

VIDHYADEEP UNIVERSITY

Syllabus for F.Y. B.C.A. (Sem-I and Sem-II)To

be implemented from

Academic Year: June, 2022-2023

: Submitted By:

BCA Department

Bachelor of Computer Application (B.C.A.)

Name of Program:	Bachelor of Computer Application
Abbreviation:	B.C.A.
Duration:	3 Years (Regular)
Eligibility:	Candidate must have passed standard 12th (H.S.C.) Examination in Science (Any Group) / Commerce / vocational / General stream through Gujarat Higher Secondary Board (G.H.S.E.B.) or any other equivalent board (C.B.S.E. / I.C.S.E. etc. which must be approved and possess equivalence certificate from Vidhyadeep University) with English as one of the subject. In case of candidates passed out from 12th (H.S.C.) General Stream, Statistics/Economics/Business Mathematics must be one of the subjects. In case of Students passed out with 12th (H.S.C.) vocational stream, Computer and English must be one of the subject.
Objective of the Program:	Objective of the program is to open a channel of admission for courses in Computer Science for students who have completed standard 12th (H.S.C.) and are interested in taking computing/IT as a career. The program caters to the needs of the students aspiring to excel in the field of computer science. The program is designed to develop computer professionals versatile in almost all field of computer application. The main emphasis of the course is an applied computer use in various fields.
Program Outcome:	It will prepare the aspiring students to become computer programmers who can work in companies at entry level and can also work independently.
Medium of Instruction:	English
Program Structure:	Semester-wise Breakup of the course is given as follows:

**Program Structure: F.Y.B.C.A. (SEM – I and
SEM - II)(Academic Year June, 2022 – 2023)**

Course Code	Title	Teaching Per Week (Credit/Hours)		Course Credits	University Examination		Internal Marks	Total Marks
		Theory	Practical		Duration	Marks		
1141101	Communicative English	2	0	02	3 Hours	60	40	100
1142102	Principle of Mathematics	3	0	03	3 Hours	60	40	100
1142103	Fundamental of Computers	4	0	04	3 Hours	60	40	100
1142104	Introduction to Programming using C	4	0	04	3 Hours	60	40	100
1142105	Data Management	4	0	04	3 Hours	60	40	100
1145106	Introduction to Programming using C Practical	-	6	06	2 Hours	60	40	100
1145107	Data Management Practical	-	6	06	2Hours	60	40	100
	Foundation Elective (to be selected from NCC / NSS / Saptadhara)	0	0	02				
Total				31		420	280	700

Course Code	Title	Teaching Per Week (Credit/Hours)		Course Credits	University Examination		Internal Marks	Total Marks
		Theory Hours	Practical Hours		Duration	Marks		
1141201	Mathematical Statistics	2	0	2	3 Hours	60	40	100
1141202	Introduction to Internet & HTML	3	0	3	3 Hours	60	40	100
1142203	Operating System	4	0	4	3 Hours	60	40	100
1142204	Programming Skills with Python	4	0	4	3 Hours	60	40	100
1145205	Relational Database Management System	4	0	4	3 Hours	60	40	100
1145206	Programming Skills with Python Practical	0	06	06	2 Hours	60	40	100
1145207	Relational Database	0	06	06	2 hours	60	40	100

	Management System Practical							
	Foundation Elective (to be selected from NCC / NSS / Saptadhara)	0	0	02				
Total				31		420	280	700
<p>For Practical: (Batch Size –30 Maximum) :</p> <p>1.In case of more than 10 students in a batch, separate batch shouldbe considered</p> <p>2.The journal should be certified by the concerned faculty and also by the Head of the Department,failing which the student should not be allowed to appear for the External Practical Examination.</p> <p>Programming passing rules: As per University rules.</p>								

F.Y.B.C.A. (SEM - I)

Academic Year of Implementation: 2022-2023

Subject Course 1141101: Communicative English

Subject Code: 1141101	Total Credit: 2
Subject: Communicative English	

Unit	Description in detail	Weighting (%)
I	Introduction 1.1. Spoken and conversation for Greetings, Requests, Invitation, Permission, Thanks etc. 1.2. Basic Sentence patterns 1.3. Basic rule of Composition 1.4. Vocabulary Development 1.5. Paragraph Development	20%
II	Fundamentals of Grammar 2.1. Types of Tense 2.2. Model Auxiliary 2.3. Conjunction and repositions 2.4. Active and Passive voice 2.5. Agreement between Subject and Verb	20%
III	Writing Skills 3.1. Guidelines for effective writing 3.2. Writing style of application 3.3. Personal Resume 3.4. Business letter and Memo including Requests, Complaints, Quotation etc. 3.5. Technical Report writing 3.6. Different types of Essay	20%
IV	Speaking and Discussion Skills 4.1. Components of Effective talk / presentation 4.2. Planning of content of a talk / presentation Use of Visual aids Effective speaking skills 4.3. Discussion skills	20%
V	Reading & Listening Skills 5.1. Guideline for Reading 5.2. Pronunciations of words 5.3. Part of Listing 5.4. presentation skills	20%
Reference Books	1. Handbook of practical Communication skills – Chrisle W. JAICO 2. Basic Managerial Skills for all – S. J. McGrath - PHI 3. Reading to learn – Sheila Smith & Thomas M. Methuen (London) 4. Communication conversation Practice _ Tata McGraw Hill 5. Communication in English – R. P. Bhatnagar & R. T. Bell – Orient Longman 6. Good English – G. H. Vallins – Rups & Co. 7. Let's talk English – M. I. Joshi	

Subject Course 1141101: Communication English

Subject Code:	1141101
Subject Title:	Communication English
Credit	2
Nature of Subject:	Theory Only
Teaching per Week	2 Hrs
Minimum weeks per Semester	15 (Including Class work, examination, preparation etc.)
Review / Revision	June 2022-2023
Purpose of Course	Effective communication is vital for the success in various situations. This course will help students develop and improve English Communication skills.
Course Objective	The objective of this course is to guide/help students in improving their English communication skills.
Pre-requisite	Basic School English
Course Out come	After studying this subject, students will be able to improve their communication skills in English.

Subject Course 1141102: Principles of Mathematics

Subject Code: 1141102	Total Credit: 3
Subject: Principles of Mathematics	

Unit	Description in detail	Weighting (%)
I	Set Theory 1.1.Introduction 1.2.Representation 1.3.Operation and its properties 1.4.Venn Diagram 1.5.Cartesian product and graph	20%
II	Functions 2.1. Definition 2.2. Types – Domain and Range 2.3.Construction and functions	20%
III	Mathematical Logic 3.1.Introduction to logic 3.2.Truth Table	20%
IV	Boolean Algebra 4.1 Definition & Examples of Boolean Algebra 4.2 Boolean Functions 4.3 Representation and minimization of Boolean Functions 4.4 Design example using Boolean algebra	20%
V	Matrices and Determinants 5.1.Matrices of order $M * N$ 5.2.Row and Column transformation 5.3.Addition, Subtraction and multiplication of Matrices 5.4.Computation of Inverse Cramer’s Rule Business Application of Matrices	20%
Text Book	1. Discrete Mathematics T. Veerarajan Tata McGraw Hill	
Reference Books	1. Discrete Mathematics and its Applications Kenneth H. Rosen Tata McGraw Hill 2. Discrete Mathematical Structures with Applications to Computer Science J. P. Tremblay R. Manohar Tata McGraw Hill 3. Analytical Geometry: 2D and 3D P R Vittal Pearson 4. Introduction to Computer Science ITL ESL Pearson	

Subject Course 1141102: Principles of Mathematics

Subject Code:	1141102
Subject Title:	Principles of Mathematics
Credit	3
Teaching per Week	3 Hrs
Minimum weeks per Semester	15 (Including Class work, examination, preparation etc.)
Review / Revision	June 2022-2023
Purpose of Course	<ul style="list-style-type: none">• provide foundation of data representation, logical implementation of data.• educate mathematical concepts to recognize their applications in computer domain.• demonstrate a basic understanding of a function, its inverse, composition, and notation.• model and analyze computational processes using analytic and combinatorial methods.
Course Objective	The objective of this course is to guide/help students in developing Mathematical Abilities relevant to Computer Science.
Pre-requisite	School Mathematics
Course Out come	<ul style="list-style-type: none">• Convert Matrix into different format; perform arithmetic like addition, subtraction, division and multiplication.• deals with operations on logical values with binary variables.• use concepts of set theory for understanding & fetching data from database using query.• apply permutations and combinations on given set of data

Paper – 1142103-Fundamental of Computers

Subject Code: 1142103	Total Credit: 4
Subject : Fundamental of Computers	

Unit	Description in detail	Weighting (%)
I	Introduction 1.1. Introduction of Computer 1.2. Applications of Computer 1.3.Types of Computers – Super Computers, Mainframes, Mini Computers, Micro computers(Desktop, Laptop, Notebook, Tablet, Smart Phones) 1.4. Block Diagram and functional units of computer	20%
II	Basic Computer Architecture 2.1. Concepts of Address Bus and Data Bus 2.2. Concept of virtual memory and cache memory 2.3. Hardware Components 2.3.1. Motherboard 2.3.2. Types of Processor (CPU and GPU) 2.3.3. Understanding processor speed 2.3.4. Memory – RAM(SRAM,DRAM, SDRAM), ROM, EPROM, EEPROM 2.3.5. Storage Devices – Hard Disk, CD, DVD, USB flash memory 2.4. Introduction to Software 2.4.1. Purpose and significance of Operating System 2.4.2. Concept of System Software and Application Software	20%
III	Number System 3.1. Introduction of Decimal, Binary, Octal and Hexadecimal number Systems. 3.2.Conversion of Decimal to Binary and Binary to Decimal 3.3. Binary addition & subtraction 3.4. ASCII and ANSI character code	20%
IV	Input & Output Devices 4.1. Introduction of Input Devices 4.2. Pointing Devices – Mouse, Trackball, Joystick, Touch Screen, Light Pen , Keyboard, RFID concepts and application in Fast Tag 4.3. Introduction and purpose of Scanning Devices 4.3.1. Optical Scanner 4.3.2. Bar Code Reader 4.3.3. Web Camera 4.4. Introduction and comparisons of Output Devices 4.4.1. Monitors – LED, LCD, TFT, OLED, Touch Screen Monitor 4.4.2. Printers – Dot Matrix Printer, Laser Printer, Inkjet Printer	20%
V	Fundamental of Internet 5.1. Concepts of Internet and WWW 5.2. Types of Internet Services 5.2.1. Hardware – Modem, Router, Blue tooth, Fire-Stick	20%

	<p>5.2.2. Internet connections using Hotspot, WiFi, cable</p> <p>5.2.3. Introduction of Cloud</p> <p>5.2.4. Concepts of cloud</p> <p>5.2.5. Purpose and application of Cloud (Example of GoogleDoc)</p> <p>5.2.6. Concepts of Online Data Backup</p> <p>5.3. Introduction of Web Browser and relevant terminologies :</p> <p>5.3.1. URL, Address bar, Domain, Links, Navigation Buttons</p> <p>5.3.2. Tabbed browsing, Bookmarks, History</p>	
Text Books:	<p>1. Programming in ANSI C E. Balagurusamy Tata McGraw Hill</p> <p>2. Introduction to Computer Science IITL Education Solutions Limited Pearson Education</p>	
Reference Books	<p>1. Programming in C Ashok Kamthane Pearson</p> <p>2. Let Us C Yashavant P. Kanetkar Tata McGraw Hill</p> <p>3. Introduction to C Programming Reema Thareja Oxford Higher Education</p>	

Paper – 1142103-Fundamental of Computers

Subject Code:	1142103
Subject title:	Fundamental of Computers
Total Credits :	4 Credits
Nature of Subject :	Theory only
Teaching per Week:	4 Hours per week per Semester
Minimum weeks per Semester:	15 weeks (Including class work, examination, preparation etc.)
Review/Revision Year:	June 2022-2023
Purpose of Course :	<ul style="list-style-type: none"> - Concepts and types of computer and various hardware technologies relevant to computer as well as some important peripherals will be covered. - Introduction of computer internal memories, number systems and conversions from decimal to binary. - Exposure of various input and output devices as well as concepts of Internet and relevant gadgets and their applications. - understand how programming can help to solve real time problems. - identify appropriate approach to computational problems. - develop logic building and problem-solving skills.
Objective :	Objective is to provide knowledge of functional units, number System, Devices and memory & its storage.
Pre-requisite:	Fundamental Knowledge of Computers
Course Outcome :	<ul style="list-style-type: none"> - After studying this subject, students will get knowledge of functional units, number System, devices and memory & its storage. - convert decimal to binary, hexadecimal and 2's complement data representation; perform arithmetic operations like addition, subtraction, division and multiplication. - use concepts of fundamental of internet for understanding & Used internet by different devices.

Paper – 1142104 :Introductions To Programming Using C Language

Subject Code: 1142104	Total Credit: 4
Subject : Introductions To Programming Using C Language	

Unit	Description in detail	Weighting (%)
I	Introduction of C 1.1. Concepts of Programming Language 1.2. Introduction of Source Code, Object Code and executable code 1.2.1. Algorithm and Flowchart 1.2.2. Concepts of Structured Programming Language 1.3. Concepts of Editor, Interpreter and Compiler 1.3.1. Introduction of C program body structure 1.3.2. Character Set, concepts of variables and constants 1.3.3. Identifiers, literals, Key words 1.3.4. Data types (signed and unsigned) (Numeric : int, short int, long, float,double) , (Character type: char, string) and void. 1.3.5. Concepts of source code, object code and executable code	15%
II	Input/Output Statements and Operators: 2.1. Input/Output statements: 2.1.1. Concepts of Header files (STDIO,CONIO) 2.2. Concepts of pre-compiler directives. 2.3. Use of #include and #define 2.4. Input/Output Statements: 2.4.1. Input statements : scanf(), getc(), getch(), gets(), getchar() 2.4.2. Output Statements: printf(), putc(),puts(), putchar() 2.4.3. Type specifiers (formatting strings) : %d, %ld, %f, %c, %s, %lf 2.5. Operators : 2.5.1. Arithmetic operators (+, -, *, /, %, ++, --,) 2.5.2. Logical Operators (&&, , !) 2.5.3. Relational Operators (>, =, <=, !=) 2.5.4. Bit-wise operators (&, , ^, <>) 2.5.5. Assignment operators (=, +=, -=, *=, /=, %=) 2.5.6. Ternary Operator and use of sizeof() function. 2.6. Important Built-in functions: 2.6.1 Use of <string.h> : (strlen, strcmp, strcpy, strcat, strrev) 2.6.2 Use of <math.h> : (abs(), floor(), round(), ceil(), sqrt(), exp(), log(), sin(), cos(), tan(), pow() and trunc())	20%
III	Control statements : 3.1 Decision making statement 3.1.1. if statements : 3.1.2. simple if statements 3.1.3. if...else statements 3.1.4. if...else if...else statements 3.1.5. Nested if statements. 3.1.6. Switch..case statements 3.1.7. Use of break and default 3.2. Difference between switch and if statements	20%
IV	Iterative statements : 4.1. Iteration Statement 4.1.1. while loop 4.1.2. do..while loop	20%

	<p>4.1.3. for loop</p> <p>4.1.4. Nested while, do..while and for loops</p> <p>4.2. Jumping statement: (break, goto and continue)</p>	
V	<p>Concepts of Arrays and pointer</p> <p>5.1. Concepts of Single-dimensional Array</p> <p>5.2. Numeric single dimensional Array</p> <p>5.1.1. Numeric single dimensional array operations:</p> <p>5.1.2. Sorting array in ascending or descending. (Bubble and selection)</p> <p>5.1.3. Searching element from array (Linear Search)</p> <p>5.2 Concepts of Two-Dimensional Numeric Array:</p> <p>5.2.1. Declaring Two-Dimensional numeric array</p> <p>5.2.2 Two-Dimensional numeric Array operations (Addition, Subtraction Multiplication, Transpose)</p> <p>5.3. Two-Dimensional Character Array:</p> <p>5.4. Declaring & Initializing Two-Dimensional character array</p> <p>5.4.1. Two-Dimensional character Array operations (Searching elements, copying, merging, finding length of given string)</p> <p>5.3. Character Single dimensional Array</p> <p>5.3.1. Character Single dimensional array operations:</p> <p>5.4. Use of \0, \n and \t</p> <p>5.5. Pointers:</p> <p>5.5.1. Concepts of Pointers</p> <p>5.5.2. Declaring and initializing int, float, char and void pointers</p> <p>5.5.3. Pointer to single dimensional numeric array.</p> <p>5.6 Concepts of structure and Union:</p> <p>5.7 Defining, declaring and Initializing structure and Union</p> <p>5.8 typedef and accessing structure member</p> <p>5.9 Difference between structure and union</p> <p>5.10 User defined functions :</p> <p>5.10.1 Function return type, parameter list, local function variables</p> <p>5.10.2 Passing arguments to function</p> <p>5.10.3 Calling function from main() function or from other function.</p> <p>5.10.4 Function with No arguments and no return value, No arguments and a return value, with arguments and no return value, with arguments and a return value.</p> <p>5.11. Recursive Function</p>	25%
Text Books	<ol style="list-style-type: none"> 1. Programming using ANSI C – E Balagurusamy - Tata McGraw Hill 2. Introduction to Computer Science ITL Education Solutions Limited Pearson Education 	
Reference Books:	<ol style="list-style-type: none"> 1. Programming in C, Stephan Kochan - CBS 2. Mastering Turbo C, Kelly & Bootle - BPB 3. C Language Programming – Byron Gottfried - TMH 4. Let us C, Yashwant Kanetkar - BPB Publication 5. Magnifying C, Arpita Gopal - PHI 6. Problem Solving with C, Somashekara - PHI 7. Programming in C, Pradip Dey & Manas Ghosh – Oxford 	

Paper – 1142104 -Introductions To Programming Using C Language

Subject Code:	114210 4
Subject Title:	Introductions To Programming Using C Language
Total Credits :	4 Credits
Nature of Subject :	Theory and Practical application
Teaching per Week:	4 Hours per week per Semester
Minimum weeks per Semester:	15 weeks (Including class work, examination, preparation etc.)
Review/Revision Year:	June, 2022-2023
Purpose of Course :	<ul style="list-style-type: none">- Computer programming (often shortened to programming) is a process that leads from an original formulation of a computing problem to executable computer programs.- Programming involves activities such as analysis, developing, understanding, generating algorithms, verification of requirements of algorithms including their correctness, and implementation (commonly referred to as coding) of algorithms in a target programming language.- Students pursuing their Graduation program will encounter their first programming language which is one of the pioneer computer programming languages.- Purpose of the course is to emphasis on concepts of Compiler based programming language, structure of code, algorithms, flow-charts, problem solving attitude, concepts of variables and declaration mechanism of different datatypes, simple I/O statements, conditional statements, loops, compound iterations, strings and certain inbuilt functions, header files, concepts of arrays and one dimensional numeric array operations, numeric inbuilt functions and concepts of pointers.
Objective :	Object of this course is to introduce students the essentials of computer Programming and programming methodology using C language.
Pre-requisite:	None
Course Outcome :	<ul style="list-style-type: none">- Students will be able to formulate a computing problem to executable computer program using C language.- Understand about compiler based programming languages.- 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

Subject Course 1142105: Data Management (DM)

Subject Code: 1142105	Total Credit: 4
Subject : Data Management (DM)	

Unit	Description in detail	Weighting (%)
I	<p>Concepts of worksheet:</p> <p>1.1. Fundamentals of Worksheet:</p> <p>1.2. Concepts of workbook, adding worksheet, cell address, formula bar, column, rows, cells, Insert, delete, format cells , cell size (row-height, column weight), rename sheet, protect sheet, lock cell.</p> <p>1.3.Cut, copy, paste, paste special, format painter, font size, font face,fill color, font color, font alignment</p> <p>1.4. Alignment, indent, Number format, percent style, coma style, increase/decrease decimal</p> <p>1.5.Insert picture, shapes</p> <p>1.6.Insert Textbox, Header & Footer, Symbols</p> <p>1.7. Save, save as, save file as csv, spell check, protect sheet and Workbook, Linking spread sheets.</p> <p>1.8. Print, Quick print, Print preview</p> <p>1.9. Split, Hide and freeze panes in worksheet.</p>	15%
II	<p>Formulas, Chart and Data:</p> <p>2.1. Charts :</p> <p>2.1.1Creating 2D and 3D charts (Columns, Line, Pie, Bar, Scatter)</p> <p>2.1.2 Difference among columns, Line and bar charts.</p> <p>2.2 . Formulas: sum, average, count, max, min, sumif, pmt, stddev Logical (if, AND, OR, NOT, TRUE, FALSE) Date and Day function : Date, day, time, now, Hour, Minute, Second, Month, Days360, weekday</p> <p>2.3. Data : Sort Data, Filter Data Text to columns, Remove Duplication Consolidated Data (sum, count, max, min, average)</p>	15%
III	<p>Concepts of Database:</p> <p>3.1 .Database characteristics:</p> <p>3.2. Data Independence (Logical and Physical)</p> <p>3.3. Components of Database (User, Application , DBMS, Database)</p> <p>3.4. Database Architecture (1-tier, 2-tier, 3-tier)</p> <p>3.5. Comparison, advantages and disadvantages.</p> <p>3.6. Database Models (Hierarchical, Network, E/R, Relational)</p> <p>3.6.1. E/R model : Entity, Relationship, Attribute</p> <p>3.6.2. E/R Diagram : One to one, one to many , many to one, many to many Strong entity, weak entity</p> <p>3.7. key attribute, derived attribute, Multi-valued attribute</p> <p>3.8. Types of keys :</p> <p>3.8.1. Super key, candidate key, Primary key, Composite key, Foreign key, Unique key.</p>	25%
IV	<p>Normalization and Concepts of SQL:</p> <p>4.1. Why normalization (Insertion, Updating, Deletion anomalies)</p> <p>4.2. Normalization Rules:</p> <p>4.3. Concepts of Dependency, Transitive Dependency</p> <p>4.4. Armstrong Axioms</p> <p>4.4.1. 1st Normal Form, 2 nd Normal Form, 3 rd Normal Form, B.C.N.F.</p>	25%

	<p>4.4 type of database.</p> <p>4.5 Introduce to Nosql.</p> <p>4.5.1 used of Nosql.</p> <p>4.5.2 Features of NoSql</p> <p>4.5.3 type of Nosql</p> <p>4.7 difference between Nosql vs Sql</p> <p>4.6 Concepts of Structure Query Language (SQL)</p> <p>4.7 SQL datatypes : int, float, double, char, varchar, number, varchar2, Text, date</p> <p>4.8 DDL Statements :</p> <p>4.8.1. Create , Drop, Truncate, Rename, Alter</p> <p>4.9. DML and DQL(Data Query Language) Statements :</p> <p>4.9.1. Insert, Update, Delete , select</p>	
V	<p>Queries (Single Table only)</p> <p>5.1. Using where clause and operators with where clause:</p> <p>5.1.1. In, between , like, not in, =, !=, >, =, <=, wildcard operators</p> <p>5.2. Order by, Group by, Distinct</p> <p>5.3. AND, OR operators, Exists and not Exists</p> <p>5.4. Use of Alias</p> <p>5.5. Constraints (Table level and Attribute Level)</p> <p>5.5.1. NOT NULL, CHECK, DEFAULT, UNIQUE, Primary Key, Foreign Key</p> <p>5.5.2. On Delete Cascade</p> <p>5.6. SQL Functions :</p> <p>5.6.1. Aggregate Functions: avg(), max(), min(), sum(), count(), first(), last().</p> <p>5.6.2. Scalar Functions: ucase(), lcase(), round(), mid().</p> <p>5.7. Creating sequence</p> <p>5.8. Views :</p> <p>5.8.1. Creating simple view, updating view, dropping view.</p> <p>5.9. Difference between View and Table.</p>	20%
Text Books	<ol style="list-style-type: none"> 1. Database System Concept Abraham Silberschatz, Henry F. Korth, S. Sudarshan McGraw Hill 2. PL/SQL–The Programming Language of Oracle Ivan Bayross BPB Publications 	
Reference Books:	<ol style="list-style-type: none"> 1. An Introduction to Database System C J Date Addition-Wesley 2. Fundamental of Database System R. Elmasri and S.B Navathe Benjamin/Cumming 3. Oracle: The Complete Reference George Koch, Kevin Loney TMH /oracle press 	

Course 1142105: Data Management

Subject Code:	1142105
Subject title:	Data Management
Credit:	4
Nature of Subject:	Theory and Practical Application
Teaching per Week	4 Hours
Minimum weeks per Semester:	15 (Including Class work, examination, preparation etc.)
Review / Revision:	June 2022-2023
Purpose of Course:	Understand concepts of Data and storage of data. This course is aimed to impart knowledge about storing data, concepts of database, retrieval of data and manipulation of data. It is aimed to cover effective storage of data, statistical analysis of data and graphical presentation of data. It also covers concepts of database and fundamental of query languages to insert, access, and manipulate data. This course is not spreadsheet or database specific.
Course Objective:	i) Concepts of data, data storage and statistical manipulation of data. ii) Introduction of spreadsheet and data manipulation using spreadsheet. iii) Concepts of database, storage and manipulation of data using query language.
Pre-requisite:	Concepts of data.
Course Outcome:	<ul style="list-style-type: none">- Students will be proficiently working on data manipulation using spreadsheet,- fundamentals of database and handling database using query language using SQL.- convert physical, data, conceptual data into relational databases.- utilize database design for the development of software projects.- apply various data base constraints on relational databases.

Course-1145106: Introduction to Programming using C Practical

Course Code:	1145106
Course Title:	Practical
Total Credits :	06 Credits
Nature of Subject :	Practical only
Teaching per Week:	12 Hours per week per Semester
Minimum weeks per Semester:	15 weeks (Including class work, examination, preparation etc.)
Review/Revision Year:	June 2022-2023
Purpose of Course:	<ul style="list-style-type: none"> - Practical implementation of technologies covered as part of syllabus using required software and learning application areas. - Understanding and learning programming concepts, data types and variables using c programming language. - Learning concepts of compiler based programming language and its conditional and iteration structures.
Objective :	Objective of this course is to introduce essentials of computer programming language, introduction of compiler based programming language,
Pre-requisite:	None
Course Outcome :	<ul style="list-style-type: none"> - At the end of this course, students will have hands on experience of writing and applying codes using compiler based programming language. Students will understand structure of program, concepts of compiling and executing codes using variables, in-built functions, header files and control structures. - Students will have edge over concepts of work-sheets, storage of data, types of data, handling, manipulating and representing data using formulas and charts. - Students will be able to understand concepts of database and storage of data in structured way as well accessing and manipulation of data using structured query language.
Course Content:	1. Practical implementation based on Course-Paper-1142104.
Teaching Methodology:	<ul style="list-style-type: none"> - Practical work - Lab sessions and hands on experience, Discussion, Self-Study - Students will create word document containing based work
Evaluation Method:	<p>40% Internal assessment. 60% External assessment.</p> <p>[For Internal and External Examination Suggested distribution of question weight will be :50% - based on Course-paper-1142104 , 10% - based on Unit-1 & Unit-2</p>

Course 1142107: Data Management Practical

Course Code:	1145106	
Course Title:	Practical	
Total Credits :	06 Credits	
Nature of Subject :	Practical only	
Teaching per Week:	12 Hours per week per Semester	
Minimum weeks per Semester:	15 weeks (Including class work, examination, preparation etc.)	
Review/Revision Year:	June 2022-2023	
Purpose of Course	<ul style="list-style-type: none"> - Understanding use and application areas of spread-sheet. Storing and presenting data using charts, use of formulas and formatting data. - Understanding concepts of data and database. - Accessing, storing and controlling data using query language. (Only single table queries). 	
Objective :	Objective of this course is to introduce essentials concepts of data and representation of data , use of query languages and storing and accessing data using query languages.	
Pre-requisite:	None	
Course Outcome :	<ul style="list-style-type: none"> - Students will have edge over concepts of work-sheets, storage of data, types of data, handling, manipulating and representing data using formulas and charts. - Students will be able to understand concepts of database and storage of data in structured way as well accessing and manipulation of data using structured query language. 	
Course Content:	<ol style="list-style-type: none"> 1. Creating and performing tasks based on unit 1 and 2 of Course-Paper-1142105. 2. Practical implementation of SQL based on Unit-3, Unit-4, Unit-5 of Course-Paper-1142105. 	
Teaching Methodology:	<ul style="list-style-type: none"> - Practical work - Lab sessions and hands on experience, Discussion, Self-Study - Students will create word document containing SQL based work including tables and queries and represent their work using presentation software at end of the semester. 	
Evaluation Method:	<p>40% Internal assessment. 60% External assessment.</p> <p>[For Internal and External Examination Suggested distribution of question weight will Course-paper-1142105 and 40% - based on Unit-3, Unit-4 and Unit-5 of Course-paper-1142105.)</p>	