**Course Outline**

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| **Course Title** | Enterprise Application Development  |
| **Course Code** | IT/SE/CS – XXXX |
| **Course Webpage** |  |
| **Course Email** | Waqas.ali@pucit.edu.pk  |
| **Instructor** | Waqas ali |
| **Teacher Assistant(s) (T.A)** |  |
| **Credit Hours** | 3*Theory/week:* Weight 3 Cr. hrs. Lectures: 2  Duration 1.5 hrs. |
| **Prerequisite Course** |  |
| **Prerequisite Skill/Knowledge/Understanding** | * Practical experience and proficiency with C/C++ or Java.
* Good concepts and knowledge of Software Engineering, OOP and Design Principles.
* Good understanding of web applications and architecture
* Basic knowledge about server and client side processing architecture
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| **Follow Up** |  |
| **Program Name** | BS [Information Technology]/ BS [Computer Science]/ BS [Software Engineering] |
| **Aims and Objectives** | * Understanding Microsoft .NET architecture.
* Understanding and developing Enterprise Application Development using Microsoft Platform/Technologies.
* To have solid working experience C# programming language
* To be efficient in developing desktop application using Microsoft .NET framework and class library
* To have solid foundation and experience in planning, developing and deploying web based application using ASP.NET
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|  | * N-Tier Architecture
* Service Oriented Architecture
* Building Loosely Coupled Systems
* MVC Pattern
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| **Text Book(s)** | 1. C# 4.0 The Complete Reference by [Herbert Schildt](http://www.amazon.com/Herbert-Schildt/e/B001H6PSMG/ref%3Dntt_athr_dp_pel_1)
2. Pro ASP.NET MVC 4 (Professional Apress)
3. Professional ASP.NET MVC 4 Published by John Wiley & Sons, Inc.
4. Programming Entity Framework, by Julia Lerman
5. LINQ in Action by MANNING
6. Beginning JavaScript Published by Wiley Publishing, Inc.
7. Beginning JavaScript® and CSS Development with jQuery
8. Professional WCF Published by John Wiley & Sons, Inc.
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| **Reference Material** | 1. Handouts.
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| **Web Links** | W1. <http://www.asp.net/web-api>W2. http://www.msdn.com |
| **Assessment Criteria** |

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| Sessional ………………… 25% | Mid ……… 35% | Final ……… 40% |
| Quizzes, Assignment, Tests | 8 | Written Exam …………………35 |  Written Exam …………………40 |
| Labs | 10 |
| Project | 7 |
| Total | 25 | 35 | 40 |
| 100 |

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| **Lecture Breakdown** |
| **Week** | **Lecture** | **Topic** | **Source** |
| **1** | 1 | Introduction to Course, Overview of Enterprise Application Development, Microsoft technology history, Intro to .net and its architecture, Concept of MSIL, CLR, CLS, CTS, .NET Managed and Unmanaged Code | R1: Reading MaterialA-Chap 1 |
| 2 | Global Assembly Cache, Assembly manifest , Single-file assembly, Multifile assembly, Private assemblies, Shared assemblies, Static assemblies, Dynamic assemblies, HelloWorld Program, csc compiler, input from command line, Input from Console | R1-( Reading Material)A-Chapter 2 pg:13- pg-28 |
| **2** | 3 | Introduction to C#, Data Types, value Types, Reference Types, Control Structures, Loops, foreach loop, C# Class structure and Access specifiers(Public, private), Object creation, Concept of Namespaces, Namespace Aliasing | A-Chap 3, Chap 5, Chap 6 pg 111-131, Chap 8 pg 167-174,Chap 16 pg 449-463  |
| 4 | Boxing and Un-Boxing, Using ref and out keywords, params modifier, Invoke an Overloaded Constructor Through this, Object Initializers ,Optional Arguments, Named Arguments | A-Chap 6 Pg 132-135,Chap– 8 pg167-210 |
| **3** | 5 | Implementing multi-tier architecture | R1 |
| 6 | Introduction to ADO.Net, Connected and Disconnected Model, .Net Data Providers(Connection, Command, DataReader), Generics, Collections (List, Dictionary) | A-Chapter 18, Chapter 25 |
| **4** | 7 | Sql Injection, parameterized queries,Usage of Data Set, Data Adapter and Command Builder in disconnected Model | R1 |
| 8 | Delegate, Multicast delegates, introduction to windows forms, Resizing controls with form using Anchor and Dock Property, Application and Control Class. | A-Chap10 |
| **5** | 9 | Delegates, Events, Anonymous Methods, Lambda Expression | A-Chap10 |
| 10 | Data Binding, Simple and Complex Data Binding, Binding Source, Binding List, Listbox, DataGridView, Application Settings (user vs Application scope) | R1,W2 |
| **6** | 11 | Html, Introduction to java script,data types, variables, functions, Debugging js using Firebug, Introduction to the Browser’s Object (BOM) | F-Chap1, F-Chap6 |
| 12 | Document Object Model, Events, Event Flow, Event Capturing vs Event bubbling, Query selector API | F-Chap12 |
| **7** | 13 | Introduction to Jquery, Selecting and Filtering, Event, Manipulating Contents and Attributes | G-Chap1-4 |
| 14 | Jquery Effects, Manipulating CSS, AJAX, XML and JSON | G-Chap7-8 |
| **8** | 15 | Introducing LINQ, LINQ to Objects, LINQ to Sql, Query Syntax, Projection, Filtering and Join In Linq Queries | E-Chap1, E-Chap3 |
| 16 | Revision |  |
| Mid Term Examination |
| **9** | 17 | Extension Methods, Lambda Expression, Method Syntax in LINQ, LINQ to SQL in depth | E-Chap4, E-Chap6 |
| 18 | Introduction to ADO.NET Entity Framework, The Entity Data Model, CSDL: The Conceptual Schema, SSDL: The Store Schema, MSL: The Mappings | D-Chap2 |
| **10** | 19 | Eager vs Lazy Loading, POCO Classes, DBContext API, Querying Entity Data Models, LINQ to Entities, Projection, Navigation, Joins in queries, Modifying Entities and Saving Changes | R1D-Chap3, D-Chap4, D-Chap6 |
| 20 | Introduction to ASP.NET MVC, MVC Application Structure, Controllers overview, Action Methods, parameterized action methods | C-Chap1, C-Chap2 |
| **11** | 21 | Introduction to Razor Syntax, Code Expressions, , Code Blocks, Implicit Vs Explicit Code Expression, Views, ViewData and ViewBag, Strongly Typed Views,View Models | C-Chap3 |
| 22 | Layouts, ViewStart, partial Views, Model, Model Binding | C-Chap3, C-Chap4 |
| **12** | 23 | Forms, Get Vs Post, Html Helpers, Form, Input Helpers, Strongly Typed Helpers, Templated Helpers, Helpers and Model State | C-Chap5 |
| 24 | Data Annotations, Client + Server Side Validation, Validation and Model Binding, Validation and Model State | C-Chap6 |
| **13** | 25 | Building Loosely Coupled Components, Introduction to dependency Injection, Constructor Injection, D.I using NInject. | R1B-Chap3 Page 57-62 |
| 26 | Dependency Inject in MVC, Introduction to Repository Pattern. | B-Chap6, B-Chap7 |
| **14** | 27 | MVC Memebership, Authorization and Security | C-Chap7 |
| 28 | Introduction to Service Oriented Architecture, SOAP, WSDL, Service Contract, Data Contract, XML, Example: Car Rental Service | H-Chap 2 |
| **15** | 29 | WCF Bindings, ABC of WCF, Restful Services, Consuming rest services (CRUD operations) using Jquery AJAX and JSON. | H-Chap 4 |
| 30 | Introduction to Web API, Example of Web API using CRUD Example | W1 |
| **16** | 31 | MVC Routing, Recap Of MVC | C-Chap9 |
| 32 | Revision |  |
| **Final Term Examination** |

**Code of Conduct**

* + Quizzes will be unannounced: so you are allowed to use any helping material available at that time. Neighbors and machines are exception.
	+ Things which surely lead to grade ‘F’
		- Your neighbors are your enemies, so any sort of communication on assigned tasks will lead you to Grade ‘F’ in the current and in the previously submitted tasks.
		- Violation of coding convention.
		- Late Submissions.
		- Discussion or sniffing on neighbor’s work in the laboratory/assigned tasks.
	+ Mobile Phones must be switched off during the class and laboratory.
	+ How to Approach Me:
		- Observe the meeting hours!
		- Send an e-mail to Course E-mail
			* How to Send Email
				+ Email Header/Subject

BSEF11

* + - * + Email Body

Email Text must contain your roll-no and complete name