SARVAJANIK UNIVERSITY
Sarvajanik College of Engineering and Technology
Masters of Computer Applications

MCA Semester II

Subject Name: .NET Programming with C# **Subject Code:** MTCA13203

Type of course: Professional Core Course

Prerequisite (if any):
Concepts of Object Oriented Programming Approach

List of Courses where this course will be prerequisite:
- .NET Technologies

Rationale: .NET Programming will help students to understand the basic concepts of .Net framework and importance of various coding techniques. This course also helps students understand the role of CLR. The students will be able to follow particular programming methodology with .NET Framework for application development.

Teaching and Examination Scheme:

TEACHING SCHEME				Theory Marks			Practical Marks		Total
L	T	P	C	TEE	CA1	CA2	TEP	CA3	
3	0	4	5	60	25	15	60	40	200

CA1: Continuous Assessment (assignments/projects/open book tests/closed book tests **CA2:** Sincerity in attending classes/class tests/ timely submissions of assignments/self-learning attitude/solving advanced problems **TEE:** Term End Examination **TEP:** Term End Practical Exam (Performance and viva on practical skills learned in course) **CA3:** Regular submission of Lab work/Quality of work submitted/Active participation in lab sessions/viva on practical skills learned in course

Content:

Sr. No.	Content	Teaching Hrs.	Module Weightage
1	**Getting started with .NET Framework 4.0** Benefits of .NET Framework, Architecture of .NET Framework 4.0, Components of.NET Framework 4.0: CLR, CTS, Metadata and Assemblies, .NET Framework Class Library, Windows Forms, ASP .NET and ASP .NET AJAX, ADO .NET, LINQ. **Introduction of .NET Core** What is .NET Core? Compare .NET with .NET Core Advantages of .NET Core.	**09**	**19%**
2	**Introducing C#** Need of C#, C# Pre-processor Directives, Identifiers and Keywords. Primitive Types, Namespaces **Reference Types** Value Types, The struct, Testing Reference Types, Testing Value Types, Passing Parameters, Strings, Boxing, Unboxing, The enum, Defining Types, Interfaces, Arrays, Assemblies **Operators** Operator Precedence, Using the ?? (Null Coalescing) Operator, Using the :: (Scope Resolution) Operator and Using the is and as Operators. **Statements and Expressions** Control Flow statements: Selection Statements, Iteration Statements and Jump Statements.	**04**	**10%**
3	**Object Oriented Programming** **Creating Classes, Object Construction & Destruction** Properties, Methods **Events** Event Sources, Event Handlers, Events, Multiple Event Handlers. **Access Specifiers** Public, Private, Protected, Protected Friend Me, MyBase and MyClass keywords **Abstraction, Encapsulation & Polymorphism**	**07**	**14%**

	Interfaces & Inheritance		
4	**Delegates and Exception Handling** **Delegates** Creating and using Delegates, Muticasting with Delegates. **ExceptionHandling** Checked and Unchecked Statements, Throwing Exceptions, Built-in Exceptions, Handling Exceptions, Chaining Catch Blocks, Finally, Re-throwing Exceptions, Custom Exceptions	**04**	**10%**
5	**Graphical User Interface with Windows Forms** Introduction, Windows Forms, Control Properties and Layout, Labels, TextBoxes and Buttons, GroupBoxes and Panels, CheckBoxes and RadioButtons, ToolTips, Mouse-Event Handling, Keyboard-Event Handling. Menus, MonthCalendarControl, Date TimePicker Control, LinkLabel Control, ListBox Control, CheckedListBoxControl, ComboBox Control, TreeView Control, ListView Control, TabControl Controland Multiple Document Interface (MDI) Windows.	**05**	**10%**
6	**Data Access with ADO.NET** Understanding ADO.NET: Describing the Architecture of ADO.NET, ADO.NET Entity Framework. Creating Connection Strings: Syntax for Connection Strings. Creating a Connection to a Database: SQL Server Database, OLEDB Database, and ODBC Data Source. Creating a Command Object. Working with Data Adapters: Creating DataSet from DataAdapter, Paging with DataAdapters, Updating with DataAdapters, Adding Multiple Tables to a DataSet, Creating Data View. Using DataReader to Work with Databases.	**06**	**14%**
7	**Web Development using ASP.NET** Introduction, Web Basics, Multitier Application Architecture. **Standard Web Controls** Designing a Form, Validation Controls, Session Tracking: Cookies, Session Tracking with http Session State, **ASP.NET AJAX** ASP.NET Ajax Introduction ASP.NET Ajax Server Controls ASP.NET Ajax Server Data ASP.NET Ajax Client-side Library ASP.NET Ajax Control Toolkit	**10**	**23%**

	ASP.NET MVC Web Application using MVC Pattern Razor View Controller Model		

Suggested Specification table with Marks (Theory):

Distribution of Theory Marks					
R Level	**U Level**	**A Level**	**N Level**	**E Level**	**C Level**
20	20	15	15	15	15

Legends: R: Remembrance; U: Understanding; A: Application, N: Analyze and E: Evaluate C: Create and above Levels (Revised Bloom's Taxonomy)

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

Reference Books:

Sr. no.	Title of book /article	Author(s)	Publisher and details like ISBN	Year of publication	Publication Edition
1	.NET 4.0 Programming (6-in-1) (Black Book)	Kogent Learning Solutions Inc.	Dreamtech Press ISBN: 9789350040430	2011	1st
2	C# 2010 for Programmers	Paul Deitel and Harvey Deitel	Prentice Hall ISBN: 0132618206	2010	4th

3	Pro C# 5.0 and the .NET 4.5 Framework	Andrew Trolsen	Wiely-Appress	2012	6th

Course Outcomes:

Sr. No.	CO Statement After learning this subject, students will be able to	Marks % weightage
CO-1 CO-2 CO-3	Ability to make students understand basic .Net with C# programming and will also take through various advanced concepts related to .Net with C# programming language, To become familiar with LINQ	43%
CO-4 CO-5	Ability to make students understand the delegates and basics of ASP.NET Web Forms	20%
CO-6 CO-7	Ability to gain knowledge of working with data using ADO.Net and web development.	37%

Mapping with POs:

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PS O1	PS O2	PS O3
CO-1	3	3	0	1	3	0	0	0	2	0	0	3			
CO-2	3	3	0	1	3	0	0	0	2	0	0	3			
CO-3	3	3	0	1	3	0	0	0	2	0	0	3			
CO-4	3	3	0	1	3	0	3	0	2	0	0	3			
CO-5	3	3	0	1	3	0	3	0	2	0	0	3			
Rationale*															

Rationale*: Explaining why it is matching this particular program outcome

List of Open learning website:

- https://gitconnected.com/learn/c-sharp
- https://hackr.io/tutorials/learn-c-sharp

List of Open Source Software:

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FOR LAB SESSIONS:

List of Experiments:

Sr. No	Particulars
1	Write a console application that obtains two int values from the user and displays the a. ADD b. SUBTRACT c. MULTIPLY d. DIVISION e. MOD
2	Write programs using conditional statements and loops: I) Generate Fibonacci series. II) Generate various patterns (triangles, diamond and other patterns) with numbers. III) Test for prime numbers
3	Write a console application to add two matrices.
4	Write code to get a calculator to validate and add numbers.
5	Write a program to declare class "Distance" have data members dist1, dist2, dist3. Initialize the two data members using constructor and store their addition in third data member using function and display addition.
6	Define a class "salary" which will contain member variable Basic, TA, DA, HRA. Write a program using Constructor with default values for DA and HRA and calculate the salary of employee.
7	Demonstrate Event Handling

8	Demonstrate Delegates
9	Demonstrate Exception Handling
10	Demonstrate Inheritance and Polymorphism
11	Demonstrate Windows form with different Controls like Layout, Labels, TextBoxes and Buttons, GroupBoxes and Panels, CheckBoxes and RadioButtons, ToolTips, Mouse-Event Handling, Keyboard-Event Handling. Menus, MonthhCalendorControl, Date TimePicker Control, LinkLabel Control, ListBox Control, CheckedListBoxControl, ComboBox Control, TreeView Control, ListView Control, TabControl Control and Multiple Document Interface (MDI) Windows.
12	Demonstrate the use of ADO.NET Object model.
13	Create ASP.NET application for login and registration using session and cookies.
14	Demonstrate web applications with AJAX.

Major Equipment Needed: NA