SY BBA(CA) – Semester – IV		
Course Code: **23BA4-A011**	**Subject: C++ programming**	**Marks: 100** **Credits: 4**

Course Objectives:

- To understand the fundamental concepts of Object-Oriented Programming (OOP).
- To familiarize the students with C++ programming language concepts.
- To understand the fundamental concepts of classes and objects and their roles in C++ programming.
- To understand the concept of constructors and destructors in C++.
- To explore the fundamental principles of inheritance and its significance in software development.
- To understand the concept of polymorphism and its types.

Course Outcome:

CO1: Visualize and articulate the principles of object-oriented programming.

CO2: Implement a variety of c++ features in practical programming scenarios.

CO3: Demonstrate practically the classes and objects concepts of OOPs.

CO4: Understand the concept of constructors, destructor and their practical applications in memory management.

CO5: Analyze and apply appropriate types of inheritance based on specific software design requirements.

CO6: Analyze and apply polymorphism concepts in Object oriented programing.

Unit	Unit Title	Contents	No. of Lectures
I	**Introduction to C++**	1.1 Basic concepts, features, advantages and applications of OOP 1.2 Introduction, applications and features of C++ 1.3 Input and Output operator in C++ 1.4 Simple C++ program	5
II	**Beginning with C++**	2.1 Data type and Keywords 2.2 Declaration of variables, dynamic initialization of variables, reference variable 2.3 Operators: 2.3.1 Scope resolution operator 2.3.2 Memory management operators 2.4 Manipulators 2.5 Functions: 2.5.1 Function prototyping, call by reference and return by reference 2.5.2 Inline functions 2.6 Default arguments	10
III	**Classes and Objects**	3.1 Structure and class, Class, Object 3.2 Access specifies, defining data member 3.3 Defining member functions inside and outside class definition. 3.4 Simple C++ program using class 3.5 Memory allocation for objects 3.6 Static data members and static member functions 3.7 Array of objects, objects as a function argument 3.8 Friend function and Friend class 3.9 Function returning objects	12
IV	**Constructors and Destructors**	4.1 Constructors 4.2 Types of constructor : Default, Parameterized, Copy 4.3 Multiple constructors in a class 4.4 Constructors with default argument 4.5 Dynamic initialization of constructor 4.6 Dynamic constructor 4.7 Destructor	10
V	**Inheritance**	5.1 Introduction 5.2 Defining Base class and Derived clas 5.3 Types of Inheritance 5.4 Virtual Base Class	13

		5.5 Abstract class 5.6 Constructors in derived class	
VI	**Polymorphism**	**6 Compile Time Polymorphism** 6.1.1 Introduction, rules for overloading operators 6.1.2 Function overloading 6.1.3 Operator Overloading unary and binary 6.1.4 Operator Overloading using friend function 6.1.5 Overloading insertion and extraction operators 6.1.6 String manipulation using operator overloading **6.2 Runtime Polymorphism** 6.2.1 this Pointer, pointers to objects, pointer to derived classes 6.2.2 Virtual functions and pure virtual functions	10
Total No of Lectures			**60**

Unit	**Unit Title**	**Suggestive teaching methodology**	**Practical**	**Outcome expected** **Conceptual understanding Knowledge/Skills/Attributes etc.**		**Weightage of Marks (%)**
I	**Introduction to C++**	Lecture - Demonstration and Practical Implementation in Laboratory	Practical	To understand concepts and features of CPP and input /output operators of CPP	critical thinking and problem solving skills	10%
II	**Beginning with C++**	Lecture - Demonstration and Practical Implementation in Laboratory	Practical	To understand Data type and Keywords, Declaration of variables, dynamic initialization of variables, reference variable ,Function prototyping, Inline functions ,Default arguments.	Information Literacy,critical thinking,problem solving ,analytical reasoning	20%
III	**Classes and Objects**	Lecture - Demonstration and Practical Implementation in Laboratory	practical	To understand basic Structure and class, Class, Object, Access specifies, defining data member ,Defining member functions inside and outside class definition. Simple C++ program using class, Memory allocation for objects,	Critical thinking,problem solving ,analytical reasoning,Life long Learning,Application Skills	15%

				Static data members and static member function, Array of objects, objects as a function argument , Friend function and Friend class, Function returning objects		
IV	**Constructors and Destructors**	Lecture - Demonstration and Practical Implementation in Laboratory	practical	To understand constructor, destructor concept in C++	Critical thinking,problem solving ,analytical reasoning,Life long Learning,Experimental Learning	20%
V	**Inheritance**	Lecture - Demonstration and Practical Implementation in Laboratory	practical	To understand inheritance and its practical implementation.	Critical thinking,Problem solving ,Analytical reasoning,Life long Learning,Experimental Learning	20%
VI	**Polymorphism**	Lecture - Demonstration and Practical Implementation in Laboratory	practical	To understand Polymorphism and its practical implementation.	Critical thinking,Problem solving ,Analytical reasoning,Life long Learning,Experimental Learning	15%

Evaluation Method:

Unit	**Total Marks 100**			**Project/Practical(If any)**
	Formative Assessment		**Summative Assessment**	
	CCE I 20 Marks	**CCE II 20 Marks**	**SEMESTER 60 Marks**	
I, II, III,IV,V,VI	Departmentally organized Assignment	Centrally (College Level) organized Tests	Preferably descriptive exam based on analytical questions.	Practical Programming

Suggested Books:

Sr. No.	Name of Book	Author	Publication	Edition	Place
1	Object Oriented programming with C++	E Balagurusamy	McGraw Hill Education (India).	Eighth	New Delhi
2	Object Oriented Programming with C++	Robert Lafore	PEARSON	Third	New Delhi
3	The Complete Reference C++	Herbert Schildt	McGraw Hill Education (India)	Fourth	New Delhi

Suggested Web/E-Learning Resources

Sr. No.	Topic of the course	Lectures (Available on Youtube /Swayam /MOOCS etc.)	Link	Journals/Articles/Case studies
1	Advanced C++	Swayam	https://onlinecourses.swayam2.ac.in/aic20_sp01/preview	online course
2	Introduction to Programming in C++	MOOC	https://www.edx.org/course/introduction-to-programming-in-c	online course
3	Advanced Programming in C++	MOOC	https://www.edx.org/course/advanced-programming-in-c	online course

SY BBA – Semester – IV		
Course Code: 23BB4-F051	**Subject: Management Information System**	**Marks: 100** **Credits: 4**

Course Objectives:

- To understand the basic concept of Information Technology and Management Information System.
- To explore the realm of Data warehousing and Data Mining.
- To understand the concepts of system analysis, its necessity, and the systematic analysis of existing and new system requirements.
- To explore Decision Support Systems (DSS) and Group Decision Support Systems (GDSS) applications in E-enterprise.

Course Outcome:

CO1: Demonstrate the basic concept of Information Technology and Management Information System.
CO2: Acquire knowledge about Data Warehousing and Data Mining concepts, including their applications, advantages, and limitations.
CO3: Analyze and design systems, applying various methodologies such as structured system analysis and design, and object-oriented analysis.
CO4: Demonstrate the Decision Support Systems (DSS) and Group Decision Support Systems (GDSS) applications.

Unit	Unit Title	Contents	No. of Lectures
I	Basic Concepts of Information Technology and Management Information System	1.1 Meaning and basic concept of Information Technology 1.2 Meaning and basic concept of Information System 1.3 Meaning and basic concept of Management Information System 1.4 Role of Information Technology in Management Information System	12
II	Data Warehousing and Data Mining	2.1 Introduction 2.2 Purpose 2.3 Data Warehousing concepts 2.4 Need of Data Warehousing 2.5 Applications, Advantages, Limitations of Data Warehousing 2.6 Data Mining concepts 2.7 Need of Data Mining, Applications, Advantages, Limitations of Data Mining	12
III	System Analysis and Design	3.1 Introduction of System 3.2 Meaning and definition of system 3.3 Concept of System Analysis 3.4 Meaning and definition of system analysis 3.5 Need for system analysis, 3.6 System analysis of the existing system 3.7 System analysis of new requirements 3.8 System Development Model 3.9 Structured System Analysis and Design 3.10 Object-Oriented Analysis.	18
IV	Information system applications	4.1 MIS applications 4.2 DSS GDSS - DSS applications in E-enterprise 4.3 Knowledge Management System and Knowledge-Based Expert System 4.4 Enterprise Model System and E-Business 4.5 E-Commerce 4.6 E-communication 4.7 Business Process Reengineering.	18
Total No of Lectures			**60**

Unit	Unit Title	Suggestive teaching methodology	Practical	Outcome expected Conceptual understanding Knowledge/Skills/Attributes etc.		Weightage of Marks (%)
I	**Basic Concepts of Information Technology and Management Information System**	Lecture - Demonstration		To understand the basic concept of Information Technology and Management Information System. .	Life long Learning, Application Skills	15%
II	**Decision Making and Information**	Lecture - Demonstration		To understand Data warehousing and Data mining concepts.	critical thinking, problem solving	15%
III	**System Analysis and Design**	Lecture - Demonstration		To understand System Analysis and Design.	Life long Learning, Application Skills	35%
IV	**Information system applications**	Lecture - Demonstration		To understand the Information system applications	Problem solving , Experimental Learning	35%

Evaluation Method:

Unit No.	Total Marks (100)			Project/Practical (If any)
	Formative Assessment		Summative Assessment	
	CCE I (20)	CCE II (20)	Semester End Examination (60)	
I,II,III,IV	Departmentally organized assignment	Centrally(College Level) organized Tests	Preferably descriptive exam	-

Suggested Books:

Sr. No.	Name of Book	Author	Publication	Edition
1	Management Information Systems	Jawadekar, W.S.	Tata McGraw Hill Private Limited	Latest
2	Management Information Systems	Kenneth C. Laudon and Jane P.Laudon	Pearson Education	Latest
3	Management Information Systems	Goyal, D.P	MACMILLAN India Limited	Latest

Suggested Web/E-Learning Resources

Sr. No.	Topic of the course	Lectures (Available on Youtube/Swayam/ MOOCS etc.)	Link	Journals/Articles/Case studies
1	Management Information System	Swayam	https://onlinecourses.nptel.ac.in/noc22_mg100/preview	online course
2	Introduction to Management Information Systems (MIS): A Survival Guide	edX	https://www.edx.org/course/introduction-to-management-information-systems-mis?index=product&queryID=01fdc7843a1e7e223a0f9d747e8453b4&position=3&linked_from=autocomplete	online course

SY BBA(CA) – Semester – IV			
Course Code: 23BA4-C041	**Subject: Object Oriented Software Engineering**	**Marks: 50** **Credits: 2**	
Course Objectives: 1. To comprehend the principles underlying object modeling and the Unified Process. 2. To design static and dynamic UML diagrams and implement them. 3. To design UML diagrams using Architectural Modeling techniques.			
Course Outcome: After completing the course, the student shall be able to **CO1:** Understand the object modeling fundamentals and the Unified Process. **CO2:** Apply knowledge of UML diagrams and effectively implement them in design processes. **CO3:** Employ Architectural Modeling techniques adeptly in software design.			
Unit	**Unit Title**	**Contents**	**No. of lectures**
I	Object Oriented Analysis & Object Oriented Design	**Object Oriented Analysis** 1. The Booch Method, The Coad and Yourdon Method and Jacobson Method and Raumbaugh Method 2. The Generic Componentsof the OO Design Model 3. The System Design Process – **Object Oriented Design** 1. Iterative Development and the Rational Unified Process 2. Inception 3. Understanding Requirements 4. Use Case Model	7

II	**UML –structural and Behavioural Modeling**	**2.1 Introduction** 2.1.1 Concept of UML 2.1.2 Advantages of UML **2.2 Structural Modeling** 2.2.1 Classes 2.2.2 Relationship 2.2.3 Common Mechanism 2.2.4 Class Diagram 2.2.5 Advanced Classes 2.2.6 Advanced Relationship 2.2.7 Interface 2.2.8 Types and Roles 2.2.9 Packages 2.2.10 Object Diagram **2.3 Basic Behavioural Modeling** 2.3.1 Interactions 2.3.2 Use CaseDiagrams 2.3.3 Interaction Diagram 2.3.4 Sequence Diagram 2.3.5 Activity Diagram 2.3.6 State Chart Diagram (Simple Case studies of behavioral modelling)	15
III	**UML- Architectural Modeling**	**3 Architectural Modeling** 3.1 Component 3.2 Components Diagram 3.3 Deployment Diagram 3.4 Collaboration Diagram (Simple Case studies for ofArchitectural Modeling)	8
	Total		30

Unit	Unit Title	Teaching methodology	Project (If any)	Outcome expected Conceptual Understanding Knowledge / Skills / Attributes etc.	Weightage of Marks (%)
1	Object Oriented Analysis & Object Oriented Design	Lectures	Not suggested	Students get basic fundamental knowledge of Object Oriented Design and various OO methodologies	20%
2	UML – structural and Behavioural Modeling	Lectures	Not suggested	Students can apply knowledge of UML structural & behavioural diagrams and implement them in design processes.	50%
3	UML-Architectural Modeling	Lectures	Not suggested	Students can apply knowledge of UML architectural diagrams and implement them in design processes.	30%

Unit	Total Marks 50			Project/Practical(If any)
	Formative Assessment		SummativeAssessment	
	CCE I 10 marks	CCEII 10 marks	SEMESTER 30 marks	
I, II, III	Departmentally organized Assigned	Centrally (College Level) organized Tests	Preferably descriptive exam based on analytical questions.	-

Suggested Books:

Sr. No.	Name of Book	Author	Publication
1	The Unified Modeling LanguageUser/Reference Guide,	Grady Booch, JamesRambaugh	Pearson Education Inc
2	The Unified software developmentProcess	Ivar Jacobson, GradyBooch	Pearson Education
3	Agile Software development	Alistair Cockbair	Pearson Education

SY BBA(CA) – Semester – IV		
Course Code: 23BA4-F061	**Subject: Python - I**	**Marks: 50 Credits: 2**

Course Objectives:

- To understand the basic syntax, variables, data types, operators, loops and string concepts in Python.
- To explore structure of Python modules and packages.
- To understand the concept of inheritance and its types
- To explore scenarios such as handling exceptions with no exception specified, multiple exceptions, and the try-finally clause.

Course Outcome:

CO1: Apply Python programming concepts including conditional statements, loops and string manipulations to solve practical problems.
CO2: Design and implement modules and packages to solve practical problems.
CO3: Apply the inheritance concepts in practical programming.

CO4: Demonstrate proficiency in handling exceptions effectively to ensure robustness and reliability of Python programs.

Unit	Unit Title	Contents	No. of Lectures
I	**Introduction to Python**	1.1 History, feature of Python, setting up path, working with python Interpreter, basic syntax, variable and data types, operators 1.2 Conditional statements-If, If-Else, nested if-else, Examples. 1.3 Looping-For, While, Nested loops, Examples 1.4 Control Statements-Break, Continue, Pass. 1.5 String Manipulation-Accessing String, Basic Operations, String Slices, Function and Methods, Examples.	7
II	**Modules and Packages**	**2.1 Built in Modules** 2.1.1 Importing modules in python program. 2.1.2 Working with Random Modules. 2.1.3 E.g. - built-ins, time, date time, calendar, sys, etc. **2.2 User Defined functions** 2.2.1 Structure of Python Modules. **2.3 Packages** 2.3.1 Predefined Packages. 2.3.2 User defined Packages.	7
III	**Inheritance**	**3.1 Inheritance** 3.1.1 Single Inheritance 3.1.2 Multilevel Inheritance 3.1.3 Multiple Inheritance 3.1.4 Hybrid Inheritance 3.1.5 Hierarchical Inheritance 3.1.6 IS-A Relationship and HAS-A Relationship	8
IV	**Exception Handling**	4.1 Python Exception 4.2 Common Exception 4.3 Exception handling in Python (try-except-else) 4.4 The except statement with no exception 4.5 Multiple Exception 4.6 The try-finally clause 4.7 Custom Exception and assert statement	8
Total No of Lectures			**30**

Unit	Unit Title	Suggestive teaching methodology	Practical	Outcome expected Conceptual understanding Knowledge/Skills/Attributes etc.		Weightage of Marks (%)
I	**Introduction to Python**	Lecture - Demonstration and Practical Implementation in Laboratory	practical	To understand Conditional statements, Looping, Control Statements and String Manipulation.	critical thinking and problem solving skills	25%
II	**Modules and Packages**	Lecture - Demonstration and Practical Implementation in Laboratory	practical	To understand Built in Modules, User Defined functions, Packages.	critical thinking, problem solving ,analytical reasoning	25%
III	**Inheritance**	Lecture - Demonstration and Practical Implementation in Laboratory	practical	To understand Inheritance concept.	Life long Learning, Application Skills	25%
IV	**Exception Handling**	Lecture - Demonstration and Practical Implementation in Laboratory	practical	To understand Exception and try-finally clause.	Problem solving , Experimental Learning	25%

Unit No.	Total Marks (100)			Project/Practical (If any)
	Formative Assessment		Summative Assessment	
	CCE I (10)	CCE II (10)	Semester End Examination (30)	
I,II,III,IV	Departmentally organized assignment	Centrally(College Level) organized Tests	Preferably descriptive exam	Yes

Suggested Books:

Sr. No.	Name of Book	Author	Publication	Edition	Place
1	Python Programming: An introduction to computer science	John Zelle	Independent publication.	Third	
2	Learning Python	Mark Lutz	O'Reilly	Fourth	
3	Programming Python	Mark Lutz	O'Reilly	Fourth	

Suggested Web/E-Learning Resources

Sr. No.	Topic of the course	Lectures (Available on Youtube /Swayam/MOOCS etc.)	Link	Journals/Articles/Case studies
1	Python 3.4.3	Swayam	https://onlinecourses.swayam2.ac.in/aic20_sp33/preview	online course
2	Programming for Everybody (Getting Started with Python)	edX	https://www.edx.org/course/programming-for-everybody-getting-started	online course

SY BBA(CA) – Semester – IV		
Course Code: **23BA4-G062**	**Subject: Python - II**	**Marks: 50** **Credits: 2**

Course Objectives:

- To Understand the fundamental concepts and operations of lists, tuples, dictionaries and functions in Python programming.
- To Explore the object-oriented programming concepts including classes and objects.
- To Explore the graphical user interface (GUI) development using Tkinter library in Python.

Course Outcome:

CO1: Demonstrate the lists, tuples, sets and dictionaries to store, manipulate and access data efficiently.
CO2: Demonstrate the concepts of object-oriented programming and create classes and objects in Python application.

CO3: Design and implement Tkinter widgets effectively to create interactive GUI applications.

Unit	Unit Title	Contents	No. of Lectures
I	**Collections and functions in Python**	1.1 Lists-Introduction, accessing list, operations, working with lists, function & methods. 1.2 Tuple-Introduction, Accessing tuples, operations working, function & methods, Examples. 1.3 Dictionaries-Introduction, Accessing values in dictionaries, working with dictionaries, properties, function, Examples. 1.4 Functions-Defining a function, calling a function, types of function, function arguments, anonymous function, global & local variable, Examples.	12
II	**Classes and Objects in python**	2.1 Classes as User Defined Data Type 2.2 Objects as Instances of Classes 2.3 Creating Class and Objects 2.4 Creating Objects By Passing Values 2.5 Variables & Methods in a Class	06
III	**GUI Programming**	3.1 Introduction 3.2 Tkinter programming 3.4 Tkinter widgets 3.5 Frame 3.6 Button 3.7 Label 3.8 Entry	12
Total No of Lectures			**30**

Unit	Unit Title	Suggestive teaching methodology	Practical	Outcome expected Conceptual understanding Knowledge/Skills/Attributes etc.		Weightage of Marks (%)
I	**Collections and functions in Python**	Lecture - Demonstration and Practical Implementation in Laboratory	practical	To understand Lists, Tuple, Set, Dictionaries and Functions.	critical thinking and problem solving skills	35%
II	**Classes and Objects in python**	Lecture - Demonstration and Practical Implementation in Laboratory	practical	To understand Classes and Objects.	Life long Learning, Application Skills	30%
III	**GUI Programming**	Lecture - Demonstration and Practical Implementation in Laboratory	practical	To understand Tkinter programming, Tkinter widgets, Frame, Button, Label, Entry.	Life long Learning, Experimental Learning, Application Skills	35%

Unit No.	Total Marks (50)			Project/Practical (If any)
	Formative Assessment		Summative Assessment	
	CCE I (10)	CCE II (10)	Semester End Examination (30)	
I,II,III	Departmentally organized assignment	Centrally(College Level) organized Tests	Preferably descriptive exam	Yes

Suggested Books:

Sr. No.	Name of Book	Author	Publication	Edition	Place
1	Python Programming: An introduction to computer science	John Zelle	Independent publication.	Third	
2	Learning Python	Mark Lutz	O'Reilly	Fourth	
3	Programming Python	Mark Lutz	O'Reilly	Fourth	

Sr. No.	Topic of the course	Lectures (Available on Youtube/Swayam/MOOCS etc.)	Link	Journals/Articles/Case studies
1	Python 3.4.3	Swayam	https://onlinecourses.swayam2.ac.in/aic20_sp33/preview	online course
2	Programming for Everybody (Getting Started with Python)	edX	https://www.edx.org/course/programming-for-everybody-getting-started	online course

Suggested Web/E-Learning Resources

SY BBA(CA) – Semester – IV		
Course Code: 23BA4-A031	**Subject: jQuery**	**Marks: 50** **Credits: 2**

Course Objectives:

- To understand the basic concepts of JavaScript and jQuery.
- To explore how to bind events and manipulate HTML elements using jQuery.
- To understand the usage of the jQuery library in web development.

Course Outcome:

CO1: Apply JavaScript and jQuery in real-world scenarios
CO2: Implement binding of events, manipulating HTML elements, and using jQuery library.
CO3: Develop the skills to enhance web development using jQuery.

Unit	Unit Title	Contents	No. of Lectures
I	**Introduction to jQuery**	**Introduction to jQuery** 1.1 jQuery Introduction 1.2 Install and Use jQuery Library 1.3 Un-Obstructive JavaScript 1.4 First jQuery Example 1.5 jQuery Syntax 1.6 How to escape a special character 1.7 Basic Selectors 1.8 Traversal Functions	10
II	**HTML Manipulation**	**HTML Manipulation** 2.1 Getting Setting values from elements 2.2 Handling attributes 2.3 Inserting New elements 2.4 Deleting/Removing elements 2.5 CSS manipulations 2.6 Dimensions 2.7 Positioning	10
III	**Effects and Events Effects**	**Effects and Events Effects** 3.1 Showing/Hiding elements 3.2 Sliding elements 3.3 Fading elements 3.4 Deleting animation elements 3.5 Custom animation 3.6 Working with events.	10
Total No of Lectures			**30**

Unit	Unit Title	Suggestive teaching methodology	Project (If any)	Outcome expected Conceptual understanding Knowledge/Skills/Attributes etc.	Weightage of Marks (%)
I	**Introduction to jQuery**	Lecture - Demonstration and Practical Implementation in Laboratory	Practical	Students understand how to download jQuery library and refer it to the Html page and implement simple jQuery example	20%
II	**HTML Manipulation**	Lecture - Demonstration and Practical Implementation in Laboratory	Practical	Students are acquainted about implementation of HTML manipulations and CSS manipulations.	40%
III	**Effects and Events Effects**	Lecture - Demonstration and Practical Implementation in Laboratory	Practical	Students implement effects and animation using jQuery.	40%

Evaluation Method:

Unit	Total Marks 50			Project/Practical(If any)
	Formative Assessment		Summative Assessment	
	CCE I 10Marks	CCE II 10 Marks	SEMESTER 30 Marks	
I, II, III	Departmentally organized Assignment	Centrally (College Level) organized Tests	Preferably descriptive exam based on analytical questions.	Yes

Suggested Books:

Sr No	Name of the Book	Author	Publication
1	jQuery pocket reference	David Flanagan	O'Reilly Media, Inc.
2	Learning jQuery	Jonathan Chaffer	Packt Publisher
3	JavaScript and jQuery	David Sawyer McFarland	Shroff Publisher

Code: 23BA4-E051 **Subject: Project based on HTML ,CSS,JS** **Total Credits: 2**

Marks: 50

Course Objectives:

1. To understand the fundamentals of web development, including HTML, CSS, and JavaScript.
2. To gain proficiency in building interactive and visually appealing web pages using HTML, CSS, and JavaScript.
3. To learn to apply best practices in web development, including responsive design principles and cross-browser compatibility.

Course Outcome:

1. Demonstrate proficiency in HTML markup, including structuring web pages using semantic elements and incorporating multimedia content.
2. Apply CSS styling techniques to enhance the visual presentation of web pages, including layout, typography, and color schemes.
3. Utilize JavaScript to add interactivity and dynamic behavior to web pages, including event handling, DOM manipulation, and form validation.

Guidelines:

- Students should work in a team of a maximum 2 students.
- Students can choose a project topic HTML ,CSS,JS technology.
- The student group will work independently throughout the project work including problem identification, information searching, literature study, design and analysis, implementation, testing, and the final reporting.
- The project guide must conduct project presentations to monitor the progress of the project groups.
- At the end of the project, the group should prepare a report which should conform to international academic standards. The report should follow the style in academic journals and books, with clear elements such as abstract, background, aim, design and implementation, testing, conclusion, and full references, Tables and figures should be numbered and referenced in the report.
- The final project presentation with a demonstration will be evaluated by the project guide (appointed by the college) and one more examiner.

Evaluation guidelines:

IA (20 marks)			**EE (30 marks)**		
First presentation	Second presentation	Documentation	Project Logic/Presentation	Documentation	Viva
05	05	10	10	10	10

Recommended Documentation contents:

Abstract
Introduction
-motivation
-problem statement
-purpose/objective and goals
-literature survey
-project scope and limitations

System analysis
-Existing systems
- scope and limitations of existing systems
-project perspective, features
- stakeholders
-Requirement analysis - Functional requirements, performance requirements, security requirements etc.
System Design
- Design constraints
- System Model: DFD
- Data Model
-User interfaces
Implementation details
-Software/hardware specifications
Outputs
Conclusion and Recommendations
Future Scope
Bibliography and Reference

Practical Slips

MES Garware College Of Commerce

S.Y.B.B.A.(C.A.)Semester-IV

Lab Course(23BA4-A021) : Computer Lab Based on

CPP, Python I ,Python II and jQuery

Credits:4 Marks:100

Q.1A) Write a C++ program to check maximum and minimum of two integer numbers. (Use Inline function andConditionaloperator) **[10]**

B) Create a base class Account (Acc_Holder_Name, Acc_Holder_Contact_No). Derive a two classes as Saving_Account(S_Acc_No., Balance) and Current_Account(C_Acc_No., Balance) from Account. Write a C++ menu driven program to perform following functions:

i. Accept the details for 'n' account holders.
ii. Display the details of 'n' account holders by adding interest amount where interest rate for Saving account is 5% of balance and interest rate for Current account is 1.5% of balance. **[20]**

Q.2A) Write a Python program to accept n numbers in list and remove duplicates from a list.**[10]**

B)Write Python GUI program to take accept your birthdate and output your age when a button is pressed. **[20]**

Q.3 Write a jQuery code to check whether jQuery is loaded or not. **[20]**

Q.4 Viva/Oral **[10]**

Q.5 Lab Book **[10]**

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MES Garware College Of Commerce

S.Y.B.B.A.(C.A.)Semester-IV

Lab Course(23BA4-A021) : Computer Lab Based on

CPP, Python I ,Python II and jQuery

Credits:4 Marks:100

Q.1A) Write a C++ program to find volume of cylinder, cone and sphere. (Use functionoverloading). **[10]**

B)Create two base classes Learning_Info(Roll_No, Stud_Name, Class, Percentage) and Earning_Info(No_of_hours_worked, Charges_per_hour). Derive a class Earn_Learn_info from above two classes. Write necessary member functions to accept and display Student information. Calculate total money earned by the student. (Use constructor in derived class) **[20]**

Q.2A) Write a Python function that accepts a string and calculate the number of upper case letters and lower case letters.

Sample String: 'The quick Brown Fox'

Expected Output:

No. of Uppercase characters: 3

No. of Lower case characters: 13. **[10]**

B) Write Python GUI program to create a digital clock with Tkinter to display the time.**[20]**

Q.3 Write a jQuery code to scroll web page from top to bottom and vice versa. [20]

Q.4 Viva/Oral **[10]**

Q.5 Lab Book **[10]**

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MES Garware College Of Commerce

S.Y.B.B.A.(C.A.)Semester-IV

Lab Course(23BA4-A021) : Computer Lab Based on

CPP, Python I ,Python II and jQuery

Credits:4 Marks:100

Q.1A) Write a C++ program to interchange values of two integer numbers. (Use call by reference) **[10]**

B) Create a base class Shape. Derive three different classes Circle, Rectangle and Triangle from Shape class. Write a C++ program to calculate area of Circle, Rectangle and Triangle. (Use pure virtual function). **[20]**

Q.2A) Write a Python program to check if a given key already exists in a dictionary. If key exists replace with another key/value pair. **[10]**

B)Write a python script to define a class student having members roll no, name, age, gender. Create a subclass called Test with member marks of 3 subjects. Create three objects of the Test class and display all the details of the student with total marks. **[20]**

Q.3 Write a jQuery code to disable right click menu in html page. [20]

Q.4 Viva/Oral **[10]**

Q.5 Lab Book **[10]**

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MES Garware College Of Commerce

S.Y.B.B.A.(C.A.)Semester-IV

Lab Course(23BA4-A021) : Computer Lab Based on

CPP, Python I ,Python II and jQuery

Credits:4 Marks:100

Q.1A) Write a C++ program to accept Worker information Worker_Name, No_of_Hours_worked, Pay_ Rate and Salary. Write necessary functions to calculate and display the salary of Worker. (Use default value for Pay_Rate) **[15]**

B) Write a C++ program to create a base class Employee (Emp-code, name, salary). Derive two classes as Fulltime (daily_wages, num ber_of_days) and Part time (number_of_working_hours, hourly_wages). Write a menu driven program to perform following functions:

1. Accept the details of' n' employees and calculate the salary.
2. Display the details of ' n' employees.
3. Display the details of employee having maximum salary for both types of employees.

[20]

Q.2A) Write Python GUI program to create background with changing colors. **[10]**

B) Define a class Employee having members id, name, department, salary. Create a subclass called manager with member bonus. Define methods accept and display in both the classes. Create n objects of the manager class and display the details of the manager having the maximum total salary (salary+bonus). **[20]**

Q.3 Write a jQuery code to disable the submit button until the visitor has clicked a check box. **[20]**

Q.4 Viva/Oral **[10]**

Q.5 Lab Book **[10]**

---X---

MES Garware College Of Commerce

S.Y.B.B.A.(C.A.)Semester-IV

Lab Course(23BA4-A021) : Computer Lab Based on

CPP, Python I ,Python II and jQuery

Credits:4 Marks:100

Q.1 A) Consider the following C++ class

```
class Point
{
        int x,y;
        public: void setpoint(int, int);          // To set the values ofxand y co-ordinate
        void showpoint();                 // To display co-ordinate of a point P in format (x, y).
};
```
[10]

B)Create a C++ base class Shape. Derive three different classes Circle, Sphere and Cylinder from shapeclass. Write a C++ program to calculate area of Circle, Sphere and Cylinder. (Use pure virtual function). **[20]**

Q.2A) Write a Python script using class, which has two methods get_String and print_String. get_String accept a string from the user and print String print the string in upper case.**[10]**

B) Write a python script to generate Fibonacci terms using generator function. **[20]**

Q.3 Write a jQuery code to blink text continuously. **[20]**

Q.4 Viva/Oral **[10]**

Q.5 Lab Book **[10]**

---- X ----

MES Garware College Of Commerce

S.Y.B.B.A.(C.A.)Semester-IV

Lab Course(23BA4-A021) : Computer Lab Based on

CPP, Python I ,Python II and jQuery

Credits:4 Marks:100

Q.1A) Write a C++ program to create two Classes Square and Rectangle. Compare area of both the shapes using friend function Accept appropriate data members for both the classes. **[10]**

B) Create a C++ class

```
class Matrix
{
        int **p;
int r, c;
public:
                //member functions

}
```

Write necessary member functions to:

I. Accept Matrix elements
II. Display Matrix elements.
III. Calculate transpose of a Matrix.

(Use constructor and destructor) **[20]**

Q.2A) Write python script using package to calculate area and volume of cube and sphere **[10]**

B) Write a Python GUI program to create a label and change the label font style (font name, bold, size). Specify separate check button for each style. **[20]**

Q.3 Write a jQuery code to create a zebra stripes table effect. **[20]**

Q.4 Viva/Oral **[10]**

Q.5 Lab Book **[10]**

---- X ----

MES Garware College Of Commerce

S.Y.B.B.A.(C.A.)Semester-IV

Lab Course(23BA4-A021) : Computer Lab Based on

CPP, Python I ,Python II and jQuery

Credits:4 Marks:100

Q.1A) Write a C++ program to create a class which contains single dimensional integer array of given size. Write a member function to display even and odd numbers from a given array. (Use Dynamic Constructor to allocate and Destructor to free memory of an object) **[10]**

B) Create a C++ class Person with data members Person_name, Mobile_number, Age, City. Write necessary member functions for the following:

i. Search the mobile number of given Person.
ii. Search the Person name of given mobile number.
iii. Search all person details of given city.

(Use function overloading) **[20]**

Q.2A) Write Python class to perform addition of two complex numbers using binary + operator overloading. **[10]**

B) Write python GUI program to generate a random password with upper and lowercaseletters. **[20]**

Q.3 Write a jQuery code to print a page. **[20]**

Q.4 Viva/Oral **[10]**

Q.5 Lab Book **[10]**

---- X ----

MES Garware College Of Commerce

S.Y.B.B.A.(C.A.)Semester-IV

Lab Course(23BA4-A021) : Computer Lab Based on

CPP, Python I ,Python II and jQuery

Credits:4 Marks:100

Q.1A) Write a C++ program to create a class Number, which contain static data member ' cnt' and member function ' Display() '. Display() should print number of times display operation is performed irrespective of the object responsible for calling Display(). **[10]**

C) B) Write a C++ program to create a base class Employee (Emp-code, name, salary). Derive two classes as Fulltime (daily_wages, num ber_of_days) and Part time (number_of_working_hours, hourly_wages). Write a menu driven program to perform following functions:

4. Accept the details of' n' employees and calculate the salary.
5. Display the details of ' n' employees.
6. Display the details of employee having maximum salary for both types of employees.

[20]

Q.2A) Write a python script to find the repeated items of a tuple. **[10]**

B) Write a Python class which has two methods get_String and print_String. get_String accept a string from the user and print_String print the string in upper case. Further modify the program to reverse a string word by word and print it in lower case. **[20]**

Q.3 Write a jQuery code to allow the user to enter only 15 characters into the textbox. **[20]**

Q.4 Viva/Oral **[10]**

Q.5 Lab Book **[10]**

---X---

MES Garware College Of Commerce

S.Y.B.B.A.(C.A.)Semester-IV

Lab Course(23BA4-A021) : Computer Lab Based on

CPP, Python I ,Python II and jQuery

Credits:4 Marks:100

Q.1A) Consider the following C++class

```
class Person
{     charName[20]; charAddr[30]; floatSalary;
float tax_amount;
public:
        //member functions
};
```

Calculate tax amount by checking salary of a person

- For Salary <=20000 tax rate=0
- Forsalary>20000&<=40000 tax rate= 5% of salary.
- For salary>40000 tax rate =10% of salary. **[10]**

B) Create a class Time which contains data members as: Hours, Minutes and Seconds. Write C++ program to perform following necessary member functions:

i. To read time
ii. To display time in format like: hh:mm:ss
iii. To add two different times (Use Objects as argument) **[20]**

Q.2A) Write a Python script using class to reverse a string word by word **[10]**

B) Write Python GUI program to accept a number n and check whether it is Prime, Perfect or Armstrong number or not. Specify three radio buttons. **[20]**

Q.3 Write a jQuery code to make first word of each statement to bold. **[20]**

Q.4 Viva/Oral **[10]**

Q.5 Lab Book **[10]**

---- X ----

MES Garware College Of Commerce

S.Y.B.B.A.(C.A.)Semester-IV

Lab Course(23BA4-A021) : Computer Lab Based on

CPP, Python I ,Python II and jQuery

Credits:4 Marks:100

Q.1A) Write a C++ program to create a class Account with data members Acc_number, Acc_typeand Balance. Write member functions to accept and display ' n' account details. (Use dynamic memory allocation) **[10]**

B) Create a C++ class City with data membersCity_code, City_name, population. Write necessary member functions for the following:

i. Accept details of n cities
ii. Display details of n cities in ascending order of population.
iii. Display details of a particular city.

(Use Array of object and to display city information use manipulators.) **[20]**

Q.2A) Write Python GUI program to display an alert message when a button is pressed. **[10]**

B) Write a Python class to find validity of a string of parentheses, '(', ')', '{', '}', '[' ']'. These brackets must be close in the correct order.
for example "()" and "()[]{}" are valid but "[)", "({[)]" and "{{{" are invalid. **[20]**

Q.3 Write a jQuery code to create a division (div tag) using jQuery with style tag . **[20]**

Q.4 Viva/Oral **[10]**

Q.5 Lab Book **[10]**

---X---

MES Garware College Of Commerce

S.Y.B.B.A.(C.A.)Semester-IV

Lab Course(23BA4-A021) : Computer Lab Based on

CPP, Python I ,Python II and jQuery

Credits:4 Marks:100

Q.1 A) Write a C++ program to create a class Date with data members day, month, and year. Use default and parameterized constructorto initialize date and display date in dd-Mon-yyyy format. (Example: Input: 04-01-2021Output:04-Jan-2021) **[10]**

B) Create a C++ class Weight with data members kilogram, gram. Write a C++ program using operator overloading to perform followingfunctions:

i. To acceptweight.
ii. To display weight in kilogram and gram format.
iii. Overload+= operator to add two weights. **[20]**

Q.2A) Write a Python program to compute element-wise sum of given tuples.
Original lists: (1, 2, 3, 4) (3, 5, 2, 1) (2, 2, 3, 1)
Element-wise sum of the said tuples: (6, 9, 8, 6) **[10]**

B)Write Python GUI program to add menu bar with name of colors as options to change the background color as per selection from menu option. **[20]**

Q.3 Write a jQuery code to add list elements within an unordered list element. **[20]**

OR

Write an ethereum application in JavaScript to transfer currency from one account to another account. **[20]**

Q.4 Viva/Oral **[10]**

Q.5 Lab Book **[10]**

---- X ----

MES Garware College Of Commerce

S.Y.B.B.A.(C.A.)Semester-IV

Lab Course(23BA4-A021) : Computer Lab Based on

CPP, Python I ,Python II and jQuery

Credits:4 Marks:100

Q.1 A) Write a C++ program to create a class Product withdata members Product_id,Product_Name, Qty,Price.Writememberfunctionstoacceptanddisplay Productinformationalsodisplaynumberofobjects created for Product class. (Use Static data member and Static member function) **[10]**

B) Create a C++ class Cuboid with data members length, breadth, and height. Write necessarymemberfunctions for thefollowing:

i. void setvalues(float,float,float) to set values of data members.
ii. void getvalues( )to display values of data members.
iii. float volume( )to calculate and return the volume of cuboid.
iv. float surface_ area( )to calculate an d return the surface area of cuboid.
(UseInlinefunction) **[20]**

Q.2A) Write a Python GUI program to create a label and change the label font style (font name, bold, size) using tkinter module. **[10]**

B)Write a python program to count repeated characters in a string.
Sample string: 'thequickbrownfoxjumpsoverthelazydog'
Expected output: o-4, e-3, u-2, h-2, r-2, t-2 **[20]**

Q.3 Write a jQuery code to remove all the options of a select box and then add one option and select it. **[20]**

Q.4 Viva/Oral **[10]**

Q.5 Lab Book **[10]**

---- X ----

MES Garware College Of Commerce

S.Y.B.B.A.(C.A.)Semester-IV

Lab Course(23BA4-A021) : Computer Lab Based on

CPP, Python I ,Python II and jQuery

Credits:4 Marks:100

Q.1 A) Write a C++ program to accept radius of a Circle. Calculate and display diameter, circumference as well as area of a Circle. **(UseInlinefunction)** **[10]**

B) Create a C++ class MyStringwith data members a character pointer and str_length. (Use new and delete operator).Write a C++ program using operator overloadingto perform followingoperation:

i. ! To reverse the case of each alphabet from a givenstring.
ii. < To compare length ofstrings.
iii. To add constant'n' to each alphabetofastring. **[20]**

Q.2A) Write a Python program to input a positive integer. Display correct message for correct and incorrect input. (Use Exception Handling) **[10]**

B)Write a program to implement the concept of queue using list. **[20]**

Q.3 Write a jQuery code to underline all the words of a text. **[20]**

Q.4 Viva/Oral **[10]**

Q.5 Lab Book **[10]**

---- X ----

MES Garware College Of Commerce

S.Y.B.B.A.(C.A.)Semester-IV

Lab Course(23BA4-A021) : Computer Lab Based on

CPP, Python I ,Python II and jQuery

Credits:4 Marks:100

Q.1 A) Create a C++ class Sumdata to perform following functions: intsum(int,int) returns the addition of two integer arguments. float sum(flaot, float, float) returns the addition of three float arguments. int sum(int [ ],int) returns the sum of all elements in an array of size 'n'. **[10]**

B)Write a C++ class Seller (S_Name, Product_name, Sales_Quantity, Target_Quantity, Month,Commission). Each salesman deals witha separate product and is assigneda target for a month. At the end of the month his monthly sales is compared with target and commission is calculated as follows:

- If Sales_Quantity>Target_Quantity thencommission is 25% of extra sales made + 10% of target.
- IfSales_Quantity=Target_Quantitythencommissionis10%oftarget.
- Otherwise commission iszero.

Display salesman informationalong with commissionobtained. (Use array of objects) **[20]**

Q.2A) Write a Python GUI program to accept dimensions of a cylinder and display the surface area and volume of cylinder. **[10]**

B)Write a Python program to display plain text and cipher text using a Caesar encryption.**[20]**

Q.3 Write a jQuery code to demonstrate how to get the value of a textbox. **[20]**

Q.4 Viva/Oral **[10]**

Q.5 Lab Book **[10]**

---- X ----

MES Garware College Of Commerce

S.Y.B.B.A.(C.A.)Semester-IV

Lab Course(23BA4-A021) : Computer Lab Based on

CPP, Python I ,Python II and jQuery

Credits:4 Marks:100

Q.1A) Write a C++ program to create a class Machine with data members Machine_Id, Machine_Name, Price. Create and initialize allvalues of Machine object by using parameterized constructor and copy constructor.DisplaydetailsofMachineusingsetw()andsetprecsion(). **[10]**

B) Create a C++ class MyMatrixand Write necessary member functions for thefollowing:

i. To accept aMatrix
ii. To display aMatrix
iii. Overload unary ' -' operator to calculate transpose ofaMatrix.
iv. Overload unary '++' operator to incrementmatrix elementsby1. **[20]**

Q.2A) Write a Python class named Student with two attributes student name, marks. Modify the attribute values of the said class and print the original and modified values of the said attributes. **[10]**

B)Write a python program to accept string and remove the characters which have odd index values of given string using user defined function. **[20]**

Q.3 Write a jQuery code to remove all CSS classes from an application. **[20]**

Q.4 Viva/Oral **[10]**

Q.5 Lab Book **[10]**

---- X ----

MES Garware College Of Commerce

S.Y.B.B.A.(C.A.)Semester-IV

Lab Course(23BA4-A021) : Computer Lab Based on

CPP, Python I ,Python II and jQuery

Credits:4 Marks:100

Q.1A) Create a C++ class MyMatrix. Write a C++ program to accept and display a Matrix. Overload binary '-' operator to calculate subtraction of two matrices. **[10]**

B)Design two base classes Student(S_id,Name,Class) and Competition(C_id,C_Name).Deriveaclass Stud_Comp(Rank) from it. Write a menu driven program to perform followingfunctions:

Accept information.

i.Displayinformation.

ii.Display Student Details in the ascending order of Rank of a specifiedcompetition.

(Use arrayofobjects) **[20]**

Q.2A) Write a python script to create a class Rectangle with data member's length, width and methods area, perimeter which can compute the area and perimeter of rectangle. **[10]**

B)Write Python GUI program to add items in listbox widget and to print and delete the selected items from listbox on button click. Provide three separate buttons to add, print and delete. **[20]**

Q.3 Write a jQuery code to distinguish between left and right mouse click. **[20]**

Q.4 Viva/Oral **[10]**

Q.5 Lab Book **[10]**

---- X ----

MES Garware College Of Commerce

S.Y.B.B.A.(C.A.)Semester-IV

Lab Course(23BA4-A021) : Computer Lab Based on

CPP, Python I ,Python II and jQuery

Credits:4 Marks:100

Q.1 A) Create a C++ class Studentwithdata membersRoll_no, S_Name, Class, Percentage. Accept twostudentsinformation and display informationof student having maximum percentage. (Use this pointer) **[10]**

B) Create a C++ class MyArray with datamembers

- int*arr
- intsize

Write necessary member functions to accept and display Array elements. Overload the following operators:

Operator	**Example**	**Purpose**	
-(Unary)	-A1	Reverse array elements	
+(Binary)	A1+n	Add constant to all array elements	**[20]**

Q.2A) Write Python GUI program that takes input string and change letter to upper case when a button is pressed. **[10]**

B) Define a class Date (Day, Month, Year) with functions to accept and display it. Accept date from user. Throw user defined exception "invalid Date Exception" if the date is invalid. **[20]**

Q.3 Write a jQuery code to check if an object is a jQuery object or not. **[20]**

Q.4 Viva/Oral **[10]**

Q.5 Lab Book **[10]**

---X---

MES Garware College Of Commerce

S.Y.B.B.A.(C.A.)Semester-IV

Lab Course(23BA4-A021) : Computer Lab Based on

CPP, Python I ,Python II and jQuery

Credits:4 Marks:100

Q.1 A) Write a C++ program to create a class Distance with data members meter and centimeterto represent distance.Write a function Larger( )to return the larger of two distances. (Use thispointer) **[10]**

B) Create a C++ base class Media. Derive two different classes from it, class NewsPaper with data members N_Name, N_Editor, N_Price, No_of_Pagesand class Magazine with data members M_Name,M_Editor, M_Price. Write a C++ program to accept and display information of both NewsPaperand Magazine. (Use pure virtual function) **[20]**

Q.2A) Create a list a = [1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89] and write a python program that prints out all the elements of the list that are less than 5 **[10]**

B)Write a python script to define the class person having members name, address. Create a subclass called Employee with members staffed salary. Create 'n' objects of the Employee class and display all the details of the employee. **[20]**

Q.3 Write a jQuery code to detect whether the user has pressed 'Enter key' or not. **[20]**

Q.4 Viva/Oral **[10]**

Q.5 Lab Book **[10]**

- - - - X - - - -

MES Garware College Of Commerce

S.Y.B.B.A.(C.A.)Semester-IV

Lab Course(23BA4-A021) : Computer Lab Based on

CPP, Python I ,Python II and jQuery

Credits:4 Marks:100

Q.1 A) Create a C++ class Number with integer data mem ber. Write necessary member functions to overload the operator unary pre and post increment ' ++'. **[10]**

B) Create a class College containing data members as College_Id, College_Name,Establishment_year, University_Name.Write a C++ program with following member functions:

i. To accept 'n' College details
ii. To display College details of a specified University
iii. To display College details according to a specified establishment year

(Use Array of Object and Function overloading) **[20]**

Q.2A) Write a Python GUI program to accept a number form user and display its multiplication table on button click. **[10]**

B)Define a class named Shape and its subclass(Square/ Circle). The subclass has an init function which takes an argument (Length /radius). Both classes should have methods to calculate area and volume of a given shape. **[20]**

Q.3 Write a jQuery code to count number of rows and columns in a table. **[20]**

Q.4 Viva/Oral **[10]**

Q.5 Lab Book **[10]**

---X---

MES Garware College Of Commerce

S.Y.B.B.A.(C.A.)Semester-IV

Lab Course(23BA4-A021) : Computer Lab Based on

CPP, Python I ,Python II and jQuery

Credits:4 Marks:100

Q.1A) Create a C++ class Employee with data members Emp_id, Emp_Name, Company_Nameand Salary. Write member functions to accept and display Employee information. Design User defined Manipulator to print Salary.
(For Salary set right justification, maximum width to 7 and fill remaining spaces with '*')
[15]

B) Create a C++ class for a two dimensional points. Write necessary member functions to accept &display the point object. Overload the following operators:

Operator	**Example**	**Purpose**
+ (Binary)	P3=P l+P2	Adds coordinates of point pl and p2.
- (Unary)	-Pl	Negates coordinates of point pl.
*(Binary)	P2=P l*n	Multiply coordinates of point pl by constant'n'.

[25]

Q.2A) Write a python program to create a class Circle and Compute the Area and the circumferences of the circle.(use parameterized constructor) **[10]**

B)Write a Python script to generate and print a dictionary which contains a number (between 1 and n) in the form(x,x*x).
Sample Dictionary (n=5) Expected Output: {1:1, 2:4, 3:9, 4:16, 5:25} **[20]**

Q.3 Write a jQuery code to display form data onto the browser. **[20]**

Q.4 Viva/Oral **[10]**

Q.5 Lab Book **[10]**

- - - X - - -

MES Garware College Of Commerce

S.Y.B.B.A.(C.A.)Semester-IV

Lab Course(23BA4-A021) : Computer Lab Based on

CPP, Python I ,Python II and jQuery

Credits:4 Marks:100

Q.1 A) Create a C++ class MyStringwith data member character pointer. Write a C++ program toaccept and displayastring.Overload '+' operatortoconcatenatetwostrings.**[15]**

B)Create a C++ class ComplexNumberwithdata members real and imaginary. Writenecessary functions:

i. To accept Complex Number usingconstructor.
ii. To display Complex Number in format [x +iy].
iii. To add two Complex Numbers by usingfriendfunction **[15]**

Q.2A) Define a class named Rectangle which can be constructed by a length and width. The Rectangle class has a method which can compute the area and Perimeter. **[10]**

B)Write a Python program to convert a tuple of string values to a tuple of integer values.
Original tuple values: (('333', '33'), ('1416', '55')) New tuple values: ((333, 33), (1416, 55))
[20]

Q.3 Write a jQuery code to remove a specific value from an array. **[20]**

Q.4 Viva/Oral **[10]**

Q.5 Lab Book **[10]**

---- X ----

MES Garware College Of Commerce

S.Y.B.B.A.(C.A.)Semester-IV

Lab Course(23BA4-A021) : Computer Lab Based on

CPP, Python I ,Python II and jQuery

Credits:4 Marks:100

Q.1A) Createa C++ classFixDepositwithdatamembersFD_No,Cust_Name,FD_Amt, Interestrate,Maturity amt, Number_of_months. Create and Initializeall values of FixDepositobject by using parameterized constructor with default value for interest rate. Calculate maturity amt using interest rate and display allthedetails. **[10]**

B) Define a class Product that contains data member as Prod_no, Prod_Name, Prod_Price. Derive a class Discount(discount_in_Percentage) from class Product. A Customer buys 'n' products. Accept quantity for each product , calculate Total Discount and accordingly generate Bill. Display the bill using appropriate Manipulators. **[20]**

Q.2A) Write a python class to accept a string and number n from user and display n repetition of strings by overloading * operator. **[10]**

B)Write a python script to implement bubble sort using list **[20]**

Q.3 Write a jQuery code to change button text. **[20]**

Q.4 Viva/Oral **[10]**

Q.5 Lab Book **[10]**

---- X ----

MES Garware College Of Commerce

S.Y.B.B.A.(C.A.)Semester-IV

Lab Course(23BA4-A021) : Computer Lab Based on

CPP, Python I ,Python II and jQuery

Credits:4 Marks:100

Q.1A) Write a C++ program to calculate mean, mode and median of three integer numbers.(UseInline function) **[10]**

B) Create aC++classforinventoryofMobileswith data membersModel,Mobile_Company, Color, Price and Quantity. Mobile can be sold, if stock is available,otherwise purchase will be made. Write necessary member functions for the following:

i. To accept mobile details from user.
ii. To sale a mobile. (Sale contains Mobile details &number of mobiles to besold.)
iii. To Purchase a Mobile. (Purchase contains Mobile details & number of mobiles to be purchased) **[20]**

Q.2A) Write a Python GUI program to create a label and change the label font style (font name, bold, size) using tkinter module. **[10]**

B) Create a class circles having members radius. Use operator overloading to add the radius of two circle objects. Also display the area of circle. **[20]**

Q.3 Write a jQuery code to add options to a drop-down list. **[20]**

Q.4 Viva/Oral **[10]**

Q.5 Lab Book **[10]**

---- X ----

MES Garware College Of Commerce

S.Y.B.B.A.(C.A.)Semester-IV

Lab Course(23BA4-A021) : Computer Lab Based on

CPP, Python I ,Python II and jQuery

Credits:4 Marks:100

Q.1 A) Write a C++ program to find average of 3 integer numhersand average of 3 floatnumhers.(Usefunctionoverloading)
[15]

B) Create a C++ class Time with data members hours, minutes, seconds. Writea C++ program usingoperator overloading to perform the following:

i. != To check whether two Times are equal ornot.
ii. >> To accept the time.
iii. << To display the time. **[15]**

Q.2A) Write a Python Program to Check if given number is prime or not. Also find factorial of the given no using user defined function. **[10]**

B)Write Python GUI program which accepts a number n to displays each digit of number in words. **[20]**

Q.3 Write a jQuery code to set background-image to the page. **[20]**

Q.4 Viva/Oral **[10]**

Q.5 Lab Book **[10]**

---X---

MES Garware College Of Commerce

S.Y.B.B.A.(C.A.)Semester-IV

Lab Course(23BA4-A021) : Computer Lab Based on

CPP, Python I ,Python II and jQuery

Credits:4 Marks:100

Q.1A) Write a C++ program to read two float numbers. Perform arithmetic binary operations like +, - , *, / on these numbers using Inline Function. Display resultant value with a precision of two digits. **[10]**

B) Create a base class Travels with data members T_no, Company_Name. Derive a class Route with data members Route_id, Source, and Destination from Travels class. Also derive a class Reservation with data members Number_of_Seats, Travels_Class, Fare, and Travel_Date fromRoute.

Write a C++ program to perform following necessary member functions:

i. Accept details of •n'reservations.
ii. Display details of allreservations.
iii. Display reservation detailsof aspecifiedDate. **[20]**

Q.2A) Write a Python function that accepts a string and calculate the number of upper case letters and lower case letters.

Sample String : 'The quick Brow Fox'

Expected Output :

No. of Upper case characters : 3

No. of Lower case Characters : 12 **[10]**

B)Write a Python script to Create a Class which Performs Basic Calculator Operations. **[20]**

Q.3 Write a jQuery code to get the selected value and currently selected text of a dropdown box. **[20]**

Q.4 Viva/Oral **[10]**

Q.5 Lab Book **[10]**

---- X ----

MES Garware College Of Commerce

S.Y.B.B.A.(C.A.)Semester-IV

Lab Course(23BA4-A021) : Computer Lab Based on

CPP, Python I ,Python II and jQuery

Credits:4 Marks:100

Q.1A) Writea C++programtoreadarrayof'n'integersfromuseranddisplayitinreverseorder.(Use Dynamicmemoryallocation) **[10]**

B) Create a C++ class Employee with data members Emp_Id, Emp_Name, Mobile_No, Salary. Writenecessary member functions for thefollowing:

i. Accept details of nemployees
ii. Display employee details in descending order of theirsalary.
iii. Display details of a particularemployee.

(Use Array of object and Useappropriatemanipulators) **[20]**

Q.2A) Write an anonymous function to find area of square and rectangle. **[10]**

B)Write Python GUI program which accepts a sentence from the user and alters it when a button is pressed. Every space should be replaced by *, case of all alphabets should be reversed, digits are replaced by? **[20]**

Q.3 Write a jQuery code to disable a link. **[20]**

Q.4 Viva/Oral **[10]**

Q.5 Lab Book **[10]**

---- X ----

MES Garware College Of Commerce

S.Y.B.B.A.(C.A.)Semester-IV

Lab Course(23BA4-A021) : Computer Lab Based on

CPP, Python I ,Python II and jQuery

Credits:4 Marks:100

Q.1 A) Write a C++ program to accept length and width of a rectangle. Calculate and display perimeter as well as area of a rectangle by using Inline function. **[10]**

B) CreateaC++classVisitingStaffwithdatamembersName,No_of_Subjects,Name_of_Subjects[], Working_hours, Total_Salary. (Number of subjects varies for a Staff).Write a parameterized constructor to initialize the data members and create an array for Name_of_Subjects dynamically.DisplayVisitingStaff details by calculating salary.(AssumeremunerationRs.300perworkinghour) **[20]**

Q.2 A) Write a Python program to unzip a list of tuples into individual lists. **[10]**

B) Write Python GUI program to accept a decimal number and convert and display it to binary, octal and hexadecimal number. **[20]**

Q.3 Write a jQuery code to Restrict "number"-only input for textboxes including decimal points **[20]**

Q.4 Viva/Oral **[10]**

Q.5 Lab Book **[10]**

---X---

MES Garware College Of Commerce

S.Y.B.B.A.(C.A.)Semester-IV

Lab Course(23BA4-A021) : Computer Lab Based on

CPP, Python I ,Python II and jQuery

Credits:4 Marks:100

Q.1 A) Write C++ program to create two classes Integer_Arrayand Float_Array with an array as a data member. Write necessary member functions to accept and display array elements of both the classes. Find and display average of boththe array. (Use Friend function)**[10]**

B) Create a C++ class Marksheet with data members Seat_No, Student_Name, Class, Subject_Name[],Int_Marks[], Ext_Marks[], Total[], Grand_Total, Percentage, Grade. Write member function to accept Student information for 5 subjects. CalculateTotal, Grand_Total, Percentage, Grade and use setw(), setprecision() and setfill () to display Marksheet. **[20]**

Q.2A) Write a Python GUI program to create a list of Computer Science Courses using Tkinter module (use Listbox) **[10]**

B)Write a Python program to accept two lists and merge the two lists into list of tuple.**[20]**

Q.3 Write a jQuery code to set value in input text **[20]**

Q.4 Viva/Oral **[10]**

Q.5 Lab Book **[10]**

---X---

MES Garware College Of Commerce

S.Y.B.B.A.(C.A.)Semester-IV

Lab Course(23BA4-A021) : Computer Lab Based on

CPP, Python I ,Python II and jQuery

Credits:4 Marks:100

Q.1 A) Write the definition for a class called 'point' that has x & y as integer data members. Use copy constructor to copy one object to another. (Use Default and parameterized constructor to initialize the appropriate objects) Write a C++ program to illustrate the use of above class. **[10]**

B) Create a C++ class Marksheet with data members Seat_No, Student_Name, Class, Subject_Name[],Int_Marks[], Ext_Marks[], Total[], Grand_Total, Percentage, Grade. Write member function to accept Student information for 5 subjects. Calculate Total, Grand_TotalPercentage.

Q.2A) Write a Python GUI program to calculate volume of Sphere by accepting radius as input. **[10]**

B)Write a Python script to sort (ascending and descending) a dictionary by key and value. **[20]**

Q. 3 Write a jQuery code to remove specific row from table **[20]**

Q.4 Viva/Oral **[10]**

Q.5 Lab Book **[10]**

---- X ----

MES Garware College Of Commerce

S.Y.B.B.A.(C.A.)Semester-IV

Lab Course(23BA4-A021) : Computer Lab Based on

CPP, Python I ,Python II and jQuery

Credits:4 Marks:100

Q.1 A) Write C++ program to create two classes Integer_Arrayand Float_Array with an array as a data member. Write necessary member functions to accept and display array elements of both the classes. Find and display average of boththe array. **(UseFriendfunction) [10]**

B) Create a C++ class Marksheet with data members Seat_No, Student_Name, Class, Subject_Name[],Int_Marks[], Ext_Marks[], Total[], Grand_Total, Percentage, Grade. Write member function to accept Student information for 5 subjects. CalculateTotal, Grand_Total, Percentage. **[20]**

Q.2A) Write a Python GUI program to accept a string and a character from user and count the occurrences of a character in a string. **[10]**

B)Python Program to Create a Class in which One Method Accepts a String from the User and Another method Prints it. Define a class named Country which has a method called print Nationality. Define subclass named state from Country which has a mehtod called printState. Write a method to print state, country and nationality. **[20]**

Q.3 Write a jQuery code to find the class of the clicked element. **[20]**

Q.4 Viva/Oral **[10]**

Q.5 Lab Book **[10]**

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M.E.S. Garware College of Commerce (Autonomous)

National Service Scheme
S.Y.B.Com/BBA/BBA-
IB/BBA-CA/ BBA -DI
Semester III
Total Credits- 2

Course Objectives:

1. To help learners know about NSS in the context of youth, community and voluntary service.
2. To propagate yoga as a way of healthy living.

Course Outcomes:

1. Learners will have the knowledge about NSS and its role in the fields of health, hygiene and sanitation so as to build a strong country.
2. They will be able to use Yoga for healthy living.

Unit	Topics	Lectures
1	**Life Competencies & Youth Leadership** Definition and importance of life competencies; communication and soft skills; Youth leadership	6
2	**Youth Health** Healthy lifestyles; drugs and substance abuse	8
3	**Youth and Yoga** History and philosophy of yoga; Yoga for healthy living	16
	Total	**30**

S.Y.B.Com Semester IV
Total Credits- 2

Course Objectives:

1. To help learners know about environmental issues and disaster management.
2. To learn documentation and reporting.

Course Outcomes:

1. Learners will learn to appreciate the concerns regarding the environment.
2. They will also be able to prepare a socio-economic development plan.

Unit	Topics	Lectures
1	**Disaster Management** Introduction; Classification of disasters; Role of NSS in disaster management with more emphasis on disasters specific to NE India; Civil Defense	16
2	**Documentation and Reporting** Collection and analysis of data; Documenting, reporting and their dissemination	14
	Total	**30**

Suggested Readings:

1. NSS Manual
2. National Youth Policy Document
3. National Service Scheme - A Youth Volunteers Programme For Under Graduate Students As Per UGC Guidelines by J D S Panwar, A K Jain & B K Rathi (Astral)
4. Communication Skills by N Rao & R P Das (HPH)
5. Light on Yoga by B K Iyenger (Thorsons)
6. Guide to Report Writing by Michael Netzley and Craig Snow (Pearson)

Maharashtra Education Society's
Garware College of Commerce (Autonomous)
Programme – B.Com/ BBA/ BBA-CA/ BBA-D&I/ BBA-IB
Board of Studies: - Co-Curricular

SY (Semester IV)		
Course Code:	**Course: National Cadet Corps**	**Marks: 50** **Credits: 02**

Course Objectives:

1. Understand the fundamental concepts of social service and the needs of weaker sections in society.
2. Comprehend the potential roles and responsibilities of youth in addressing societal issues.
3. Apply foundational knowledge to initiate Personality Development.
4. Explore the fundamental traits associated with effective leadership.

Course Outcome:

After completing the course, the student shall be able to

1. demonstrate a solid understanding of the basics of social service and the needs of weaker sections.
2. improved critical thinking skills in applying knowledge to engage in and promote youth-led initiatives for social welfare.
3. apply foundational knowledge to initiate Personality Development.
4. explore and assess different types of leadership styles.

Unit	Unit Title	Contents	No of lectures
I	**Social Awareness & Community Development**	-Basics of Social Service, weaker sections of our society and their needs. -Social / Rural Development Projects: MNREGA, SGSY, NSAP etc -NGOs : Role & Contribution -Contribution of youth towards social welfare -Family Planning -Drug Abuse & Trafficking -Civic Responsibilities -Causes & Prevention of HIV/ AIDS; Role of youth -Counter Terrorism -Corruption -Social Evils viz	15

		-Dowry/Female Foeticide/ Child abuse & trafficking etc -RTI & RTE -Traffic Control Org and Anti-drunken driving -Provisions of Protection of Children from Sexual Harassment Act 2012	
II	**Personality Development & Leadership**	**Personality Development:** -Introduction to Personality Development. -Factors Influencing / shaping Personality: Physical, Social, Psychological and Philosophical. -Self-Awareness - Know yourself/ Insight. -Change your mind set. -Interpersonal relationship and communication. -Communication Skills: Group Discussions/ Lecturettes. **Leadership:** -Leadership Traits. -Types of Leadership. -Attitude - Assertiveness and Negotiation. -Time Management. -Effects of Leadership with historical examples.	15
Total No of Lectures			**30**

Unit	**Unit Title**	**Teaching methodology**	**Project /Hands-on exposure/Practice-based**	**Outcome expected**		**Weightage of Marks (%)**
				Conceptual understanding of Knowledge /Skills /Attributes etc.		
I	**Social Awareness & Community Development**	PowerPoint Presentation, Group Discussion, Library Visit, Class Discussion.	Project report shall be prepared on Community Development	Create awareness of Community Development	To develop the knowledge about Social Awareness	50
II	**Personality Development & Leadership**	Quiz Competition, Case Studies, Class Discussion, Internet Resources.	Project report shall be prepared on Leadership	To provide basics of Personality Development	To know about the Personality Development & Leadership	50

References

Sr. No.	Title of the Book	Author/s	Publication
1	NCC: Handbook	R.K. Gupta	Ramesh Publishing House
2	NCC Army Wing	RPH Editorial Board	Ramesh Publishing House
3	MISSION NCC MCQ Book	Nitin Nikode	Ujwala Prakashan
4	NCC Army, Air Force & Navy Wings Guide	Arihant Experts	Arihant Publications

Web References

Sr. No.	Website Address	Institution
1	https://indiancc.nic.in/	National Cadet Corps

SY B.Com/BBA/IB/CA/ D&I-Semester-IV		
Course Code:	**Subject :Youth Red Cross (C0-Curricular)**	**Credits : 2**

Course Objectives:

1. To explore the role & responsibilities of youth towards society.
2. To Spread community health education

Course Outcome :

After completing the course, the student shall be able to:

CO1: Understand the role & responsibilities of youth towards society.

CO2: Apply & promote health & hygiene practices in the community.

Unit	Unit Title	Contents	No of Lectures
I	Youth Responsibility towards Society	1.1 Meaning & importance of Youth Volunteers 1.2 Role & responsibilities of youth towards society 1.3 Basic awareness on community resources mobilization & utilization, water & waste management 1.4 Activities of the Red Cross Youth 1.5 Gender Equality	13
II	Community Health Education	2.1 Promoting health and hygiene practices 2.2 Disease prevention and control 2.3 Nutrition and healthy lifestyle education 2.4 Advocacy for immunization and healthcare access	13

		2.5 Addressing common health issues in the community (e.g., sanitation, clean water)	

No of Lectures (Hours)	26
No of Lectures for Evaluation (Hours)	04
Total No of Lectures (Hours)	30

Evaluation Method:

Unit	Internal Evaluation (20 Marks)	External Evaluation (30 Marks)
1		
2		
3		
4		

Suggested Readings:

Sr. No.	Title of Book	Author/s	Publication
1	Financial Accounting	Dr. S. N. Maheshwari and Sharad K. Maheshwari	Vikas Publishing House
2	Financial Accounting	Dr. V. K. Goyal	Prentice Hall India Learning Private Limited
3	Cost Accounting: Principles and Practice	Dr. M. N. Arora	Vikas Publishing House
4	Cost Accounting: A Managerial Emphasis	Dr. S. P. Jain and K. L. Narang	Kalyani Publishers

Course Code:	Subject/Course: YOGA PRACTICES	Marks: 50 Credits :2

B. Com/ BBA/ BBA (IB)/ BBA (CA) / BBA (D&I) (Semester I)

Course Objectives:

1. To ensure the healthy life of students
2. To improve Physical and mental health of the students
3. To possess emotional and Spiritual stability of the students
4. To inculcate moral values.
5. To attain a higher level of consciousness.

Course Outcome:

After completing the course, the student shall be able to:

CO1: Relate Yoga, Ashtanga Yoga, Pranayama and Meditation

CO2: Understand different Sitting and Standing Asnas

CO3: Illustrate Supine and Prone Asnas

CO4: Apply the Knowledge of Yoga to improve overall health of the students

Unit	Unit Title	Contents	No. of Lectures
I	**Introduction of Yoga**	1. Meaning and importance of Yoga 2. Introduction to Astanga Yoga 3. Active Lifestyle and stress management through Yoga	3
II	**Sitting Position Asanas**	Dandasana Gomukhasana (Cow Face Pose) Parvatasana (Mountain Pose) Padmasana Yog Mudra Vajrasana Yog Mudra	5
III	**Standing Position Asanas**	Itthita Parshvakonasana Tadasana Vrikshasana (Tree Pose) Virasana (Warrior Pose) Trikonasana (Triangle Pose)	5
IV	**Supine Position Asanas**	Naukasana (Boat Pose) Dwipad Uttanasana(Raised Leg Pose) Dwipad Uttanasana Kriya Pawanmuktasana (Wind Relieving Pose) Setubandhasana(Bridge Pose)	5

V	**Prone Position Asanas**	Sarpasana (Snake Pose) Bhujangasana(Cobra Pose) Ardha Salabhasana (Half Locust Pose/ Grasshopper Pose) Salabhasana (Locust Pose/ Grasshopper Pose) Dhanurasana (Bow Pose)	5
VI	Pranayama	Nadisuddhi ; Suryabedana ; Ujjai ; Sitali ; Sitacari ; Bhastrika ; Bramari ;	7

Evaluation Method / Unit	**Marks (50)**	
	Continuous Comprehensive Evaluations (CCE) (Internals) (Marks)	**Assessment**
I, II, III, IV, V, VI	**Various Internal Examination CCE (20Marks)**	**Semester End Examination (30 Marks)**
	Departmentally organized assignment	College Organized Examination

Suggested Readings:

Sr.	**Title of the Book**	**Author/s**	**Publication**	**Place**
1.	Light on Yoga	Iyengar, B.K.	Orient Longman Pvt. Ltd.	Mumbai
2.	Light on Astanga Yoga	Iyengar, B.K.	Alchemy Publishers.	New Delhi
3.	Guidelines for Yogic Practices	Gharote, M. L.	The Lonavla Yoga Institute	Pune

Course Code:	Subject/Course: YOGA PRACTICES	Marks: 50 Credits :2

B. Com/ BBA/ BBA (IB)/ BBA (CA) / BBA (D&I) (Semester II)

Course Objectives:

1. To ensure the healthy life of students
2. To improve Physical and mental health of the students
3. To possess emotional and Spiritual stability of the students
4. To inculcate moral values.
5. To attain a higher level of consciousness.

Course Outcome:

After completing the course, the student shall be able to:

CO1: Relate Yoga, Ashtanga Yoga, Pranayama and Meditation

CO2: Understand different Sitting and Standing Asnas

CO3: Illustrate Supine and Prone Asnas

CO4: Apply the Knowledge of Yoga to improve overall health of the students

Unit	Unit Title	Contents	No. of Lectures
I	Suryanamskar	Yogic Suryanamaskara with Mantras	5
II	**Sitting Position Asanas**	Naukasana (Boat Pose) Paschimottanasana (Forward Bend) Akarna Dhanurasana (Bow Pose) Vakrasana Ardha Matsyendrasana	5
III	**Standing Position Asanas**	Ugrasana Garudasana Nataraj Asana Ardha Chakrasana Kati Chakrasana	5
IV	**Supine Position Asanas**	Markatasana(Monkey Pose / Spinal Twist Pose) Markatasana Variation (Monkey Pose / Spinal Twist Pose) Sarvangasana (Shoulder Stand) Chakrasana (Wheel Pose) Halasana	5
V	**Prone Position Asanas**	Dhanurasana (Bow Pose) Bhujangasana (Cobra Pose) Adho Mukha Svanasana(Downward Dog Pose) Plank Pose Naukasana (Boat Pose) Makarasana	5

VI	**Yoga for Health Problems and Remedies**	Shashankasana (Rabbit Pose/ Child Pose) Ushtrasana (Camel Pose) Cat & Camel Pose Baddha Konasana(Cobbler's Pose) Supta Baddha Konasana(Goddess Pose) Supine : Setubandhasan(Bridge Pose) Matsyasana (Fish Pose) Prone : Adhomukhashwanasana (Downward Dog Position) Dhanurasana (Bow Pose) Sitting : Janu Sirasana (Head To Knee Pose) Paschimottanasana (Seated Forward Bend) Upavistha Konasana(Seated Straddle) Butterfly Baddha Konasana(Cobbler's Pose) Malasana (Garland Pose)	5

Evaluation Method / Unit	**Marks (50)**	
	Continuous Comprehensive Evaluations (CCE) (Internals) (Marks)	**Assessment**
I, II, III, IV, V, VI	**Various Internal Examination CCE (20Marks)**	**Semester End Examination (30 Marks)**
	Departmentally organized assignment	College Organized Examination

Suggested Readings:

Sr.	Title of the Book	Author/s	Publication	Place
1.	Light on Yoga	Iyengar, B.K.	Orient Longman Pvt. Ltd.	Mumbai
2.	Light on Astanga Yoga	Iyengar, B.K.	Alchemy Publishers.	New Delhi
3.	Guidelines for Yogic Practices	Gharote, M. L.	The Lonavla Yoga Institute	Pune

SYBBA-Semester-III		
Course Code: 23BB3-K091	**Subject: Participation in Cultural Activities**	**Credits :2**

Course Objectives:

1. Acquire practical skills in at least one cultural activity through hands-on experience.
2. Critically evaluate the impact of cultural competitions on personal growth and community engagement.

Course Outcome:

After completing the course, the student shall be able to

CO1: Actively engage in cultural activities at various levels with confidence and enthusiasm.

CO2: Reflect on personal cultural experiences and articulate how participation has contributed to personal growth and identity.

Unit	Unit Title	Contents	No of Lectures
I	Cultural Participation	Participation in Cultural activities at National/International and State Level. Participation in Cultural activities at University/District Level. (Cultural Activates includes participation in competitions of Dance, Music, Drama, Paintings, Drawings, or any other art form.)	15 hrs

Credit Allocation

Sr. No	Details
1	Participation in Participation in Cultural activities at National/International and State Level: Participation: 01 Credit Rank Holder (1^{st}, $2^{nd,}$ and 3^{rd}): 02 Credits
2	Participation in Cultural activities at University/District Level: Rank Holder (1^{st}, $2^{nd,}$ and $3^{rd)}$: 01 Credit

Maharashtra Education Society's
Garware College of Commerce (Autonomous)
Programme – B.Com/ BBA/ BBA-CA/ BBA-D&I/ BBA-IB
Board of Studies: - Co-Curricular

SY (Semester IV)		
Course Code:	**Course: Performing Arts (Cultural and Dramatics Association)**	**Marks: 50** **Credits: 02**

Course Objectives:

1. To provide students with a comprehensive understanding of the history of music, with a focus on the development of Indian musical traditions.
2. To familiarize students with vocal and instrumental techniques specific to Indian music, enabling them to appreciate and engage with traditional performances.

Course Outcome:

After completing the course, the student shall be able to

1. Apply fundamental principles of music theory to analyze and appreciate various aspects of Indian music, including melody, harmony, rhythm, and form.
2. Gain insight into the origin of Indian music, recognizing its diverse roots and historical evolution over time.

Unit	**Unit Title**	**Contents**	**No of lectures**
I	**Introduction to Music**	1.1 History of Music 1.2 Fundamentals of Music Theory 1.3 Vocal and Instrumental Techniques 1.4 Music Genres and Styles	15
II	**Indian Music**	2.1 Origin of Indian Music 2.2 Cultural Significance of Indian Music 2.3 Concept of Raga, Tala, and Sargam	15
Total No of Lectures			**30**

Unit	**Unit Title**			**Outcome expected**	

		Teaching methodology	Project /Hands-on exposure/Practice-based	Conceptual understanding of Knowledge /Skills /Attributes etc.		Weightage of Marks (%)
I	**Introduction to Music**	PowerPoint Presentation, Group Discussion.	Practical based on Music Theories	Understand the basics of Music	To grasp the skills required for Music	50
II	**Indian Music**	PowerPoint Presentation, Drama Practice	Practical based on Indian Music	To provide basics of Indian Music	To have the knowledge of Indian Music	50

References

Sr. No.	Title of the Book	Author/s	Publication
1	Theater: The Lively Art	Edwin Wilson	McGraw Hill
2	The Oxford Handbook of Dance and Theater	Nadine George-Graves	Oxford Handbook
3	The Complete Idiot's Guide to Music Composition	Michael Miller	