GOKUL GLOBAL UNIVERSITY

विद्या अनन्तम्

Approved By Govt. of Gujarat
(Recognized by UGC under Section 22 & 2(f) of 1956)
(Gujarat Private State University Act 4 of 2018)

BCA

Faculty of Computer Science & Applications

Gokul College of Computer Science & Applications

University Campus, State Highway-41, Sidhpur - 384151, Dist. Patan, Gujarat, INDIA

E: dean.fac.compsci@gokuluniversity.ac.in W: www.gokuluniversity.ac.in M: +91 95124 00808

Program Outcomes (PO)

After the completion of the course, the student will attain the ability to:

PO 1.Computational Knowledge: Apply knowledge of computing fundamentals, computing specialization, mathematics, and domain knowledge appropriate for the computing specialization to the abstraction and conceptualization of computing models from defined problems and requirements.

PO 2.Problem Analysis: Identify, formulate, research literature, and solve complex computing problems reaching substantiated conclusions using fundamental principles of mathematics, computing sciences, and relevant domain disciplines.

PO 3.Design /Development of Solutions: Design and evaluate solutions for complex computing problems, and design and evaluate systems, components, or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations.

PO 4.Conduct investigations of complex computing problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO 5.Modern Tool Usage: Create, select, adapt and apply appropriate techniques, resources, and modern computing tools to complex computing activities, with an understanding of the limitations.

PO 6.Professional Ethics: Understand and commit to professional ethics and cyber regulations, responsibilities, and norms of professional computing practices.

PO 7.Life-long Learning: Recognize the need, and have the ability, to engage in independent learning for continual development as a computing professional.

PO 8.Project management and finance: Demonstrate knowledge and understanding of the computing and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments. **PO 9.Communication Efficacy:** Communicate effectively with the computing community, and with society at large, about complex computing activities by being able to comprehend and write

effective reports, design documentation, make effective presentations, and give and understand clear instructions.

PO 10.Societal and Environmental Concern: Understand and assess societal, environmental, health, safety, legal, and cultural issues within local and global contexts, and the consequential responsibilities relevant to professional computing practices.

PO 11.Individual and Team Work: Function effectively as an individual and as a member or leader in diverse teams and in multidisciplinary environments.

PO 12.Innovation and Entrepreneurship: Identify a timely opportunity and use innovation to pursue that opportunity to create value and wealth for the betterment of the individual and society at large.

Program Specific Outcomes (PSO)

To produce employable IT workforce, that will have sound knowledge of IT and business fundamentals that can be applied to develop and customize solutions for simple applications. The BCA Programme is designed with the following specific objectives.

PSO1 Foundational Knowledge: Demonstrate a solid understanding of foundational concepts in computer science.

PSO2 Programming Proficiency: Develop proficiency in programming languages and the ability to apply coding skills to solve basic computational problems.

BCA SEM 1 SUBJECTS					
Subject code	**Name of subject**	**Course Credit**	**Internal Marks**	**External Marks**	**Total Marks**
FCAB111101	Fundamentals of Programming Language 'C'	04	30	70	100
FCAB111102	Database Management System	04	30	70	100
FCAB111103	Digital Computer System Architecture	04	30	70	100
FCAB111104	Communication Skills	04	30	70	100
FCAB111105	Practical - Fundamentals of Programming Language 'C'	04	30	70	100
FCAB111106	Practical – DBMS & Office	04	30	70	100
	Total	24	180	420	600

BCA SEM 2 SUBJECTS					
Subject code	**Name of subject**	**Course Credit**	**Internal Marks**	**External Marks**	**Total Marks**
FCAB121107	Advance Programming Language 'C'	04	30	70	100
FCAB121108	Internet & Web Design	04	30	70	100
FCAB121109	Mathematics	04	30	70	100
FCAB121110	System Analysis	04	30	70	100
FCAB121111	Practical - Advance Programming Language 'C'	04	30	70	100
FCAB121112	Practical – Web Design	04	30	70	100
	Total	24	180	420	600

BCA SEM 3 SUBJECTS					
Subject code	**Name of subject**	**Course Credit**	**Internal Marks**	**External Marks**	**Total Marks**
FCAB131101	Object Oriented Programming using C++	04	30	70	100
FCAB131102	Advance Database Management System	04	30	70	100
FCAB131103	Operating System	04	30	70	100
FCAB131104	Computer Network	04	30	70	100
FCAB131105	Practical- Object Oriented Programming using C++	04	30	70	100
FCAB131106	Practical -Advance Database Management System	04	30	70	100
	Total	24	180	420	600

BCA SEM 4 SUBJECTS					
Subject code	**Name of subject**	**Course Credit**	**Internal Marks**	**External Marks**	**Total Marks**
FCAB141107	Multimedia and Design	04	30	70	100
FCAB141108	Data Structure	04	30	70	100
FCAB141109	Data Mining And Data Ware Housing	04	30	70	100
FCAB141110	E-Commerce	04	30	70	100
FCAB141111	Practical- Multimedia and Design	04	30	70	100
FCAB141112	Practical-Data Structure	04	30	70	100
	Total	24	180	420	600

BCA SEM 5 SUBJECTS					
Subject code	**Name of subject**	**Course Credit**	**Internal Marks**	**External Marks**	**Total Marks**
FCAB151101	Python	04	30	70	100
FCAB151102	Web Development technology- PHP	04	30	70	100
FCAB151103	Software Engineering	04	30	70	100
FCAB151104	Management Information System	04	30	70	100
FCAB151105	Practical- Python	04	30	70	100
FCAB151106	Practical- Web Development technology- PHP	04	30	70	100
	Total	24	180	420	600

BCA SEM 6 SUBJECTS					
Subject code	**Name of subject**	**Course Credit**	**Internal Marks**	**External Marks**	**Total Marks**
FCAB161107	Adv. Web Tech. with .NET C#	04	30	70	100
FCAB161108	Artificial intelligence	04	30	70	100
FCAB161109	Practical- Adv. Web Tech. with .NET	04	30	70	100
FCAB161110	PROJECT	12	100	200	300
	Total	24			600

Program :	BCA	**Subject / Branch :**	NA
Year :	**2021/22**	**Semester :**	I
Course title :	Fundamentals of Programming Language 'C'	**Course code :**	FCAB111101
Course type :	Theory	**Course credit :**	04
Pre-requisite :	Basic Knowledge of Computer		
Rationale :	To introduce students the essentials of computer Programming and programming methodology using C language		

Teaching Examination Scheme:

Teaching (Hours/week)			**Examination Scheme**			
Lecture	Tutorial	Practical	Internal		External	Total
			Mid	CE		
4	0	0	15	15	70	100

Course Objective :

1. Students will understand to formulate a computing problem to executable computer program using C language.
2. Students will understand about compiler based programming languages
3. Students will learn concepts of variables, literals, data types, conversions of data types, input and output data and processing of data, inbuilt functions, arrays, header files, conditional and iterative statements.

Course Outcome:

1. Design and implement C programs to solve complex problems.
2. Describe the purpose and usage of basic c concept,control flow statements, looping and branching statements, array.
3. Analyze and predict the output of more complex C programs and identify and correct logical errors in C code.
4. Recognize and recall C language syntax and keywords,data types and their characteristics, variables, control flow statements, looping, array to create logical program structures and their usage.
5. Assess the quality of code in terms of readability, maintainability, and adherence to coding standards.

Content

Unit	Description in detail	Credit	Weightage
I	**Introduction to Programming** Concepts of Algorithm and Flowcharts, problem solving examples using algorithm and flowchart, Types of Programming languages, Characteristics of higher level language, Compiler and Interpreter **Overview of C Introduction** Importance of C, Sample C programs, Basic structure of C programs, Programming style, executing of C program **Constants, Variables and data Types** Introduction, Character Set, C tokens, Keywords and Identifiers, Constants, Variables, Data types, Declaration of Variables, Defining symbolic constants	1	25 %
II	**Operators and Expression** Introduction, Arithmetic of Operators, Relational Operators, Logical Operators, Assignment Operators, Increment and Decrement Operators, Conditional Operators, Bit-wise Operators, Special Operators, Arithmetic Expressions, Evaluation of expressions, Precedence of arithmetic operators, Type conversions in expressions, Operator precedence and associativity, Mathematical functions. **Input & Output Operators** Introduction, reading a character, writing a character, formatted input, formatted output.	1	25 %
III	**Branching and Looping**	1	25 %

	Introduction Decision making with Simple IF statement, IF ELSE statement, Nesting of IF ELSE statements, The ELSE IF ladder, The switch statement, the turnery (? :) Operator, the GOTO statement. **Iterative Statement** Introduction WHILE statement, the DO statement, The FOR statement, Jumps in loops Break and continue		
IV	**Array & String** Introduction, One-dimensional, arrays, Two-dimensional arrays, Initialization of two- dimensional arrays, Concept of Multidimensional arrays **Handling of Character strings** Introduction, Declaring and initializing string variables, Reading strings from terminal, Writing strings to screen, Arithmetic operations on characters, Putting string together, String Operations: String Copy, String Compare, String Concatenation And String Length, String Handling functions, Table of strings	1	25 %

Reference Books:

1. Programming in C, Balaguruswami – TMH
2. C: How to Program, Deitel & Deitel - PHI
3. C Programming Language, Kernigham & Ritchie - TMH

Suggested Readings:

1. Mastering Turbo C, Kelly & Bootle - BPB
2. C Language Programming – Byron Gottfried - TMH
3. Let us C, Yashwant Kanetkar - BPB Publication

Online Resources:

1. https://www.w3schools.com/
2. https://www.tutorialspoint.com/
3. https://www.programiz.com.
4. https://www.cprogramming.com/

Course Outcome Fundamentals of Programming Language 'C', FCAB111101	**Expected Mapping with Programme Outcomes (1- Weak Correlation; 2- Medium correlation; 3- Strong Correlation)**													
	PO-1	**PO-2**	**PO-3**	**PO-4**	**PO-5**	**PO-6**	**PO-7**	**PO-8**	**PO-9**	**PO-10**	**PO-11**	**PO-12**	**PSO-1**	**PSO-2**
CO-1	2	1				3	3							2
CO-2	3					3	3							
CO-3		3	3			2	3							
CO-4	2					3	3						3	
CO-5	1												3	

Program :	BCA	**Subject / Branch :**	NA
Year :	**2021/22**	**Semester :**	I
Course title :	Database Management System	**Course code :**	FCAB111102
Course type :	Theory	**Course credit :**	04
Pre-requisite :	Knowledge about Database Management System		
Rationale :	DBMS helps to share the data Quickly, effectively and securely and also access the data vary fast with the accurate result. It gives to knowledge to the student how the data can be stored and accessed.		

Teaching Examination Scheme:

Teaching (Hours/week)			**Examination Scheme**			
Lecture	Tutorial	Practical	Internal		External	Total
			Mid	CE		
4	0	0	15	15	70	100

Course Objective :

1. Make access to the data easy for the user.
2. Protect Data From Physical harm and unauthorized systems.
3. Allow for growth in the database system.

Course Outcome:

1. Evaluate the security and integrity of a database system
2. Analyze different types of database models (relational, hierarchical, network)
3. Apply normalization techniques to design and optimize database schemas
4. Explain the principles of database management systems in organizing and retrieving information.
5. Recognize fundamental concepts of databases, such as tables, records, fields, and keys and Memorize and list common terms used in database management.

Content

Unit	Description in detail	Credit	Weightage
I	Database and DBMS, Comparison between traditional file V/s DBMS, Characteristics of data in database, Components of database system environment, Functions of DBMS, Advantages and disadvantages of the DBMS, DBMS users, Database administrator, Role of DBA	1	25 %
II	Essentials of Database Design, Three level Architecture of Database- external, conceptual and internal, Data Models concepts: Hierarchical, Network and Relational, Operators, relations, domains and attributes, keys, traditional set operations, special relational operations.	1	25 %
III	Concepts of workbook, cell address, formula bar,column, rows, cells, Insert, delete, format cells, cell size (row-height, column weight), rename sheet, protect sheet, lock cell, alignment, indent, Number format, percent style, increase/decrease decimal	1	25 %
IV	Introduction of Database Data type - Text, Number, Auto number, Currency, Boolean, Date/Time, Memo Object – Table, Query, Forms, Reports Controls use in form and report	1	25 %

Reference Books:

1. Database System Concepts: – Henry F. Korth&AbrahimSilberschatz –McGraw Hill Education
2. Introduction to database Management – Navin Prakash -TMH
3. Introduction to Database System C. J. Date (7 Edition) Low Price Edition
4. MS Office Fundamental & Internet

Suggested Readings:

1. Introduction to database Management – Navin Prakash -TMH

Online Resources:

1. https://www.geeksforgeeks.org/dbms
2. https://www.javatpoint.com/dbms-tutorial
3. https://www.tutorialspoint.com/dbms/index.htm

Course Outcome	**Expected Mapping with Programme Outcomes (1- Weak Correlation; 2- Medium correlation; 3- Strong Correlation)**													
Database Management System, FCAB111102	**PO-1**	**PO-2**	**PO-3**	**PO-4**	**PO-5**	**PO-6**	**PO-7**	**PO-8**	**PO-9**	**PO-10**	**PO-11**	**PO-12**	**PSO-1**	**PSO-2**
CO-1	1					3	3							
CO-2		3	2		2			2						
CO-3								3				1		
CO-4	3		2			1	3						2	
CO-5						2	3						3	

Program :	BCA	**Subject / Branch :**	NA
Year :	**2021/22**	**Semester :**	I
Course title :	Digital Computer System Architecture	**Course code :**	FCAB111103
Course type :	Theory	**Course credit :**	04
Pre-requisite :	The students should have a basic Understanding of Digital computer Organization and Architecture of Microprocessors		
Rationale :	It gives information to students which gives the means of interconnectivity for a computer's hardware components as well as the mode of data transfer and processing exhibited.		

Teaching Examination Scheme:

Teaching (Hours/week)			**Examination Scheme**			
Lecture	Tutorial	Practical	Internal		External	Total
			Mid	CE		
4	0	0	15	15	70	100

Course Objective :

1. To understand the structure,function and characteristics of a computer system.
2. To identify and compare different methods for computer I/O.
3. Identify and understand the Number system.

Course Outcome:

1. Recall fundamental concepts and terminology related to computer system architecture.
2. Interpret the purpose and functionality of different components in a computer system.
3. Apply knowledge of computer system architecture to solve problems or design simple systems.
4. Combine knowledge of computer system architecture to design innovative solutions.

Content

Unit	Description in detail	Credit	Weightage
I	Digital & Analog systems, Logic levels and pulse wave forms, digital computer, Major parts of computer, Hardware, Software - Application and System Software Computer generations First generation, Second generation, Third generation, Forth generation, Fifth generation Super Computers, Mainframes, Mini Computers, Palmtop PC, Laptop PC, Personal Computer, Workstations, Mainframe, Supercomputer. Dos, Windows, Linux	1	25 %
II	Communication devices -Modem, NIC, Switch, Hub Keyboard, Mouse, Light pen, Joystick, Scanner, Voice input system, Touch Monitor - CRT terminals (Monitor / VDU) Non – CRT terminals, LCD, Plasma display, LED Printer - Dot matrix printer, Inkjet printer, Laser printer, Line printer, Plotter Magnetic memory - Magnetic disk, Hard disk, Floppy disk, Semiconductor memory - RAM, ROM, Flash memory Optical memory - CD, CD-ROM, CD-RAM, DVD, DVD-ROM, DVD-RAM Cache memory, Physical & Virtual memory	1	25 %
III	Number system - Binary, decimal, octal, hexadecimal Conversion - Binary to decimal, decimal to binary, octal to decimal , decimal to octal, octal to binary, binary to octal, hexadecimal to binary, binary to hexadecimal, hexadecimal to Decimal, decimal to hexadecimal, hexadecimal to octal, octal to hexadecimal Binary arithmetic – Addition, subtraction (simple method)	1	25 %
IV	Logic gates - AND, OR, NOT, NAND, NOR, Exclusive-OR, Exclusive-NOR Data Processing circuit - Decoder, Encoder	1	25 %

Reference Books:

1.Fundamentals of computers – By. V. Rajaraman PHI Publication
2.How computer work: Ron White – Tech media
3.O-Level (Information Technology) - By V.K.Jain (Module- M1.1)
4.Computer Fundamentals: Pradeep K. Sinha & Priti Sinha (BPB)
5.Fundamentals of computers – By. Anand Kumar PHI Publication

Suggested Books:

1.Fundamentals of computers – By. Anand Kumar PHI Publication

Online Resources:

1. **https://edu.gcfglobal.org/en/computerbasics/what-is-a-computer/1/**
2. https://www.tutorialspoint.com/digital_circuits/digital_circuits_logic_gates.htm
3. https://www.tutorialspoint.com/computer_fundamentals/computer_number_system.htm

Course Outcomes	**Expected Mapping with Programme Outcomes (1- Weak Correlation; 2- Medium correlation; 3- Strong Correlation)**													
Digital Computer System Architecture,FCAB11 1103	**PO-1**	**PO-2**	**PO-3**	**PO-4**	**PO-5**	**PO-6**	**PO-7**	**PO-8**	**PO-9**	**PO-10**	**PO-11**	**PO-12**	**PSO -1**	**PSO -2**
CO-1	3				3	1	3						3	
CO-2	3				1	3				2				
CO-3	2		1	1									3	
CO-4	2		2											

Program :	BCA	**Subject / Branch :**	NA
Year :	**2021/22**	**Semester :**	I
Course title :	Communication Skills	**Course code :**	FCAB111104
Course type :	Theory	**Course credit :**	04
Pre-requisite :	Basic Knowledge of English Language		
Rationale :	To make the students confident and make them aware about their personality development.		

Teaching Examination Scheme:

Teaching (Hours/week)			**Examination Scheme**			
Lecture	Tutorial	Practical	Internal		External	Total
			Mid	CE		
4	0	0	15	15	70	100

Course Objective :

1. Students will develop their confidence.
2. Students will understand the importance of personality development and self-awareness.
3. Students understand the importance of language and learn different techniques of interview, presentation etc.

Course Outcome:

1. Demonstrate the ability to articulate ideas clearly and confidently in spoken form.
2. Develop active listening skills, enabling them to comprehend and respond appropriately to various communication cues.
3. Enhance their written communication skills, producing clear, concise, and organized written documents.

4. Evaluate the effectiveness of different communication methods.
5. Implement learned communication techniques in real-world scenarios.
6. Apply effective communication strategies in digital environments, including email, video conferencing, and social media.

Content

Unit	Theory of Communication	Credit	Weightage
I	Communication – Meaning and Objectives, Process and Importance, Barriers Methods of Communication - Verbal and Non-Verbal Horizontal, Grapevine Steps of Effective Communication	1	25 %
II	**Grammar** Parts of Speech Subject Verb Agreement Indirect speech Auxiliaries and Modals Questions and Negatives	1	25 %
III	**Business Communication** Application for Job, Loan, Leave, Demanding Original Documents from Office Business Letters for Inquiry, reply, Quotation, Placing of Order, Complaint, Adjustment ,Comprehension ,Paragraph Writing	1	25 %

IV	**Listening and Speaking** ● Importance of Listening ● Listening Process ● Barriers of Listening ● Speech preparation ● Guidelines for Effective Speaking ● Group discussion ● Interview – types and preparation	1	25 %

Reference Books:

4. Communication Skills – Vithal Patel
5. English Grammar Composition and Effective Business Communication- Pink and Thomas – S. Chand

Suggested Readings:

1. Story books to increase vocabulary.
2. Listen Motivational videos.
3. Read interested area in English News Papers.

Online Resources:

1. https://learnenglish.britishcouncil.org/grammar-reference
2. https;//en.m.wikipedia.org/communication

Course Outcomes Communication Skills FCAB111104	**Expected Mapping with Programme Outcomes (1- Weak Correlation; 2- Medium correlation; 3- Strong Correlation)**													
	PO-1	**PO-2**	**PO-3**	**PO-4**	**PO-5**	**PO-6**	**PO-7**	**PO-8**	**PO-9**	**PO-10**	**PO-11**	**PO-12**	**PSO-1**	**PSO-2**
CO-1						2	3		3		3			
CO-2									3	1				
CO-3		2										2		
CO-4									3					
CO-5									3	2				
CO-6	1					2	3							

Program :	BCA	**Subject / Branch :**	NA
Year :	**2021/22**	**Semester :**	I
Course title :	Practical-Fundamentals of Programming Language 'C'	**Course code :**	FCAB111105
Course type :	Practical	**Course credit :**	04
Pre-requisite :	Basic Knowledge of Computer		
Rationale :	To introduce students the essentials of computer Programming and programming methodology using C language		

Teaching Examination Scheme:

Teaching (Hours/week)			**Examination Scheme**			
Lecture	Tutorial	Practical	Internal		External	Total
			Mid	CE		
4	0	0	15	15	70	100

Course Objective :

1. Students will understand to formulate a computing problem to executable computer program using C language.
2. Students will understand about compiler based programming languages
3. Students will learn concepts of variables, literals, data types, conversions of data types, input and output data and processing of data, inbuilt functions, arrays, header files, conditional and iterative statements.

Course Outcome:

1. Design and implement C programs to solve complex problems.
2. Describe the purpose and usage of basic c concept,control flow statements, looping and branching statements, array.
3. Analyze and predict the output of more complex C programs and identify and correct logical errors in C code.

4. Recognize and recall C language syntax and keywords,data types and their characteristics, variables, control flow statements, looping, array to create logical program structures and their usage.
5. Assess the quality of code in terms of readability, maintainability, and adherence to coding standards.

Content

Practical:
1. Write a C program to display "Gokul University" on the screen. 2. Write a C program to find the area of circle using the formula Area=PI * r * r. 3. Write a C program to find the area of rectangle, cube and triangle.(Formula are: Rectangle=l *b*h, triangle = (I * b)* 0.5, cube = L*L*L 4. Write a C program to evaluate simple interest I = P*R*N / 100. 5.Write a C program to enter a distance into K.M and convert it in to meter, feet, inches and Centimeter 6. Write a C program to interchange two numbers. 7. Write a C program to convert Fahrenheit into centigrade 8. Write a C program for summation, subtraction, multiplication, division of two number using Arithmetic operator 9. Write a C program to find out the largest value from given three numbers using conditional Operator 10. Write a C program to find the maximum number from given three numbers. 11.Write a C program to find that the enter number is Negative, or Positive or Zero. 12.Write a C program to Checked whether entered char is capital, small, digit or any special Character 13.Write a C program to find out the max. and min. number from given 10 numbers. 14.Write a C program to find the sum of digit of accepted number. 15.Write a C program to find the sum of first 100 odd numbers. And even numbers. 16.Write a C program to display first 25 Fibonacci nos. 17.Write a C program to check the accepted number is prime number or not. 18.Write a C program to display first' 100 prime numbers. 19.Write a C program to find factorial of accepted numbers.

20.Write a C program to print accepted no and its reverse number.
21.Write a C program to convert decimal numbers into equivalent hexadecimal number.
22.Write a C program to display first 5 Armstrong number.
23.Write a C program to arrange the accepted numbers in ascending order and descending order.
24.Write a C program to find whether the accepted string is palindrome or not.
25.Write a C program to convert given line into upper case or lower case.
26.Write a C program to count no of word, character, line and space from given text.
27.Write a C program to display following output on the screen.

```
1
12
123
1234
```

28.Write a C program to display following output on the screen.

```
0
1 1
1 0 1
0 1 0 1
1 0 1 0 1
```

29.Write a C program to display following output on the screen.

```
1
22
3 3 3
4 4 4 4
```

30.Write a C program to find maximum & minimum value from the given array

Reference Books:

1. Programming in C, Balaguruswami – TMH
2. C: How to Program, Deitel & Deitel - PHI
3. C Programming Language, Kernigham & Ritchie - TMH

Suggested Readings:

1. Mastering Turbo C, Kelly & Bootle - BPB
2. C Language Programming – Byron Gottfried - TMH
3. Let us C, Yashwant Kanetkar - BPB Publication

Online Resources:

1. https://www.w3schools.com/
2. https://www.tutorialspoint.com/
3. https://www.programiz.com/
4. https://www.cprogramming.com/

practical- Fundamentals of Programming Language 'C', FCAB111105	**Expected Mapping with Programme Outcomes (1- Weak Correlation; 2- Medium correlation; 3- Strong Correlation)**													
	PO -1	**PO-2**	**PO-3**	**PO-4**	**PO-5**	**PO-6**	**PO-7**	**PO-8**	**PO-9**	**PO-10**	**PO-11**	**PO-12**	**PSO-1**	**PSO-2**
CO-1	3		3		2		3							
CO-2				3								3		
CO-3	3	2			2	3	3							
CO-4						3						2		3
CO-5			3									3		3

Program :	BCA	**Subject / Branch :**	NA
Year :	**2021/22**	**Semester :**	I
Course title :	Practical – DBMS & Office	**Course code :**	FCAB111106
Course type :	Practical	**Course credit :**	04
Pre-requisite :	Knowledge of Database Management System & Office Tools		
Rationale :	DBMS helps to share the data Quickly, effectively and securely and also access the data vary fast with the accurate result. It gives to knowledge to the student how the data can be stored and accessed.		

Teaching Examination Scheme:

Teaching (Hours/week)			**Examination Scheme**			
Lecture	Tutorial	Practical	Internal		External	Total
			Mid	CE		
4	0	0	15	15	70	100

Course Objective :

1. Make access to the data easy for the user.
2. Protect Data From Physical harm and unauthorized systems.
3. Allow for growth in the data base system.

Course Outcome :

1. Evaluate the security and integrity of a database system
2. Analyze different types of database models (relational, hierarchical, network)
3. Apply normalization techniques to design and optimize database schemas

4. Explain the principles of database management systems in organizing and retrieving information.
5. Recognize fundamental concepts of databases, such as tables, records, fields, and keys and Memorize and list common terms used in database management.

Content

Practical:
1. Essential Skills, Starting Microsoft Excel, Managing Workbook Files, Working in Workbooks, Selecting Cells and Choosing Commands, entering Data, Using Formulas to Calculate Values, Editing a Worksheet, formatting a Worksheet , Printing, Consolidating Data, Creating Charts (graphs), Chart Types, Auto formats, Changing Data in a Chart, Formatting a Chart, Organizing and Analyzing Data in a List Using a List to Organize, data sorting and filtering Data in a List Summarizing Data in a List, Presenting, Reviewing, and Sharing Workbooks, Creating Graphic Objects on Worksheets and Charts, Auditing and Adding Comments to Documents, Protecting a Workbook, Exchanging Data with Other Applications, Sharing Data and Graphics with Other Applications, Importing and Exporting Documents, Switching from Other Applications. 2. Practical may be given to create o Pivot table o Macro facility o Student mark sheet using formula & chart o Salary sheet using formula & chart **Database Tools** 3. Create a database with different data types using wizard. 4. Create relationship between two tables using keys (Primary key & Foreign Key) 5. Create report using wizard 6. Create student information system with insert, update, delete and view

Reference Books:

1. Database System Concepts: – Henry F. Korth&AbrahimSilberschatz –McGraw Hill Education
2. Introduction to database Management – Navin Prakash -TMH
3. Introduction to Database System C. J. Date (7 Edition) Low Price Edition
4. MS Office Fundamental & Internet

Suggested Readings:

1. Introduction to database Management – Navin Prakash -TMH

Online Resources:

1. https://www.geeksforgeeks.org/dbms
2. https://www.javatpoint.com/dbms-tutorial
3. https://www.tutorialspoint.com/dbms/index.htm

Course Outcome	**Expected Mapping with Programme Outcomes (1- Weak Correlation; 2- Medium correlation; 3- Strong Correlation)**												
Practical-Database Management System, FCAB111106	**PO -1**	**PO-2**	**PO-3**	**PO-4**	**PO-5**	**PO-6**	**PO-7**	**PO-8**	**PO-9**	**PO-10**	**PO-11**	**PO-12**	**PSO-1**	**PSO-2**
CO-1	1					3	3							
CO-2		3	2		2			2						
CO-3								3				1		
CO-4	3		2			1	3						2	
CO-5						2	3						3	

Semester-II

Program :	BCA	**Subject / Branch :**	NA
Year :	**2021/22**	**Semester :**	II
Course title :	Advance Programming Language 'C'	**Course code :**	FCAB121107
Course type :	Theory	**Course credit :**	04
Pre-requisite :	Basic Knowledge of Computer		
Rationale :	To introduce students the essentials of computer Programming and programming methodology using C language		

Teaching Examination Scheme:

Teaching (Hours/week)			**Examination Scheme**			
Lecture	Tutorial	Practical	Internal		External	Total
			Mid	CE		
4	0	0	15	15	70	100

Course Objective :

1. Students will understand to formulate a computing problem to executable computer program using C language.
2. Students will understand about compiler based programming languages
3. Students will learn concepts of variables, literals, data types, conversions of data types, input and output data and processing of data, inbuilt functions, arrays, header files, conditional and iterative statements.

Course Outcome:

1. Develop C programs that interact with external resources, such as file, large-scale C programs that involve multiple modules and libraries.
2. Apply advanced concepts of C programming to solve complex problems.
3. Analyze and debug complex C programs for logical errors and memory leaks

4. Recall C programming syntax and language features like structure, UDF, File, pointer
5. Design and implement C programs with a focus on optimization and efficiency

Content

Unit	Description in detail	Credit	Weightage
Unit – 1	**Introduction to Function**	1	25 %
	Concepts of Function, Types of Function, Prototype, Need for User define function, Classifications of function using arguments and return types , Nesting of functions, Recursion, Functions with arrays, The scope and lifetime of variables in functions		
Unit – 2	**Pointer**	1	25 %
	Introduction, Advantage of using pointer, Accessing the address of a variable, Declaring and initializing pointers, Accessing a variable through pointer, Pointer expressions, Pointer increments and scale factor, Pointers and arrays, Pointers and character strings, Pointers and Functions, Pointers and structures.		
	Dynamic Memory Allocation and Linked List		
	Introduction, Dynamic Memory allocation, Memory allocation functions (malloc, calloc)		
Unit – 3	**Structures & Unions**	1	25 %
	Introduction, defining a structure, Structure initialization, copying and Comparison of structures members, Arrays of structures, Arrays within structures, Structures within Structures, Structures and functions, Unions, Size of structures.		
Unit – 4	**File Management in C**	1	25 %

	Introduction, creating and opening a file, closing a file, Input / Output operations on files, Error handling during I/O operations, Random access files and Command line arguments		

Reference Books:

1. Programming in C, Balaguruswami – TMH
2. C: How to Program, Deitel & Deitel - PHI
3. C Programming Language, Kernigham & Ritchie – TMH

Suggested Readings:

1. Mastering Turbo C, Kelly & Bootle - BPB
2. C Language Programming – Byron Gottfried - TMH
3. Let us C, Yashwant Kanetkar - BPB Publication
4. Programming in C, Stephan Kochan - CBS
5. Magnifying C, Arpita Gopal - PHI

Online Resources:

https://www.w3schools.com/
https://www.tutorialspoint.com/
https://www.programiz.com/
https://www.cprogramming.com/

	Expected Mapping with Programme Outcomes (1- Weak Correlation; 2- Medium correlation; 3- Strong Correlation)													
Advance Programming Language 'C', FCAB121107	**PO -1**	**PO-2**	**PO-3**	**PO-4**	**PO-5**	**PO-6**	**PO-7**	**PO-8**	**PO-9**	**PO-10**	**PO-11**	**PO-12**	**PSO-1**	**PSO-2**
CO-1	3		3		2		3							3
CO-2				3								3		3

CO-3	3	2			2	3	3						
CO-4						3						2	2	
CO-5			3									3		3

Program :	BCA	**Subject / Branch :**	NA
Year :	**2021/22**	**Semester :**	II
Course title :	Internet & Web Design	**Course code :**	FCAB121108
Course type :	Theory	**Course credit :**	04
Pre-requisite :	Basic knowledge of internet		
Rationale :	Students will develop and understanding of information design web page and usability as it applies to interactive media projects.		

Teaching Examination Scheme:

Teaching (Hours/week)			**Examination Scheme**			
Lecture	Tutorial	Practical	Internal		External	Total
			Mid	CE		
4	0	0	15	15	70	100

Course Objective :

1. Learn about E-Services like E-Banking, E-Learning etc.
2. Understanding the basic concept of HTML tags.
3. Learn the language of the web: HTML and CSS.
4. Develop skills in analyzing the usability of a web site.

Course Outcome:

1. Demonstrate proficiency in creating well-structured web pages using HTML for content and CSS for styling.
2. Remember fundamental principles of web design, including HTML tags, CSS properties, and basic scripting concepts.
3. Apply web design principles to create a basic website. Implement interactive features using JavaScript.
4. Evaluate the reliability of internet sources. Assess the effectiveness of security measures in a network.

Content

Unit	Description in detail	Credit	Weightage
I	**Introduction to Internet** Introduction, Evaluation of Internet, Internet Service, Computer Networks, Internet, URL (Uniform Resource Locator), Internet Service Provider, Intranet, Extranet, Virtual Private Network, World Wide Web, Search Engines, News groups, Electronic Mail, Web Portal, Chat, Video Conferencing, FTP, Remote Login, E-Commerce, E-Learning, E-Governance, E-Banking Difference between Internet, Intranet, Extranet, Internet Protocols (TCP,IP, UDP, FTP, HTTP), ISP (Internet Service Provider), E-mail, E-Learning, E-Banking, E-Governance, Social Networking, Instant Massaging, Audio and Video Conferencing, Data Encryption & Decryption, Concepts of Digital Signature, Concepts about Firewall Security	1	25 %
II	**HTML** HTML tag, Web Page and its Types, Publishing HTML Pages, Basic Tags. HTML document Structure, adding text in Newline , Creating heading: <H1> to <H6>,Creating a paragraph<P>--</P>, Creating a Horizontal ruler<HR>--</HR>, Scrolling text <marquee>--</marquee>, Linking to other page :< a> and <link> tags, Text fomenting tags, Font tag with attribute, Working with	1	25 %

	List tags<OL> and <UL>,Creating Table: Related tags with attribute, Creating HTML From with adding controls, Frame and frameset tag, Putting Graphics on a Web page, Custom Background and colors.		
III	**Introduction to Cascading Style Sheet** Concepts of workbook, Defining Style with HTML tags, Features of Style sheet, Types of Style Sheets: External, Internal, and Inline, Style Properties, Style Class & ID Selector.	1	25 %
IV	**Introduction to Java Script** Writing First Java Script, HTML and Java script, Variables: Rules for variable names, declaring the variable, assign a value to a variable, Scope of variable, Using Operators, Control Statements, JavaScript loops. Types of JavaScript: External, Internal. JavaScript Functions: Defining a Function, Returning value from function, User Define Function.	1	25 %

Reference Books:

1.Internet and Web DesignBased on DOEACC III Revised syllabus 'O' Level - Mac Millan India Ltd

2. Teach Yourself HTML 4 in 4 Hours By Dick Oliver – Tech Media 4th Edition

3. Introduction To Internet And HTML Scripting-Fourth Edition-Bhaumik Shroff

Suggested Readings:

1. Introduction To Internet And HTML Scripting-Fourth Edition-Bhaumik Shroff

Online Resources:

1. https://www.tutorialspoint.com/internet_technologies/internet_overview.htm
2. https://www.w3schools.com/html/
3. https://www.w3schools.com/w3css/defaulT.asp
4. https://www.geeksforgeeks.org/javascript/

Course Outcomes Internet & Web Design FCAB12 1108	**Expected Mapping with Programme Outcomes** **(1- Weak Correlation; 2- Medium correlation; 3- Strong Correlation)**													
	PO-1	**PO-2**	**PO-3**	**PO-4**	**PO-5**	**PO-6**	**PO-7**	**PO-8**	**PO-9**	**PO-10**	**PO-11**	**PO-12**	**PSO-1**	**PSO-2**
CO-1	1		2		3	2	3							
CO-2	2		3			3	3						3	
CO-3	1		3		2		2				2			3
CO-4	2									1				

Program:	BCA	**Subject / Branch:**	NA
Year:	**2021/22**	**Semester:**	II
Course title:	Mathematics	**Course code:**	FCAB121109
Course type:	Theory	**Course credit:**	4
Pre-requisite :	Have basic knowledge of moths		
Rationale :	By contrast, math in particular counting and probability allows students-even at the middle-school level-to very quickly explore non-trivial ”real world” problems that are challenging and interesting.		

Teaching Examination Scheme:

Teaching (Hours/week)			**Examination Scheme**			
Lecture	Tutorial	Practical	Internal		External	Total
			Mid	CE		
4	0	0	15	15	70	100

Course Objective: Identify the number of rows and columns within a matrix. Solve a system of linear equations by row-reducing its augmented form. Understand the nature of a logical argument and mathematical proof and be able to produce examples of these.

Course Outcome: After completion of the course students are expected to be able to:

1. Determine whether or not a given matrix is invertible and if is, find its inverse.
2. Perform the matrix operations of addition, multiplication and express a system of simultaneous linear equation in matrix form.
3. Determine if an infinite sequence is bounded, monotonic or oscillating
4. Recall basic set theory, Function, Matrices and Determinants, Sequence and Series

Unit	Matrices and Determinants	Credit	Weightage
Unit -1	**Set Theory**	1	25 %
	Definition and notation of Set, Methods of representation of set (Property and List Method), set of numbers (Natural, Integers, Rational, Irrational, Real), Definition: Finite set, Infinite set, Empty set, Singleton set, Subset, Proper, subset of a set, Power set, Universal set, Complement of a set, Cardinality of set, Venn Diagrams, Set Operations: Union of two sets, Intersection of two sets, Disjoint sets, Equality of sets, Equivalent sets, Difference set, Symmetric Difference set, Properties of set operations (Cartesian product of sets Commutative, Associative, Distributive, De-Morgan's laws)		
Unit – 2	**Function**	**1**	25 %
	Introduction of Function, Definition of function, Domain, Co-domain, Image and Range of function, Types of function(with example): Linear, Quadratic, Polynomials, Rational, Irrational, Single value and Many value, Even and Odd, Explicit and Implicit, The Classification of functions: one-one, many-one, onto, into function, Evaluation of function, Composition of functions, Identity function, Mathematical functions (Definition with example): Floor and Ceiling function, Integer and Absolute value function, Remainder function, Exponential function, logarithm function and its properties, Recursive function.		
Unit – 3	**Matrices and Determinants**	1	
	Introduction and Definition of Matrix, Types of matrices: Row and Column matrices, Square matrix, Diagonal matrix, Scalar matrix,		

	Identity matrix, Null matrix, Symmetric and Skew-symmetric matrices, Triangular matrix (Upper triangular matrix and Lower triangular matrix), Transpose of a matrix, Equality of matrices, Arithmetic Operations: Addition, Subtraction, Scalar Multiplication, Multiplication of Matrices, Orthogonal Matrix, Representation of a matrix as a sum of a Symmetric and Skew-symmetric matrices Introduction of Determinants with basic properties, Invertible matrix, Co-factor matrix, Adjoint Matrix, Computation of Inverse matrix using definition Simultaneous solution of set of linear equations using matrix inversion method for two and three variables		
Unit – 4	**Sequence and Series**	1	
	Introduction to Sequence and Series, Representation of Sequence and Series, Progression: Arithmetic Progression (A.P.), Common difference, nth term of an A.P., The sum of first n terms of an A.P. , Geometric Progression(G.P.), Common Ratio, nth term of a G.P., The sum of first n terms of a G.P, Harmonic Progression(H.P.), Relationship between Arithmetic, Geometric and Harmonic Mean		

Reference Books:

1. Discrete Mathematics -Revised 3rd Edition Authors: **Seymour Lipschutz** and **Marc Lars Lipson,** Publication: McGraw-Hill Education (India) Pvt Limited
2. Elements of Discrete Mathematics -3rd Edition Authors: Chung Laung Liu and Durga Prasad Mohapatra Publication: McGraw-Hill Education (India) Pvt Limited
3. Discrete Mathematics -3rd Edition Author: J. K. Sharma

Course Outcomes	**Expected Mapping with Programme Outcomes (1- Weak Correlation; 2- Medium correlation; 3- Strong Correlation)**
System Analysis	

FCAB121110	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO-1	PSO-2
CO-1	3	2												
CO-2						3	2							
CO-3	2	1												
CO-4		2				3	3			1			2	

Program :	BCA	**Subject / Branch :**	NA
Year :	**2021/22**	**Semester :**	II
Course title :	SYSTEM ANALYSIS	**Course code :**	FCAB121110
Course type :	Theory	**Course credit :**	04
Pre-requisite :	The purpose of the system requirements analysis is to structure the system independent of any implementation environment. This phase can determine system behavior and limitations		
Rationale :	This course mainly focuses on different of system analysis and design such as foundation , planning, analysis, design, implementation, and maintenance.		

Teaching Examination Scheme:

Teaching (Hours/week)			**Examination Scheme**			
Lecture	Tutorial	Practical	Internal		External	Total
			Mid	CE		
4	0	0	15	15	70	100

Course Objective :

1. Define system
2. Explain different phase of SDLC and their use
3. Design system component and environment
4. Analyze and specify the requirements of system

Course Outcome:

1. Design a complete system solution, including detailed system specifications, data models.
2. Evaluate the feasibility of proposed systems based on technical, operational, and economic factors.
3. Apply different system modeling techniques, such as data modeling and process modeling, to represent and analyze system requirements.
4. Explain the principles of system analysis and design methodologies, including their purpose and relevance in software development.

5. Recall basic concepts related to system analysis and design, such as the SDLC (Software Development Life Cycle), data flow diagrams, and entity-relationship diagrams.

Content

Unit	Description in detail	Credit	Weightage
I	Introduction to System, System Analysis and Design, Need for System Analysis and Design, Types of System, Role of the System Analyst. **System Development Strategies**: SDLC, Structured Analysis Development Method, System Prototype Method. **Fact-Fining Techniques**: Interview, Questionnaire, Record Review, Observation. Data Flow Diagram: Advantages, Notations, Rules, Logical and Physical DFD. Data Dictionary: Importance and detail **Structured Decisions:** Decision Tree, Decision Tables, Structured English	1	25 %
II	**Code Design**: Principle of Code Design, Types of code **Output**: Principle of output, types of output, output media **Form Designing**: Objectives, Guideline for Form design, Types of form **Designing User Interface**: Objectives, Types of user interface Check Digits, Data Validation and Data Verification **Case Tools**: Benefits of Computer-Assisted Tools, Categories of Automated Tools, Case Components.	1	25 %
III	System Engineering Definition, Quality assurance: definition and need **Design of software:** Importance, Software design principles **Software design and documentation tools:** Structure Flowchart, HIPO, Warier /Orr Diagrams.	1	25 %

	System key concepts: Testing, System conversion, Documentation.		
IV	Financial Accounting System, Payroll System, Library System, Inventory / Stock System	1	25 %

Reference Books:

1.Analysis & Design of Information Systems, James A. Sen
2.System Analysis & Design, 1st Edition, Parthasarathy &B.W.Khalkar

Suggested Books:

1.Introduction to S.A.D, LEE VOL. 1 & 2

Online Resources:

1. https://www.tutorialspoint.com/system_analysis_and_design/system_analysis_and_design_quic k_guide.htm
2. https://study.com/academy/course/computer-science-302-system-analysis-design.html

Course Outcomes System Analysis FCAB121110	**Expected Mapping with Programme Outcomes (1- Weak Correlation; 2- Medium correlation; 3- Strong Correlation)**													
	PO-1	**PO-2**	**PO-3**	**PO-4**	**PO-5**	**PO-6**	**PO-7**	**PO-8**	**PO-9**	**PO-10**	**PO-11**	**PO-12**	**PSO-1**	**PSO-2**
CO-1			3		3									
CO-2		3						2						
CO-3					3			2				2	2	
CO-4						2	3			2			3	
CO-5			3				1	2						

Program :	BCA	**Subject / Branch :**	NA

Year :	**2021/22**	**Semester :**	II
Course title :	Practical - Advance Programming Language 'C'	**Course code :**	FCAB121111
Course type :	Practical	**Course credit :**	04
Pre-requisite :	Basic Knowledge of Computer		
Rationale :	To introduce students the essentials of computer Programming and programming methodology using C language		

Teaching Examination Scheme:

Teaching (Hours/week)			**Examination Scheme**			
Lecture	Tutorial	Practical	Internal		External	Total
			Mid	CE		
4	0	0	15	15	70	100

Course Objective :

1. Students will understand to formulate a computing problem to executable computer program using C language.
2. Students will understand about compiler based programming languages
3. Students will learn concepts of variables, literals, data types, conversions of data types, input and output data and processing of data, inbuilt functions, arrays, header files, conditional and iterative statements.

Course Outcome:

1. Develop C programs that interact with external resources, such as file, large-scale C programs that involve multiple modules and libraries.
2. Apply advanced concepts of C programming to solve complex problems.
3. Analyze and debug complex C programs for logical errors and memory leaks
4. Recall C programming syntax and language features like structure, UDF, File, pointer
5. Design and implement C programs with a focus on optimization and efficiency

Content

Practical:

1. Write a program to check the given number is Palindrome or not using User Defined Function (UDF).
2. Write a program to find factorial of given no using UDF.
3. Write a program to find factorial of given no using recursion.
4. Write a program to display first 25 terms of Fibonacci series using recursion.
5. Write a program using a recursive function to find the GCD (Greatest Common Divisor) of two Positive integer numbers.
6. Write a program to swap value of two integer number using UDF.
7. Write a function prime that returns 1 if its argument is a prime and return zero Otherwise.
8. Write a program that uses a UDF to sort an array of integer.
9. Write a program which explains the use of nesting of functions.
10. Define a structure type struct personal that would contain person name, date of joining and salary using this structure to read this information and Display on screen.
11. Design a structure student_records to contain Roll_no, Name, City and Percentage obtained. Develop a program to read data for 5 students and Display them.
12. Write a program using structure within structure.
13. Write a program using structure within Function.
14. Write a program declare following structure member: name, code, age, weight and height. Read all members of the structure for 10 persons and find list of persons with all related data whose weight > 50 and height > 40 and print the same with suitable format and title.
15. Write a program to use of pointer in arithmetic operation.
16. Write a program to accept 10 numbers and display its sum using pointer.
17. Write a program to accept 10 numbers and sort them with use of pointer.
18. Write a program to swap the two values using pointers and UDF.
19. Write a program with structure and pointer.
20. Write a program using pointer to determine the length of a character string.
21. Write a program using pointers to read an array of integers and print its elements in reverse order.
22. Write a program using UDF and pointers to add two matrices and to return the resultant matrix to the calling function.
23. Create one text file store some information into it and print the same information on Terminal.
24. A file named data contains series of integer no. Write a c program to read that no. and then write all odd no into file named odd no. and write all even no into file named even no. Display all the contents of these file on screen.
25. Write a c program to read data from keyboard write it to a file called input and Display data of input file on the screen.
26. Write a program that counts the number of characters and number of lines in a file.
27. Two files DATA1 and DATA2 contain sorted lists of integers. Write a program to produce a third file DATA which holds a single sorted, merged list of these two lists. Use command

line arguments to specify the file names.
28. Write a C program to work as a dos type command using command line argument.
29. Write a C program to work as a dos copy command using command line argument.
30. Write a program which explains the use of macro.

Reference Books:

1. Programming in C, Balaguruswami – TMH
2. C: How to Program, Deitel & Deitel - PHI
3. C Programming Language, Kernigham & Ritchie – TMH

Suggested Readings:

1. Mastering Turbo C, Kelly & Bootle - BPB
2. C Language Programming – Byron Gottfried - TMH
3. Let us C, Yashwant Kanetkar - BPB Publication
4. Programming in C, Stephan Kochan - CBS
5. Magnifying C, Arpita Gopal - PHI

Online Resources:

1. https://www.w3schools.com/
2. https://www.tutorialspoint.com/
3. https://www.programiz.com/
4. https://www.cprogramming.com/

practical-Advance Programming Language 'C', FCAB121111	**Expected Mapping with Programme Outcomes** **(1- Weak Correlation; 2- Medium correlation; 3- Strong Correlation)**													
	PO -1	**PO-2**	**PO-3**	**PO-4**	**PO-5**	**PO-6**	**PO-7**	**PO-8**	**PO-9**	**PO-10**	**PO-11**	**PO-12**	**PSO-1**	**PSO-2**
CO-1	3		3		2		3							3
CO-2				3								3		3

CO-3	3	2			2	3	3						
CO-4						3						2	2	
CO-5			3									3		3

Program :	BCA	**Subject / Branch :**	NA
Year :	**2021/22**	**Semester :**	II
Course title :	Practical -Internet & Web Design	**Course code :**	FCAB121112
Course type :	Practical	**Course credit :**	04
Pre-requisite :	Basic knowledge of internet		
Rationale :	Students will develop and understanding of information design web page and usability as it applies to interactive media projects.		

Teaching Examination Scheme:

Teaching (Hours/week)			**Examination Scheme**			
Lecture	Tutorial	Practical	Internal		External	Total
			Mid	CE		
4	0	0	15	15	70	100

Course Objective :

1. Learn about E-Services like E-Banking, E-Learning etc.
2. Understanding the basic concept of HTML tags.
3. Learn the language of the web: HTML and CSS.
4. Develop skills in analyzing the usability of a web site.
5. Develop basic programming skills using Javascript.

Course Outcome:

1. demonstrate proficiency in creating well-structured web pages using HTML for content and CSS for styling.
2. Remember fundamental principles of web design, including HTML tags, CSS properties, and basic scripting concepts.
3. Apply web design principles to create a basic website. Implement interactive features using JavaScript.

4. Evaluate the reliability of internet sources. Assess the effectiveness of security measures in a network..

Content

Practical:

1. Develop an HTML document for a web page of your favorite teacher. Design the page With an attractive background color, text color and background image.
2. Develop an HTML document for a web page of your favorite National Leader. Design the page with an attractive color combination, with suitable headings and horizontal rules.
3. Write an HTML document with an example of Ordered List and Unordered List.
4. Write an HTML document with an example of Ordered List and Unordered List Using Nested list.
5. Write an HTML document with an example of Table format to print your Bio-Data.
6. Write an HTML document to create complex Table like Telephone Bill, Mark sheet, Time-table.
7. Write the Frameset tags and Frame tags for the following frameset.

<table>
<tr><td>Physics.html</td><td rowspan="2">Welcome.html</td><td>Maths.html</td></tr>
<tr><td>Chemistry.html</td><td rowspan="2">Computer.html</td></tr>
<tr><td>Biology.html</td><td rowspan="2">Heading.html</td></tr>
<tr><td>Zoology.html</td><td>Account.html</td></tr>
</table>

8. Develop a complete web page using Frames and Frameset which gives the Information about Hospital.
9. Write an HTML code for designing the subscription form of mail account in the e-mail Website with appropriate fields.
10. Write an example of External Stylesheet.
11. Write HTML program which contains Inline Style sheet for <p>, <h1> and <body>tags.
12. Write HTML program which contains Internal Style sheet for <p>, <h1> and <body>tags.

13. Describe yourself on a webpage and experiment with colors in bicolor, text, and link, try out different and sizes and also the other tags you studies so far, such as the rules tag as wells.
14. Write HTML code to develop a web page having background in blue and title "Well come to my home page" in red other color.
15. Create an HTML document of giving details of your name, age, telephone no, address and enrolment no, aligned in proper order.
16. Calculate a web page that provides links to five different web page or to entirely different websites.
17. Write a HTML code for making table to containing different option for different questions.

Which is your favorite color	Which is your favorite games	Which is your favorite City
Blue	Cricket	Surat
Red	Football	Baroda
Green	Hocky	Siddhpur
Yellow	Chess	Ahmedabad

18. Create form to fill information student.
19. Create a JavaScript code to display any message.
20. Create a JavaScript code using Arithmetic Operator, Assignment Operator, Comparison Operator, Logical Operator and String Operator.
21. Create a JavaScript code using Control Statement.
22. Create a JavaScript code to display 5*1=5 ,5*10=50 using for loop.
23. Create a JavaScript code using User Defined Function which will calculate the area ofcircle.
24. Write a JavaScript code to change the background color of the webpage.
25. Write a JavaScript code to display Factorial of the givennumber.

Reference Books:

1.Internet and Web Design Based on DOEACC III Revised syllabus ‘O’ Level - Mac Millan India Ltd

2. Teach Yourself HTML 4 in 4 Hours By Dick Oliver – Tech Media 4th Edition
3. Introduction To Internet And HTML Scripting-Fourth Edition-Bhaumik Shroff

Suggested Readings:

1. Introduction To Internet And HTML Scripting-Fourth Edition-Bhaumik Shroff

Online Resources:

1. https://www.tutorialspoint.com/internet_technologies/internet_overview.htm
2. https://www.w3schools.com/html/
3. https://www.w3schools.com/w3css/defaulT.asp
4. https://www.geeksforgeeks.org/javascript/

Course Outcomes practical-Internet & Web Design FCAB121112	**Expected Mapping with Programme Outcomes (1- Weak Correlation; 2- Medium correlation; 3- Strong Correlation)**													
	PO-1	**PO-2**	**PO-3**	**PO-4**	**PO-5**	**PO-6**	**PO-7**	**PO-8**	**PO-9**	**PO-10**	**PO-11**	**PO-12**	**PSO-1**	**PSO-2**
CO-1	1		2		3	2	3							
CO-2	2		3			3	3						3	
CO-3	1		3		2		2				2			3
CO-4	2									1				

BCA Semester-III

Program :	BCA	**Subject / Branch :**	NA

Year :	**2021/22**	**Semester :**	III
Course title :	Object Oriented Programming using C++	**Course code :**	FCAB131101
Course type :	Theory	**Course credit :**	04
Pre-requisite :	Knowledge of Programming		
Rationale :	It is deliberated for software engineers, system analysts, data analysts and student support personnel who wish to learn the C++ programming language.		

Teaching Examination Scheme:

Teaching (Hours/week)			**Examination Scheme**			
Lecture	Tutorial	Practical	Internal		External	Total
			Mid	CE		
4	0	0	15	15	70	100

Course Objective :

1. Will understand the concept of object oriented programming.
2. Will learn to create the C++ program.
3. Will handle the exception to control the error.

Course Outcome:

1. Design and implement complex C++ programs that involve multiple classes, inheritance, and polymorphism and Create reusable libraries.
2. Evaluate the appropriateness of different C++ features and techniques for specific programming tasks.
3. Analyze and debug complex C++ code to identify and fix errors.
4. Apply C++ programming concepts to solve problems and implement algorithms.
5. Recall the basic syntax and language constructs of C++.

Content

Unit	**Description in detail**	**Credit**	**Weightage**
I	**Fundamentals of programming:**	1	25 %

	Concept of Procedural, structured and object oriented programming, History of C++ and its object-oriented programming over procedural languages, Concept of Encapsulation, Abstraction, Data hiding, Inheritance, Operator Overloading and Polymorphism, Classes and objects, Advantages of object-oriented programming over procedural languages, parts of C++ program		
II	Data types, variable and constants, Expression and statements, logical, relational, mathematical operators, turnery operator, Simple I/O statements- reading and writing. Statement for formatted I/O, Usage of header files using INCLUDE statement **Looping:** While... Do. While, for loop, Continue and break statement, Switch statement, IF statement, IF...ELSE statement **Array**: Initializing one-dimensional and two-dimensional array. Multidimensional array, Passing arrays to functions, Array classes	1	25 %
III	**Structures and Enumerated data types**: Declaration of Structure, Initialization of structures, Array of structure and pointers to structure, Structures within Structures **Classes**: Implementing class, Classes and members. Accessing class members, implementing class methods, constructors and Destructors, Private and public class, **Function**: Fundamental, passing structure variable to function, pass by value, pass by reference, overloading of function, Inline function, static variable and static function, friend function , friend class	1	25 %
IV	**Pointer**: concept of a pointer variable and its declaration, Pointer arithmetic, Pointers in string handling, Pointers to pointer, Arrays of Pointers, Pointers and array names, Dynamic Memory allocations, Pointers to objects **Inheritance:** Introduction, defining derived class, single inheritance, multilevel , multiple hierarchical, hybrid inheritance, containership **File Management**: c++ streams, c++ stream classes, Opening and	1	25 %

	closing a file, File modes, File pointers and their manipulations, Sequential Input and Output Operations, Random Access		

Reference Books:

1. Object-Oriented Programming with C++ By E. Balagurusamy- TMH Publication
2. Object-Oriented Programming in Turbo C++ By Robert Lafore- Galgotia
3. 'C++ Primer' by Stanley B. Lippman, Josée Lajoie, and Barbara E.

Suggested Readings:

1. A Complete Guide to Programming in C++, Ulla Kirch-Prinz, 1st Edition
2. Learn To Program With C++, John Smiley, 1st Edition
3. 'The C++ Programming Language' by Bjarne Stroustrup

Online Resources:

1. https://www.w3schools.com/
2. https://www.tutorialspoint.com/
3. https://www.programiz.com/
4. https://www.cprogramming.com/

Course Outcomes OBJECT ORIENTED PROGRAMMING USING C++, FCAB131101	**Expected Mapping with Programme Outcomes** **(1- Weak Correlation; 2- Medium correlation; 3- Strong Correlation)**												
	PO-1	**PO-2**	**PO-3**	**PO-4**	**PO-5**	**PO-6**	**PO-7**	**PO-8**	**PO-9**	**PO-10**	**PO-11**	**PO-12**	**PSO-1**	**PSO-2**
CO-1			3				2	2				2		
CO-2	2		2											
CO-3		3					2							3
CO-4			3			2		1						3
CO-5	2						3						2	

Program :	BCA	**Subject / Branch :**	NA
Year :	**2021/22**	**Semester :**	III
Course title :	Advanced Database Management Operating System	**Course code :**	FCAB131102
Course type :	Theory	**Course credit :**	04
Pre-requisite :	Basic knowledge of Database management System.		
Rationale :	Student will learn to use data manipulation language to query, update, and manage a database. Student will understand essential DBMS concepts such as: database security, integrity, concurrency, storage strategies etc. The students will get the hands on practice of using SQL and PL/SQL concepts.		

Teaching Examination Scheme:

Teaching (Hours/week)			**Examination Scheme**			
Lecture	Tutorial	Practical	Internal		External	Total
			Mid	CE		
4	0	0	15	15	70	100

Course Objective:

1. Learn new ways to query and model data.
2. Become familiar with the expanding role of database technology.
3. To learn SQL functions and PL/SQL Program in SQL plus.

Course Outcome:

1. Recall database terminology, concepts, and data modeling techniques.
2. Interpret the principles of database design, query optimization, and transaction management.
3. Apply database design principles to create and optimize databases. Implement complex

queries and transactions.

4. Analyze database structures, query performance, and troubleshoot issues.
5. Assess the security, scalability, and reliability of database systems.
6. Design and implement a comprehensive database system for a specific application or organization.

Content

Unit	Description in detail	Credit	Weightage
I	**Basic concepts of Database Systems** Client/server architecture **Relational and other models** Relational model concepts and constraints, relational algebra, queries in relational algebra. **Database Design using RDBMS** Functional dependency & normalization. Schema design and normal forms. Database design process and tools	1	25 %
II	**Interactive SQL Part – I** ✔ Introduction to SQL, ✔ Logging into SQL * Plus, ✔ Naming rules and Conventions, ✔ Data Types ✔ Creating a Table, ✔ Inserting, ✔ Viewing data in the tables ✔ Sorting data in a table, Delete operations, Updating contents of a table ✔ Modifying the structure of tables, Renaming, Truncating and Destroying tables, Dropping a column from a table Constraints (I/O and Business rule constraints), Computations on table data.	1	25 %

III	**Interactive SQL Functions** Functions **Aggregate** : AVG, MIN, COUNT, COUNT(*), MAX, SUM Numeric : ABS, POWER, ROUND, SQRT, EXP, GREATEST, LEAST, MOD, TRUNC, FLOOR, CEIL **String:** LOWER,INITCAP,UPPER,SUBSTR,ASCII,INSTR,TRANSLATE, LENGTH,LTRIM,RTRIM,TRIM,LPAD,RPAD **Conversion:** TO_NUMBER, TO_CHAR(NUMBERCONVERSION), TO_CHAR(DATE CONVERSION) ,TO_DATE **Date function**: ADD_MONTHS, LAST_DAY, MONTHS_BETWEEN, NEXT_DAY Advance Queries: ● Group by Clause, Having Clause, EXISTS/ NOT EXISTS operator, ● Sub query, Different Types of Joins, Set Operators Sql Performance Tuning ● Index, View, Sequence, Setting environment using SET command Security Management using SQL ● Granting and revoking permissions, revoking privileges given	1	25 %
IV	**PL/SQL** Variable declaration Control Structure 1. Condition structure. 2. Iterative structure. Cursor 1. Implicit 2. Explicit Store Procedure, Trigger, View, Function Exceptions. 1. Predefine exceptions. 2. Users define exceptions. 3. Handling Raised exceptions.	1	25 %

Reference Books:

1. Database System Concepts: – Henry F. Korth &AbrahimSilberschatz –McGraw Hill Education
2. Introduction to Database System C. J. Date (7 Edition) Low Price Edition
3. Database System Concepts, A.Silberschatz, Henry Korth and S.Sudarshan,McGraw-Hill, 1997

Suggested Readings:

4. SQL, PL/SQL: The Programming Language of Oracle(3nd, 4rd edition)By Ivan Bayross-BPB

Online Resources:

https://www.w3schools.com/sql/sql_ref_sqlserver.asp
https://www.javatpoint.com/pl-sql-tutorial
https://www.tutorialride.com/plsql/plsql-control-statements.htm

Course Outcomes Advance Database Management System , FCAB131102	**Expected Mapping with Programme Outcomes** **(1- Weak Correlation; 2- Medium correlation; 3- Strong Correlation)**													
	PO-1	**PO-2**	**PO-3**	**PO-4**	**PO-5**	**PO-6**	**PO-7**	**PO-8**	**PO-9**	**PO-10**	**PO-11**	**PO-12**	**PSO-1**	**PSO-2**
CO-1	3					3	3						3	
CO-2	2						3	3						
CO-3			3					3				1		
CO-4		3		2						2				
CO-5						3	2			3				
CO-6								3			2	2		3

Program :	BCA	**Subject / Branch :**	NA
Year :	**2021/22**	**Semester :**	III
Course title :	Operating System	**Course code :**	FCAB131103
Course type :	Theory	**Course credit :**	04
Pre-requisite :	The students should have general idea about Operating System Concept, types of Operating System and their functionality.		
Rationale :	The course provides the students with an understanding of human computer interface existing in computer system and the basic concepts of operating system and its working.		

Teaching Examination Scheme:

Teaching (Hours/week)			**Examination Scheme**			
Lecture	Tutorial	Practical	Internal		External	Total
			Mid	CE		
4	0	0	15	15	70	100

Course Objective :

1. To familiarize the operations performed by OS as a resource Manager.
2. To learn and understand the Concepts of operating system.
3. To Learn and understand operating system services.
4. To teach the different memory management techniques.

Course Outcome:

1. Recall key operating system concepts, including process, memory management, and file systems

2. Understand the role of virtual memory and its impact on system performance.
3. Implement synchronization mechanisms to address concurrent programming challenges.
4. Analyze the impact of different scheduling algorithms on system performance.

Content

Unit	Description in detail	Credit	Weightage
I	**Operating System Overview:** Introduction to Operating System, Types of Operating system, Operating System Services functionality and characteristics of OS Buffering & Spooling	1	25 %
II	**Process Management:** Process, Process, Process States, Control Block (PCB), Scheduling – Types of Schedulers, Scheduling & Performance Criteria, Scheduling Algorithms – FCFS, SJF, Priority & Round Robin (RR) Scheduling. Deadlock: Concept, Deadlock detection, and prevention	1	25 %
III	**Memory Management:** Static Memory Allocation, Dynamic Memory Allocation, Segmentation, Virtual memory – Paging, Demand Paging, Page Replacement, Fragmentation & Defragmentation, Cache memory	1	25 %
IV	**I/O Management:** Program Controlled I/O, Interrupt Driven I/O, USART, PIT File Management: File concept, Access method, Directory structure, Disk Space Management - Continuous allocation, non continuous allocation, File related system services	1	25 %

Reference Books:

1. Operating System Concept, Wiley, Sixth Edition - Silberschatz & Galvin
2. Operating Systems, Tata McGraw – Hill, Second Edition- Milan Milenkovi'c
3. Operating Systems, PHI, Fourth Edition - William Stallings

Suggested Readings:

1. Operating System Concept, Wiley, Sixth Edition - Silberschatz & Galvin

Online Resources:

1. https://www.tutorialspoint.com/operating_system/index.htm
2. https://www.geeksforgeeks.org/operating-systems/
3. https://www.javatpoint.com/operating-system

Course Outcomes Operating System , FCAB131103	**Expected Mapping with Programme Outcomes (1- Weak Correlation; 2- Medium correlation; 3- Strong Correlation)**													
	PO -1	**PO -2**	**PO -3**	**PO -4**	**PO -5**	**PO -6**	**PO -7**	**PO -8**	**PO -9**	**PO -10**	**PO -11**	**PO -12**	**PSO -1**	**PSO -2**
CO-1	3						1						3	
CO-2		2				3							2	
CO-3			1		1									
CO-4	2	2				3		2						

Program :	BCA	**Subject / Branch :**	NA
Year :	**2021/22**	**Semester :**	III
Course title :	Computer Networks	**Course code :**	FCAB131104
Course type :	Theory	**Course credit :**	04
Pre-requisite :	The students should have a basic Understanding of computer Network ,Models and Layer.		
Rationale :	It gives information to students which gives the means of interconnectivity for a computer's hardware components as well as the mode of data transfer and processing exhibited.		

Teaching Examination Scheme:

Teaching (Hours/week)			**Examination Scheme**			
Lecture	Tutorial	Practical	Internal		External	Total
			Mid	CE		
4	0	0	15	15	70	100

Course Objective :

1. To understand the data and database management of computer system.
2. To identify and compare different method for computer I/O.
3. Identify and understand the models.

Course Outcome:

1. Recall basic terms and concepts related to computer networks, such as protocols, OSI model layers, and network topologies.
2. Interpret the principles behind networking protocols and technologies.
3. Apply networking knowledge to solve problems or configure network devices.
4. Assess the security, performance, and efficiency of computer networks.

5. Design and implement computer networks based on specific requirements

Content

Unit	Basic concepts of Database Systems	Credit	Weightage
I	Introduction of Computer Networks, Uses of Computer Networks, Advantage & Disadvantage of Computer Networks Transmission mode: Simplex communication, Half-duplex and Full-duplex Introduction of Internet & Intranet, Baseband & Broadband Transmission	1	25 %
II	✔ Network Hardware: PAN (Personal Area Network) , LAN (Local Area Network), MAN (Metropolitan Area Network), WAN (Wide Area Network) ✔ The Internet (network of all networks) ✔ Network Topology: Linear bus, Ring, Star, tree, mesh & Hybrid. ✔ Reference Model: OSI Reference Model & TCP/IP Reference Model, Comparison of OSI reference model ✔ Connecting Devices: Repeater, HUB, Switch, Bridge, Router, and Gateway. ✔ The Telephone System – its structure, the local loop, transmission Impairments Introduction of Modem, Introduction of Communication satellites.	1	25 %
III	Guided Media - Twisted Pair, coaxial cable, Fiber optics. Unguided transmission media - Radio wave, micro wave and infrared, Multiplexing – FDM, TDM, WDM. Switching – Circuit switching, Message Switching, Packet switching.	1	25 %
IV	Design Issues - Framing, Error control, Flow control, Error detection and correction. Elementary data link protocols - Simplex, stop and wait, sliding window protocol - Go Back N, Selective repeat.	1	25 %

	The Medium Access Control Sublayer: The channel allocation problem, Multiple Access protocols – CSMA/CD, CSMA/CA		

Reference Books:

1. 1 Data Communication & Networking by Behrouz A. Forouzan, Tata McGraw Hill Edition
2. Computer network, Andrew S. Tanenbaum, fourth edition, Pearson
3. TCP/IP Protocol Suit by Behrouz A. Forouzan, Tata McGraw Hill Edition.

Suggested Books:

1. Computer network, Andrew S. Tanenbaum, fourth edition, Pearson

Online Resources:

1. https://www.tutorialspoint.com/computer_fun damentals/computer_networking.htm
2. https://www.tutorialspoint.com/data_communication_computer_network/data_communication_computer_network/data_communication_computer_network_tutorial.pdf

Course Outcomes COMPUTER NETWORK, FCAB131104	**Expected Mapping with Programme Outcomes** **(1- Weak Correlation; 2- Medium correlation; 3- Strong Correlation)**												
	PO-1	**PO-2**	**PO-3**	**PO-4**	**PO-5**	**PO-6**	**PO-7**	**PO-8**	**PO-9**	**PO-10**	**PO-11**	**PO-12**	**PSO-1**	**PSO-2**
CO-1	3					3	3						2	
CO-2						3								
CO-3			1		2		2			2			3	
CO-4	3					2				2				
CO-5			2		1									

Program :	BCA	**Subject / Branch :**	NA
Year :	**2021/22**	**Semester :**	III
Course title :	PRACTICAL -OBJECT ORIENTED PROGRAMMING USING C++	**Course code :**	FCAB131105
Course type :	Practical	**Course credit :**	04
Pre-requisite :	Knowledge of Programming		
Rationale :	It is deliberated for software engineers, system analysts, data analysts and student support personnel who wish to learn the C++ programming language.		

Teaching Examination Scheme:

Teaching (Hours/week)			**Examination Scheme**			
Lecture	Tutorial	Practical	Internal		External	Total
4	0	0	Mid	CE		
			15	15	70	100

Course Objective :

1. Will understand the concept of object oriented programming.
2. Will learn to create the C++ program.
3. Will handle the exception to control the error.

Course Outcome:

1. Design and implement complex C++ programs that involve multiple classes, inheritance, and polymorphism and Create reusable C++ libraries or components.
2. Evaluate the appropriateness of different C++ features and techniques for specific programming tasks.
3. Analyze and debug complex C++ code to identify and fix errors.
4. Apply C++ programming concepts to solve problems and implement algorithms.

5. Explain the principles of object-oriented programming (OOP) and how they are implemented in C++
6. Recall and reproduce the basic syntax and language constructs of C++.

Content

Practical:
1. Write a cpp program which explains the use of a scope resolution operator. 2. Write a cpp program which explains the use of a manipulators operator. 3. Write a cpp program which explains the use of reference variable. 4. Write a cpp program which explains the feature of a inline function. 5. Write a cpp program which explains the concept of default arguments. 6. Write a cpp program for function overloading. 7. Write a cpp program for arrays within a class. (How to use a array in a class). 8. Write a cpp program for static class member.(Class member should be a static variable) 9. Write a cpp program which shows use of “static member function". 10. Write a cpp program which explain concept of a “array of object". 11. Write a cpp program which explain concept of "object arguments". 12. Write a cpp program for a friend function. 13. Write a cpp program for a function friendly to two classes. 14. Write a cpp program of a swapping private data of classes. 15. Write a cpp program which explain concept of a returning objects. 16. Write a cpp program for class with constructors. 17. Write a cpp program for overloaded constructors. 18. Write a cpp program of copy constructors. 19. Write a cpp program of a constructing matrix objects. 20. Write a cpp program of implementation of destructors. 21. Write a cpp program for implementation of unary minus operator.

Reference Books:

1. Object-Oriented Programming with C++ By E. Balagurusamy- TMH Publication

2. Object-Oriented Programming in Turbo C++ By Robert Lafore- Galgotia
3. 'C++ Primer' by Stanley B. Lippman, Josée Lajoie, and Barbara E.

Suggested Readings:

1. A Complete Guide to Programming in C++, Ulla Kirch-Prinz, 1st Edition
2. Learn To Program With C++, John Smiley, 1st Edition
3. 'The C++ Programming Language' by Bjarne Stroustrup

Online Resources:

1. https://www.w3schools.com/
2. https://www.tutorialspoint.com/
3. https://www.programiz.com/

Course Outcomes PRACTICAL - OBJECT ORIENTED PROGRAMMING USING C++ , FCAB131105	**Expected Mapping with Programme Outcomes (1- Weak Correlation; 2- Medium correlation; 3- Strong Correlation)**													
	PO -1	**PO -2**	**PO -3**	**PO -4**	**PO -5**	**PO -6**	**PO -7**	**PO -8**	**PO -9**	**PO -10**	**PO -11**	**PO -12**	**PSO -1**	**PSO -2**
CO-1			3				2	2				2		
CO-2	2		2											
CO-3		3					2							3
CO-4			3			2		1						3
CO-5	2						3						2	

Program :	BCA	**Subject / Branch :**	NA

Year :	**2021/22**	**Semester :**	III
Course title :	PRACTICAL -ADVANCE DATABASE MANAGEMENT SYSTEM	**Course code :**	FCAB131106
Course type :	Practical	**Course credit :**	04
Pre-requisite :	Basic knowledge of Database management System.		
Rationale :	Student will learn to use data manipulation language to query, update, and manage a database. Student will understand essential DBMS concepts such as: database security, integrity, concurrency, storage strategies etc. The students will get the hands on practice of using SQL and PL/SQL concepts.		

Teaching Examination Scheme:

Teaching (Hours/week)			**Examination Scheme**			
Lecture	Tutorial	Practical	Internal		External	Total
			Mid	CE		
4	0	0	15	15	70	100

Course Objective :

1. Student will learn the physical and logical database designs, database modeling, relational, and network models.
2. Become familiar with the expanding role of database technology.
3. Understand PL/SQL concept: Cursor, Trigger, Stored Procedure etc.

Course Outcome:

1. Recall database terminology, concepts, and data modeling techniques
2. Interpret the principles of database design, query optimization, and transaction management.
3. Apply database design principles to create and optimize databases. Implement complex queries and transactions.
4. Analyze database structures, query performance, and troubleshoot issues.
5. Assess the security, scalability, and reliability of database systems

6. Design and implement a comprehensive database system for a specific application or organization.

Create following Three Tables.

1. Salesman

SNUM	SNAME	CITY	COMMITION
1001	PIYUSH	LONDON	12%
1002	NIRAJ	SURAT	13%
1003	MITI	LONDON	11%
1004	RAJESH	BARODA	15%
1005	ANAND	NEW DELHI	10%
1006	RAM	PATAN	10%
1007	LAXMAN	BOMBAY	09%

SNUM : A Unique number assign to each salesman.
SNAME : The name of salesman.
CITY : The location of salesman.
COMMITION: The salesman commission on order.

2. Customer

CNUM	CNAME	CITY	RATING	SNUM
2001	HARDIK	LONDON	100	1001
2002	GITA	ROME	200	1003
2003	LAXIT	SURAT	200	1002
2004	GOVIND	BOMBAY	300	1002
2005	CHANDRESH	LONDON	100	1001
2006	CHAMPAK	SURAT	300	1007
2007	PRATIK	ROME	100	1004
2008	MANOJ	LONDON	200	1007

CNUM : A Unique number assign to each customer.
CNAME : The name of customer.
CITY : The location of customer.
RATING : A level of preference indicator given to this customer.
SNUM : A salesman number assign to this customer.

3. Order

ONUM	AMOUNT	ODATE	CNUM	SNUM
3001	18.69	03/03/99	2007	1007
3002	767.19	05/03/97	2001	1001
3003	1900.10	10/03/97	2007	1004
3004	5160.45	12/03/99	2003	1002
3005	1098.25	15/04/99	2008	1007
3006	1713.12	10/04/95	2002	1003
3007	75.75	20/05/96	2004	1002
3008	4723.00	30/05/99	2006	1001
3009	1309.95	08/05/97	2004	1002
3010	9898.87	06/06/99	2006	1001

ONUM : A Unique number assign to each Order.
AMOUNT : Amount of order in Rs.
ODATE : The date of order.
CNUM : The number of customer making the order.
SNUM : The number of salesman credited with the sale.

Solve following request with the help of sql query.

1. Produce the order no, amount and date of all orders.
2. Give all the information about all the customers with salesman number 1001.
3. Display the information in the sequence of city, sname, snum, and Commission.
4. List of rating followed by the name of each customer in Surat.
5. List of snum of all salesmen with orders from order table.
6. List of all orders for more than Rs. 1000.
7. List out names and cities of all salesmen in London with commission above 10%
8. List all customers excluding those with rating <= 100 or they are located in Rome. 9. List all order for more than Rs. 1000 except the orders of snum 1006 of 10/03/97
10. List all orders taken on March 3rd or 4th or 6th.
11. List all customers whose names begin with a letter 'C'.
12. List all customers whose names begins with letter 'A' or 'B' or 'c'.
13. List all orders with zero or NULL amount.
14. Find out the largest orders of salesman 1002 and 1007.
15. Count all orders of 10-Mar-97.
16. Calculate the total amount ordered.
17. Calculate the average amount ordered.
18. Count the no. of salesmen currently having orders.

19. Find the largest order taken by each salesman.
20. Find the largest order taken by each salesman on 10/03/1997.
21. Count the no. of different non NULL cities in the Customer table.
22. Find out each customer's smallest order.
23. Find out the customer in alphabetical order whose name begins with 'G'
24. Count the no. of salesmen registering orders for each day.
25. List all salesmen with their amount calculated with commission.

Pl/Sql PRACTICAL LIST

GROUP I (PL/SQL Examples)

P1. Display any string using pl/sql block.
P2. Check whether accepted number is positive or negative.
P3. Accept three different numbers from terminal and display biggest one.
P4. Make the sum of first 100 natural number and display it.
P5. Make the sum of odd and even numbers up to 100 and display it.

GROUP II (PL/SQL)

1. Simple PL/SQL block construction
a. Displaying message on terminal
b. Calculation on given data and prepare result for display
c. Accept the value from user and do accordingly.

2. Decision making and looping
a. If..then, if..then..else, else..if ledger, and nested if.
b. Different looping concepts like loop..end loop, while, for
c. Nested looping.
d. Use of go to clause.

Reference Books:

1. Database System Concepts: – Henry F. Korth &AbrahimSilberschatz –McGraw Hill Education

2. Introduction to Database System C. J. Date (7 Edition) Low Price Edition

3. Database System Concepts, A.Silberschatz, Henry Korth and S.Sudarshan,McGraw-Hill, 1997

Suggested Readings:

1. SQL, PL/SQL: The Programming Language of Oracle(3nd, 4rd edition)By Ivan Bayross-BPB

Online Resources:

1. https://www.w3schools.com/sql/sql_ref_sqlserver.asp
2. https://www.javatpoint.com/pl-sql-tutorial
3. https://www.tutorialride.com/plsql/plsql-control-statements.htm

Course Outcomes Advance Database Management System , FCAB131106	**Expected Mapping with Programme Outcomes (1- Weak Correlation; 2- Medium correlation; 3- Strong Correlation)**													
	PO-1	**PO-2**	**PO-3**	**PO-4**	**PO-5**	**PO-6**	**PO-7**	**PO-8**	**PO-9**	**PO-10**	**PO-11**	**PO-12**	**PSO-1**	**PSO-2**
CO-1	3					3	3						3	
CO-2	2						3	3						
CO-3			3					3				1		
CO-4		3		2						2				
CO-5						3	2			3				
CO-6								3			2	2		3

BCA Semester-IV

Program :	BCA	**Subject / Branch :**	NA
Year :	**2021/22**	**Semester :**	IV
Course title :	Multimedia and Design	**Course code :**	FCAB141107
Course type :	Theory	**Course credit:**	04

Pre-requisite :	Basic knowledge of business
Rationale :	Multimedia is a powerful tool for enhancing the learning experience and making it more engaging, interactive, and effective.

Teaching Examination Scheme:

Teaching (Hours/week)			Examination Scheme			
Lecture	Tutorial	Practical	Internal		External	Total
			Mid	CE		
4	0	0	15	15	70	100

Course Objective :

1. After studying this lesson, you will be able to:
2. Understand the concept of Multimedia and Design
3. Know the Characteristics of Multimedia and Design
4. Explain the functions of Multimedia and Design
5. Define the scope of Multimedia and Design
6. Recognize the benefits and limitations of Multimedia and Design
7. Identify Multimedia and Design opportunities and challenges

Course Outcome:

1. Design and develop multimedia projects that incorporate various elements, such as images, audio, video, and interactive components.
2. Evaluate the usability and accessibility of multimedia content for diverse audiences.
3. Analyze and critique multimedia projects, evaluating their effectiveness in conveying messages or stories
4. Apply principles of design, layout, and color theory to create visually appealing multimedia content.
5. Describe the characteristics and properties of different multimedia elements.

Content

Unit	Description in detail	Credit	Weightage

I	Principles of photography, Working with ISO, Exposure, Concept of aperture and shutter speed, Auto and manual focus, Framing and composition Depth of field, Outdoor photography, Portrait and product photography Fundamentals of photo editing, Studio lighting techniques	1	25 %
II	Photoshop CC: The Essentials of Photoshop, Photoshop Fundamentals, Image Adjustments and Adjustment Layers in Photoshop. Create Amazing Photoshop Projects and Learn Essentials Photoshop: Learn Digital Painting Basics in Photoshop	1	25 %
III	Screen Direction, Sound Design, Picture Management, Parallel Editing, Color Correction, Principles of Continuity and titling, Sound Design and Sound Mixing, Creating Effects Motion Graphics	1	25 %
IV	Graphic Design, Design History, Elements of Design + Principles, Narrative and Process, Design Assets, Design Systems	1	25 %

Reference Books:

1. Adobe Photoshop elements 2021 – Morris Johnson
2. Understanding street photography – Bhyan Peterson
3. Sound design for media – Tim Harrison

Suggested Books:

1. Fundamental of multimedia – Third Edition – Springer

Course Outcomes Multimedia and Design , FCAB141107	**Expected Mapping with Programme Outcomes (1- Weak Correlation; 2- Medium correlation; 3- Strong Correlation)**												
	PO-1	**PO-2**	**PO-3**	**PO-4**	**PO-5**	**PO-6**	**PO-7**	**PO-8**	**PO-9**	**PO-10**	**PO-11**	**PO-12**	**PSO-1**	**PSO-2**
CO-1			3		3							3	3	

CO-2						2	2						
CO-3		1						2					
CO-4			3		3								
CO-5						3	3						

Program :	BCA	**Subject / Branch :**	NA
Year :	**2021/22**	**Semester :**	IV
Course title :	Data structure	**Course code :**	FCAB141108
Course type :	Theory	**Course credit :**	04
Pre-requisite :	Basic knowledge of one programming language. Algorithmic design and techniques course.		
Rationale :	It gives information to data structure are used to implement the physical forms of abstract data types. They also play a critical role in algorithm design.		

Teaching Examination Scheme:

Teaching (Hours/week)			**Examination Scheme**			
Lecture	Tutorial	Practical	Internal		External	Total
			Mid	CE		
4	0	0	15	15	70	100

Course Objective :

1. To impart the basic concept of data structure and algorithm.
2. To understand concepts about searching and sorting techniques.
3. To understand basic concepts about stack,tree,queues,list,graph.

Course Outcome:

1. Design and implement complex data structures, such as trees, graphs, and hash tables
2. Evaluate the impact of design decisions on the performance of a system using specific data structures.
3. Analyze and evaluate the time and space complexity of algorithms related to different data structures.

4. Apply knowledge of data structures to solve programming problems and implement algorithms.
5. Recognize basic concepts related to data structures, such as arrays, linked lists, stacks, and queues.

Content

Unit	Introduction to Data Structures	Credit	Weightage
I	Data, Data Organization, Data Access methods, Types of Data structure –Primitive and Non-Primitive Data Structure, Linear and Non Linear Data Structure Storage Structures for arrays	1	25 %
II	Stack definitions & concepts, operations on stacks, applications of StacksRecursion, Polish Notation and their compilation	1	25 %
	Queue-Representation of queue, types of queue- Simple Queue, Circular Queue, De queue, Operations and applications of queue **Introduction to Searching and Sorting** Searching- Sequential & Binary Searching. Hashing: Hash Table Methods-Introduction, Hashing Functions Sorting: Insertion Sort, Selection Sort, Bubble Sort, Merge Sort, Quick Sort		
III	**Linked List Data Structures with Applications** Linked list definition and their linked storage representation, Linked List- Singly Linked List, Circular Linked List, Doubly Linked List, Application of Linked List, Sorted linked list Reverse a List Merge a List	1	25 %
IV	**Non Linear Data Structures with Applications:** Trees-Definitions and concepts, operations on Binary Trees, Traversal Algorithms, Storage Representation and Manipulation of Binary Trees-Linked & Threaded, applications of Trees.	1	25 %

Reference Books:

1. Data Management and File Structures By Mary E. S. Loomis-PHI Publications
2. An Introduction to Data Structure with Applications 2nd Edition,Tremblay J. and Sorenson P., McGraw-Hill International Edition.
3. Introduction to Data Structure, Bhagat singh and Thomas Naps: Tata McGraw-Hill Publishing Co. Ltd., 1985.

Online Resources:

1. https://www.geeksforgeeks.org/data-structures/
2. https://www.javatpoint.com/data-structure-tutorial

Course Outcomes Data structure , FCAB141108	**Expected Mapping with Programme Outcomes (1- Weak Correlation; 2- Medium correlation; 3- Strong Correlation)**													
	PO-1	**PO-2**	**PO-3**	**PO-4**	**PO-5**	**PO-6**	**PO-7**	**PO-8**	**PO-9**	**PO-10**	**PO-11**	**PO-12**	**PSO-1**	**PSO-2**
CO-1			3		2			1				1		3
CO-2			3			2								
CO-3		3					2	2						
CO-4		2						3				2	3	
CO-5	1						3						2	

Program :	BCA	**Subject / Branch :**	NA
Year :	**2021/22**	**Semester :**	IV
Course title :	Data mining and data ware housing	**Course code :**	FCAB141109
Course type :	Theory	**Course credit :**	04
Pre-requisite :	The students should have a basic Understanding of bunch of data are sorting in data mining.		
Rationale :	It gives information to students which gives the means of data mining supports fraud detection, risk management, cybersecurity planning and many other critical business use case.		

Teaching Examination Scheme:

Teaching (Hours/week)			**Examination Scheme**			
Lecture	Tutorial	Practical	Internal		External	Total
			Mid	CE		
4	0	0	15	15	70	100

Course Objective :

1. To understand the data and database management of data warehouse.
2. To extract knowledge from data repository for data analysis.
3. Identify the data frequent pattern, classification and prediction..

Course Outcome:

1. Design and implement a comprehensive data warehousing solution, including data modeling and schema design.
2. Analyze and evaluate the structure and design of data warehouses
3. Apply data warehousing concepts to design and implement a data warehouse.
4. Explain the principles of data warehousing and its role in decision support systems.
5. Define key terms related to data mining, such as clustering, classification, and association rules.
6. Evaluate the appropriateness of different data mining algorithms for specific types of data

Content

Unit	Introduction :	Credit	Weightage
I	Data Mining – Motivation, Importance of DM Functionalities, Basic Data Mining Tasks, Classification of data mining, integration of data mining system with a database or data warehouse system, major issues in data mining **Data Processing:** Why process the data? Descriptive data summarization, data cleansing, data integration and transformation, data reduction, data discretization and concept hierarchy generation.	1	25 %
II	**Data warehouse:** What is data warehouse? A multidimensional data model, data warehouse architecture, data warehouse implementation, from data warehousing to data mining. **Data Generalization:** Attribute oriented Induction.	1	25 %
III	**Data Mining:** Data Mining Primitives, Languages : Data Cleaning, Data Integration and Transformation, Data Reduction Association Rule Mining, Classification and Prediction – Decision Tree, Bayesian Classification Back Propagation, Cluster Analysis, Outlier Analysis.	1	25 %
IV	**Mining Object, Spatial, Multimedia, Text, and web data :** Spatial data mining, Multimedia data mining, Text mining, Mining the world wide web **Application and Trends in Data Mining:** Data mining application, Data mining system products and research prototypes, additional themes on data mining, social impacts of data mining, Trends in data mining.	1	25 %

Reference Books:

1. Data Mining, Concept and techniques by jiawei Han and Micheline Kamber, Jian Pei

Suggested Books:

1.Data Mining, Concept and techniques by jiawei Han and Micheline Kamber, Jian Pei

Online Resources:

1. https://www.topcoder.com/thrive/articlas/data-warehousing-and-mining.
2. http://www.gersteinlab.org/couses/545/

Course Outcomes Data mining and data warehousing , FCAB141109	**Expected Mapping with Programme Outcomes (1- Weak Correlation; 2- Medium correlation; 3- Strong Correlation)**												
	PO-1	**PO-2**	**PO-3**	**PO-4**	**PO-5**	**PO-6**	**PO-7**	**PO-8**	**PO-9**	**PO-10**	**PO-11**	**PO-12**	**PSO-1**	**PSO-2**
CO-1			2											
CO-2		2		3										
CO-3	3													
CO-4	1												2	
CO-5	2					2	1						3	
CO-6												1		

Program :	BCA	**Subject / Branch :**	NA
Year :	**2021/22**	**Semester :**	IV
Course title :	E-COMMERCE	**Course code :**	FCAB141110

Course type :	Theory	**Course credit :**	04
Pre-requisite :	Basic knowledge of business		
Rationale :	E-commerce is to reach maximum customers at the right time to increase sales and profitability of the business.		

Teaching Examination Scheme:

Teaching (Hours/week)			**Examination Scheme**			
Lecture	Tutorial	Practical	Internal		External	Total
			Mid	CE		
4	0	0	15	15	70	100

Course Objective :

1. After studying this lesson, you will be able to:
2. Understand the concept of E-Commerce
3. Know the Characteristics of E-Commerce
4. Explain the functions of E-Commerce
5. Define the scope of E-Commerce
6. Recognize the benefits and limitations of e-commerce
7. Identify E-Commerce opportunities and challenges

Course Outcome:

1. Evaluate the legal and ethical considerations in e-commerce.
2. Analyze and evaluate different e-commerce business models.
3. Apply knowledge of e-commerce platforms and technologies to set up and manage an online store.
4. Recognize fundamental concepts related to e-commerce.

Content

Unit	Description in detail	Credit	Weightage
I	Introduction to E-Commerce, Organizational E-Commerce, The Scope of Electronic Commerce, Impact of E-Commerce, E-Commerce classification, Inter-Organizational & Intra organizational E-commerce, Electronic Markets, Electronic Data Interchange, Electronic Data Interchange (EDI),EDI: The Nuts and Bolts, EDI and Business, E-Commerce Application.	1	25 %
II	Framework of E-Commerce, B2B, B2C, C2C, G2C, B2G, E-commerce benefits	1	25 %
III	Bar code, Product data exchange, E-forms; Inter Organizational Commerce - EDI, EDI , Implementation, Value added networks Intra Organizational Commerce - work Flow, Automation Customization & internal Commerce, SCM , Legal requirement in E-Commerce, CRM, CRM issues	1	25 %
IV	World Wide Web & Security, Encryption, Transaction security, Secret Key Encryption, Public Key Encryption, Virtual Private Network (VPN), Implementation Management Issues. Security Policy, Procedures and Practices, Site Security, Firewalls, Securing Web Service, Transaction Security, Authentication Protocols, Digital Signatures, Security protocols for Web Commerce	1	25 %

Reference Books:

1. K.C. Laudon & C.G. Traver, E-commerce, Pearson Education, 2003.
2. Kenneth C. Laudon, E-Commerce : Business, Technology, Society, 4th Edition, Pearson
3. S. J. Joseph, E-Commerce: an Indian perspective, PHI

Suggested Books:

1. K.C. Laudon & C.G. Traver, E-commerce, Pearson Education, 2003.

Online Resources:

1. https://www.tutorialspoint.com/e_commerce/index.htm
2. https://www.geeksforgeeks.org/e-commerce/
3. https://www.javatpoint.com/e-commerce

Course Outcomes E-COMMERCE , FCAB141110	**Expected Mapping with Programme Outcomes (1- Weak Correlation; 2- Medium correlation; 3- Strong Correlation)**													
	PO-1	**PO-2**	**PO-3**	**PO-4**	**PO-5**	**PO-6**	**PO-7**	**PO-8**	**PO-9**	**PO-10**	**PO-11**	**PO-12**	**PSO-1**	**PSO-2**
CO-1						3				3				
CO-2		3			2	1								
CO-3	2			1								2	3	
CO-4							3			2			2	

Program :	BCA	**Subject / Branch :**	NA
Year :	**2021/22**	**Semester :**	IV
Course title :	Practical - Multimedia and Design	**Course code :**	FCAB141111
Course type :	Practical	**Course credit :**	04
Pre-requisite :	Basic Knowledge of Multimedia and Design		
Rationale :	The multimedia major enables students to become critical thinkers and creative producers of multiple modes of media, including communication, film/video, graphic design, journalism, and sports communication. Students are encouraged to create media as self-expression to engage with the world around them, to foster intercultural and interdisciplinary dialogue and to reflect on social issues.		

Teaching Examination Scheme:

Teaching (Hours/week)			**Examination Scheme**			
Lecture	Tutorial	Practical	Internal		External	Total
			Mid	CE		
4	0	0	15	15	70	100

Course Objective :

1. Build your instructional design skills for all form of digital learning including multimedia Learning, video, podcasts, micro learning, immersive learning and social learning.
2. Design and rollout high impact end to end digital learning experiences to meet your learning objectives.
3. Students will learn concepts of Photography, Photo editing, Videography, Video Editing and Graphic design.

Course Outcome:

1. Design and develop multimedia projects that incorporate various elements, such as images, audio, video, and interactive components.
2. Evaluate the usability and accessibility of multimedia content for diverse audiences.

3. Analyze and critique multimedia projects, evaluating their effectiveness in conveying messages or stories
4. Apply principles of design, layout, and color theory to create visually appealing multimedia content.
5. Describe the characteristics and properties of different multimedia elements.

Content

Practical:
01. Write a Photoshop program to display "Gokul University banner" on the screen. 02. Write a photoshop cerate 5X5 size social media post. 03. Using of photo camera in outdoor photography session. 04. Using of video camera in outdoor videography session. 05. instructional video production. 06. Use of video camera in Multi media 07.camera – an Introduction and use 08. Different accessories of camera 09 Write a Photoshop program to create visiting card on the paper. 10. use of different light in video and photo production 11. use of different mic in video production 12. use of different Video effect in video editing 13. use of different types tax effect in video editing. 14. use titling in video editing

Reference Books:

1. Adobe Photoshop elements 2021 – Morris Johnson
2. Understanding street photography – Bhyan Peterson
3. Sound design for media – Tim Harrison

Suggested Books:

1. Fundamental of multimedia – Third Edition – Springer

Course Outcomes Multimedia and Design , FCAB141111	**Expected Mapping with Programme Outcomes (1- Weak Correlation; 2- Medium correlation; 3- Strong Correlation)**													
	PO-1	**PO-2**	**PO-3**	**PO-4**	**PO-5**	**PO-6**	**PO-7**	**PO-8**	**PO-9**	**PO-10**	**PO-11**	**PO-12**	**PSO-1**	**PSO-2**
CO-1			3		3							3	3	
CO-2						2	2							
CO-3		1						2						
CO-4			3		3									
CO-5						3	3							

Program :	BCA	**Subject / Branch :**	NA
Year :	**2021/22**	**Semester :**	IV
Course title :	Practical-Data structure	**Course code :**	FCAB141112
Course type :	Practical	**Course credit :**	04
Pre-requisite :	Basic knowledge of one programming language. Algorithmic design and techniques course.		
Rationale :	It gives information to data structure are used to implement the physical forms of abstract data types. They also play a critical role in algorithm design.		

Teaching Examination Scheme:

Teaching (Hours/week)			**Examination Scheme**			
Lecture	Tutorial	Practical	Internal		External	Total
			Mid	CE		
4	0	0	15	15	70	100

Course Objective :

1. To impart the basic concept of data structure and algorithm.
2. To understand concepts about searching and sorting techniques.
3. To understand basic concept about stack,tree,queues,list,graph.

Course Outcome:

1. Design and implement complex data structures, such as trees, graphs, and hash tables
2. Evaluate the impact of design decisions on the performance of a system using specific data structures.
3. Analyze and evaluate the time and space complexity of algorithms related to different data structures.
4. Apply knowledge of data structures to solve programming problems and implement algorithms.
5. Recognize basic concepts related to data structures, such as arrays, linked lists, stacks, and queues.

Content

Program Contents
1. Write a Program for String manipulation functions. 2. Write a Program for Array Insert operation 3. Write a Program for Array Delete operation 4. Write a Program for all stack operation 5. Write a Program for Simple Queue operations. 6. Write a Program for all Circular Queue operations. 7. Write a Program for all operations of Singly Link list. 8. Write a Program for all operations of Circular Link List. 9. Write a Program for all operations of Double Link List. 10. Write a program for Tree Traversal. 11. Write a Program for Sequential Search. 12. Write a Program for Binary Search. 13. Write a Program for Selection Sort. 14. Write a Program for Bubble Sort. 15. Write a Program for Quick Sort. 16. Write a Program for Insertion Sort.

Reference Books:

1. Data Management and File Structures By Mary E. S. Loomis-PHI Publications
2. An Introduction to Data Structure with Applications 2nd Edition,Tremblay J. and Sorenson P., McGraw-Hill International Edition.
3. Introduction to Data Structure, Bhagat singh and Thomas Naps: Tata McGraw-Hill Publishing Co. Ltd., 1985.

Online Resources:

1. https://www.geeksforgeeks.org/data-structures/
2. https://www.javatpoint.com/data-structure-tutorial

Course Outcomes Data structure , FCAB141112	**Expected Mapping with Programme Outcomes** **(1- Weak Correlation; 2- Medium correlation; 3- Strong Correlation)**													
	PO-1	**PO-2**	**PO-3**	**PO-4**	**PO-5**	**PO-6**	**PO-7**	**PO-8**	**PO-9**	**PO-10**	**PO-11**	**PO-12**	**PSO-1**	**PSO-2**
CO-1			3		2			1				1		3
CO-2			3			2								
CO-3		3					2	2						
CO-4		2						3				2	3	
CO-5	1						3						2	

BCA SEMESTER – V

Program :	BCA	**Subject / Branch :**	NA
Year :	**2021/22**	**Semester :**	V
Course title :	Python Programming	**Course code :**	FCAB151101
Course type :	Theory	**Course credit :**	04
Pre-requisite :	Basic Knowledge of Programming		
Rationale :	Students can learn Basics of Python Programming, Arrays, Functions, Modules, Packages, Object Oriented Programming, Exception Handling, Data Science and Data Visualization.		

Teaching Examination Scheme:

Teaching (Hours/week)			**Examination Scheme**			
Lecture	Tutorial	Practical	Internal		External	Total
			Mid	CE		
4	0	0	15	15	70	100

Course Objective :

1. Student can learn Basic of Python Programming.
2. Arrays, Functions, Modules, Packages, Object Oriented Programming
3. Data Science and Data Visualization

Course Outcome:

1. Recall basic Python syntax, data types, and built-in functions
2. Interpret Python code, understand control flow, and grasp the concepts of functions and modules
3. Apply Python programming concepts to solve problems and write functional code.

4. Assess the efficiency and effectiveness of Python code. Evaluate the correctness of solutions.
5. Design and develop Python program to create complex applications.

Content

Unit	Description in detail	Credit	Weightage
I	**Basics of PythonProgramming:** History of Python, Python Features, Installation and Working with Python, Understanding Python variables, Python basic Operators, Understanding python blocks, Python data types, Declaring and using Numeric data types, using string data type and string operations, Defining list and list slicing, Use of Tuple data type. Python program flow control, Conditional blocks using if, else and elif, simple for loops, for loop using ranges, string, list and dictionaries, Use of while loops, Loop manipulation using pass, continue, break and else statement, Programming using Pythonconditional and loops block, Python - Date & Time.	1	25 %
II	**Python Arrays, Functions, Modules and Packages:** Python arrays, create an array, accessing array elements, looping array elements, adding and removing an array element, array methods. Creating a function, calling a function, passing parameters to function, how to define default value of parameters of a function, passing a list asa parameter, function returning a value, Recursive function, Lambda function.Creating and using module, built-in modules, importing own module as well as external modules, Understanding Packages, Programming using functions, modules and external packages.	1	25 %
III	**OOPS, Exception Handling, File Handling, Thread, Pytest and working with Device:** Concept of class, object and instances, Constructor, class attributes and destructors, Inheritance, Adding and retrieving dynamic attributes of classes, Programming using Oops support and exception handling. Pytest, Threads & Locks, File Handling, Logging, Working with devices using paramiko	1	25 %

	ssh, telent, adb and serial.		
IV	**Data Science and Data Visualization:** Data Frame - Creating Data Frame from an Excel Spreadsheet, Creating Data Frame from.csv Files, Creating Data Frame from a Python Dictionary, Creating Data from Python List of Tuples, Operations on Data Frames,Bar Graph, Histogram, creating a Pie Chart, Stack chart, Creating Line Graph.	1	25 %

Reference Books:

1. Zero To Mastery In Python Programming, Author: Monu Singh Rakesh K. Yadav, Srinivas Arukonda, Publisher: Vayu Education Of India
2. Let Us Python, Author: Aditya Kanetkar Yashavant Kanetkar, Publisher: BPB Publications
3. Python Data Analytics: With Pandas, NumPy, and Matplotlib, Author:Fabio Nelli, Publisher:Apress
4. PythonDataScienceHandbook: Essential Tools for Working with Data, Author:Jake VanderPlas, Publisher:O'Reilly

Online Resources:

1. https://www.python.org/doc/
2. https://www.w3schools.com/python/default.asp
3. https://www.w3schools.com/python/pandas/default.asp
4. https://www.w3schools.com/python/matplotlib_intro.asp
5. https://www.tutorialspoint.com/python/index.htm
6. https://www.javatpoint.com/python-tutorial

Course Outcomes Python, FCAB151101	**Expected Mapping with Programme Outcomes (1- Weak Correlation; 2- Medium correlation; 3- Strong Correlation)**													
	PO-1	**PO-2**	**PO-3**	**PO-4**	**PO-5**	**PO-6**	**PO-7**	**PO-8**	**PO-9**	**PO-10**	**PO-11**	**PO-12**	**PSO-1**	**PSO-2**
CO-1	2					2	3						2	
CO-2			3		3									
CO-3		3	3					3				3		3
CO-4						2	2							
CO-5			3								1	2		3

Program :	BCA	**Subject / Branch :**	NA
Year :	**2021/22**	**Semester :**	V
Course title :	**Web development using PHP**	**Course code :**	FCAB151102
Course type :	Theory	**Course credit :**	04
Pre-requisite :	To learn PHP one must have a basic understanding of computer programming, Internet, database, HTML/XHTML and MySQL will be very helpful. Audience - It is designed for those who are unaware of the PHP concepts but have a basic understanding of computer programming.		
Rationale :	PHP is an open-source, server-side programming language that can be used to create websites, applications, customer relationship management systems and more.		

Teaching Examination Scheme:

Teaching (Hours/week)			**Examination Scheme**			
Lecture	Tutorial	Practical	Internal		External	Total
			Mid	CE		
4	0	0	15	15	70	100

Course Objective :

1. Develop PHP scripts to dynamically generate HTML content
2. Understand and apply the principles of object-oriented programming in PHP.
3. Perform a multitude of useful tasks for web development.

Course Outcome:

1. Recall and list the fundamental of PHP language
2. Describe principles of server-side scripting with PHP in web development
3. Evaluate the efficiency and performance of PHP code.
4. Innovate efficient solutions to solve real-world problems using PHP, HTML, CSS, and JavaScript and MySQL

Content

Unit	Description in detail	Credit	Weightage
Unit – 1	**PHP FUNDAMENTALS**	1	25 %
	Building blocks of PHP: Basic syntax, Variables, Data Types, Operators andexpressions, Constants. Flow Control: Switch flow, Loops, Code Block, Sendingdata to the browser. **Working with Arrays:** Arrays, Creating array, Array related Functions.		
Unit – 2	**PHP FUNCTIONS**	1	25 %
	Working with Function: Function, Calling Function, Defining Function, Returningthe Values from user defined function, Variable Scope, Argument. **Working with Strings,Date and Time Functions:** formatting String with PHP,Date and Time Function, String Manipulation and Investigating Strings with PHP. **Working with Forms:** Creating form, handling form, validating form data, accessing form data, use of Hidden fields to save State, redirecting user, fileUpload and Sending Mail on Form Submission.		
Unit – 3	**WORKING WITH FILE COOKIES & SESSION:**	1	25 %
	Working with Cookies and User Session: Introduction of Cookie, SettingaCookie with PHP, Introduction of Session and Improving Session Security, Startinga Session, Working with Session Variables, Passing Session Id in the query String, Destroying Session and Unsetting Variables. **Working with Directories**: Directory related function. **Working with files**: Include Files with INCLUDE, creating and deleting files, opening a file for reading, writing or Appending, Reading from files, Validating Files.		
Unit – 4	**DATABASE MYSQL**	1	25 %
	Understanding the Database Design Process: The importance of gooddatabase design, Types of Table Relationship, Understanding Normalization .		

	Learning Basic SQL Command: Table Creation, Insert row, Select CommandUsing Where Clause, Update and Delete Command, Replace Command, Stored Procedures, Join, Indexing and Sortingquery. **Using MySQL with PHP**: Connecting to MySQL and selecting the database, executing simple queries, retrieving query results, counting return Records, updating, Record Addition, Viewing Record, and Deletion Record with PHP. **MYSQL Error Handling:** SQL and MySQL debugging techniques. Connecting database with DSN : ODBC Connectivity Function.		

Reference Books:

1. 1.PHP and MySQL for dynamic Web Sites: Visual Quickpro Guide, Second Edition by Larry.
2. Programming PHP By Rasmus Lerdorf, Kevin Tatroe, Peter Maclntyre.
3. The Complete Reference PHP by Steven Holzner

Suggested Books:

1. Beginning PHP 5 by Wrox.
2. Julie C. Meloni, PHP MySQL and Apache, SAMS Teach Yourself, PearsonEducation.

Online Resources:

1. https://www.w3schools.com/php/
2. https://www.tutorialspoint.com/php/index.htm
3. https://www.phptutorial.net/

Course Outcomes Web Development technology-PHP ,FCAB151102	**Expected Mapping with Programme Outcomes** **(1- Weak Correlation; 2- Medium correlation; 3- Strong Correlation)**													
	PO-1	**PO-2**	**PO-3**	**PO-4**	**PO-5**	**PO-6**	**PO-7**	**PO-8**	**PO-9**	**PO-10**	**PO-11**	**PO-12**	**PSO-1**	**PSO-2**
CO-1	3					2	3							3
CO-2	3	1	1				2						2	
CO-3		3	3			2								
CO-4			3					3			3	3		2

Program :	BCA	**Subject / Branch :**	NA
Year :	**2021/22**	**Semester :**	V
Course title :	**Software Engineering**	**Course code :**	FCAB151103
Course type :	Theory	**Course credit :**	04
Pre-requisite :	You must **have strong project management skills** before learning software engineering skills. They can help you organize how you work on assignments and projects		
Rationale :	The reasoning and justification behind human decisions, opinions, and beliefs. In software engineering, rationale management focuses on capturing design and requirements decisions and on organizing and reusing project knowledge.		

Teaching Examination Scheme:

Teaching (Hours/week)			**Examination Scheme**			
Lecture	Tutorial	Practical	Internal		External	Total
			Mid	CE		
4	0	0	15	15	70	100

Course Objective:

1. Be employed in industry, government, or entrepreneurial endeavors to demonstrate professional advancement through significant technical achievements and expanded leadership responsibility;
2. Demonstrate the ability to work effectively as a team member and/or leader in an ever-changing professional environment; and
3. Progress through advanced degree or certificate programs in computing, science, engineering, business, and other professionally related fields.

Course Outcome:

1. Apply the principles of various software development methodologies, software systems design, considering architectural patterns, modularity, and scalability.
2. Learn techniques for gathering, analyzing, and documenting software requirements
3. Develop and execute test plans, ensuring the quality and reliability of software through testing methodologies.
4. Create comprehensive and well-organized documentation, including user manuals, technical specifications, and system documentation.

Content

Unit		Credit	Weightage
I	Historical perspective, Software myths. The Process: Software process, Software process models - The waterfall model, Incremental process models, Evolutionary process models, specialized process models. Design Methods: Design principles, Design concepts, Effective modular design, Data design, Transform & Transaction mapping	1	25 %
II	Verification, Validation and Testing: Strategic approach to software testing, Test strategies for conventional software, Validation Testing, System Testing, The art of debugging, Black box Testing, White box Testing, Control structure Testing, Software Quality.	1	25 %
III	Project Planning and Risk management: Software measurement, Project planning process, Software scope & Decomposition techniques, Empirical estimation model, Make/Buy decision, Reactive versus Proactive risk strategies, Software risks, Risk identification, Risk projection, Risk refinement, Risk mitigation, monitoring, and management, Safety risks and hazards, The RMMM plan	1	25 %
IV	Software Quality Assurance: Quality concepts, The quality movement, Software quality assurance, Software reviews, Formal technical reviews, Overview of SQA, Statistical quality assurance,	1	25%

	Software reliability, The SQA plan, Introduction to ISO standards, Software configuration management, CMM Level, Technology Change management		

Reference Books:

1. Software engineering-rogers.pressman
2. Practical approach of software engineering- dr. Munesh trivedi, avinash

Suggested Books:

1. Pres sman R.S: Software Engineering: A Practitioner approach, McGraw-Hill
2. Software Engineering, Addison Wesley

Online Resources:

1. https://medium.com/fantageek/best-resources-for-software-engineering-77a5b8f7280c
2. https://www.coursera.org/specializations/software-engineering
3. https://www.knowledgehut.com/blog/web-development/software-engineering-books

Course Outcomes Software Engineerings ,FCAB151103	**Expected Mapping with Programme Outcomes (1- Weak Correlation; 2- Medium correlation; 3- Strong Correlation)**													
	PO-1	**PO-2**	**PO-3**	**PO-4**	**PO-5**	**PO-6**	**PO-7**	**PO-8**	**PO-9**	**PO-10**	**PO-11**	**PO-12**	**PSO-1**	**PSO-2**
CO-1			3		2		3	2					2	
CO-2		2	3							1	2		1	
CO-3		3	2		2		3	3				2		
CO-4						3		3						3

Program :	BCA	**Subject / Branch :**	NA
Year :	**2021/22**	**Semester :**	V
Course title :	Management Information System	**Course code :**	FCAB151104
Course type :	Theory	**Course credit :**	04
Pre-requisite :	MIS is that it should be manned by qualified officers. These officers (experts) should understand clearly the views of their fellow officers.		
Rationale :	A management information system helps a company become more competitive. It reports and identifies what is working and what is not. These reports give owners the information they need to make decisions and improve the performance of their employees and the business.		

Teaching Examination Scheme:

Teaching (Hours/week)			**Examination Scheme**			
Lecture	Tutorial	Practical	Internal		External	Total
			Mid	CE		
4	0	0	15	15	70	100

Course Objectives :

1. Apply sound managerial concepts and principles in the development and operation of information systems
2. Apply systems analysis, IS design and project management concepts effectively
3. Improve business processes through the effective application of information technology concepts and practices

Course Outcome:

1. Recall fundamental concepts, terms, and components of Information Systems.
2. Interpret the principles and functions of Information Systems.
3. Apply knowledge of IS to solve practical problems and analyze information needs.
4. Break down complex information systems, analyze data, and identify patterns.
5. Design and assess the effectiveness, efficiency, and security of Management Information Systems.

Content

Unit		Credit	Weightage
1	Introduction to Management Information System : What is MIS? Objectives, Problems, knowledge requirements, nature of Data, Information and Communication, Influence of Information Technology, Changes affecting Organizations. Information, Data and Communication : Objectives, Information Classifications, Characteristics of Data, Functions of Information , Characteristics of Good Information, Communication Methods, Communication Systems	1	25%
2	Systems Concepts : System Approach, Features of System Approach, System Elements (Transformation Process, Boundary, Environment) Leadership, Organizing and Coordinating : Introduction to Leadership, Organizing and Coordinating, Reason for poor Coordination, Improving Coordination. Planning : Planning & Planning terms, Objectives, Levels of Planning, Problems, Types & Sources of planning information.	1	25%
3	Decision Making : What is Decision Making?, Programmed and Non Programmed Decisions, Levels of Decision Making, Aspects of Organization Behavior Individual behavior, formal & Informal relation, Job Satisfaction, Chance – Its Resistance & Management. 10 20 4. Elements of Control. Concepts of Controlling Management, Control of Cycle, Different Feedback Loops – Single Loop Feedback, Double Loop Feedback. Negative Feedback - Closed Loop Systems, Open Loop Systems Positive Feedback..	1	25%

4	Information Technology and MIS : Are Computer essential for MIS?, IT and Information Systems. Computer And MIS : Data Processing Systems, End User Computing : Decision Support System (DSS), Where to apply DSS?, Types of DSS, Expert Systems	1	25%

Reference Books:

1. Management Information System by T Lucey, BPB Publications
2. Organization and Management by Agarwal R.D, Tata McGraw -Hill publishing Company Ltd
3. Business Information Systems by Manccshkumar, Vikas Publishing House Pvt.Ltd

Suggested Books:

1. Management Information Systems 1st Edition
by Jaytilak Biswas (Author)

Online Resources:

1. **https://guides.erau.edu/mis/websites**
2. **https://portal.abuad.edu.ng/lecturer/documents/1584984084MIS_LECTURE_NOTE_2.pdf**

Course Outcomes Management Information System ,FCAB151104	**Expected Mapping with Programme Outcomes (1- Weak Correlation; 2- Medium correlation; 3- Strong Correlation)**													
	PO-1	**PO-2**	**PO-3**	**PO-4**	**PO-5**	**PO-6**	**PO-7**	**PO-8**	**PO-9**	**PO-10**	**PO-11**	**PO-12**	**PSO-1**	**PSO-2**
CO-1	2						3						1	
CO-2		3	3			2	1							
CO-3		3						3		1		1		
CO-4		2		1				2						
CO-5			3				3							

Program :	BCA	**Subject / Branch :**	NA
Year :	**2021/22**	**Semester :**	V
Course title :	Practical -Python	**Course code :**	FCAB151105
Course type :	Practical	**Course credit :**	04
Pre-requisite :	Students should have a good understanding of other web technologies such as HTML, CSS, AJAX, JavaScript, JQuery., C# etc		
Rationale :	It has a simple syntax that mimics natural language, so it's easier to read and understand. This makes it quicker to build projects, and faster to improve on them.		

Teaching Examination Scheme:

Teaching (Hours/week)			**Examination Scheme**			
Lecture	Tutorial	Practical	Internal		External	Total
			Mid	CE		
0	0	4	15	15	70	100

Course Objective :

1. Student can learn Basic of Python Programming.
2. Arrays, Functions, Modules, Packages, Object Oriented Programming
3. Data Science and Data Visualization

Course Outcome:

1. Recall basic Python syntax, data types, and built-in functions
2. Interpret Python code, understand control flow, and grasp the concepts of functions and modules
3. Apply Python programming concepts to solve problems and write functional code.

4. Assess the efficiency and effectiveness of Python code. Evaluate the correctness of solutions.
5. Design and develop Python program to create complex applications.

Content

1	Write a Python Program to Convert Celsius to Fahrenheit and vice a versa.
2	Write a program in python to swap two variables without using temporary variable.
3	Write a Python Program to Convert Decimal to Binary, Octal and Hexadecimal
4	Write a program to make a simple calculator (using functions).
5	Write a program in python to find out maximum and minimum number out of three user entered number.
6	Write a program which will allow user to enter 10 numbers and display largest odd number from them. It will display appropriate message in case if no odd number is found.
7	Write a Python program to check if the number provided by the user is an Armstrong number or not.
8	Write a Python program to display all the prime numbers in user entered range.
9	Write a Python program to check if the number provided by the user is a palindrome or not.
10	Write a Python program to perform following operation on given string input: a) Count Number of Vowel in given string b) Count Length of string (donot use len()) c) Reverse string d) Find and replace operation e) check whether string entered is a palindrome or not
11	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:

	**** ********* *******
12	Write a program in python to implement Fibonacci series up to user entered number. (Use recursive Function)
13	Write a program in python to implement Factorial series up to user entered number. (Use recursive Function)
14	Write a program in python to implement simple interest and compound interest values on chart using PyLab. Show the difference between both. (Note: Use of object oriented paradigm is compulsory.)
15	Write a program in Python to implement read lines, write line using file handling mechanisms.
16	Write a program in python to implement Salary printing file read operation. (File format: EmployeeNo, name, deptno, basic, DA, HRA, Conveyance) should perform below operations. a) Print Salary Slip for given Employee Number b) Print Employee List for Given Department Number

Course Outcomes Practical-Python, FCAB151105	**Expected Mapping with Programme Outcomes (1- Weak Correlation; 2- Medium correlation; 3- Strong Correlation)**													
	PO-1	**PO-2**	**PO-3**	**PO-4**	**PO-5**	**PO-6**	**PO-7**	**PO-8**	**PO-9**	**PO-10**	**PO-11**	**PO-12**	**PSO-1**	**PSO-2**
CO-1	2					2	3						2	
CO-2			3		3									
CO-3		3	3					3				3		3
CO-4						2	2							
CO-5			3								1	2		3

Program :	BCA	**Subject / Branch :**	NA
Year :	**2021/22**	**Semester :**	V
Course title :	**PRACTICAL - Web development using PHP**	**Course code :**	FCAB151106
Course type :	PRACTICAL	**Course credit :**	04
Pre-requisite :	To learn PHP one must have a basic understanding of computer programming, Internet, database, HTML/XHTML and MySQL will be very helpful. Audience - It is designed for those who are unaware of the PHP concepts but have a basic understanding of computer programming.		
Rationale :	server-side programming language that can be used to create websites, applications, customer relationship management systems and more.		

Teaching Examination Scheme:

Teaching (Hours/week)			**Examination Scheme**			
Lecture	Tutorial	Practical	Internal		External	Total
			Mid	CE		
4	0	0	15	15	70	100

Course Objective :

1. Develop PHP scripts to dynamically generate HTML content
2. Understand and apply the principles of object-oriented programming in PHP.
3. Perform a multitude of useful tasks for web development.

Course Outcome:

1. Recall and list the fundamental of PHP language
2. Describe principles of server-side scripting with PHP in web development
3. Evaluate the efficiency and performance of PHP code.
4. Innovate efficient solutions to solve real-world problems using PHP, HTML, CSS, and JavaScript and MySQL

Content

CONTENT

Reference Books:

1. PHP and MySQL for dynamic Web Sites: Visual Quickpro Guide, Second Edition by Larry.
2. Programming PHP By Rasmus Lerdorf, Kevin Tatroe, Peter Maclntyre.
3. The Complete Reference PHP by Steven Holzner

Suggested Books:

1. Beginning PHP 5 by Wrox.
2. Julie C. Meloni, PHP MySQL and Apache, SAMS Teach Yourself, PearsonEducation.

Online Resources:

1. https://www.w3schools.com/php/
2. https://www.tutorialspoint.com/php/index.htm
3. https://www.phptutorial.net/

Course Outcomes Practical- Web Development technology-PHP ,FCAB151106	**Expected Mapping with Programme Outcomes (1- Weak Correlation; 2- Medium correlation; 3- Strong Correlation)**													
	PO-1	**PO-2**	**PO-3**	**PO-4**	**PO-5**	**PO-6**	**PO-7**	**PO-8**	**PO-9**	**PO-10**	**PO-11**	**PO-12**	**PSO-1**	**PSO-2**
CO-1	3					2	3							3
CO-2	3	1	1				2						2	
CO-3		3	3			2								
CO-4			3					3			3	3		2

Program :	BCA	**Subject / Branch :**	NA
Year :	**2021/22**	**Semester :**	VI
Course title :	Adv. Web tech. With .net c#	**Course code :**	FCAB161107
Course type :	Theory	**Course credit :**	04
Pre-requisite :	Some helpful skills to know before learning. NET programming is web development, basic coding, JavaScript, and React. Knowing web development is helpful because. NET programming is often used for front end and back-end programming.		
Rationale :	.NET framework offers language support and has a wide community of developers. It offers more benefits than drawbacks when it comes to application development. This is the reason why startups and large enterprises choose. NET to develop robust applications.		

Teaching Examination Scheme:

Teaching (Hours/week)			**Examination Scheme**			
Lecture	Tutorial	Practical	Internal		External	Total
			Mid	CE		
4	0	0	15	15	70	100

Course Objective:

1. To learn about basic features of ASP.NET and its controls
2. To create an ASP.NET application using standard .NET Controls
3. To learn about connecting data sources using ADO.NET and managing them.

Course Outcome:

1. Recall basic concepts, syntax, and features of .NET C# and related technologies.
2. Interpret the principles behind .NET C# development, understand the role of ASP.NET in web applications.

3. Apply .NET C# programming concepts to solve problems and develop functional web applications.
4. Assess the efficiency, security, and scalability of .NET C# code. Evaluate the effectiveness of web applications.
5. Design and develop original .NET C# web applications. Combine .NET C# with other web technologies for a comprehensive solution.

Content

Unit	Description in detail	Cre	Weig
Unit – 1	**Overview of .net framework:** .net architecture, framework class library, Common LanguageRun Time, managed code, assemblies, Intermediate Language, Just in Time Compiler, commontype system, common language specification, .Net Features **File I/O and Streams:** Drive info class, Directory Info class, file and file Info, working withpaths, Reading and Writing Files: Streams, Readers and Writers	1	25 %
Unit – 2	**Introduction to C#:** Data Types (Boxing and Unboxing), Operators, Access Specifier **OOPS Concepts:** Class, Inheritance, Constructor, Destructor, Abstraction, interface, polymorphism (Over loading and over ridding), Garbage Collection, Array (One Dimensional andTwo Dimensional), Jagged Array, Collection: Generic Collection (List), Non-Generic Collection(Array list, Hash table,), Property, Delegates and events (Multicasting, Multicasting Event),Exception Handling, Introduction to Namespace: Creating & Using Namespace (DLL)	1	25 %
Unit – 3	Architecture of ADO.Net, Comparison with ADO (Connected and Disconnected Architecture), .Net Data provider, Data Adapter, Data Set, Data Row, Data Column, Data Relation, command, DataReader	1	25 %
Unit – 4	**ASP.Net**: ASP.NET Page Life Cycle, Server Controls: label, dropdown list box, validationcontrols, list box, text box, radio button, check box, Validation Controls, Request, Response andServer Object **State Management:**session, cookie, View State, Data Rendering Controls: Grid View, Data list, Repeater, List view, Binding and perform operations (Insert, Update, Delete) with Grid View, Creating and Using web services, Working with Master pages **Navigation Controls:** Understanding Site Maps, Sitemap Path, Menu, Tree View	1	25 %

	Rich Controls: File Upload, Calendar, Ad rotator		

Reference Books:

1. Professional Windows GUI Programming Using C# by Wrox Pubs.
2. Visual C#.Net Black book by Kogent Learning Solutions
3. Murach's C# by Anne & Murach Joel Boehm, Murach Pubs.
4. Programming ASP.NET MVC 4: Developing Real-World Web Applications with ASP.NET MVC By Jess Chadwick & Todd Snyder & Hrusikesh Panda

Suggested Books:

1. Programming in c# by E. Balagurusamy TMH
2.Complete Reference C# - Herbert schildt (TMH Publication)
3. Professional ASP.NET 4 in C#

Online Resources:

1. https://docs.microsoft.com/en-us/previous-versions/visualstudio/visual-studio-2010/kx37x362(v=vs.100)

Course Outcomes ADV. WEB TECH. WITH .NET C# FCAB161107	Expected Mapping with Programme Outcomes (1- Weak Correlation; 2- Medium correlation; 3- Strong Correlation)													
	PO-1	**PO-2**	**PO-3**	**PO-4**	**PO-5**	**PO-6**	**PO-7**	**PO-8**	**PO-9**	**PO-10**	**PO-11**	**PO-12**	**PSO-1**	**PSO-2**
CO-1	2					2	3						3	
CO-2			3		3									
CO-3		3	3					3				3		3
CO-4						2	2							
CO-5			3								1	2		3

Program :	BCA	**Subject / Branch :**	NA
Year :	**2021/22**	**Semester :**	VI
Course title :	Artificial Intelligence	**Course code :**	FCAB161108
Course type :	Theory	**Course credit :**	04
Pre-requisite :	Data Structure, Basic probability theory and Statistics, Knowledge of programming language.		
Rationale :			

Course Objective:

1. The educational objectives of the Software Engineering are to prepare students for employed in industry, government and private sector.
2. Students are expected to demonstrate professional advancement through significant technical achievements and to expand leadership responsibility.
3. This course is intended to demonstrate the ability to work effectively as a team member and team leader in an ever-changing professional environment

Course Outcomes:

1. Recall the foundational concepts and principles of artificial intelligence
2. Explain the basic components and architectures of AI systems
3. Analyze the performance of AI models and algorithms
4. Evaluate ethical implications and societal impacts of AI considering issues like bias, fairness, and privacy

CONTENT

Unit	Description in detail	Credit	Weightage
I	Introduction to Artificial Intelligence: Brief History, Intelligent Systems, Categorization of Intelligent Systems, Components of AI Program, Foundations of AI, Sub-areas of AI, Applications, Development of AI Languages. Intelligent Agents: Rational Agents, Mapping from Sequences to Actions, Properties of Environments, Structure of Intelligent Agents, Types of Agents: Simple Reflex Agents, Goal Based Agents, Utility Based Agents.	1	25 %
II	Prolog Programming language: Introduction, Prolog Program, Control Strategy of Prolog, Programming Techniques in Prolog, List Manipulation in Prolog, System Predicate, Cut, Effect of Rule and Goal Orders, Structuring of Data in Prolog, Recursive Data Types in Prolog, SystemDefined Predicates.	1	25 %
III	Uninformed Search Strategies: Breadth-First Search, Uniform Cost Search, Depth-First Search, Analysis of Search Methods, Informed Search Strategies: Heuristic Functions, Best-First Search, Greedy Search, A* Algorithm, Optimal Solution by A* Algorithm. Introduction to Robotics: Classification, Components, Characteristics, Applications. Robotics Kinematics, Position Analysis, Robots as Mechanisms, Matrix Representation, Transformation Matrices, Forward and Inverse Kinematics	1	25 %
IV	Actuators: Characteristics of Actuating Systems, Actuating Devices and Control, Use of Reduction Gears, Comparison Of Hydraulic, Electric, Pneumatic Actuators, Hydraulic Actuators. Sensors: Sensor Characteristics, Description of Different Sensors, Vision Sensors, Force Sensors, Proximity Sensors, Tilt Sensors, Robot Controls: Point to Point Control, Continuous Path Control, Intelligent Robot, Control System for Robot Joint, Control Actions, Feedback Devices.	1	25 %

Text Book

1 Artificial Intelligence – A Modern Approach. Second Edition, Stuart Russel, Peter Norvig, PHI, Pearson Education.
2 Prolog Programming for Artificial Intelligence. Ivan Bratka- Third Edition – Pearson Education.
3 Saeed B. Niku, Introduction to Robotics Analysis, Application, Pearson Education Asia, 2001.
4 John J. Craig, "Introduction to Robotics", 3rd Edition Addison Wesley publication

Reference Books:

1. Artificial Intelligence – Structures and Strategies for Complex Problem Solving,
2. George F Luger, Addison Wesley, Fifth Edition.
3. Artificial Intelligence, 3rd Edition, Patrick Henry Winston., Pearson Edition

E-Resources / Web Links:

1. https://onlinecourses.nptel.ac.in/noc22_cs56/preview
2. https://www.edx.org/learn/artificial-intelligence
3. https://in.coursera.org/specializations/ai-foundations-for-everyone

Course Outcomes Artificial Intelligence FCAB16 1108	**Expected Mapping with Programme Outcomes (1- Weak Correlation; 2- Medium correlation; 3- Strong Correlation)**												
	PO-1	**PO-2**	**PO-3**	**PO-4**	**PO-5**	**PO-6**	**PO-7**	**PO-8**	**PO-9**	**PO-10**	**PO-11**	**PO-12**	**PSO-1**	**PSO-2**
CO-1		2					3						2	
CO-2			3	2								2		
CO-3	3	3				2							3	
CO-4			2							3				

Program:	BCA	**Subject / Branch:**	NA
Year:	**2021/22**	**Semester:**	VI
Course title:	PRACTICAL -Adv. Web Tech. with .NET	**Course code:**	FCAB161109
Course type:	Practical	**Course credit:**	04
Pre-requisite:	Some helpful skills to know before learning. NET programming is web development, basic coding, JavaScript, and React. Knowing web development is helpful because. NET programming is often used for front end and back-end programming.		
Rationale:	.NET framework offers language support and has a wide community of developers. It offers more benefits than drawbacks when it comes to application development. This is the reason why startups and large enterprises choose. NET to develop robust applications.		

Teaching Examination Scheme:

Teaching (Hours/week)			**Examination Scheme**			
Lecture	Tutorial	Practical	Internal		External	Total
			Mid	CE		
4	0	0	15	15	70	100

Course Objective:

1. To learn about basic features of ASP.NET and its controls
2. To create an ASP.NET application using standard .NET Controls
3. To learn about connecting data sources using ADO.NET and managing them.

Course Outcome:

1. Recall basic concepts, syntax, and features of .NET C# and related technologies.
2. Interpret the principles behind .NET C# development, understand the role of ASP.NET in web applications.
3. Apply .NET C# programming concepts to solve problems and develop functional web applications.
4. Assess the efficiency, security, and scalability of .NET C# code. Evaluate the effectiveness of web applications.
5. Design and develop original .NET C# web applications. Combine .NET C# with other web technologies for a comprehensive solution.

Content

CONTENT
1. Develop an application for Interest Calculator for both Simple and Compound. 2. Develop an application for Simple Calculator. 3. Develop an application for User Registration form that accepts various user information. 4. Develop an application for Temperature Conversion. (Celsius to Fahrenheit and vice-versa) 5. Develop an application that chooses image from the computer and displays them on Picture Box. 6. Develop an MDI application and design a menu. 7. Develop an application that performs insert, update, delete, display and search operation on the employee table. 8. Develop an application that performs insert, update, delete, display and search operation on the student table. 9. Develop an application for Stock Management System. 10. Develop an application for Payroll System.

Reference Books:

1. Professional Windows GUI Programming Using C# by Wrox Pubs.
2. Visual C#.Net Black book by Kogent Learning Solutions
3. Murach's C# by Anne & Murach Joel Boehm, Murach Pubs.
4. Programming ASP.NET MVC 4: Developing Real-World Web Applications with ASP.NET MVC By Jess Chadwick & Todd Snyder & Hrusikesh Panda

Suggested Books:

1. Programming in c# by E. Balagurusamy TMH
2.Complete Reference C# - Herbert schildt (TMH Publication)
3. Professional ASP.NET 4 in C#

Online Resources:

1. https://docs.microsoft.com/en-us/previous-versions/visualstudio/visual-studio-2010/kx37x362(v=vs.100)

Course Outcomes PRACTICAL -ADV. WEB TECH. WITH .NET C# FCAB161109	Expected Mapping with Programme Outcomes (1- Weak Correlation; 2- Medium correlation; 3- Strong Correlation)													
	PO-1	**PO-2**	**PO-3**	**PO-4**	**PO-5**	**PO-6**	**PO-7**	**PO-8**	**PO-9**	**PO-10**	**PO-11**	**PO-12**	**PSO-1**	**PSO-2**
CO-1	2					2	3						3	
CO-2			3		3									
CO-3		3	3					3				3		3
CO-4						2	2							
CO-5			3								1	2		3

Program :	BCA	**Subject / Branch :**	NA
Year :	**2021/22**	**Semester :**	VI
Course title :	Project	**Course code :**	FCAB161110
Course type :	Practical	**Course credit :**	12
Pre-requisite :	Student can study, analyze, design, implement and evaluate the information system.		
Rationale :	To make the students confident in software development.		

Teaching Examination Scheme:

Teaching (Hours/week)			**Examination Scheme**		
Lecture	Tutorial	Practical	Internal	External	Total
0	0	24	CE		
			1st Progress Report – 25 2nd Progress Report – 25 3rd Progress Report – 50	From external organization – 50 (Industry marks) Final Viva, Presentation – 150	300
			100	200	300

Course Objective :

1. Study, analyze, design, implement and evaluate the information system

Course Outcome:

1. Understand analysis of real-world problems and solutions.
2. Design and implement software based on user requirements.
3. Evaluate and test the result after the implementation with maintenance.
4. Understand the working mechanism using system diagram.
5. Describe the software documentation as per software development lifecycle.

Content

In this subject-head students have to do Information system development work and/or design work or software development work in any organization/ company/institute to gain industry experience.

The students will be assigned one or more system development projects. It will be an external project, with work duration of one (01) academic term [Full Semester]. The students have to start work on project after completion of the V semester. The students should have to do full time work i.e. at least 5 days per week with at least 5 or more hours per day.

Students may work in team (comprising not more than three) or individually to acquire hands-on skills in system development.

Following could be the possible alternatives for the projects.

1. Development of a system for IT / Computer Company or Institutional or Government Department or Private Sector.
2. Development of Hypothetical Application.
3. Analysis of work (Analytical or descriptive) Information project / system including

cyber laws, standard, which may not include source coding.

4. Network designing and deployment. (may include less source coding as per nature of work)
5. Developing and / or designing a website or web scripting.

Project work should include all of the phases of system development life cycle. Like

- Analysis of a system
- Designing, Source Coding
- Documentation
- Implementation &
- Updating in system (if any)

The system development project evaluation divided into

1) Internal marks - 100

2) Industry marks - 50

3) Final Viva / Presentation examination marks - 150.

1. During the project work, Department will conduct presentations of progress of project at different stages. There will be 100 internal marks for progress reports. At least three progress report need to be conduct by the department. The organization / company may also give the grades as per his/her individual performance and progress in different stages of a project, which may be considered at the stage of internal evaluation by the internal experts penal of the Department.
2. After the completion of the system development project work, organization / company owner or project leader has to provide confirmation of work done (certificate of work completion) as well as Organization / Company marks (Industry marks) out of 50.
3. After the completion of a system development project, the University has to arrange Viva/Presentation examination, which will be of 150 marks. The examination Panel should include Academic Experts as well as Industry Experts. The experts will decide student's marks out of 300 as per his performance. Panel should contain at least 4

experts. The Viva/Presentation examination time for each group should be at least 40 minutes.

Documentation:

·The project has to be well-documented in the form of a Project Report (at least 50 pages comprising of the design, data dictionary, source code, screenshots etc.)

·Format: Print out on both the side of page with single line spacing. Use Times New Roman of size 10 for normal text.

·Students are advised preferably to make documentation in Agile

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1	Project or Company Profile
2	Functional Requirement Specification
2.1	Module Specification
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3.1	About Existing System
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4.1	Hardware Requirement
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6	Diagrams
6.1	UML Diagram
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6.6	Deployment Diagram
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8	Input & Output Design

9	Testing
10	Post implementation review
11	Future Enhancement
12	Conclusion
13	Bibliography / References

Course Outcomes PROJECT FCAB161110	**Expected Mapping with Programme Outcomes (1- Weak Correlation; 2- Medium correlation; 3- Strong Correlation)**													
	PO-1	**PO-2**	**PO-3**	**PO-4**	**PO-5**	**PO-6**	**PO-7**	**PO-8**	**PO-9**	**PO-10**	**PO-11**	**PO-12**	**PSO-1**	**PSO-2**
CO-1	3	3				3							2	
CO-2			3		3									3
CO-3								3			3	3		
CO-4			3		3								2	
CO-5													2	