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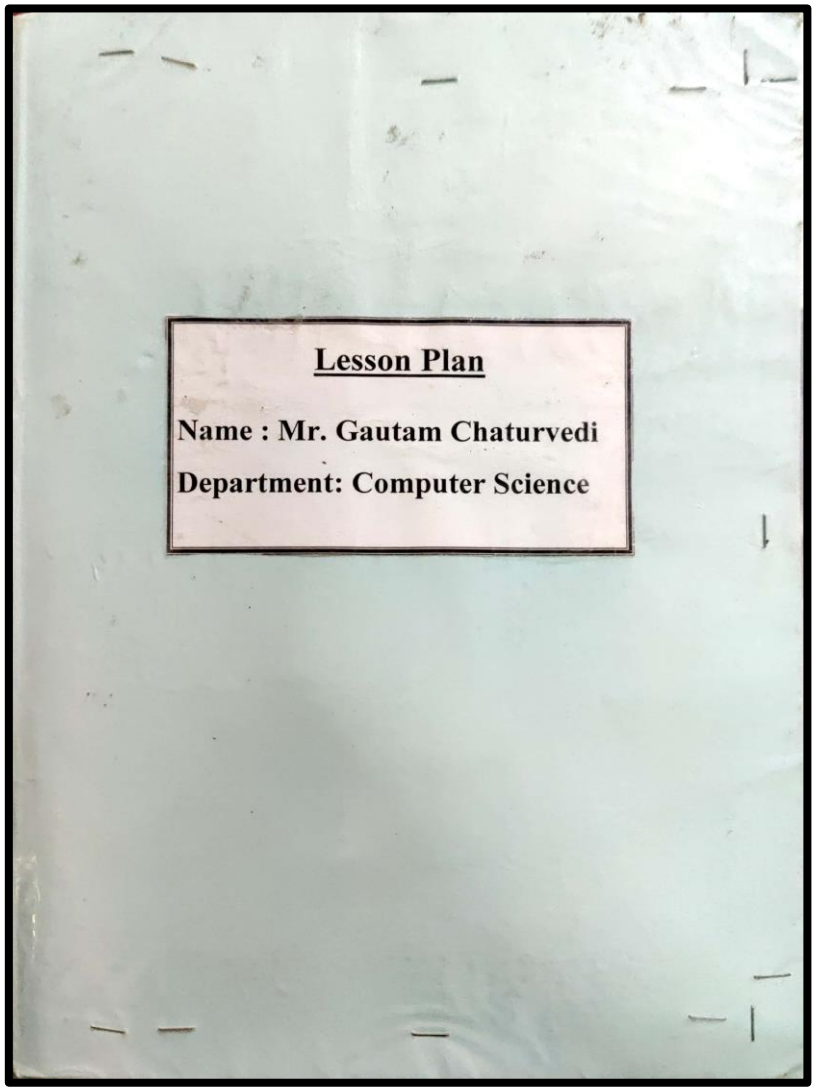

COURSE_PLAN_2019-20_MR_GAUTAM_CHATURVEDI

SOPHIA GIRL'S COLLEGE, AJMER (*AUTONOMOUS*)
BCA / IMSC (SEMESTER - I) 2019-20

BCA / IMSC – 103 Fundamentals of 'C' Programming

Max. Marks :100 (70Ext; 30 Int) Min. Marks: 40 (28 Ext;12 Int) Credits : 4

COURSE PLAN

SEM - I Month	UNIT / TOPIC	Concepts / Facts	Teaching Pedagogy	Learning Outcomes	Questions	Marks Weightage (%)
JULY	'C' Language: Character Set, Keywords, Constants, Variables, Data Types, Type Conversion, Instruction & its types: Input Output Instructions, Operators & Expressions: Arithmetic, Relational, Logical, Conditional , Arithmetic Instructions. Control Instructions: Decision Control (if, if-else, if else ladder, nested if, switch case),	Understand the concepts of Programming Logics & Techniques its source and usage & characteristics of 'C' Language and Operators of 'C'.	PPT, Match the following, Demonstration	Identify terminology associated with the concepts, techniques, and processes used throughout the 'C' Programming Language	*Knowledge Based* Define Compiler & Interpreter List operators used in 'C' Language Define functions in 'C'. What is recursion? *Understanding Based* Which function is best suitable to take input from the user and why? Give comparison between Decision Control & Loop Control statements Give differences between call by value & call by reference	Knowledge--60 Understanding -30 Higher Order-10
AUGUST	Loop Control (while, for, do-while, Nesting Loops), Jump statements (break, continue, goto) Arrays:- Concept of Arrays, One dimensional array & Two dimensional array, Storage strategy, Array Initialization, Operations on Arrays (traversing, addition, subtraction, transpose), Search – linear & binary. Sorting - bubble sort & selection sort.	Lists utility and implementation of Control Instructions. Understanding different of arrays, how arrays can save memory and different operations of array	PPT, Practical Implementation	Get familiar with basics input output & Operators of 'C' Language. Able to create / write various control instructions		

SEPTEMBER	Functions:- Declaration, Calling (Call by value, Call by reference) & Definition of functions, Recursion, Storage Class (auto, static, register, extern), Scope rules (Local, Global). Pointers:- Pointers and addresses, Pointers as Function arguments, Pointers and Arrays, Address Arithmetic. Character Pointers,	Understand types of functions & Pointers with their use Utility of Storage Classes.	PPT, Practical Implementation	Acquire knowledge and skills for creation of arrays Use functions to solve the given problem Understand storage classes and pointers with their usage	*Higher Order Thinking Skills Based* Can creation of multi dimensional arrays help in managing the large amount of data systematically? Justify with example. Write a 'C' program to print a pyramid on the screen. Write a program to reverse a string. Write the steps to a structure to save data of all the books in a library
OCTOBER	String handling and String functions (strlen, strcat, strcmp, strcmpi, strrev, strcpy). Structure and Union: Basics, Structures and Functions, Arrays of Structures, structure pointer variables. Union definition and its use.	Understand how to save strings and implement various string functions Utility of Structure, Union & File Handling, and their creation	PPT, Practical Implementation	Implement string functions in C language Understand pointers, structure, union ,file handling and their usage	

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SOPHIA GIRL'S COLLEGE, AJMER (*AUTONOMOUS*)
B.C.A (SEMESTER III) 2019-20

BCA – 304 Object Oriented Programming with C++

. Marks :75 (50Ext; 25 Int)

Min. Marks: 30(20 Ext;10 Int)

COURSE PLAN

SEM III Month	UNIT/TOPIC	Concepts/facts	Teaching Pedagogy	Learning Outcomes	Questions	Marks Weightage (%)
JULY	• Introduction to OOP's and its basic features: • Data types (Built- in, User Defined), • variables, keywords, constant, • Operator, Expression, Evolution of OOP, Advantages of OOP	Know Features of OOPS Understand basic characterises of C++ like characterset, operators etc.	PPT, Practical Implementation, Practice questions, worksheet	Understand and apply OOP's features and C++ concepts	*Knowledge Based* What is OOPS? Define Data Types of C++ *Understanding Based* What is Classes & Objects? Comparison of different types of Polymorphism	Knowledge—50 Understanding-35 Higher Order-15
AUGUST	• Concepts of object oriented language-objects, classes, inheritance, encapsulation, abstraction, polymorphism, methods • Comparison between functional programming and OOP approach	To understand the difference between functional programming & OOPS and where to apply these.	PPT, Practical Implementation MCQ's	Able to use the basic features of oops in the programming		

SEPTEMBER	• Classes, data member, member functions, objects, arrays of class objects, pointers and classes, constructors, destructors, Static Class Member, friend functions. • Dynamic memory allocation: New & Delete operator.	Learn to make classes and use of different features of class. Use of dynamic memory allocation	PPT, Quiz	Understand the tree data structure and implement its traversing	*Higher Order Thinking Skills Based* Write a program to implement real life inheritance. Is Polymorphism is necessary for the OPPS programming define how.	
OCTOBER	• Inheritance, types of inheritance, member access control, abstract class, virtual class & functions • Polymorphism: Binding, Function overloading, Function overriding, Operator overloading.	How inheritance can be implemented in different ways and comparison of their complexities. Concept of Polymorphism and its types	PPT, Practical, Live Examples	Analyze inheritance, polymorphism and applying them in the programming		

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SOPHIA GIRL'S COLLEGE, AJMER (*AUTONOMOUS*)
B.C.A (SEMESTER V) 2019-20

BCA – 504 VB. Net Programming

Max. Marks :75 (50Ext; 25 Int)

Min. Marks: 30 (20 Ext;10 Int).

COURSE PLAN

SEM V Month	Unit / Topic	Concepts / facts	Teaching Pedagogy	Learning Outcomes	Questions	Marks Weightage (%)
JULY	**Overview of .NET Framework** What is .NET framework, Origins of .NET, Architecture & Components, Common Language Runtime, Common Type System, Common Language Specification, MSIL, Framework Base Classes & Namespaces, IDE, .NET Languages.	Understand Dot Net Frame work with all its components and their usage	PPT, Quiz	Compare and Contrast between different Run Time & Design Time Programming	*Knowledge Based* What is .Net Framework? Define Common Language Runtime. *Understanding Based* Explain Program Structure & Code Conventions of VB.Net. Give a brief explanation Arrays in VB.Net	Knowledge--40 Understanding-40 Higher Order-20
AUGUST	**Visual Basic Language Features:** Introduction to VB.NET, Program Structure and Code Conventions, Data Types & Variables, Constants & Enumerations, Operators, Decision making & Looping, Arrays & Strings, Date & Time, Procedures in VB.	Understand the Program Structure, Code Conventions and Data types of VB.Net	PPT, Quiz	Implement basic instructions of VB.Net language		

SEPTEMBER	**Building a User Interface:** The Visual Basic Environment, Event-Driven Programming. **Building Forms:** The Basics & Advanced Techniques, Working with Traditional Controls: Label Control, Text Box, Creating Buttons, Option Buttons, List Box, Combo Box.	Importance of Event Driven Programming and Making GUI Interface	PPT, Practical Implementation	Handle the event driven programming & controls of VB.Net	*Higher Order Thinking Skills Based* Compare between List Box & Combo Box.
OCTOBER	**Using Advanced Controls:** Creating Timers, Dialog Boxes, Picture Box, List View Control, Tree View Control, Menus and Toolbars. **Working with Database:** Introduction to ADO.NET, Connecting to a database, DataTables, DataRow, Navigating records, Adding, editing, and deleting records.	Handling different Interface Tools & Dialog Boxes. Importance and various techniques of connecting the databases.	PPT, Practical Implementation	Handle advance controls & connectivity with the Database	Write a program to take a number from the user and find weather its Prime number or not

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M.SC Computer Science (Previous) 2019-20

SEMESTER - I

MSC – 103 Programming with C++

MAX MARKS: 100 (70EXT; 30 INT)

MIN. MARKS: 40 (28 EXT; 12 INT) Credits: 4

COURSE PLAN

SEM III Month	UNIT / TOPIC	Concepts/facts	Teaching Pedagogy	Learning Outcomes	Questions	Marks Weightage (%)
JULY	Programming Languages & Techniques, Introduction to C++ identifier and keywords, Constants, Variables, Operators, Data Type & Conversion, Instructions : Input Output, Arithmetic Expressions, Decision Control. Loop Control, Nesting, Break, Continue, Case Control.	Understand the concepts of Programming Logics & Techniques its source and usage & characteristics of 'C++' Language	PPT, Practical Implementation, Practice questions, worksheet	Identify terminology associated with the concepts, techniques, and processes used throughout the 'C++' Programming Language	*Knowledge Based* What is OOPS? Define Data Types of C++ *Understanding Based* What is Classes & Objects? Comparison of different types of Polymorphism	Knowledge—50 Understanding-35 Higher Order-15
AUGUST	Functions: Characteristics & Advantages, Types of Functions, Call by Value & Reference. Pointers: Pointers to Variable & Function Arguments, Recursion. Storage Classes. Arrays: One Dim. & Two Dim Character Array : String Definition & Implementation, String Handling Functions: strlen, strcpy, strcat, strcmp, reverse.	Understanding different types of arrays, how arrays can save memory and different operations of array	PPT, Practical Implementation MCQ's	Use functions to solve the given problem		

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HOD/PRINCIPAL

SEPTEMBER	Structure: Definition, Characteristics, Array of Structure, Pointer to Structure, Union. Evolution of OOP, Advantages of OOP, comparison between functional programming and OOP approach, characteristics of object oriented language-objects, classes, inheritance, reusability, user defined data types, polymorphism, overloading	To understand the difference between functional programming & OOPS and where to apply these.	PPT, Quiz	Understand and apply OOP's features and C++ concepts	*Higher Order Thinking Skills Based* Write a program to implement real life inheritance. Is Polymorphism is necessary for the OPPS programming define how.	
OCTOBER	Classes, member functions, objects, arrays of class objects, pointers and classes, constructors, destructors, Function overloading, Static Class Member, friend functions, dynamic memory allocation. Inheritance, types of inheritance, member access control. Function overloading, operator overloading, polymorphism, virtual functions & Function overriding	How inheritance can be implemented in different ways and comparison of their complexities. Concept of Polymorphism and its types	PPT, Practical, Live Examples	Analyze inheritance, polymorphism and applying them in the programming		

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SOPHIA GIRL'S COLLEGE, AJMER (AUTONOMOUS)

M.Sc. Chemistry (Previous) 2019-20

SEMESTER - I

MSCCHE – 104 Programming in Chemistry

MAX MARKS: 100 (70EXT; 30 INT)

MIN. MARKS: 40 (28 EXT; 12 INT) Credits: 4

COURSE PLAN

SEM - I Month	UNIT / TOPIC	Concepts/facts	Teaching Pedagogy	Learning Outcomes	Questions	Marks Weightage (%)
JULY	Introduction to Computer: Definition, Block Diagram, Hardware. Software & its types. Introduction to Language & its Types, Compilation and Execution.'C' Language: Character Set, Tokens-Keywords, Variables, Constants, Operators, Expressions. DataTypes, Type Conversion (implicit & explicit),	Understand the concepts of Programming Logics & Techniques its source and usage & characteristics of 'C' Language	PPT, Match the following, Demonstration	Identify terminology associated with the concepts, techniques, and processes used throughout the 'C' Programming Language	*Knowledge Based* Define Compiler & Interpreter List operators used in 'C' Language *Understanding Based* Which function is best suitable to take input from the user and why? Give comparison between Decision Control & Loop Control statements	Knowledge--60 Understanding -30 Higher Order-10
AUGUST	Input Output Instructions (printf, scanf, getch, getchar, gets, putch, putchar, puts). Arithmetic Instructions: Hierarchy, Priority and Associativity of Operators. Control Instructions: Decision Control (Statements and blocks-if, if-else, conditional operator) nesting.	List the ways of data printing on the screen & Taking input from the user, different operators of 'C' Language	PPT, Practical Implementation	Get familiar with basics input output & Operators of 'C' Language.		

SEPTEMBER	Loop Control (Statements and blocks- while, for, do-while, Nesting Loops), Case Control- (Statements and blocks- switch-case,), break, continue, goto statements. Arrays:- Concept of Arrays, One dimensional array &Two dimensional array, Storage strategy, Array Initialization; Memory Map of One Dimensional &Two, dimensional Array, Operations on Arrays, Sorting – Selection Sort, Bubble Sort	Lists utility and implementation of Control Instructions Understanding different types of arrays, how arrays can save memory and different operations of array	PPT, Practical Implementation	Able to create / write various control instructions & Arrays	*Higher Order Thinking Skills Based* Can creation of multi dimensional arrays help in managing the large amount of data systematically? Justify with example.
OCTOBER	Functions (Structure and Block):- Declaration, Calling (Call by value, Call by reference), Definition of functions, Recursion, Storage Class (auto, static, register, extern), Scope rules (Local, Global). Pointers:- Pointers and addresses, Pointers as Function arguments, Address Arithmetic. Structures: Basics, Structures Variables, Arrays of Structures Variables, Pointers Structure Variable.	Types of functions & their use Utility of Storage Classes & Pointers	PPT, Practical Implementation	Acquire knowledge and skills for creation of Functions & Structures	Write a 'C' program to print a pyramid on the screen

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BCA / IMSC (SEMESTER II) 2019-20

BCA / IMSC– 203 Object Oriented Programming with C++

. Marks :75 (50Ext; 25 Int) Min. Marks: 30(20 Ext;10 Int) Credits: 4

COURSE PLAN

SEM III Month	UNIT / TOPIC	Concepts / Facts	Teaching Pedagogy	Learning Outcomes	Questions	Marks Weightage (%)
JULY	Introduction: to OOP's, Evolution of OOP, Advantages of OOP, Features of OOPS- Objects, Classes, Data Abstraction &Encapsulation, Inheritance, Polymorphism. Comparison between Functional Programming and OOPS (Difference between structure and Class)	Know Features of OOPS Understand basic characterises of C++ like characterset, operators etc.	PPT, Practical Implementation, Practice questions, worksheet	Understand and apply OOP's features and C++ concepts	*Knowledge Based* What is OOPS? Define Data Types of C++ *Understanding Based* What is Classes & Objects? Comparison of different types of Polymorphism	Knowledge—50 Understanding-35 Higher Order-15
AUGUST	C++: Character set, Keywords, Constant, Variables, Data types (Built- in, User Defined), Operators & Expressions. Instructions: Input output, Arithmetic, Control (Decision, Case, Loop) and nesting. Classes:data member, member functions, objects, Access specifiers (private, public, protected) arrays of class objects, pointers and classes,	To understand the difference between functional programming & OOPS and where to apply these.	PPT, Practical Implementation MCQ's	Able to use the basic features of oops in the programming		

SEPTEMBER	constructors(default, parameterized, copy), constructor overloading, destructor, static class member, friend functions. Dynamic memory allocation: New & Delete operator. Inheritance: types of inheritance, member access control, abstract class.	Learn to make classes and use of different features of class. Use of dynamic memory allocation	PPT, Quiz	Understand the tree data structure and implement its traversing	*Higher Order Thinking Skills Based* Write a program to implement real life inheritance. Is Polymorphism is necessary for the OPPS programming define how.	
OCTOBER	Polymorphism: Binding, Function overloading,Function overriding, Virtual functions, Operator overloading (as a member function & as a friend function) File Handling: ofstream, ifstream, fstream, opening, closing, writing & reading from the file.	How inheritance can be implemented in different ways and comparison of their complexities. Concept of Polymorphism and its types	PPT, Practical, Live Examples	Analyze inheritance, polymorphism and applying them in the programming		

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B.C.A (SEMESTER IV) 2019-20

BCA – 403 Python Programming

Max. Marks :75 (50Ext; 25 Int)

Min. Marks: 30 (20 Ext;10 Int)

COURSE PLAN

SEM IV Month	UNIT / TOPIC	Concepts / facts	Teaching Pedagogy	Learning Outcomes	Questions	Marks Weightage (%)
DECEMBER	**Introduction:** History, Versions, Features, Advantages, Application areas. Python Basics: IDLE, Editors, Keywords, Identifiers, Indents, Input Output Basic Syntax, Variable, Dynamic Typing, Data Types (Mutable and Immutable), Built-in Conversion Methods. **Operator:** Arithmetic, Comparison, Logical, Identity, Membership. **Control Statements:** Conditional (If , If- else, Elsif, Nested if-else), Looping (While, For, Nested loops), Break, Continue, Pass.	Use of Python, and its basic features operators & control statements	PPT, Practical Implementation, Hands- on Exercise	Apply basic features of Python programming	*Knowledge Based* What is Membership operator? Define Loop control Statements of Python *Understanding Based* Implement Array traversing	Knowledge--50 Understanding-35 Higher Order-15
JANURARY	**Array:** Introduction, Creation, Traverse, Insertion, Deletion, Search, Update. **String:** Introduction, Types, Escape Sequences, Formatting, Operators, **Built-in Methods** (Capitalize, Upper, Lower, Title, Find, Count, Isalpha, Isdigit, Islower, Isupper), Basic Operations (Accessing, Updating, Concatenation).	Need of Array and how to use them in Python. Use of Strings & their built in functions	PPT, Practical Implementation, Hands - on Exercise	Able to recognize the use of array & strings with their features	Give the utility of built in met6hods of string	

FEBURARY	**List & Tuple:** Introduction, Accessing, Operators, Built-in Methods (Len, Max, Min, Append, Insert, Remove, Pop, Reverse, Sort, List), Basic Operations (Updating, Delete, Concatenation, Indexing, Slicing). **Set:** Introduction, Accessing, Built-in Methods (Add, Update, Clear, Copy, Discard, Remove), Operations (Union, Intersection, Difference). **Dictionary:** (Single Dimensional) Introduction, Accessing, Updating, Deleting, Viewing values in dictionaries, Built-in Methods (Len, Max, Min, Pop, Clear, Items, Keys, Values, Update).	Understand the concept & use of List, Tuple, Set & Dictionary with all their features.	PPT, Practical Implementation, Hands- on Exercise	Understand difference between List, Tuple, Set & Dictionary	*Higher Order Thinking Skills Based* Write a program to create a List & Dictionary and differentiate them Is Polymorphism is necessary for the OPPS programming define how.	
MARCH	**Function:** Defining, Calling, Function Arguments (Required, Keyword, Default, Variable Length) Anonymous Functions, Global and Local Variables. Modules: Introduction, Importing Module, Built-in Modules (Math, Statistics, Random). **Package:** Creating, Installing, Importing Modules from the Package. Errors & Exception: Error Types, **Exception Handling** - Introduction, Try, Except, Else, Finally. File Input-Output: Opening and Closing files, Reading and Writing files.	Understand the use of functions, Packages and need of exception handling	PPT, Practical Implementation, Hands- on Exercise	Ability to Text Processing scripts		

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B.C.A (SEMESTER VI) 2019-20

BCA – 604 C # Programming

Max. Marks :75 (50Ext; 25 Int)

Min. Marks: 30 (20 Ext;10 Int)

COURSE PLAN

SEM VI Month	Unit / Topic	Concepts / facts	Teaching Pedagogy	Learning Outcomes	Questions	Marks Weightage (%)
DECEMBER	**Introduction:** .Net Framework, CLR, CTS, CLS, FCL & Advantages of .Net Framework. **C# :** Evolution, History & Overview. **Fundamentals of C#:** Identifiers, Keywords, Literals, Punctuators, Operators. **Data Types :** Value Type & Reference Type. **Expressions**: Implicit & Explicit Conversion (Boxing & Unboxing). **Program Flow Controls:** Decision Control - (if, if – else, Nesting), Switch, Ternary. Loop – (while, do-while, for, foreach, Nesting). break, continue, goto statements.	Advantages of .Net Framework and Basics of C# Programming – Data types & Program flow controls	PPT, Quiz	Identify terminology associated with the concepts, techniques, and processes used in C#	***Knowledge Based*** Define Operators of C#. Write short note on implicit & explicit conversion ***Understanding Based*** Explain how inheritance can be implemented in real world. Give differences between constructor and destructor.	Knowledge—40 Understanding-40 Higher Order-20
JANURARY	**User Defined Data Types:** Arrays (Single, Multi & Jagged), Structure & Enum. **Introduction of OOP:** Objects, Class, Encapsulation, Polymorphism, Inheritance . **Class**: Structure of Class, Objects, Class Modifiers (private, public, protected, internal, protected internal, abstract, sealed) Constructors (default, parameterized, Copy), Destructor. This reference, Static, Constant and Read only members.	Integrating various OOPS features with C#.	PPT, Quiz	Understand OOPS Techniques implementation in C#		

FEBURARY	**Inheritance, Polymorphism, Interfaces:** Concept, Types, Modifiers (Virtual, Override, New). Method Overloading, Operator Overloading. Properties, Indexers, **Delegates**: Single Cast delegate, Multi Cast delegates, Passing delegate as parameter. **Events:** Concept & Declaration, Event Handlers.	Utility of Method & Operator Overloading, How to create Delegates & Events.	PPT, Practical Implementation	Study types of Inheritance and Polymorphism and its usage Understand Events & Delegates with their uses	***Higher Order Thinking Skills Based*** Write a program to create multi cast delegates.	
MARCH	**Errors & Exceptions:** Types of Errors, Try-Catch, Nested Try blocks, Throwing own exceptions, **Multithreading:** Creating & Starting a Thread, Scheduling, Synchronization.	Comparative analysis Errors & Exceptions & Use of Multithreading	PPT, Practical Implementation	Understand Errors & do exception handling & multithreading	Can integration of different exceptions are useful in programming	

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B.C.A (SEMESTER VI) 2019-20

BCA – 606 Project

Max. Marks :75 (50Ext; 25 Int)

Min. Marks: 30 (20 Ext;10 Int)

COURSE PLAN

SEM IV Month	UNIT / TOPIC	Concepts / Facts	Teaching Pedagogy	Learning Outcomes	Questions	Marks Weightage (%)
DECEMBER	Allotment of the Groups and Topics	Learning Team Work & Leadership Responsibilities	Presentation, Library Visit	Formulate a real world problem and develop its requirements	*Knowledge Based* Define Qualities of user friendly interface	
JANURARY	Creation of User Interface (Forms / WebPages)	Understand user need & trying to make user friendly Interface	PPT, Practical, Live Examples	Develop a design solution for a set of requirements	*Understanding Based* Which function is best suitable to take input from the user and why?	Knowledge-- 60 Understanding- 30 Higher Order- 10
FEBURARY	Connectivity with the Database & Report Writing	Understand the technical issues of connecting the interface with the Database	PPT, Practical Implementation	Generate alternative solutions, compare them and select the optimum one	*Higher Order Thinking Skills Based* Can creation of multi dimensional arrays help in managing the large amount of data systematically? Justify with example.	
MARCH	Final Submission of the Project Report & Presentation	Learn to make Project Report & its presentation	PPT, Practical Implementation			

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M.SC Computer Science (Previous) 2019-20

SEMESTER - IV

MSC – 404 Project

Max. Marks :100 (70Ext; 30 Int)

Min. Marks: 40 (28 Ext;12 Int)

COURSE PLAN

SEM IV Month	UNIT / TOPIC	Concepts / Facts	Teaching Pedagogy	Learning Outcomes	Questions	Marks Weightage (%)
DECEMBER	Allotment of the Groups and Topics	Learning Team Work & Leadership Responsibilities	Presentation, Library Visit	Formulate a real world problem and develop its requirements	*Knowledge Based* Define Qualities of user friendly interface *Understanding Based* Which function is best suitable to take input from the user and why? *Higher Order Thinking Skills Based* Can creation of multi dimensional arrays help in managing the large amount of data systematically? Justify with example.	Knowledge--60 Understanding-30 Higher Order-10
JANURARY	Creation of User Interface (Forms / WebPages)	Understand user need & trying to make user friendly Interface	PPT, Practical, Live Examples	Develop a design solution for a set of requirements		
FEBURARY	Connectivity with the Database & Report Writing	Understand the technical issues of connecting the interface with the Database	PPT, Practical Implementation	Generate alternative solutions, compare them and select the optimum one		
MARCH	Final Submission of the Project Report & Presentation	Learn to make Project Report & its presentation	PPT, Practical Implementation			

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