INSTITUTE	**FACULTY OF COMPUTER APPLICATIONS**
PROGRAM	**MASTER OF COMPUTER APPLICATIONS**
SEMESTER	**2**
COURSE TITLE	**C#.NET**
COURSE CODE	**05MC0208**
COURSE CREDITS	**4**

Objective:

1 To learn about the concept of modern, object oriented programming language using C#
2 To understand the concepts of CLR and .Net Framework
3 To understand and develop windows application using Microsoft Visual Studio.
4 To update and enhance skills in writing Windows applications using ADO.NET
5 To implement & develop real time application using C#.Net.

Course Outcomes: After completion of this course, student will be able to:

1 Students will be able to understand C# and client-server concepts using .Net Framework Components.
2 Students will be able to get knowledge of object oriented programming and it's applications in C#.
3 Student will be able to develop windows applications using C#.NET.
4 Students will be able Develop effective database applications using ADO.NET
5 Student will be able to apply delegates, event and exception handling to incorporate with Win Form.

Pre-requisite of course: Basic knowledge of Object Oriented programming language.

Teaching and Examination Scheme

Theory Hours	Tutorial Hours	Practical Hours	ESE	IA	CSE	Viva	Term Work
0	2	4	0	0	0	25	25

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Contents : Unit	Topics	Contact Hours
1	**Introduction to .NET:** Introduction to .NET: Core features of .NET, , The building block of .NET platform (CLR,CTS,CLS), , Understanding Common Type System, , Understanding the Common Languages Specification, , Understanding the Common Language Runtime, , Assembly/Namespace/Type Distinction, Introduction to C#: Different data types in C#, , Literals, Scope of variables, type conversion in C#, Operators: Arithmetic, Relational, Logical, Bitwise ? operator, Program Control statements: if statement, switch statement, for statement, different types of loops.	10
2	**Introducing to Classes and Objects:** Introducing to Classes and Objects: Create class, objects, Methods, , Constructors, Destructors, , this keyword, Object- Oriented Programming: Member access and Inheritance, , Constructor and Inheritance, , Base class references and derived objects, , Virtual methods and overriding, , Abstract Classes, Boxing and Unboxing, Implementing Interface, Structures, Declaring and using Namespace, Preprocessor, Assemblies	10
3	**Windows Programming** Windows Programming How windows interacts with User, , Windows Forms, , Adding Button, , Handling Messages, , Using Message Box, , Adding Menu	10
4	**Database Programming with ADO.NET** Database Programming with ADO.NET, Concept of Connected and Disconnected Architecture, , understanding Data Provider, , working with data reader, , understanding database transaction., understanding role of Dataset, , DataRows, , DataTables, , Data Adapters,, Understanding the role of Entity Framework	10
5	**Exception Handling Delegates and Events:** Exception Handling Delegates and Events:, Using try and catch with example, Creating and using Delegates,, Multicasting with Delegates. , Multiple Event Handlers., Advanced in .NET:, Understanding the Role of LINQ, , Introduction to Windows Presentation Foundation (WPF),, Window Communication Foundation and its Application	10
Total Hours		**50**

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Suggested List of Experiments:

Contents : Unit	Topics	Contact Hours
1	**Introduction to .NET:** Find the sum of all the elements present in a jagged array of 3 inner arrays., Find largest number from 3 numbers passed using command line argument., Write C# code to do the following - Convert binary to decimal - Convert decimal to hexadecimal - Convert decimal to binary - Convert decimal to octal., Write a C# code to Perform Celsius to Fahrenheit Conversion and Fahrenheit to Celsius conversion., Program to Check whether a number is Palindrome or not., Design a simple calculator using Switch Statement, Write C# code to display the asterisk pattern as shown below: ***** ***** ***** ***** ***** *****, Write C# code to prompt a user to input his/her name and country name and then the output will be shown as an example below: Hello Shyam from country India!, C# Program to Count the Number of 1's in the Entered Number, C# program to generate Random Numbers.	8

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Suggested List of Experiments:

Contents : Unit	Topics	Contact Hours
2	**Introducing to Classes and Objects:** Define a class Student, which contains the following information about students: full name, course, subject, university, e-mail and phone_number., Add two methods in the class Student, which collect and display complete information about the student., Define a class Mobile, which contains information about a mobile phone: model, manufacturer, price, owner, features of the battery (model, idletime and hours talk) and features of the screen (size and colors)., Add constructor for each of the Student and Mobile, which have different lists of parameters. Data fields that are unknown have to be initialized respectively with null or 0., To the class of mobile phone in the previous two tasks, add a static field nokiaN95, which stores information about mobile phone model Nokia N95. Add a method to the same class, which displays information about this static field., We have a school. In school we have classes and students. Each class has a number of teachers. Each teacher has a variety of disciplines taught. Students have a name and a unique number in the class. Classes have a unique text identifier. Disciplines have a name, number of lessons and number of exercises. Design different classes for school., Define classes with their fields, properties, methods and constructors for school., Design abstract class and abstract methods for School., A company pays its employees on a weekly basis. The employees are of four types: o Salaried employees are paid a fixed weekly salary regardless of the number of hours worked o Hourly employees are paid by the hour and receive overtime pay for all hours worked in excess of 40 hours o Commission employees are paid a percentage of their sales o Salaried-Commission employees receive a base salary plus a percentage of their sales. For the current pay period, the company has decided to reward salaried-commission employees by adding 10% to their base salaries. The company wants to implement a C# application that performs its payroll calculations polymorphic way. a. Design the class Diagram. b. Implement the code to fulfill the requirement. c. Calculation must be done with polymorphic way., Demonstrate Use of Virtual and override key words in C# with a simple program., Write a program to demonstrate Operator overloading.	8
3	**Windows Programming** Design a login page using textbox, label and Buttons., Design Student’s registration form using textbox, label, radio button., Add listbox and check box in Students registration form., Design Calculator using necessary components., Creating the Customer Form that shows customers information like Cutomer_Id, Email, Title , First name, Last name, Company, Address. Show necessary alter message when try to enter wrong detail., Create three buttons each will display product information on their click event.	8

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Suggested List of Experiments:

Contents : Unit	Topics	Contact Hours
4	**Database Programming with ADO.NET** Consider the Database STUDENT consisting of following tables: tbl_Course (CourseID: int, CourseName: string) tbl_Student (Stud_id int, Stud Name: string, Address: string, CourseID: int, YrOfAdmsn: int) Develop suitable windows application using C#.NET having following options: ? Entering new course details. ? Entering new student details. ? Display the details of students who belong to a particular course. ? Display the details of the students who have taken admission in a particular year, Consider the Database BLOODBANK consisting of following tables: tbl_BloodGroup (BloodID: int, BloodGroup: string) tbl_Donor (DonorID: int, DonorName: stirng, Address: string, ContactNo: int, DOB: date, Gender: string, Weight: int, BloodID: int) Develop suitable windows application using C#.NET having following options: 1. Entering Blood group details. 2. Entering new donor details. 3. Display the details of donors (in a Grid) having particular blood group. 4. Display the details of donors based on gender, Consider the Database HOTEL develop suitable windows application using C#.NET having following options 1. Entering order_detail details. 2. Create bill after conformation., Consider the Database EMPLOYEE develop suitable windows application using C#.NET having following options 1. Entering employee detail. 2. Search a particular employee by name., In above windows application add following options 1. Delete a particular employee detail. 2. Search employee by department.	8
5	**Exception Handling Delegates and Events:** Apply exception handling in STUDENT application (Unit 4(1))., Apply exception handling in BLOODBANK application (Unit 4(2))., Apply exception handling in EMPLOYEE application (Unit 4(4))., Write a method ReadNumber(int start, int end) that reads an integer from the console in the range [start...end]. In case the input integer is not valid or it is not in the required range throw appropriate exception. Using this method, write a program that takes 10 integers a1, a2, ..., a10such that 1 < a1< ... < a10< 100., Implement a program that takes as a parameter the name of a text file, read the file and returns its content as string. What should the method if and exception is thrown?, Write a program to demonstrate use of delegates.	8
Total Hours		**40**

Textbook :

1 Pro C# 2010 and the ,Net 4 Platform, Andrew Troelsen, Apress,, 5th

2 C# 2.0: The Complete Reference, Herbert Schildt, McGraw-Hill, 2nd

References:

1 Programming in C# A Primar, Programming in C# A Primar, Balagurusamy, Tata McGrawHill,, 3rd

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References:

2 C# 2010 for Programmers, C# 2010 for Programmers, Paul Deitel and Harvey Deitel, Pearson, 4th

3 Pro C# 2008 and the .net 3.5 Platform, Pro C# 2008 and the .net 3.5 Platform, Troelsen, Andrew, Springer, 4th

Suggested Theory Distribution:

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

Distribution of Theory for course delivery and evaluation

Remember / Knowledge	Understand	Apply	Analyze	Evaluate	Higher order Thinking / Creative
10.00	20.00	30.00	30.00	10.00	0.00

Instructional Method:

1 PPT, BOARD WORK, DEMO

Supplementary Resources:

1 https://www.javatpoint.com/c-sharp-tutorial

2 https://dotnet.microsoft.com/learn/csharp

3 https://www.tutorialspoint.com/csharp/index.htm

4 https://dotnettutorials.net/course/csharp-dot-net-tutorials/

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