Integrals:** Double Integral, Change of the order of the integration, Double integral in polar co-ordinates, Triple integrals. **Applications of integration:** Areas, Volumes of solids.
December	**Unit 5:**Beta and Gamma Functions – Definitions, Properties and Problems. Duplication formula. **Differentiation Under the Integral Sign** **Error Functions**

Books And References:

Sr.No.	Title	Author/s	Publisher
1.	A text book of Applied Mathematics Vol I	P. N. Wartikar and J. N. Wartikar	Pune VidyathiGraha
2.	Applied Mathematics II	P. N. Wartikar and J. N. Wartikar	Pune VidyathiGraha

S.Y.B.Sc.IT-SEM III	
SUBJECT: Python Programming	
Month	**Topics to be Covered**
JULY	**UNIT I: Introduction:** The Python Programming Language, History, features, Installing Python, Running Python program, Debugging : Syntax Errors, Runtime Errors, Semantic Errors, Experimental Debugging, Formal & Natural Languages, The Difference Between Brackets, Braces, & Parentheses, **Variables and Expressions** :Values & Types, Variables, Variable Names & Keywords, Type conversion, Operators & Operands, Expressions, Interactive Mode & Script Mode, Order of Operations. **Conditional Statements**: if, if-else, nested if –else **Looping:** for, while, nested loops **Control statements:** Terminating loops, skipping specific conditions **[TM:PPT,VIDEO,PRACTICAL-Online Implementation]**
AUGUST	**UNIT II: Functions:** Function Calls, Type Conversion Functions, Math Functions, Composition, Adding New Functions, Definitions and Uses, Flow of Execution, Parameters and Arguments, Variables and Parameters Are Local, Stack Diagrams, Fruitful Functions and Void Functions, Why Functions? Importing with from, Return Values, Incremental Development, Composition, Boolean Functions, More Recursion, Leap of Faith, Checking Types. **UNIT II: Strings:** A String Is a Sequence, Traversal with for Loop, String Slices, Strings Are Immutable, Searching, Looping & Counting, String Methods, in Operator, String Comparison & Operations. **[TM:PPT,VIDEO,PRACTICAL-Online Implementation]**
SEPTEM-BER	**Unit III: Lists:** Values and Accessing Elements, Lists are mutable, traversing a List, Deleting elements, Built-in List Operators, Concatenation, Repetition, In Operator, Built-in List functions and methods. **Tuples and Dictionaries:** Tuples, values in Tuples, Tuple(=), Tuples as return values, Variable-length argument tuples, Basic tuples operations, Concatenation, Repetition, in Operator, Iteration, Built-in Tuple Functions Creating, Accessing, Updating & Deleting Elements from Dictionary, Properties of Dictionary keys, Operations in Dictionary, Built-In Dictionary Functions &Methods **Files:** Text Files, The File Object Attributes, Directories **Exceptions:** Built-in Exceptions, Handling Exceptions, Exception with Arguments, User-defined Exceptions. **[TM:PPT,VIDEO,PRACTICAL-Online Implementation]**
OCTOBER	**UNIT IV: Classes and Objects:** Overview of OOP , Class Definition, Creating Objects, Instances as Arguments, Instances as return values, Built-in Class Attributes, Inheritance, Method Overriding, Data Encapsulation, Data Hiding **Multithreaded Programming:** Thread Module, creating a thread, synchronizing threads, multithreaded priority queue **Modules:** Importing , Creating & exploring modules, Math, Random & Time module **Regular Expressions**: Concept of regular expression, various types of regular expressions, using match function. **[TM:PPT,VIDEO,PRACTICAL-Online Implementation]**
NOVEMBER	**UNIT V: Creating the GUI Form and Adding Widgets:** **Widgets:** Button, Canvas,Checkbutton, Entry, Frame, Label, Listbox, Menubutton, Menu, Message, Radiobutton, Scale, Scrollbar, text, Toplevel, Spinbox, PanedWindow, LabelFrame, tkMessagebox. Handling Standard attributes and Properties of Widgets. **[TM:PPT,VIDEO,PRACTICAL-Online Implementation]**
DECEMBER	**UNIT V: Layout Management:** Designing GUI applications with Layout Management features. **Look & Feel Customization:** Enhancing Look & Feel of GUI using different appearances of widgets. **Storing Data in Our MySQL Database via Our GUI: Connecting** to a MySQL db, Configuring the MySQL connection, Designing the Python GUI DB, Using the INSERT, UPDATE, DELETE command, Storing and retrieving data from MySQL database. **[TM:PPT,VIDEO,PRACTICAL-Online Implementation]**

Course Outcome

PYTHON PROGRAMMING — [S.Y.B.Sc.IT SEM-III]

1. Basic of Python programming
2. Describe the numbers, Math functions, String, List, Tuples, & Dictionaries in Python.
3. Interpret Object Oriented Programming in Python.
4. Express different decision making statement in python.
5. Understand and summarize different file handling operation.
6. Explain how to design GUI applications in python and evaluate different database operations.
7. Design and develop client server network applications using python.

AY: 2020-21

Month	S.Y.B.Sc.IT – Semester III Subject Name: Mobile Programming Practical
September 2020	Practical 1 ➢ Creating and building simple "Hello World" App using Cordova ➢ Adding and Using Buttons ➢ Adding and Using Event Listeners Practical 2 ➢ Creating and Using Functions ➢ Using Events ➢ Handling and using Back Button
October 2020	Practical 3 ➢ Installing and Using Plugins ➢ Installing and Using Battery Plugin ➢ Installing and Using Camera Plugin Practical 4 ➢ Installing and Using Contacts Plugin ➢ Installing and Using Device Plugin ➢ Installing and Using Accelerometer Plugin Practical 5 ➢ Install and Using Device Orientation plugin ➢ Install and Using Device Orientation plugin ➢ Create and Using Prompt Function
November 2020	Practical 6 ➢ Installing and Using File Plugin ➢ Installing and Using File Transfer Plugin ➢ Using Download and Upload functions Practical 7 ➢ Installing and Using Globalization Plugin ➢ Installing and Using Media Plugin ➢ Installing and Using Media Capture Plugin Practical 8 ➢ Installing and Using Network Information Plugin ➢ Installing and Using Splash Screen Plugin ➢ Installing and Using Vibration Plugin
December 2020	Practical 9 ➢ Developing Single Page Apps ➢ Developing Multipage Apps ➢ Storing Data Locally in a Cordova App Practical 10 ➢ Use of sqlite plugin with Phone Gap /apache Cordova ➢ Using Sqlite read/write and search ➢ Populating Cordova SQLite storage

Co-ordinator Teacher Principal