ITE2012	.Net Programming	L	T	P	J	C
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Pre-requisite	**ITE1002**	**Syllabus version**				
		1.1				

Course Objectives:

- To understand the fundamentals of developing modular application by using object oriented concepts
- To utilize the C# and .NET framework to build distributed enterprise applications.
- To develop Console application, windows application, ASP.NET Web application and Services.

Expected Course Outcome:

1) Develop working knowledge of C# programming constructs and the .NET Framework.
2) Build and debug the well-formed Web Forms with ASP. NET Controls.
3) Apply the knowledge of computing and mathematics for real life problem solving.
4) Use ADO.NET in windows and web application to work with database.
5) Develop client/server applications using network programming.
6) Develop multi-threading applications.
7) Design web forms, web form controls and validation controls using ASP.NET

Student Learning Outcomes (SLO):	**1, 2, 5**
[1]	Having an ability to apply knowledge of mathematics, science, and engineering
[2]	Having a clear understanding of the subject related concepts and of contemporary issues
[5]	Having design thinking capability

Module:1	**.NET Framework**	**5 hours**

Common language Runtime (CLR) – Common Type System (CTS) – Common language Specification (CLS) – Compilation process – Assemblies – Namespaces – Command line compiler.

Module:2	**C# language fundamentals**	**6 hours**

Programming constructs – value types and reference types – object oriented concepts – Encapsulation – Inheritance – polymorphism – Interfaces – collections – Multithreading.

Module:3	**File I/O and Attribute based Programming**	**6 hours**

Console Application – Indexers - Multicast delegates – Events - Registry programming – File I/O - Serialization – Binary format – SOAP format – Type Reflection and attribute-based programming – Late binding.

Module:4	**Graphics and Windows Forms**	**6 hours**

Tool box controls – Container control – Menu – Tool bar – Tool tip Controls during design time –

Run time – Graphics programming GDI+.		
Module:5	**Networking**	**6 hours**
Remoting – Architecture - Marshal By value (MBV) – Marshal By Reference (MBR) – Network programming using C# - Socket – TCP – UDP		
Module:6	**Database Programming**	**7 hours**
Data Access with ADO.NET – Architecture – Data reader – Data Adapter – Command – Connection – Data set – Data binding – Data Grid Control – XML based Data sets.		
Module:7	**Web Development**	**6 hours**
Web Development and ASP.NET – Architecture – web forms – web form controls – Life time Management - Application – Session – ASP with ADO.NET Validation controls – website security.		
Module:8	**Contemporary issues:**	**3 hours**
	Total Lecture hours:	**45 hours**

Text Book(s)	
1.	Andrew Troelsen, Pro C# 5.0 and the .NET 4.5 Framework, Sixth edition, A Press, 2012.
Reference Books	
1.	Joh Skeet, C# in depth, Manning publications, Third Edition, 2014.
2.	Adrew Stellman and Jennifer Greene, Head First C#, Third Edition, O'Reilly, 2013.
List of Challenging Experiments (Indicative)	
1.	Create a DLL using VB.NET for ATM Object with necessary fields, properties and methods such as initiating, deposit and withdrawal. Write a menu driven program to perform the following in c#, (i) Discover all the types that are available in the DLL using the concept of multicast delegates. (ii) After initiating the basic information of the customer perform serialization using SOAP format. (iii) Deserialize the above and invoke the methods such as deposit and withdrawal using the concept of late binding. While performing withdrawal, check for the minimum balance value that has to be retrieved from registry.
2.	Create a DLL using VB.NET named Sum with overloaded methods such as, Sum_a(double s, double t); Sum_a(int i, int j); Sum_a(int k, double b); Write a menu driven program to perform the following using C#, (i) Discover all the types that are available in the DLL using the concept of

	multicast delegates. (ii) After initiating the values perform serialization using Binary format. (iii)Deserialize the above and invoke the methods using the concept of late binding. If the signature of a method which is invoked is (double, double) then store the result value in registry.
3.	Create a DLL using C# for foreign currency to Indian rupees convertor calculator with following specifications, 1 dollar = 65.58 Indian rupees 1 Euro = 73.47 Indian rupees 1 Saudi Riyal = 3.75 Indian rupees 1 Ringgit = 15.36 Indian rupees 1 Chinese Yuan = 1.49 Indian rupees Write a Menu driven program using console application to invoke the above DLL with the below given functionalities using VB.NET (i) Use the concept of multicast delegates to perform the above. (ii) Store the latest calculated values of conversion done for all the above five in user defined registry. (iii) Provide an option for displaying the largest conversion done foreign currency name with Rupee value stored in the registry.
4.	Write a database program using ADO for students CAT Analysis system that performs various basic operations such as addition, modify, delete and viewing of student records. Also, provide an option for calculating the grades for the subjects based on the marks and display the results in grid control.
5.	Develop a website for E-shopping with necessary functionalities.
6.	Create a DLL for mobile phone object that has set of interfaces, properties, fields and methods related to it. Write a program to discover all the types available in the DLL using the concept of reflection and display it in windows form.
7.	Create a generalized DLL that displays the signature information of any method which is passed as an input.
8.	Develop a chat application using client/server programming.
9.	Write a program using indexer for storing the temperature at various time of a day. Provide an option to retrieve the temperature at any given time. Store the maximum temperature of the day in registry.
10.	Create a DLL for User Authentication System with methods and propertie. Using the concept of Remoting validate a user from the client side whereas, the user information has to be stored at the side of server Registry.

		Total Laboratory Hours	30 hours
Recommended by Board of Studies	12-08-2017		
Approved by Academic Council	No. 47	Date	05-10-2017