JAI HIND COLLEGE
BASANTSING INSTITUTE OF SCIENCE
&
J.T.LALVANI COLLEGE OF COMMERCE
(AUTONOMOUS)

"A" Road, Churchgate, Mumbai - 400 020, India.

Affiliated to
University of Mumbai

Program: B.Sc.IT

Proposed Courses: Information Technology

Semester II

CBCS NEP Based Syllabus with effect from the academic year 2023-24

FYUGP Credit Structure from 2023-24 (Across All courses)

Level	Sem	Major (Sub-1)	Elective	Minor (Sub-2)	OE	VSC / SEC	IKS Generic / AEC, VEC	OJT, FP, RP, CEP / CC	Cum Cr/Sem	Degree/Cum Cr
4.5 (2023-24)	Sem 1	4	0	4	4	4	6	0	22	44 UG certificate
	Sem 2	4	0	4	4	4	4	2	22	
	Cum Cr	8	0	8	8	8	10	2	44	
A student will decide which of the 2 subjects (Sub-1 or Sub-2) will be major and minor at the end of the second semester (ie the first year) Major subject-specific IKS of 2 credits must be done as 2 units (could be 1 unit + 1 unit) from Sem 3 to Sem 6										
Exit option with a UG Certificate in Major with an additional 4 credits core NSQF course/internship OR continue with Major & Minor										
5 (2024-25)	Sem 3	8	0	4	2	2	2	4	22	88 UG Diploma
	Sem 4	8	0	4	2	2	2	4	22	
	Cum Cr	24	0	16	12	12	14	10	88	
Exit option with a UG Diploma in Major & Minor with an additional 4 credits core NSQF course/internship OR continue with Major & Minor										
5.5 (2025-26)	Sem 5	12	4	2	0	2	0	2	22	132 UG Degree
	Sem 6	12	4	2	0	0	0	4	22	
	Cum Cr	48	8	20	12	14	14	16	132	
6 (2026-27)	Sem 7	12	4	4	0	0	0	2	22	176 UG Honours
	Sem 8	12	4	0	0	0	0	6	22	
	Cum Cr	72	16	20	12	14	14	24	176	
6 (2026-27)	Sem 7	10	4	4	0	0	0	4	22	176 UG Honours with Research
	Sem 8	10	4	0	0	0	0	8	22	
	Cum Cr	68	16	20	12	14	14	28	176	
Four-Year UG Honours with Research Degree with Major and Minor										

PI note: 1 credit = 15 hr of T and 30 hr of P T=Theory P=Practical (dry Lab or wet Lab)/Hands-on/Experiential learning)

FY. B.Sc (Information Technology)
Academic Year 2023-2024

B.Sc.IT NEP based Syllabus Semester II 2023-24

Category	Course Code	Course Title	Lecture/Practical	Credits	Total Credits
Major	JUSIT-DSC201	Introduction to Programming II	45L/15P	3+1	4
Minor	JUSIT-MIN202	Mathematics - II	45L/15P	3+1	4
OE1	JUSIT-OE201	Strategic Management	30L	2	2
OE2	JUSIT-OE202	Digital Marketing	30L	2	2
VSC	JUSIT-VSC201	Database and Transaction	15L/15P	2	2
SEC	JUSIT-SEC201	Advanced Web designing	15L/15P	2	2
VEC	JUSIT-VEC201	Digital Empowerment	30L	2	2
AEC	JUSIT-AEC201	English Communication Skill	30L	2	2

SEMESTER II
Major

Course Code JUSIT-DSC201	**Course Title: Introduction to Programming II**	**Credits: 03 Lectures/Week:03**
Course description	The purpose of this course is to incorporate programming skills in learners to build their logical and analytical thinking which in turn helps them to solve real world problems.	
Learning objectives	• Improved programming skills • Read, understand and trace the execution of programs written in Python • To build and package Python modules for reusability. • To understand the advanced concepts of GUI controls and designing GUI applications along with database connectivity to move the data to/from the application.	
Course Outcomes	• Familiar with the basic constructs of programming such as functions, Strings, Tuples, Lists, Sets and Dictionaries etc. • Interpret Object oriented programming in Python • Understand and summarize different File handling operations • Be able to design GUI Applications in Python and evaluate different database operations	
	THEORY	**45 lectures**
Sub Unit	**Unit – I:**	**15 lectures**
1.	**Introduction to Python:** The Python Programming Language, History, Features, Installing Python, Running Python program, Interactive Mode and Script Mode, The Difference Between Brackets, Braces and Parentheses **Variables and Expressions in Python:** Values and Types, Variables, Variable Names and Keywords, Type conversion, Operators and Operands, Expressions, Order of Operations, input and output function in python, Comments **Conditional Statements and loops in python:** if, if-else, nested if – else, For loop, while loop, nested loops **Control statements in python:** Terminating loops, skipping specific conditions	
2.	**Functions:** Function Calls, Type Conversion Functions, Math Functions, lambda functions, composition, Adding New Functions, Definitions and Uses, Parameters and Arguments, Fruitful Functions and Void Functions, Boolean Functions, Recursion, Checking Types. **Strings:** String Slices, Strings Are Immutable, Searching, Looping and Counting. String Methods, the in Operator, String Comparison, String Operations.	

	Unit – II:	**15 lectures**
1.	**Lists:** Values and Accessing Elements, Lists are mutable, traversing a List, Deleting elements from List, Built-in List Operators, Built-in List functions and methods. **Tuples:** Tuples, Accessing values in Tuples, Basic tuples operations, Built-in tuple functions. **Sets and Dictionaries:** Sets, sets are mutable, set methods, set operations and frozenset. Creating a Dictionary, Accessing Values in a dictionary, Updating Dictionary, Deleting Elements from Dictionary, Properties of Dictionary keys, Operations in Dictionary, Built-in Dictionary Methods.	
2.	**Modules:** Importing module, Creating and exploring modules, Math module, Random module, Time module. **Files:** Text Files, The File Object Attributes, Directories, Format attribute. **Exceptions:** Built-in Exceptions, Handling Exceptions, Exception with Arguments, User-defined Exceptions. **Regular Expressions:** Concept of regular expression, various types of regular expressions, using match function, search, findall methods	
	Unit – III:	**15 lectures**
1.	**Creating the GUI form: (using Tkinter/wxPython/PyQt)** **Widgets**- Button, Canvas, Checkbutton, Entry, Frame, Label, Listbox, Menubutton, Menu, Radiobutton, Scale, Scrollbar, Text. ,Spinbox, PanedWindow, LabelFrame, tkMessagebox. Handling Standard attributes and Properties of Widgets. **Layout Management**- Designing GUI applications with proper Layout Management features.	
2.	**Storing Data in Our MySQL Database via Our GUI:** Connecting to a MySQL database from Python, Configuring the MySQL connection. Designing the Python GUI database. Using the INSERT command, using the UPDATE command, using the DELETE command. Storing and retrieving data from MySQL database. **Web Frameworks: Django :**Introduction, Web frameworks, Introduction to Django, Projects and Apps, "Hello World" Application.	
	Evaluation scheme **I. Continuous Assessment (C.A.) - 25 Marks** **(i)** C.A.-I : Test – 10 Marks of 20 mins. duration **(ii)** C.A.-II : Case Study/ Assignment/ Problem Solving/Mini Project/ Presentations – 10 Marks **(iii)**Attendance -05 Marks **II. Semester End Examination (SEE)- 50 Marks**	

	Q.1 Answer any two -12 Marks **Q.2** Answer any two -12 Marks **Q.3** Answer any two -12 Marks **Q.4** Answer any two -14 Marks	
References:	1. Think Python - 2nd Edition by Allen Downey 2. An Introduction to Computer Science using Python 3- 2nd Edition by Jason Montojo, Jennifer Campbell, Paul Gries 3. Python GUI Programming Cookbook - 2nd Edition by Burkhard A. Meier 4. Exploring Python - by Timothy A. Budd 5. Core Python Applications Programming - 3rd Edition by Wesley J.Chun **6.** https://docs.python.org/3/tutorial	

Course Code: JUSIT-DSCPR201	**Practical Title: Introduction to Programming II** **(Credits : 01 Practicals/Week: 01)**

1.Implement the following in Python:

a. Write a program to display the message HELLO WORLD.
b. Write a program to swap two numbers without using a third variable.
c. Write a program to find the area of rectangle, square and circle.

2.Implement the following in Conditional and Control Statements.

a. Write a program to enter a number from the user and display the month name. If number >13 then display invalid input using switch case.
b. Write a program to check whether the number is even or odd.
c. Write a program to find the factorial of a number.
d. Write a program to check whether the entered number is prime or not.
e. Write a program to find the largest of three numbers.

3.Implement the following in Functions and Lists

a. Write a function to check the input value is Armstrong and also write the function for Palindrome.
b. Write a recursive function to print the factorial for a given number.
c. Take a list, say for example this one: a = [1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89] and write a program that prints out all the elements of the list that are less than 5.
d. Write a program that takes two lists and returns True if they have at least one common member.
e. Write a Python program to print a specified list after removing the 0th, 2nd, 4th and 5th elements.
f. Define a procedure histogram () that takes a list of integers and prints a histogram to the screen. For example, histogram ([4, 9, 7]) should print the following:

```
****
*********
*******
```

4.Implement the following in Strings, Tuples and Dictionaries

a. Demonstrate all the methods of string and tuples.

b. Write a Python script to sort (ascending and descending) a dictionary by value.
c. Write a Python script to concatenate the following dictionaries to create a new one. Sample Dictionary :
dic1={1:10, 2:20}
dic2={3:30, 4:40}
dic3={5:50,6:60}
Expected Result : {1: 10, 2: 20, 3: 30, 4: 40, 5: 50, 6: 60}
d. Write a Python program to sum all the items in a dictionary.

5.Concepts of Regular Expression and File Handling

a. Program to demonstrate the use of regular expressions.
b. Write a Python program to read an entire text file.
c. Write a Python program to append text to a file and display the text.
d. Write a Python program to read the last n lines of a file.

6.Exceptions and Multithreading

a. Write a program to handle any five python exceptions.
b. Write a Python program to illustrate user defined exceptions.

7.Modules

a. Open a new file in IDLE ("New Window" in the "File" menu) and save it as geometry.py in the directory where you keep the files you create for this course. Then copy the functions you wrote for calculating volumes and areas in the "Control Flow and Functions" exercise into this file and save it. Now open a new file and save it in the same directory. You should now be able to import your own module like this:import geometry Try and add print dir(geometry) to the file and run it.Now write a function pointyShapeVolume(x, y, squareBase) that calculates the volume of a square pyramid if squareBase is True and of a right circular cone if squareBase is False. x is the length of an edge on a square if squareBase is True and the radius of a circle when squareBase is False. y is the height of the object.First use squareBase to distinguish the cases. Use the circleArea and squareArea from the geometry module to calculate the base areas.
b. Write a python program to demonstrate a random module.
c. Write a python program to demonstrate different methods of time module.

8.**GUI Programming**

a. Try to configure the widget with various options like: bg= "red", family= "times", size=18
b. Try to change the widget type and configuration options to experiment with other widget types like Message, Button, Entry, Checkbutton, Radiobutton, Scale etc.

9.Database Programming with GUI

a. Design a simple database application that stores the records and retrieves the same.
b. Design a database application to search the specified record from the database.
c. Design a database application that allows the user to delete and modify the

	records. **10.Web Framework: Django** a. Demonstrate simple web application using Python Django framework.
	Evaluation scheme – 25 marks i.e. (50/2 marks) **(i)** Program – 40 marks **(ii)** Viva – 5 marks **(iii)** Journal- 5 marks

Minor

Course Code JUSIT-MIN201	Course Title: Mathematics II	Credits:03 Lectures/Week:03
Course description	IT involves the application of mathematics to problems which arise in various areas, e.g., science, engineering or other diverse areas, and/or the development of new or improved methods to meet the challenges of new problems.	
Learning objectives	• Apply mathematical concepts and principles to perform computations • Apply mathematics to solve problems • Apply technology tools to solve problems • Perform abstract mathematical reasoning	
Course Outcomes	• Acquire the basic skills and conceptual understanding regarding differential, integral and multivariable calculus, as well as that of fundamental mathematical objects • Communicate mathematical ideas orally and in writing, with precision, clarity and organization, using proper terminology and notation. • Use knowledge of content and mathematical procedures to solve problems and make connections between the different areas of mathematics. • Use numerical techniques in solving problems.	
	THEORY	**45 lectures**
Sub Unit	**Unit – I**	**15 lectures**
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.	
2.	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	

	Unit – II:	**15 lectures**
1.	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	
2.	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, Methods of Substitution,	
3.	Multiple Integrals: Double Integral, Triple Integral Change of the order of the integration,Double integral in polar co-ordinates, Applications of Integral**,** area ,Volume .	
	Unit – III:	**15 lectures**
1.	The Laplace Transform: Introduction,Definition of the Laplace Transform, Table of Elementary Laplace Transforms, Theorems on Important Properties of Laplace Transformation, First Shifting Theorem, Second Shifting Theorem, The Convolution Theorem, Laplace Transform of an Integral, Laplace Transform of Derivatives,Laplace Transformation of Special Function, Periodic Functions, Heaviside Unit Step Function, Dirac-delta Function(Unit Impulse Function)	
2.	Inverse Laplace Transform: Shifting Theorem, Partial fraction Methods, Use of Convolution Theorem, Solution of Ordinary Linear Differential Equations with Constant Coefficients.	
	Evaluation Scheme **I.** Continuous Assessment (C.A.) - 25 Marks **(i)** C.A.-I : Test – 10 Marks of 20 mins. duration **(ii)** C.A.-II : Case Study/ Assignment/ Problem Solving/Mini Project/ Presentations – 10 Marks **(iii)**Attendance -05 Marks **II.** Semester End Examination (SEE)- 50 Marks **Q.1** Answer any two -12 Marks **Q.2** Answer any two -12 Marks **Q.3** Answer any two -12 Marks **Q.4** Answer any two -14 Marks	
References:	1. P. N. Wartikar and J. N. Wartikar , (1984).A text book of Applied Mathematics VolI Pune VidyarthGrihaPrka, Pune 2. P. N. Wartikar and J. N. Wartikar , (1984).A text book of Applied Mathematics VolII Pune VidyarthGrihaPrka, Pune	

Course Code: SIT-MINPR201	**Practical Title: Mathematics II Practical (Credits : 01 Practicals/Week: 01)**

	1. Introduction to sympy
	    1. Symbolic Computation
	    2. Substitution
	    3. Simplify() function
	    4. Eval() function
	2. Matrices
	    1. Creating matrices
	    2. Basic manipulation on matrices
	3. Matrices Reduction
	    1. Matrix Determinant
	    2. Matrix reduction
	    3. Matrix eigen class
	4. Differential Equation
	    1. Single Ordinary Differential Equation
	    2. Classification of Differential Equation
	5. Exact Differential Equation
	    1. Homogeneous Differential Equation.
	    2. Partial Differential Equation separation of variables
	    3. Exact Differential Equation
	6. Integrals
	    1. Solving Integral with integrate function
	    2. Integral Transformation
	7. Laplace
	    1. Laplace Transform
	    2. Inverse Laplace Transform
	8. Limits
	    1. Solving Limits
	    2. Series Expansion with limit

	Evaluation scheme – 25 marks i.e. (50/2 marks) **(i)** Program – 40 marks **(ii)** Viva – 5 marks **(iii)** Journal- 5 marks

OPEN ELECTIVE 1

Course Code: JUSIT-OE201	Course Title: Strategic Management	Credits: 02 Lectures/Week:02
Course description	This course aims to build in students an understanding in how managers employ the formal and informal relationships that exist between firms in an industry	
Learning objectives	● Devise solutions to the externally focused questions facing a company, and effectively formulate and implement an organization's key strategies to achieve key result areas. ● It will enable students to learn various levels of corporate strategies and provoke their critical thinking skills. ● It will help students to understand the business problems and ways to find solutions, by undertaking strategic management case studies and assignments.	
Course Outcomes	● Develop critical thinking approach by understanding concepts in Strategic Management ● Get to understand strategy formulation, implementation, monitoring and evaluation ● Build up problem solving skills and understand brand building through use of strategic decisions ● Develop capabilities of the students to analyze industry projects/cases and develop strategic solutions	
	THEORY	**30 lectures**
Sub Unit	**Unit – I:**	**10 lectures**
1.	Introduction to Strategic Management: Strategic Thinking, Strategic Management, Strategic Planning(Concepts and Scope), Characteristics of Strategic Decision Vision, Mission, Objectives, Goals and Strategy: Mutual Relationships, Approaches to Strategic Decision Making The Strategic Management Process Strategic Management -Merits and demerits.	
	Unit – II:	**10 lectures**
1.	Environment Scanning and Analysis : Need for Environmental Scanning and Analysis ,External and Internal Environment of the Firm, Recognizing a Firm's Intellectual Assets, SWOT Analysis TOWS Matrix, Kirin Beer: Case Study, SWOT Analysis, Ben and	

	Jerry's Ice Cream: Case Study.	
	Unit – III:	**10 lectures**
1.	Strategic Formulation and Management Models : Levels of Strategies, Samsung: Case Study , Foxconn Strategy, Models-BCG Model, GE 9 Cell, Porters Model: 5 Force and Porters Diamond Model, StrategyChoice and implementation ,Cultural aspect of Strategic Choice, Functional Strategy.	
2.	Strategy Implementation, Ethics and Change Management : Project implementation, Control Procedures, Resource allocation, Corporate Ethos, Culture and Ethics, Management of Change, Organizational Creativity and Innovation Process.	
	Evaluation Scheme **I.** Continuous Assessment (C.A.) - 25 Marks **(i)** C.A.-I : Test – 10 Marks of 20 mins. duration **(ii)** C.A.-II : Case Study/ Assignment/ Problem Solving/Mini Project/ Presentations – 10 Marks **(iii)**Attendance -05 Marks **II.** Semester End Examination (SEE)- 25 Marks **Q.1** Answer any two -06 Marks **Q.2** Answer any two -06 Marks **Q.3** Answer any two -06 Marks **Q.4** Answer any two -07 Marks	
References:	1. Fred R. David, (13th Ed). Strategic Management: Concepts &Cases. New Jersey: PrenticeHall International. 2. Dr. Kazmi, Azhar.(2008) Business Policy & Strategic Management. Mumbai :Tata McGrawHill. 3. Pearce II, John A & Robinson Jr, Richard B. (2015). Strategic Management. Delhi: A.I.T.B.S.Publishers. 4. Upendra Kachru. (2005). Strategic Management Concepts and Cases. New Delhi: Excel Publications. 5. Ansoff H. Igor. (1992). Implanting Strategic Management, Englewood Cliffs. New Jersey, Prentice Hall of India. 6. Glueck, William F. (1988). Strategic Management and Business Policy, New York McGraw Hill. 7. Thomson & Strickland. (2001). Strategic Management Concept and Cases – Tata McGrawHill	

OPEN ELECTIVE 2

Course Code JUSIT-OE202	Course Title: Digital Marketing	Credits: 2 Lectures/Week: 2
Course description	This course will teach students about the importance and concepts of digital marketing.	
Learning objectives	● Understand the Digital Marketing tools and techniques to optimize searches, market content on social media and various strategies ● It will teach students how to market their products (tour package or a software program) ● Learning SEO and online business promotion tools are often in demand skills and students will be equipped for the industry	
Course Outcomes	● Able to understand Search Engine Optimization, Marketing on Social Media, Affiliate marketing.. ● Key trends in Digital marketing -Email marketing ● Impact of Digital resources in marketing. ● To assess the influence on search behavior.	
	THEORY	**45 lectures**
Sub Unit	**Unit – I:**	**15 lectures**
1.	Digital Marketing Concept and Scope: Competitor and Website, AnalysisOnline Buying behavior, Target Audience analysis, List of Free and Premium Digital Marketing Tools.	
2.	Search Engine Optimization (SEO): Rank Webpage on top ofsearch, ORM, Google Webmaster Tool, GoogleAnalytics, Paid Ads Optimization Strategies.	
3.	Pay-per-click advertising (PPC): Google Ads Campaign Management,Optimization, and Reporting	
4.	Content marketing: Designing Content, Choosing Digital Marketing Channels, Blogs, Infographics or Video as per the Target Audience.	
	Unit – II:	**10 lectures**
1.	Social Media Platforms to serve Ads, Social Networking (Facebook, LinkedIn, etc.)Facebook Marketing Tools, Microblogging (Twitter, Tumblr), Photo sharing (Instagram, Snapchat, Pinterest), Video sharing (YouTube, Facebook Live, Instagram, etc.).	

	Unit – III:	**10 lectures**
1.	Affiliate marketing: Concept, Referrals can mention your website and backlink it to your own businesses, ,Email marketing: - Cost saving tool, advantages and disadvantages, Display advertising blogs, networks, video ads, contextual data, ads on the search engines, classified or dynamic advertisement ,Manage your Online Reputation	
	Unit – IV:	**10 lectures**
1.	Mobile commerce and E commerce Business Marketing Mobile Marketing (SMS Marketing): Mobile optimized template with right UX and loading speed Multi - channel marketing, E commerce Business Marketing, E commerce websites, Neuromarketing Techniques, Data Visualization- Google Data Studio, Google Sheets Digital Marketing, Strategies-Case studies.	
	Evaluation Scheme **I.** Continuous Assessment (C.A.) - 25 Marks **(i)** C.A.-I : Test – 10 Marks of 20 mins. duration **(ii)** C.A.-II : Case Study/ Assignment/ Problem Solving/Mini Project/ Presentations – 10 Marks **(iii)**Attendance -05 Marks **II.** Semester End Examination (SEE)- 25 Marks **Q.1** Answer any two -06 Marks **Q.2** Answer any two -06 Marks **Q.3** Answer any two -06 Marks **Q.4** Answer any two -07 Marks	
References:	1. Koontz, O'Donnell &Weihrich, (1980) Management, Tokyo: McGrawHill Inc 2. Robbins (16th ed) (1979). Organizational Behavior, New Delhi: Prentice-Hall of India. 3. Singh, D. (2001). Emotional Intelligence at work, Response Books, New Delhi: Sage Publication 4. Sissors, Jack Z., Surmanek, Jim. (1976). Advertising Media Planning: Crain books. 5. James R Adams. (1977). Media Planning: Business books. 6. D, Nidhi. (ed 2011). E-Commerce Concepts and Applications, Mumbai: International Book HousePvt Ltd. 7. Whiteley, David. (2013). E-Commerce Technologies and Applications, London: McGraw Hill.	

VSC

Course Code JUSIT-VSC201	Course Title: Databases and Transactions	Credits: 02 Lectures/Week:01
Course description	This course will help to store, organize and manage large amounts of data in an efficient and structured way. This can help you to more easily retrieve and analyze the data you need, and can also make it easier to share data with others. Also we can protect our data from unauthorized access or modification, and can also help to ensure that data is backed up and recoverable in the event of a disaster.	
Learning objectives	● Manipulation of data. ● Learning the development and structuring of data. ● To have a broad understanding of database concepts and database management system software ● To have a high-level understanding of major DBMS components and their function	
Course Outcomes	● Understand the basic concepts and the applications of database systems. ● Identify the data models for relevant problems. ● Understand transaction processing mechanisms in relational databases. ● Be able to write basic SQL commands to create tables, insert / update / delete data, and query data in a relational DBMS.	
	THEORY	**15 lectures**
Sub Unit	**Unit – I**	**4 Lectures**
	Introduction to Databases: Data, database system and file system, Purpose of database system, Relational databases, Database architecture. Data Models: Type of data models, Degrees of data abstraction. Database design and ER Model: Overview, ER Model, Constraints, ER Diagrams, Relational Schemas. Relational database model and design: Keys, integrity rule, Functional Dependency, Normalization (1NF, 2NF, 3NF, BCNF)	
	Unit – II:	**3 Lectures**
	Introduction to SQL and Constraints: DDL, DQL, DML, TCL, Constraints, Types of constraints Query Processing in SQL: Character and numeric functions, Aggregate function, Null Values, Order by, Sequences, set operators, group by clause, sub queries, Joins and types, views.	

	Unit – III:	**8 Lectures**
	Introduction to PL / SQL: Identifiers and Keywords, Operators, Expressions. Advanced PL/SQL: Control Structures, Cursors, Collections and composite data types, Exceptions Handling, Procedures and Functions, Packages, Triggers. Transaction management and Concurrency: Control Transaction management: ACID properties, serializability and concurrency control, transaction control statements.	
	Evaluation Scheme **I. Continuous Assessment (C.A.) - 25 Marks** **(i)** C.A.-I : Test – 10 Marks of 20 mins. duration **(ii)** C.A.-II : Case Study/ Assignment/ Problem Solving/Mini Project – 10 Marks **(iii)**Attendance -05 Marks **II. Practical Examination 25 Marks**	
References:	1. An introduction to Database systems by C.J.Date 2. Database System and Concepts by A Silberschatz, H Korth, S Sudarshan, Sixth Edition 3. Oracle PL/SQL Programming, Fifth Edition by Steven Feuerstein, Bill Pribyl 4. Murach's Oracle SQL and PLSQL by Joel Murach, Murach and Associates	

Course Code: JUSIT-VSC201	**Practical Title: Databases and Transactions**
	1. Create relational database structure from ERD. 2. SQL basic operations: DDL and DML to implement Education system. 3. SQL basic operations with keys and constraints: a) SET operations b) Aggregate functions c) Order by d) Group by e) sequence 4. Joins, subqueries. 5. Introduction to PL/SQL: a) Declaring Variables b) Writing Executable Statements c) Writing Control Structures d) Working with Composite Data Types 6. Cursors and Exceptions PL/SQL: a) Create cursors for the education and hospital system. b) Handle exceptions. 7. Subprograms: a) Create functions in the education system. b) Create stored procedures on education and hospital systems. c) Packages to contain functions and procedures. 8. Triggers: a) Basic Triggers. b) Operation on Triggers 9. Locks: a) Implementing shared locks b) Implementing exclusive locks

SEC

Course Code **JUSIT-SEC201**	**Course Title: Advance Web Programming**	**Credits: 02** **Lectures/Week: 2**
Course description	This subject encompasses various aspects of web development, from keeping up with emerging technologies to working with XML, building large and dynamic web applications, creating progressive and interactive web experiences, and leveraging React, Laravel and flask for building interactive user interfaces. Mastering these skills is essential for modern web developers.	
Learning objectives	• Understanding emerging web technologies and creating XML documents, transforming XML documents, and validating XML documents • Understand creating large and dynamic web applications • Creating progressive and interactive web applications • Use React components to build interactive interfaces	
Course Outcomes	• Understand how the client-server model of Internet programming works. • Design and develop interactive, client-side, executable web applications. • Build tools that assist in automating data transfer over the Internet	
	THEORY	**(Total no.) 15 lectures**
Sub Unit	**Unit – I:**	**5 lectures**
1.	**Introducing XML:** The Benefits of XML, How XML Works. **XML Fundamentals Contents:** XML Documents and XML Files Elements, Tags, and Character Data Attributes, XML Names Entity References, CDATA Sections Comments Processing Instructions, The XML Declaration Checking Documents for Well-Formedness.	2
2.	**Namespaces:** The Need for Namespaces, Namespace Syntax, How Parsers Handle Namespaces	1
3.	**React:** Introduction,What is React ,What is single page application(SPA), How React Works & Understanding Components ,React Class,More About Components & Styling with CSS Classes ,Handling Events ,Introducing State,Event Props,Stateless and Stateful Components,Adding Routing,Adding Links & Navigation,CSS Modules	2

	Unit – II:	**5 lectures**
1.	**React:** Outputting Lists ,Adding More Components,Props Children,Dom Management with React,Adding a Form ,Getting User Input & Handling Form Submission,Preparing the App for HTTP,Sending a Post Request, Navigating Programmatically,Getting Started with Fetching Data ,React Hooks: useEffect ,Introducing React Context,Context Logic & Different Ways of Updating State, Using Context in Components	3
2.	**Introduction of Laravel PHP Framework:** Laravel Directory Structure, Configuring a new Laravel project, Basic routing, Call a controller method from a route, Passing variables from controllers to views	2
	Unit – III:	**5 lectures**
1.	**HTML Template to Laravel Blade Template:** Template inheritance Blade conditional statements, Blade Loops, Executing PHP functions in blade Displaying Your Views, Creating and using basic views, Loading a view into another view/nested views, Adding assets, Integrating with Bootstrap, Creating contact us form, Validating user input.	3
2.	**Flask** : Installation, Basic application structure,Templates, webforms, Databases	2
	1. CA- Continuous Assessment -25 marks Internal Assessment (25 Marks)- CA1- 10 Marks + CA2 -10 Marks + 5 marks for Attendance parameters (75% or above 5/5; 74-50% being 4/5; 49 – 25% being 3/5 and 24-2% being 1/5) NIL below 2 % attendance. 2 Practical Examination - 25 marks	
References:	1. XML in a Nutshell, 3rd Edition, Elliotte Rusty Harold, W. Scott Means, O'Reilly Media, Inc. 2.“React in Action”-by Mark Tielens Thomas,Manning publications 3. Laravel_ Up & Running_ A Framework for Building Modern PHP Apps, 2nd Edition, Matt Stauffer, O'Reilly. 4. Introduction to Flask by Miguel Grinberg	

Course Code: JUSIT-SEC201	Practical Title: Advanced Web Designing
	XML: 1. a) Design a simple XML document b) Design a XML document and display it in the browser using CSS. **React:** 1. Creating an application using react. (Component,State and Props) 2. Demonstrating React JSX, React Router. 3. Demonstrate Form handling using React-Login form, Registration form,Working with Event Listeners. **Laravel:** 1. Installing Laravel and also understands the directory structure. 2. Create an application to perform routing with different routing methods and also pass parameters as a route parameter. 3. Create a form to implement Blade template. 4. Create a laravel application and connect it with mysql database to perform insert, update, search and delete operations. **Flask:** . a) create Flask Application b) Show the use of cookies and sessions c) Connect Flask to a Database with Flask-SQLAlchemy

VEC

Course Code : SIT-VEC201	**Course Title: Digital Empowerment**	**Credits: 2 Lectures/Week: 1**
Course Description	The purpose of this course is to create an awareness among the learners about the digital world, the crimes in the cyber world, how to ensure security and the spread awareness about Digital India.	
Learning objectives	● Understand the digital world and need for digital empowerment ● Create awareness about Digital India. ● Explore, communicate and collaborate in cyberspace. ● Building awareness on cyber safety and security.	
Course Outcomes	● Use ICT and digital services in daily life. ● Develop skills to communicate and collaborate in cyberspace using social platforms, teaching/learning tools. ● Understand the significance of security and privacy in the digital world. ● Evaluate ethical issues in the cyber world	
	THEORY	**30 Lectures**
Sub Unit	**Unit – I:**	**10 Lectures**
1.	Digital inclusion and Digital Empowerment	
2.	Needs and challenges	
3.	**Vision of Digital India:** DigiLocker, E-Hospitals, e-Pathshala, BHIM, e-Kranti (Electronic Delivery of Services}, e-Health Campaigns Public utility portals of Govt. of India such as RTI, Health, Finance, Income Tax filing, Education	
	Unit – II:	**10 Lectures**
1.	Communication and Collaboration in the Cyberspace Electronic Communication: electronic mail, biogs, social media Collaborative Digital platforms	
2.	Tools/platforms for online learning Collaboration using file sharing, messaging, video conferencing AI tools: ChatGPT, Smartwriter.ai, Grammarly, Pixlr for photo editing	
3.	Vision of Digital India: Broadband Highways , Universal Access to Phones , Public Internet Access Programme ,DigiLocker, E-Hospitals, e-Pathshala, BHIM, e-Kranti (Electronic Delivery of Services}, e-Health Campaigns, Ayushman Bharat Digital Mission Target NET ZERO Imports	

	Unit – III:	**10 Lectures**
1.	Towards Safe and Secure Cyberspace Online security and privacy	
2.	Threats in the digital world: Data breach and Cyber Attacks Blockchain Technology	
3.	Security Initiatives by the Govt of India Ethical Issues in Digital World Netiquettes Ethics in digital communication Ethics in Cyberspace	
	Evaluation Scheme CA- Continuous Assessment - 50 Marks **(i)** C.A.-I : Test – 20 Marks of 40 mins. duration **(ii)** C.A.-II : Case Study/ Assignment/ Problem Solving/Mini Project/ Presentations – 20 Marks **(iii)** Attendance -10 Marks	
References	1. David Sutton. "Cyber security: A practitioner's guide", BCS Learning & 2. Development Limited, UK, 2017. 3. https://www.mha.gov.in/document/downloads/cyber-safety-handbook	

AEC

Course Code JUSIT-AEC201	**Course Title: English Communication Skills**	**Credits: 30 Lectures/Week:02**
Course description	This course introduces the learners to the basics of English communication skills to enhance the learners' job preparedness.	
Learning objectives	● Become equipped to use communication skills effectively in personal and professional spheres ● Enhance their writing and listening skills ● Apply effective communication skills to become job ready	
Course Outcomes	● Demonstrate the skills required for effective corporate communication ● Understand and apply the basics of written communication in personal and professional contexts ● Write cogent job applications, resume, formal letters and professional emails	
	THEORY	**30 lectures**
Sub Unit	**Unit – I: Theory of Communication**	**10 lectures**
1.	Concept of Communication: a) Meaning, Process, 7 Cs of Communication, Significance of Communication Skills in personal and professional life b) b) Methods: Verbal and Nonverbal Communication and their Application c) Cultivating effective listening skills	
	Unit – II: **Professional Writing Skills (theory and application)**	**10 lectures**
1.	a) Documentation: Minutes and note-making b) Business reports c) Email writing and etiquettes	
	Unit – III: Job Search and Application Skills (Tutorials)	**10 lectures**
1.	a) LinkedIn Profile: Making and Management b) Job Application c) Resume	
	Evaluation Scheme **I. Continuous Assessment (C.A.) - 25 Marks** **(i)** C.A.-I : Test – 10 Marks of 20 mins. duration **(ii)** C.A.-II : Case Study/ Assignment/ Problem Solving/Mini Project/ Presentations – 10 Marks	

	(iii) Attendance -05 Marks **II. Semester End Examination (SEE)- 25 Marks** **Q.1** Answer any two -06 Marks **Q.2** Answer any two -06 Marks **Q.3** Answer any two -06 Marks **Q.4** Answer any two -07 Marks	
References:	1. Bellare, Nirmala (1998). Reading Strategies. Vols. 1 and 2.New Delhi. Oxford University Press. 2. Blass, Laurie, Kathy Block and Hannah Friesan (2007). Creating Meaning. Oxford: OUP. 3. Buscemi, Santi and Charlotte Smith (1994). 75 Readings Plus. Second Edition New York: McGraw-Hill. 4. Doff, Adrian and Christopher Jones (2004) .Language in Use (Intermediate and Upper Intermediate). Cambridge:CUP. 5. Glendinning, Eric H. and Beverley Holmstrom (2004). Second edition. Study Reading: A Course in Reading Skills for Academic Purposes. Cambridge: CUP. 6. Grellet, F. (1981). Developing Reading Skills. Cambridge:Cambridge University Press. 7. Hamp-Lyons, Liz and Ben Heasiey (2006). Second edition. Study Writing: A Course in Writing Skills for Academic Purposes. Cambridge: CUP. 8. Mohan Krishna & Banerji, Meera (1990). Developing Communication Skills. New Delhi: Macmillan. 9. Mohan Krishna & Singh, N. P. (1995). Speaking English Effectively. New Delhi: Macmillan. 10. Sasikumar, V., Kiranmai Dutt and Geetha Rajeevan (2006). A Course in Listening and Speaking I & II. New Delhi:Foundation Books, Cambridge House. 11. Savage, Alice, et al (2005). Effective Academic Writing. Oxford: OUP. 12. Khanna, Pooja. (2016). English Communication. New Delhi: Vikas Publishing. 13. Khanna, Pooja. (2016). Effective Business Communication. New Delhi: Vikas Publishing. 14. Websites: 1) http://www.onestopenglish.com 2) www.britishcouncil.org/learning-learn-english.htm 3) http://www.teachingeng1ish.org.uk 4) http://www.usingenglish.com? 5) Technical writing, online textbook (David McMurrey): 6) http://www. io.comi—hcexres/textbook/ 7) http://www.pearsoned.co.uk/AboutUs/ELT/ 8) http:Hwww.howisay.coml 9) http://www.thefreedictionary.com/ Some other useful websites for informative text and audio resources: 1. www.nationalgeographic.com 2. http://nobelprize.org/ 3. http:llwww.bbc.co.ukl	

I WILL & I CAN
Jai
Hind