JAI HIND COLLEGE

Basantsing Institute of Science & J. T. Lalvani College of Commerce
and Sheila Gopal Raheja College of Management.
Empowered Autonomous

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

Affiliated to
University of Mumbai

Bachelor of Science

Program: B.Sc. in Information Technology

**Choice Based Credit System (CBCS) under NEP-2020
with effect from the academic year 2023-2024**

Syllabus as approved by Statutory Committees

LOCF Document

CONTENTS

Preamble

The B.Sc. Information Technology programme aims to make the students employable and impart industry oriented training.

In the first year, the basic foundation of important skills required for software development is laid. Second year of this course is about studying core IT subjects. The third year is the further advancement which covers developing capabilities to design formulations of computing models and its applications in diverse areas. In Semester V and Semester VI students have to undertake a Project.

The syllabus is designed to implement the emerging technologies as per current market needs. The technology and structure required for that are subsequently incorporated into the lower semesters.

The objective is to create a pool of technologically savvy, theoretically and practically strong, innovatively skilled and ethically responsible generation of IT professionals.

Credit Framework

Types of Courses

Sr. No.	Types of Courses	Learner Category
1	Major	BSc.IT
2	Minor	BSc.IT
3	OE	BSc.IT/Science stream/Arts Stream
4	VSC	BSc.IT
5	SEC	BSc.IT
8	VEC	Science stream/Arts stream/Commerce stream
8	AEC	BSc.IT
9	OJT/FP/ RP/ CEP/CC	BSc.IT

Number of Courses and Credits

Types of Courses	Number offered of each	Credits of each (Theory + Practical)
Major	2	4(3+1)
Minor	2	4(3+1)
OE	4	2 (Theory)
VSC	2	2 (Practical)
SEC	2	2 (Practical)
VEC	2	2 (Theory)
AEC	2	2 (Theory)
OJT/FP/ RP/ CEP/CC	1	2 (Practical)

Semester-wise Courses

SEMESTER	Course Code	Course Name	Credits	Type
I	JUSIT-DSC101	Introduction to Programming I	Major	3
I	JUSIT-DSCPR101	Introduction to Programming I Practical	Major Practical	1
I	JUSIT-MIN101	Mathematics I	Minor	3
I	JUSIT-MIN101	Mathematics I Practical	Minor Practical	1
I	JUSIT-OE101	Financial Literacy	OE	2
I	JUSIT-OE102	Logic, Reasoning and Aptitude	OE	2
I	JUSIT-VSC101	Computer Oriented Architecture	VSC	2
I	JUSIT-SEC101	Basics of Web Designing	SEC	2
I	JUSIT-VEC101	Digital Literacy	VEC	2
I	JUSIT-AEC101	English Language Skills	AEC	2
II	JUSIT-DSC201	Introduction to Programming II	Major	3
II	JUSIT-DSCPR201	Introduction to Programming II Practical	Major Practical	1
II	JUSIT-MIN201	Mathematics II	Minor	3
II	JUSIT-MINPR201	Mathematics II Practical	Minor Practical	1
II	JUSIT-OE201	Strategic Management	OE	2
II	JUSIT-OE202	Digital Marketing	OE	2
II	JUSIT-VSC201	Database Management System & Transaction	VSC	2
II	JUSIT-SEC201	Advanced Web Designing	SEC	2
II	JUSIT-VEC201	Digital Empowerment	VEC	2
II	JUSIT-AEC201	English Communication Skill	AEC	2
II			OJT/FP/ RP/ CEP/CC	2

Learning Outcome-based Approach

The National Higher Education Qualifications Framework (NHEQF) envisages that students must possess the quality and characteristics of the graduate of a programme of study, including learning outcomes relating to the disciplinary area in the chosen field of learning and generic learning outcomes that are expected to be acquired by a graduate on completion of the programme of study.

Learning outcomes are important for recognition. It is important to emphasize on it since the important question asked to the student is-What you can do now that you are a graduate in Economics? The prior specification of the intended educational outcomes helps in maximizing educational effectiveness. All the educational activities from designing curriculum, to teaching pedagogies, to methods of evaluation are directed maximally towards the attainment of specific desired goals. The student's learning outcomes refer to the attainment of the particular competencies acquired by the student on completion of the undergraduate Economics program.

Graduate Attributes

- **Deep discipline knowledge and intellectual breadth**

Graduates have comprehensive knowledge and understanding of their subject area, the ability to engage with different traditions of thought, and the ability to apply their knowledge in practice including in multi-disciplinary or multi-professional contexts.

- **Creative, critical thinking, scientific reasoning and problem solving**

Graduates are effective problems-solvers, able to apply critical, creative and evidence-based thinking to conceive innovative responses to future challenges.

- **Teamwork and communication skills**

Graduates convey ideas and information effectively to a range of audiences for a variety of purposes and contribute in a positive and collaborative manner to achieving common goals.

- **Professionalism and leadership readiness**

Graduates engage in professional behaviour and have the potential to be entrepreneurial and take leadership roles in their chosen occupations or careers and communities.

- **Independent and lifelong learning**

A capacity to be a self directed learner and thinker and to study and work independently. Resulting in

continuous learning, resilience, confidence, learning transferable and time management skills and an ability to learn independently

- **Research skills**

They are able to identify a problem, collect informational resources that can help address the problem, evaluate these resources for quality and relevance and come up with an effective solution to the problem

Programme Objectives

1. They are able to develop an understanding of current technologies and adapt according to the changing technology.
2. They are able to dissect problems into algorithmic solutions by applying appropriate software methodologies
3. They are able to develop an understanding of data and focus on the analysis of it to produce proactive security measures.
4. They are able to develop technological research aptitude and understand research methodologies.
5. They are able to have clearer insight to intensify and apply solution based systems and processes that address issues and improve existing systems within a computing based industry.
6. They are skillful to show active participation in project-based coursework, case studies, simulations and presentations and have business knowledge.
7. To impart the correct practices of the strategies of Effective Business writing.
8. To guide the students in developing skills and job-search strategies required to achieve their career objectives.

Teaching Learning Process

1. Lectures

Lectures should be designed to provide the learners with interesting and fresh perspectives on the subject matter. Lectures should be interactive in a way that students work with their teachers to get new insights in the subject area, on which they can build their own bridges to higher learning.

2. Discussions

Discussions are critical components of learning, and can be used as a platform for students to be creative and critical with old and new ideas.

3. Experiential learning

Experiential learning is an engaged learning process whereby students "learn by doing" and by reflecting on the experience and enhancing their technical skills through mini projects.

4. Case Studies:

Case studies, wherever possible, should be encouraged in order to challenge students to find creative solutions of complex problems and various aspects of the knowledge domain concerned.

5. Team Work

Positive collaboration in the form of teamwork is essential for achieving the intended goals within given deadlines. In the process of teamwork, learners will acquire the skills of managing knowledge, acquisition, critical thinking and other collaborative learners, thereby understanding how to incorporate and balance personalities.

6. Excursion trip:

Excursion trips provide opportunities to the learners to test their in-class learning in real-life situations as well as to understand the functional diversity in the learning spaces.

7. Academics-Industries Interface:

The course encourage students for closer interaction with Industries/corporate/research institutes, etc. for the internship and training program.

8. Blended learning

Combine online educational materials and opportunities for interaction online with traditional place-based classroom methods. Use of digital learning tools with more traditional classroom face to face teaching.

9. Flipped Learning/Flipped Classroom Learning

Improve the student performance and learning experience effectively by making students watch online lectures, collaborate in online discussions, or carry out research at home and engage in concepts in the classroom which provides a reason for learning content.

10. Research based learning :

The primary purpose of educational research is to expand the existing body of knowledge by providing solutions to different problems in pedagogy while improving teaching and learning practices. Educational researchers also seek answers to questions bothering on learner-motivation and development.

Assessment Methods / Evaluation Scheme

The assessment of students' achievement in BSc. IT will be aligned with course/program learning outcomes and the academic and technical skills that the program is designed to be developed. A variety of assessment methods that are relevant within the disciplinary area of Information Technology will be used.

Learning outcomes will be assessed through Students' performance in courses in various ways viz.,

- The oral and written scheduled or weekly tests
- Problem-solving exercises
- Closed-book and open-book tests
- Observing practical skills, practical assignments and documentation
- Individual and group project reports
- Seminar presentations
- Group discussions
- Viva voce examinations
- Digital learning tools
- Literature surveys and evaluations, peers and self-assessment can be the additional methods used.
- Communicating (One and two-way communication; communication within a group, verbal, written and non-verbal communication. Arguing, describing, advocating, interviewing, negotiating, presenting; using specific written forms) by written presentation (essay, report, reflective paper etc.), oral presentation, group work and discussion/debate/role play.
- Regular reading habits in the students need to be inculcated through continuous monitoring and observation about weaker aspects of the Students through peer mentoring.

Discipline Specific Core Courses – Major Core Courses

Course Code: JUSIT-DSC101	Course Title : Introduction to Programming I	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	- To learn the fundamental programming concepts and methodologies which are essential to building good C/C++ programs. - Read, understand and trace the execution of programs written in C Language. - Understand how to apply the procedure oriented and object-oriented concepts. - Ability to handle possible errors during program execution.	
Course Outcomes	- Able to develop C and C++ programs. - Acquire decision making and looping concepts. - Design and develop modular programming. - Explore usage of Functions, Arrays and Effective utilization of pointers and preprocessor directives.	
	THEORY	**45 Lectures**
Sub Unit	**Unit – I:**	**15 Lectures**
1.	**Introduction:** TypesOperators and Expressions: Arithmetic operators, unary operators, relational and logical operators, assignment operators, assignment operators, the conditional operator, library functions of Programming languages, History, features and application, Simple program logic, program development cycle, pseudocode statements and flowchart symbols, sentinel value to end a program, programming and user environments, evolution of programming models, desirable program characteristics.	
2.	**Fundamentals:** Structure of a program, Compilation and Execution of a Program, Character Set, identifiers and keywords, data types, constants, variables and arrays, declarations, expressions, statements, Variable definition, symbolic constants.	
3.	**Operators and Expressions:** Arithmetic operators, unary	

	operators, relational and logical operators, assignment operators, assignment operators, the conditional operator, library functions.	
4	**Data Input and output:** Single character input and output, entering input data, scanf function, printf function, gets and puts functions, interactive programming.	
5	**Conditional Statements and Loops:** Decision Making Within a Program, Conditions, Relational Operators, Logical Connectives, If Statement, If-Else Statement, While Loop, Do While, For Loop, Nested Loops, Infinite Loops, Switch Statement.	
	Unit – II:	**15 Lectures**
1.	**Functions:** defining a function, accessing a function, passing arguments to a function, specifying argument data types, function prototypes recursion, modular programming and functions, standard library of c functions, prototype of a function, formal parameter list, return type, function call, block structure, passing arguments to a function Arrays: Definition, Processing, passing arrays to functions, multidimensional arrays, arrays and strings.	
2.	**Pointers:** Fundamentals, Declarations, Pointers Address Operators, Pointer Type Declaration, Pointer Assignment, Pointer Initialization, Pointer Arithmetic, Functions and Pointers, Arrays and Pointers, Pointer Arrays, passing functions to other functions.	
3.	**Object Oriented Methodology:** Introduction, Advantages and Disadvantages of Procedure Oriented Language, what is Object Oriented? What is Object Oriented Development?, Object Oriented Themes, Benefits and Application of OOPS	
4	**Principles of OOPS:** OOPS Paradigm, Objects, Classes, Data Abstraction and Data Encapsulation, Inheritance, Polymorphism, Dynamic Binding, Message Passing.	
	Unit – III:	**15 Lectures**
1.	**Classes and Objects:** Simple classes (Class specification, class members accessing), Defining member functions, passing object as an argument, Returning object from functions, friend classes.	
2.	**Constructors and Destructors:** Introduction, Default Constructor, Parameterized Constructor and examples, Destructors	

3.	**Polymorphism:** Concept of function overloading, overloaded operators, overloading unary and binary operators, overloading comparison operator, overloading arithmetic assignment operator, Data Conversion between objects and basic types	
4	**Inheritance:** Introduction, understanding inheritance, Advantages provided by inheritance, choosing the access specifier, Derived class declaration, derived class constructors, class hierarchies, multiple inheritance, multilevel inheritance, containership, hybrid inheritance.	
5	**Working with Files:** Introduction, File Operations, Various File Modes, File Pointer and their Manipulation.	

	Evaluation Scheme
	[A] Evaluation scheme for Theory courses
	   I. Continuous Assessment (C.A.) - 25 Marks
	     One or more, MCQ, quiz based, objective type, puzzle, group presentation, case studies, individual projects, debate, model making, poster making, role play
	   II. Semester End Examination (SEE)- 50 Marks	

References:	1. Programming with C, Tata McGRAW-Hill,Byron Gottfried,1996 2. "C" Programming", Brian W. Kernighan and Denis M. Ritchie,PHI 3. Let us C, Yashwant P. Kanetkar, BPB publication 4. E. Balagurusamy. Object Oriented Programming with C++:Tata McGrawHill	

% Application of Blooms Taxonomy in Evaluation

UNIT	KNOWLEDGE	UNDERSTANDING	APPLICATION	TOTAL MARKS
I	**10**	**05**	**05**	**20**
II	**05**	**05**	**05**	**15**

III	05	05	05	15
TOTAL MARKS PER OBJECTIVE	20	15	15	50
% WEIGHTAGE	40	30	30	100

Course Code: JUSIT-DSCPR101	Course Title: Introduction to Programming I Practical	Credits: 01 Practical/Week: 2 Hours

1. Basic Programs in C

a.   Write a program to display the message HELLO WORLD.

b.   Write a program to declare some variables of type int, float and double. Assign some values to these variables and display these values.

c.   Write a program to find the addition, subtraction, multiplication and division of two numbers.

d.   Write a program to swap two numbers without using third variableConditional statements and loops(basic) In C

e.   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.

f.   Write a program to check whether the number is even or odd.

g.   Write a program to check whether the number is positive, negative or zero.

h.   Write a program to check whether the entered number is prime or not.

i.   Write a program to find the largest of three numbers.

2.   Conditional statements and loops(advanced) In C

a.   Write a program to find the sum of squares of digits of a number.

b.   Write a program to find the sum of numbers from 1 to 100.

c.   Write a program to print the Fibonacci series.

d.   Write a program to find the reverse of a number.

e.   Write a program to find whether a given number is palindrome or not.

f.   Write a program to check whether the entered number is Armstrong or not.

3.   Functions and Recursive Functions in C

a.   Function without parameter and without return type.

b.   Function without parameter and with return type.

c.   Function with parameter and without return type

d.   Function with parameter and with return type.

e.   Write a program to find the factorial of a number using a recursive function.

f.   Write a program to find the sum of natural number using a recursive function.

4.   Arrays in C

a.   Write a program to find the largest value that is stored in the array.
b.   Write a program using pointers to compute the sum of all elements stored in an array.
c.   Write a program to arrange the 'n' numbers stored in the array in ascending and descending order.
d.   Write a program that performs addition and subtraction of matrices.
e.   Write a program that performs multiplication of matrices.

5.   Pointers in C

a.   Write a program to demonstrate the use of pointers.
b.   Write a program to perform addition and subtraction of two pointer variables.

6.   Classes and methods

a.   Design an employee class for a.   reading and displaying the employee information, the getInfo() and displayInfo() methods will be used respectively. Where getInfo() will be private method.
b.   Design the class student containing getData() and displayData() as two of its methods which will be used for reading and displaying the student information respectively. WheregetData() will be private method.
c.   Design the class Demo which will contain the following methods: readNo(), factorial() for calculating the factorial of a number, reverseNo() will reverse the given number, isPalindrome() will check the given number is palindrome, isArmstrong() which will calculate the given number is armStrong or not. WherereadNo() will be a private method.
d.   Write a program to demonstrate function definition outside class and accessing class members in function definition

7.   Using friend functions.

a.   Write a friend function for adding the two complex numbers, using a single class.
b.   Write a friend function for adding the two different distances and display its sum, using two classes.
c.   Write a friend function for adding the two matrix from two different classes and display its sum

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	8. Constructors and method overloading. a. Design a class Complex for adding the two complex numbers and also show the use of constructor. b. Design a class Geometry containing the methods area() and volume() and also overload the area()function. c. Design a class StaticDemo to show the implementation of static variables and static functions. 9. Inheritance a. Design a class for single level inheritance using public and private type derivation. b. Design a class for multiple inheritance c. Implement hierarchical inheritance. 10. File handling a. Design a class FileDemo open a file in read mode and displays the total number of words and lines in the file. b. Design a class to handle multiple files and file operations c. Design a editor for appending and editing the files	

	Evaluation Scheme
	  [A] Evaluation scheme for Practical courses– 25 marks i.e. (50/2 marks)
	
	     (i) Internal practical continuous assessment (CA) -20 marks
	     (ii) SEE Practical -25 marks
	     (iii) Viva- 05 marks	

Course Code	Course Title: Introduction to Programming II	Credits: 03 Lectures/Week:03

JUSIT-DSC201		
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
	  [A]
	      Evaluation scheme for Theory courses
	        I. Continuous Assessment (C.A.) - 25 Marks
	          One or more, MCQ, quiz based, objective type, puzzle, group presentation, case studies, individual projects, debate, model making, poster making, role play
	
	      II. Semester End Examination (SEE)- 50 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	

% Application of Bloom's Taxonomy in Evaluation

UNIT	KNOWLEDGE	UNDERSTANDING	APPLICATION	TOTAL MARKS
I	**10**	**05**	**05**	**20**
II	**05**	**05**	**05**	**15**

III	05	05	05	15
TOTAL MARKS PER OBJECTIVE	20	15	15	50
% WEIGHTAGE	40	30	30	100

Course Code:	Course Title: Introduction to Programming II	Credits: 01
JUSIT-DSCPR201		Practical/Week: 2Hours

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
	[A] Evaluation scheme for Practical courses– 25 marks i.e. (50/2 marks)
	(i) Internal practical continuous assessment (CA) -20 marks
	(ii) SEE Practical -25 marks
	(iii) Viva- 05 marks

Minor Courses

Course Code JUSIT-MIN101	Course Title: Mathematics - I	Credits: 03 Lectures/Week: 03
Course description	The course covers fundamentals of set theory, functions and relations, also logics and validating the reasoning. understanding the probability and graph theory with its applicative area.	
Learning objectives	- Construct correct direct and indirect proofs. - To develop logical thinking and its application to computer science - Use counterexamples. - Apply logical reasoning to solve a variety of problems.	
Course Outcomes	- Understand a problem description, and then identify, compare, and apply appropriate algorithms to solve it. - Evaluate different ways to implement an algorithm, and implement it as part of an executable program. - Formulate statements and problems in logical form - Understand, at least at a high level, one or more established techniques for automated reasoning and the algorithms involved	
	THEORY	**45 lectures**
Sub Unit	**Unit – I**	**15 lectures**
1.	**The Logic of Compound Statements:** Logical Form and Logical Equivalence, Conditional Statements, Valid and Invalid Arguments. **Quantified Statements:** Predicates and Quantified Statements, Statements with Multiple Quantifiers, Arguments with Quantified Statements.	
2.	**Set Theory:** Definitions and the Element Method of Proof, Properties of Sets, Disproof, Algebraic Proofs, Boolean Algebras, Russell"s Paradox and the Halting Problem.	
3.	**Functions:** Functions Defined on General Sets, One-to-One and Onto, Inverse Functions, Composition of Functions, Cardinality with Applications to Computability	
	Unit – II:	**15 lectures**

1.	**Relations:** Relations on Sets, Reflexivity, Symmetry, and Transitivity, Equivalence Relations, Partial Order Relations.	
2.	**Graphs and Trees:** Definitions and Basic Properties, Trails, Paths, and Circuits, Matrix Representations of Graphs, Isomorphism"s of Graphs, Trees, Rooted Trees, Isomorphism"s of Graphs, Spanning trees and shortest paths.	
	Unit – III:	**15 lectures**
1.	**Counting and Probability:** Introduction, Possibility Trees and the Multiplication Rule, Counting Elements of Disjoint Sets: The Addition Rule, The Pigeonhole Principle, Counting Subsets of a Set: Combinations, r- Combinations with Repetition Allowed, Probability Axioms and Expected Value, Conditional Probability, Bayes" Formula and Independent Events.	

	Evaluation Scheme
	
	  [A] Evaluation scheme for Theory courses
	      I. Continuous Assessment (C.A.) - 25 Marks
	        One or more, MCQ, quiz based, objective type, puzzle, group presentation, case studies, individual projects, debate, model making, poster making, role play
	
	     II. Semester End Examination (SEE)- 50 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	

% Application of Bloom's Taxonomy in Evaluation

UNIT	KNOWLEDGE	UNDERSTANDING	APPLICATION	TOTAL MARKS
I	5	5	5	15
II	5	5	10	20
III	5	5	5	15
TOTAL MARKS PER OBJECTIVE	15	15	20	50
% WEIGHTAGE	30	30	40	100

Course Code: SIT-MINPR101	Course Title: Mathematics - I Practical	Credits: 01 Practical/Week: 2 Hours

1. Sets Theory
1. Inclusion Exclusion principle.
2. Power Sets.
3. Mathematical Induction.

2. Functions and Algorithms
1. Recursively defined functions
2. Cardinality
3. Polynomial evaluation
4. Greatest Common Divisor

3. Boolean Algebra
1. Basic definitions in Boolean Algebra

4. Directed Graphs
1. Adjacency matrix
2. Path matrix

5. Graph Theory
1. Minimum spanning tree
2. Shortest Path

6. Recurrence relations
1. Linear homogeneous recurrence relations with constant coefficients
2. Solving linear homogeneous recurrence relations with constant coefficients
3. Solving general homogeneous linear recurrence relations

7. Counting
1. Sum rule principle
2. Product rule principle
3. Factorial
4. Binomial coefficients
5. Permutations
6. Permutations with Repetition
7. Ordered partitions
8. Combinations
9. Combinations with repetitions
10. Unordered partitions

8. Probability Theory
1. Sample space and events

	2. Finite probability spaces
	3. Equiprobable spaces
	4. Addition Principle
	5. Conditional Probability
	6. Multiplication theorem for conditional probability
	[A] Evaluation scheme for Practical courses– 25 marks i.e. (50/2 marks) **(i)** Internal practical continuous assessment (CA) -20 marks **(ii)** SEE Practical -25 marks **(iii)** Viva- 05 marks

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
	   [A]
	      Evaluation scheme for Theory courses
	        I. Continuous Assessment (C.A.) - 25 Marks	

	One or more, MCQ, quiz based, objective type, puzzle, group presentation, case studies, individual projects, debate, model making, poster making, role play **II. Semester End Examination (SEE)- 50 Marks**	
References:	1. P. N. Wartikar and J. N. Wartikar , (1984).A text book of Applied Mathematics Vol I Pune Vidyarth Griha Prka, Pune 2. P. N. Wartikar and J. N. Wartikar , (1984).A text book of Applied Mathematics VolII Pune Vidyarth Griha Prka, Pune	

% Application of Bloom's Taxonomy in Evaluation

UNIT	KNOWLEDGE	UNDERSTANDING	APPLICATION	TOTAL MARKS
I	5	5	5	15
II	5	5	10	20
III	5	5	5	15
TOTAL MARKS PER OBJECTIVE	15	15	20	50
% WEIGHTAGE	30	30	40	100

Course Code: SIT-MINPR201	Course Title: Mathematics II Practical	Credits: 01 Practical/Week: 2 Hours

	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: **[A] Evaluation scheme for Practical courses– 25 marks** i.e. (50/2 marks) **(i)** Internal practical continous assessment (CA) -20 marks	

	(ii) SEE Practical -25 marks **(iii)** Viva- 05 marks

Open Elective Courses

Course Code JUSIT-OE101	Course Title: Financial Literacy	Credits: 02 Lectures/Week: 02
Course description	The course covers the basics concept of financial literacy and budgeting ; savings and investing and financial planning and personal tax planning.	
Learning objectives	• To understand the basic components of Financial Literacy such as savings, investment, taxation and insurance • To understand the importance of financial planning	
Course Outcomes	• Develop the ability to do personal and family financial planning • Build capability to analyze banking and insurance products • Learn basics of investment and tax planning	
	THEORY	**30 lectures**
Sub Unit	**Unit – I:**	**10 lectures**
1.	Financial Literacy a) Five pillars of financial literacy – save, invest, budget, manage debt and tax planning b) Benefits of financial literacy	
2.	Budgeting a) Income & expenses b) Setting priorities: difference between needs and wants c) Budgeting	
	Unit – II:	**10 lectures**
1.	Saving a) Benefits of saving and financial discipline b) Methods of saving	
2.	Investment a) Concept of time value of money and its importance b) Choosing between financial products to invest: Rate of return vs risk	

	Unit – III:	10 lectures
1.	Financial goals a) Importance of financial goals b) Steps to set financial goals	
2.	Personal tax planning a) Tax structure in India b) Need and importance of tax planning	

	Evaluation Scheme
	[A] Evaluation scheme for Theory courses -50 Marks
	    I. Continuous Assessment (C. A.) - 25 Marks
	       One or more, MCQ, quiz based, objective
	       type, puzzle, group presentation, case studies,
	       individual projects, debate, model making,
	       poster making, role play
	    II. Semester End Examination (SEE)- 25
	       Marks	

References:	References: 1. Singh, Abhishek Kumar and Rajni (2022), Financial Literacy, Ist edition,JSR Publishing House LLP, India 2. Sinha, Madhu (2017), Financial Planning: A Ready Reckoner, McGraw Hill, USA Suggested Readings: 3. The Richest Man in Babylon by George S. Clason 4. The Intelligent Investor by Benjamin Graham	

% Application of Bloom's Taxonomy in Evaluation

UNIT	KNOWLEDGE	UNDERSTANDING	APPLICATION	TOTAL MARKS
I	**03**	**03**	**03**	**9**
II	**03**	**02**	**03**	**8**
III	**02**	**03**	**03**	**8**
TOTAL MARKS PER OBJECTIVE	**08**	**08**	**09**	**25**

% WEIGHTAGE	32	32	36	100

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, Strategy Choice 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
	Evaluation scheme for Theory courses -50 Marks
	  I. **Continuous Assessment (C.A.) - 25 Marks**
	   One or more, MCQ, quiz based, objective type, puzzle, group presentation, case studies, individual projects, debate, model making, poster making, role play
	
	  II. **Semester End Examination (SEE)- 25 Marks**	

References:	1. Fred R. David, (13th Ed). Strategic Management: Concepts &Cases. New Jersey: Prentice Hall 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 McGraw Hill	

% Application of Blooms Taxonomy in Evaluation

UNIT	KNOWLEDGE	UNDERSTANDING	APPLICATION	TOTAL MARKS
I	**5**	**5**	**0**	**10**

II	**3**	**2**	**3**	**8**
III	**2**	**2**	**3**	**7**
TOTAL MARKS PER OBJECTIVE	**10**	**9**	**6**	**25**
% WEIGHTAGE	**40**	**36**	**24**	**100**

Course Code JUSIT-OE102	Course Title: Logic, Reasoning and Aptitude	Credits: 02 Lectures/Week:02
Course description	Logical, reasoning skills help students in improving their decision-making skills, problem-solving skills, and setting goals. These personal skills are necessary for building a stable career foundation in the IT industry.	

Learning objectives	• Ability to use numbers and mathematical concepts to solve mathematical problems • Ability to analyze the data using data interpretation • Ability to solve verbal and non-verbal reasoning problems • Ability to understand and evaluate statement based problems	
Course Outcomes	• Will be able to analyze data, understanding technical reports • Improving decision-making and problem-solving skills. • Develop Critical Thinking Skills • Will be able to solve aptitude tests for gaining a career in the IT industry	
	THEORY	**30 lectures**
Sub Unit	**Unit – I**	**10 Lectures**
	Picture Reasoning Verbal Reasoning Syllogism Input Output Critical Reasoning Statement Reasoning	
	Unit – II:	**10 Lectures**
	Tabular Graph Line Graph Pie Chart Bar Diagram Data Sufficiency Permutation and Combination	
	Unit – III:	**10 Lectures**
	Analytical Problems Relation Problem Arrangements Questions Decision Making Problems Comprehension of Technical Writing	

	[A] Evaluation scheme for Theory courses -50 Marks
	    I. Continuous Assessment (C.A.) - 25 Marks
	      One or more, MCQ, quiz based, objective
	      type, puzzle, group presentation, case	

	studies, individual projects, debate, model making, poster making, role play **II. Semester End Examination (SEE)- 25 Marks**	
References:	Textbook: 1. Goleman, D. (1996) Emotional Intelligence: Why it Can Matter More Than IQ, Bloomsbury Publishing 2. A Modern Approach to Logical Reasoning by R.S. Aggarwal Additional References: 2. Meah, M. (2011) Competency Questions Made Easy,Sapere Media. 3. Povah, N. &Povah, L,.(UK edn) (2009). Succeeding at Assessment Centres for Dummies, John Wiley & Sons.	

% Application of Bloom's Taxonomy in Evaluation

UNIT	KNOWLEDGE	UNDERSTANDING	APPLICATION	TOTAL MARKS
I	**02**	**05**	**00**	**07**

II	**04**	**04**	**02**	**10**
III	**02**	**05**	**01**	**08**
TOTAL MARKS PER OBJECTIVE	**08**	**14**	**03**	**25**
% WEIGHTAGE	**32**	**56**	**12**	**100**

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, Analysis Online 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**
 Evaluation scheme for Theory courses -50 Marks

 III.   Continuous Assessment (C.A.) - 25 Marks
 One or more, MCQ, quiz based, objective type, puzzle, group presentation, case studies, individual projects, debate, model making, poster making, role play

 IV.   Semester End Examination (SEE)- 25 Marks
 1. | |

| **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. |

% Application of Bloom's Taxonomy in Evaluation

UNIT	KNOWLEDGE	UNDERSTANDING	APPLICATION	TOTAL MARKS

I	**2**	**2**	**0**	**4**
II	**3**	**1**	**2**	**6**
III	**3**	**2**	**3**	**8**
IV	**3**	**1**	**3**	**7**
TOTAL MARKS PER OBJECTIVE	**11**	**6**	**8**	**25**
% WEIGHTAGE	**44**	**24**	**32**	**100**

Skill Enhancement Elective Courses

Course Code: JUSIT-SEC101	Course Title: Basics of Web Designing	Credit: 02 Practical/Week :2
Course description	This course appears to provide a comprehensive introduction to web development, covering various aspects from the basics of writing and markup to advanced topics like database integration.	
Learning objectives	- To design valid, well-formed, scalable, and meaningful pages using emerging technologies. - To develop and implement client-side and server-side scripting language programs. - To develop and implement Database Driven Websites. - To develop web applications based on the CMS WordPress	
Course Outcomes	- This course would help students to learn about writing, markup and coding involved in Web development, which includes Web content, Web client and server scripting. - It would give interdisciplinary knowledge on the application area, client and server scripting, and database technology used in web development.	
	Principles of Practical: Basics of Web Designing	
Sub Unit	**Unit – I:**	
1.	**Internet and the World Wide Web:** What is Internet? Introduction to internet and its applications, E-mail, telnet, FTP, e-commerce, video conferencing, E-business. Internet service providers, domain name server, internet address, World Wide Web (WWW): World Wide Web and its evolution, uniform resource locator (URL), browsers – internet explorer, Netscape navigator, opera, Firefox, chrome, Mozilla. search engine, web server – apache, IIS, proxy server, HTTP protocol	
2.	**HTML5:** Introduction, Why HTML5? Formatting text by using tags, using lists and backgrounds, Creating hyperlinks and anchors. Style sheets, CSS formatting text using style sheets, formatting paragraphs using style sheets.	
3.	**HTML5 Page layout and navigation:** Creating navigational aids: planning	

	site organization, creating text-based navigation bar, creating graphics based navigation bar, creating graphical navigation bar, creating image map, redirecting to another URL, creating division based layouts: HTML5 semantic tags, creating divisions, creating HTML5 semantic layout, positioning and formatting divisions.	
	Unit – II:	
1.	**HTML5 Tables, Forms and Media:** Creating tables: creating simple table,specifying the size of the table, specifying the width of the column, merging table cells, using tables for page layout, formatting tables: applying table borders, applying background and foreground fills, changing cell padding, spacing and alignment, creating user forms: creating basic form, using check boxes and option buttons, creating lists, additional input types in HTML5, Incorporating sound and video: audio and video in HTML5, HTML multimedia basics, embedding video clips, incorporating audio on web page.	
2.	**Java Script:** Introduction, Client-Side JavaScript, Server-Side JavaScript, JavaScript Objects, JavaScript Security	
3.	**Operators:** Assignment Operators, Comparison Operators, Arithmetic Operators, % (Modulus), ++(Increment), --(Decrement), -(Unary Negation), Logical Operators, Short-Circuit Evaluation, String Operators, Special Operators, ?: (Conditional operator), , (Comma operator), delete, new, this,void	
4.	**Statements:** Break, comment, continue, delete, do...while, export, for, for...in,function, if...else, import, labeled, return, switch, var, while, with	
	Unit – III	
1.	**Core JavaScript (Properties and Methods of Each) :** Array, Boolean, Date, Function, Math, Number, Object, String, regExp Document and its associated objects: document, Link, Area, Anchor, Image,Applet, Layer	
2.	**Events and Event Handlers:** General Information about Events, Defining Event Handlers, event, onAbort, onBlur, onChange, onClick, onDblClick,onDragDrop, onError, onFocus, onKeyDown, onKeyPress, onKeyUp, onLoad, onMouseDown, onMouseMove, onMouseOut, onMouseOver, onMouseUp,onMove, onReset, onResize, onSelect, onSubmit, onUnload	
3.	**jQuery:** Introduction, Syntax, Selectors, Event ,Effects	
	Practical	

	1. Use of Basic Tags:	
	a) Design a web page using different text formatting tags.	
	b) Design a web page with links to different pages and allow navigation between webpages.	
	c)Design a web page demonstrating all Style sheet types	
	2. Image maps, Tables, Forms and Media:	
	a)Design a web page with Imagemaps.	
	b) Design a web page demonstrating different semantics	
	c) Design a web page with different tables. Design a webpages using table so that the content appears well placed.	
	d) Design a web page with a form that uses all types of controls.	
	e)Design a web page embedding with multimedia features.	
	3. JavaScript:	
	a) Using JavaScript design, a web page that prints factorial/Fibonacci series/any given series.	
	b) Design a form and validate all the controls placed on the form using JavaScript.	
	c)Write a JavaScript program to display all the prime numbers between 1 and 100.	
	d)Write a JavaScript program to accept a number from the user and display the sum of its digits.	
	e) Write a program in JavaScript to accept a sentence from the user and display the number of words in it. (Do not use split () function).	
	f)Write a java script program to design simple calculator.	
	4. Javascript Objects:	
	Design a web page demonstrating different Core JavaScript references (Array, Boolean, Date, Function, Math, Number,Object, String,regExp).	
	5. JQuery:	
	Program based on JQuery	
	6. Email: Write a program to send email with attachment.	
	7. Sessions and Cookies:	
	Write a program to demonstrate use of sessions and cookies.	
	8. Wordpress:	
	Webpages based on Wordpress	

	[A] Evaluation scheme courses– 50 marks
	      (i) Continuous assessment (CA) -25 marks
	      (ii) SEE Practical -25 marks	

References:	**Textbook:** 1. Thomas Powell , (-) Web Design The Complete Reference, TataMcGrawHill 2. Faithe Wempen , (2011).HTML5 Step by Step, MicrosoftPress 3. Eric Freeman, (2013).Head First HTML5 programming,O"Reilly 4. Thomas Powell and Fritz Schneider, (-).JavaScript 2.0: The Complete Reference, Tata McGraw	

| | 5. Hill |
| | 6. WordPress For Dummies, LisaSabin-Wilson |

% Application of Blooms Taxonomy In Evaluation

UNIT	KNOWLEDGE	UNDERSTANDING	APPLICATION	TOTAL MARKS
I	2	3	3	8
II	2	3	3	8
III	2	3	4	9
TOTAL MARKS PER OBJECTIVE	6	9	10	25
% WEIGHTAGE	24	36	40	100

Course Code JUSIT-SEC201	Course Title: Advanced Web Programming	Credits: 02 Practical/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	
	Principles of Practical: Advanced Web Programming	
Sub Unit	**Unit – I:**	
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.	**Namespaces:** The Need for Namespaces, Namespace Syntax, How Parsers Handle Namespaces	
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	
	Unit – II:		
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: use Effect ,Introducing React Context, Context Logic & Different Ways of Updating State, Using Context in Components	
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	
	Unit – III:		
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.	
2.	**Flask** : Installation, Basic application structure, Templates, webforms, Databases	
	Practical	
	XML: 1. a) Design a simple XML document b) Design a XML document and display it in the browser using CSS. **React:** 2. Creating an application using react. (Component,State and Props) 3. Demonstrating React JSX, React Router.	

	4. Demonstrate Form handling using React-Login form, Registration form,Working with Event Listeners. **Laravel:** 5. Installing Laravel and also understands the directory structure. 6. Create an application to perform routing with different routing methods and also pass parameters as a route parameter. 7. Create a form to implement Blade template. 8. Create a laravel application and connect it with mysql database to perform insert, update, search and delete operations. **Flask:** 9. a) create Flask Application b. Show the use of cookies and sessions Connect Flask to a Database with Flask-SQLAlchemy	
	Evaluation Scheme **[A] Evaluation scheme courses– 50 marks** **(i) Continuous assessment (CA) -25 marks** **(i) SEE Practical -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	

% Application of Bloom's Taxonomy In Evaluation

UNIT	KNOWLEDGE	UNDERSTANDING	APPLICATION	TOTAL MARKS
I	05	02	01	08

II	**02**	**02**	**04**	**08**
III	**02**	**02**	**05**	**09**
TOTAL MARKS PER OBJECTIVE	**09**	**06**	**10**	**25**
% WEIGHTAGE	**36**	**24**	**40**	**100**

Vocational Skill Elective Courses

Course Code: JUSIT-VSC101	**Course Title: Computer Oriented Architecture**	Credits:02 Practical/Week:01
Course description	The purpose of the course is to introduce principles of computer organization and the basic architectural concepts. And introduces various ICs to specify various computer operations.	
Learning objectives	• To understand the structure, function and characteristics of computer systems. • To understand the function of each element of a memory hierarchy • To acquire the basic knowledge of digital logic levels and application of knowledge to understand digital electronics circuits. • To analyze and synthesize combinational and Sequential logic circuits	
Course Outcomes	• To Understand the architecture and functionality of central processing unit • Illustrate in a better way the I/O and memory organization • Covers the design and application of digital logic circuits, including combinational and sequential logic circuits.	
	Principles of Practical: Computer Oriented Architecture	
Sub Unit	**Unit – I:**	
1.	**INTRODUCTION:** Organization and Architecture, Structure and Function, Computer Components and Functions, Interconnection Structures.	
2.	**Operating System:** What are Operating Systems, What Operating Systems Do, Operating-System Structure, Operating-System Operations	
3.	**Memory System Organization**: Characteristics of Memory Systems, Memory Hierarchy, Internal Memory: RAM, SRAM and DRAM, Cache Memory: Design Principles, Virtual Memory, External Memory: Magnetic Discs, Optical Memory, Flash Memories	

	Unit – II:	
1.	**I/O Systems:** I/O Modules, Programmed I/O Overview of Programmed I/O, I/O Channels and Processors	
2.	**Number System:** Data Representation (Binary, Octal and hexadecimal) Binary number system, octal number system, hexadecimal number system, conversion from one number system to another, BCD code, Excess – 3 code, ASCII Code. Arithmetic: 1's complement and 2's complement, Binary Arithmetic, Arithmetic in octal number system, Arithmetic in hexadecimal number system	
3.	**Logic Gates:** Logic (AND OR NOT), Exclusive OR and Exclusive NOR gates Universal Logic gates, Implementation of other gates using universal gates, Boolean Algebraic theorems	
	Unit – III: Mention name, if there	
1.	**KMAP:** SOP, Reduction technique using Karnaugh maps – 2/3/4 variable K-maps, don't care condition	
2.	**Combinational Logic:** Arithmetic Circuits-Half adder, the full adder, half subtractor, full subtractor. Multiplexer, de-multiplexer, BCD to seven segmentDecoder	
3.	**Flip flop:** SR, S-R flip-flop, D flip-fop, JK flip- flop, Race-around condition, Master – slave JK flip-flop, T flip- flop, Excitation table. Application of Flip Flops.	
	Practical	

	1. Linux commands: Working with directories and files
	    1. pwd, cd, absolute and relative paths, ls, mkdir, rmdir,
	    2. file, touch, rm, cp. mv, rename, head, tail, cat, tac, more, less, strings, chmod
	    3. ps, top, kill
	    4. grep, locate, find
	    5. date,cal, uptime, w, whoami, finger, uname, man, df, du,free, whereis, which.
	    6. Compression: tar, gzip, vi editor
	
	2. Windows (DOS)Commands
	    1. Date, time, prompt, md, cd, rd, path.
	    2. Chkdsk, copy, format, cls, defrag, del, move	

	3. Diskcomp, diskcopy, diskpart, doskey, echo
	4. fc, find, rename, set, type, ver
	
	3. Study of AND, OR, NOT, XOR, XNOR, NAND and NOR gates
	    1. IC 7400, 7402, 7404, 7408, 7432, 7486, 74266
	
	4. Verifying De Morgan's laws using a minimum number of gates/ICs.
	
	5. Design Code converter
	a. Design and implement Binary – to – Gray code converter.
	b. Design and implement Gray – to – Binary code converter.
	
	6. Design Combinational Circuit
	    1. Design and implement 4:1 multiplexer and 1:4 demultiplexer.
	    2. Implementation of digits using seven segment displays.
	
	7. Study and design mod –n counter synchronous counter
	
	8. Design registers
	    1. Design serial –in serial – out
	    2. serial –in parallel –out,
	    3. parallel –in parallel –out shift registers	

	[A] Evaluation scheme courses– 50 marks
	    (i) Continuous assessment (CA) -25 marks
	    (ii) SEE Practical -25 marks	

References:	1. Computer Organization & Architecture, William Stallings, 8th Edition 2. Operating System Concepts. New Jersey, NJ, John Wiley and Sons, Abraham Silberschatz, Peter B. Galvin,Greg Gagne, 9th Edition. 3. Modern Digital Electronics, R P Jain, 4th Edition 4. Digital Design, M Morris Mano, 4th Edition	

% Application of Bloom's Taxonomy in Evaluation

UNIT	KNOWLEDGE	UNDERSTANDING	APPLICATION	TOTAL MARKS
I	05	04	00	9
II	02	04	02	8
III	02	02	04	8
TOTAL MARKS PER OBJECTIVE	9	10	06	25
% WEIGHTAGE	36	40	24	100

Course Code JUSIT-VSC201	Course Title: Database Management System & Transactions	Credits: 02 Practical/Week:02
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.	
	Principles of Practical: Databases and Transactions	
Sub Unit	**Unit – I**	
	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:	

	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:	
	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.	
	Practical	

	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	

	Evaluation Scheme
	  [B] Evaluation scheme courses– 50 marks
	      (i) Continuous assessment (CA) -25 marks
	      (ii) SEE Practical -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	

% Application of Bloom's Taxonomy in Evaluation

UNIT	KNOWLEDGE	UNDERSTANDING	APPLICATION	TOTAL MARKS
I	05	02	01	08
II	02	02	04	08

III	02	02	05	09
TOTAL MARKS PER OBJECTIVE	**09**	**06**	**10**	**25**
% WEIGHTAGE	**36**	**24**	**40**	**100**

Ability Enhancement Courses

Course Code JUSIT-AEC101	Course Title: English Language Skills	Credits:02 Lectures/Week:02
Course description	This course introduces the learners to the basics of English language and enhances the learners' use of linguistic skills for improved expression.	
Learning objectives	• Enhance their understanding of basic language skills • Apply basic language skills to different contexts and narratives • Become equipped to use language skills effectively in creative spheres	
Course Outcomes	• Understood the basics of grammar and nuances of language • Illustrated the ability to use the language components accordingly • Constructed original and creative texts	
	THEORY	**30 lectures**
Sub Unit	**Unit – I: Basic Language Skills**	**10 lectures**
1.	Articles, prepositions, conjunctions Types of Sentences (Simple, Compound, Complex) Question Tags Direct and Indirect Speech Active and Passive Voice	
	Unit – II: **Applied Language Skills**	**10 lectures**
1.	Texts and paragraphs that incorporate the above taken from: - Scientific journals - Literary texts - Newspaper articles - Any other relevant source	
	Unit – III: Creative Writing (to be covered in Tutorials)	**10 lectures**
1.	Essays Blogs stories	

	Dialogues	
	Evaluation Scheme **[A] Evaluation scheme for Theory courses -50 Marks** 　**I. Continuous Assessment (C.A.) - 25 Marks** 　　One or more, MCQ, quiz based, objective 　　type, puzzle, group presentation, case 　　studies, individual projects, debate, model 　　making, poster making, role play 　**II. Semester End Examination (SEE)- 25 　　Marks**	
References:	1. Barker, Alan. (2010). Improve your Communication Skills (Revised Second Edition). New York, Philadelphia 2. and New Delhi: Kogan Press Limited. Print. 3. Bellare, Nirmala. (1998). Reading Strategies. Vols. 1 and 2. New Delhi. Oxford University Press. Print. 4. Blass, Laurie, Kathy Block and Hannah Friesan. (2007). Creating Meaning. Oxford: Oxford University Press. 5. Buscemi, Santi and Charlotte Smith. (1994). 75 Readings Plus. Second Edition New York: McGraw-Hill. Print. 6. Career Skills Library. (2009). Communication Skills (Third Edition). New York: Ferguson Publishing. Print. 7. Doff, Adrian and Christopher Jones. (2004). Language in Use (Intermediate and Upper Intermediate). Cambridge: Cambridge University Press. Print. 8. Glendinning, Eric H. and Beverley Holmstrom. (2004). Second edition. Study Reading: A Course in Reading Skills for Academic Purposes. Cambridge: Cambridge: Cambridge University Press. Print. 9. Greenbaum, Sidney and Gerald Nelson. (2002). An Introduction to English Grammar (Second Edition). London: Longman. Print. 10. Grellet, F. (1981). Developing Reading Skills. Cambridge: Cambridge University Press. Print. 11. Hamp-Lyons, Liz and Ben Heasiey (2006). Second edition. Study Writing: A Course in Writing Skills for Academic Purposes. Cambridge: Cambridge: Cambridge University Press. Print. 12. Hood, J.H. (2013). How to Book of Writing Skills: Improve your English report, email or business. USA: WordCraft Global. Print. 13. Langan, John. (2008). College Writing Skills with Readings (Seventh Edition). New York: McGraw Hill Higher Education. Print.

14. Mohan Krishna & Banerji, Meera (1990). Developing Communication Skills. New Delhi: Macmillan India. Print.
15. Seely, John. (2013). The Oxford Guide to Effective Writing and Speaking: How to communicate clearly (Third Edition). Oxford: Oxford University Press UK. Print.
16. 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): http://www. io.comi—hcexres/textbook/
    6. http://www.pearsoned.co.uk/AboutUs/ELT/ 7) http:Hwww.howisay.coml
    7. http://www.thefreedictionary.com/

% Application of Bloom's Taxonomy in Evaluation

UNIT	KNOWLEDGE	UNDERSTANDING	APPLICATION	TOTAL MARKS
I	2	2	4	8
II	2	2	4	8
III	2	3	4	9

TOTAL MARKS PER OBJECTIVE	6	7	12	25
% WEIGHTAGE	24	28	48	100

Course Code JUSIT-AEC201	Course Title: English Communication Skills	Credits: 02 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	

	[A] Evaluation scheme for Theory courses -50 Marks
	     I. Continuous Assessment (C.A.) - 25 Marks
	       One or more, MCQ, quiz based, objective
	       type, puzzle, group presentation, case	

	studies, individual projects, debate, model making, poster making, role play **II. Semester End Examination (SEE)- 25 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

% Application of Bloom's Taxonomy in Evaluation

UNIT	KNOWLEDGE	UNDERSTANDING	APPLICATION	TOTAL MARKS
I	2	2	4	8
II	2	2	4	8
III	2	3	4	9
TOTAL MARKS PER OBJECTIVE	6	7	12	25
% WEIGHTAGE	24	28	48	100

Value Education Courses

Course Code: JUSIT-VEC101	Course Title: Digital Literacy	Credits: 2 Lectures/Week: 02
Course Description	The course aims to help students stay organized, collaborate with others, and create professional documents. From creating and presenting documents, reports and proposals to analyzing data in Excel.	
Learning objectives	• Understand digital world and need for digital literacy • Create awareness about digital India • Explore, communicate and collaborate in cyberspace • Building awareness on cyber safety and security	
Course Outcomes	• Demonstrates proficiency using digital tools. • Uses digital media and environments to communicate effectively. • Uses digital media and environments to acquire knowledge or skill. • Learn methods for safe online practices, including how to protect their personal information online.	
	THEORY	**30 Lectures**
Sub Unit	**Unit – I:**	**10 Lectures**
	Computers: History of computer Generation of computer Basic of computers Classification of computers Basic parts of computers computer virus and security Computer applications.	
	Unit – II:	**10 Lectures**
	Word formatting: Formatting text Formatting paragraph Modify page Layout	

	text to speech Analysis using Excel: Excel Calculation Excel fill handle Excel formula Excel functions importing data presentation of data application of data analysis	
	Unit – III:	**10 Lectures**
	Presentations: Creating presentation Slide layouts Transitions Use of tome.app, prezi, Canva Environmental values: Benefits of Green Computing Strategies of Green Computing Power management Green computing applications	

	Evaluation Scheme
	  [A] Evaluation scheme for Theory courses -50 Marks
	    I. Continuous Assessment (C.A.) - 50
	       Marks
	       One or more, MCQ, quiz based, objective type, puzzle,
	       group presentation, case studies, individual projects,
	       debate, model making, poster making, role play	

References	1. Microsoft Office 2019 Step by Step Book by Curtis Frye and Joan Preppernau 2. Toby Velte, Anthony Velte, Robert Elsenpeter (2008). Green IT: Reduce Your Information System's Environmental Impact McGraw Hill	

% Application of Bloom's Taxonomy in Evaluation

UNIT	KNOWLEDGE	UNDERSTANDING	APPLICATION	TOTAL MARKS
I	09	05	03	17
II	03	04	09	16
III	04	04	09	17
TOTAL MARKS PER OBJECTIVE	16	13	21	50
% WEIGHTAGE	32	26	42	100

Course Code: JUSIT-VEC201	Course Title: Digital Empowerment	Credits: 2 Lectures/Week: 02
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
	[**A] Evaluation scheme for Theory courses -50 Marks**
	    I. **Continuous Assessment (C.A.) - 50 Marks**
	        One or more, MCQ, quiz based, objective
	        type, puzzle, group presentation, case studies,
	        individual projects, debate, model making,
	        poster making, role play	

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	

% Application of Bloom's Taxonomy in Evaluation

UNIT	KNOWLEDGE	UNDERSTANDING	APPLICATION	TOTAL MARKS
I	10	05	05	20
II	05	05	05	15
III	05	05	05	15
TOTAL MARKS PER OBJECTIVE	20	15	15	50
% WEIGHTAGE	40	30	30	100