

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT

M.Sc.(I.T.) Programme (7th Semester)

Paper: 701 / Subject: C#.NET

Effective From: June, 2014

Credits: 4

Total Hrs: 4

Objective: Application development using C# .Net

Prerequisite: Object Oriented Fundamental, .NET Framework, ADO.NET

- 1 .NET Architecture
- 2 C# Language constructs
 - 2.1 Data Types
 - 2.2 Predefined Types
 - 2.3 Complex Types
 - 2.4 Variables and Constants
 - 2.5 Operators
 - 2.6 Flow Control
 - 2.7 Program Structure
- 3 Object Oriented Programming in C#
 - 3.1 Classes and Structure
 - 3.2 Construction and Disposal of object
 - 3.3 Inheritance
 - 3.4 Method Overloading
 - 3.5 Operator Overloading
 - 3.6 Interfaces
 - 3.7 Collections
 - 3.8 Indexers
 - 3.9 Generics
- 4 Exception & Error Handling
- 5 Assemblies, Threads and AppDomains
- 6 Delegates and Events
 - 6.1 Defining a Delegate
 - 6.2 Creating and Invoking Delegate
 - 6.3 Asynchronous Invocation of Delegates
 - 6.4 Multicast Delegates
 - 6.5 Generic Delegates
 - 6.6 Defining an Event
 - 6.7 Publishing an Event
 - 6.8 Subscribing an Event
 - 6.9 Raising an Event
 - 6.10 Events with user defined objects
- 7 Attributes
 - 7.1 Intrinsic Attributes

7.2	Custom Attributes
8	Reflection
8.1	Loading Assemblies
8.2	Extracting Assembly Contents
8.3	Extracting Type Information
8.4	Type Creation
8.5	Late Binding Delegates
9	Serialization
9.1	Configuring Object for Serialization
9.2	Serializing Objects Using the BinaryFormatter
9.3	Serializing Objects Using the SoapFormatter
9.4	Serializing Objects Using the XmlFormatter
9.5	Serializing Collections of Objects
10	Language Integrated Query
10.1	LINQ Language Features
10.2	Object Initialization
10.3	Anonymous Types
10.4	Implicitly Typed Local Variables
10.5	Lambda Expression
10.6	Query Expression
10.7	LINQ to Objects
10.8	LINQ to XML
10.9	LINQ to SQL
10.10	LINQ to Entities

References:

1	C# and the .NET Platform	Andrew Troelsen	APress
2	Professional C#	Simon Robinson	Wrox
3	Professional C# 2012 and .NET 4.5	Christian Nagel	Wrox
4	Pro LINQ: Language Integrated Query in C# 2010	Jr. Joseph C. Rattz	Apress
5	C# The Basics	Vijay Mukhi	BPB
6	C# Essentials	Ben Albari	O'Reilly
7	C# The Nuts & Bolts	Akash Sarat & Sonal Mukhi	BPB
8	C# Unleashed	Joseph Mayo	Sams

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT

M.Sc.(I.T.) Programme (7th Semester)

Paper: 702 / Subject: Advanced.NET

Effective From: June, 2014

Credits: 4

Total Hrs: 4

Objective: To impart knowledge of Enterprise application development using .NET Framework.

Prerequisite: Object Oriented Programming Fundamental, ADO.NET and ASP.NET

- 1 Web Architecture
 - 1.1 Introduction to web Architecture
 - 1.2 Client-Side Processing
 - 1.3 ASP.NET Tie-up with Web Architecture
- 2 ASP.NET Framework
 - 2.1 Overview of ASP.NET
 - 2.2 ASP.NET State Management
- 3 Membership and Role Management in ASP.NET
 - 3.1 Authorization
 - 3.2 Web Site Administrative Tools
 - 3.3 Public Methods of the Membership API
 - 3.4 Role Based Security
 - 3.5 ASP.NET Security Controls
- 4 Globalization and Localization
 - 4.1 Globalizing an ASP.NET Website
 - 4.2 Localizing an ASP.NET Webpage
 - 4.3 Culture and Locale
 - 4.4 Switching Locale
 - 4.5 Resource Files
 - 4.6 Creating Global Resources and Local Resources
 - 4.7 Satellite Assemblies
 - 4.8 Implicit Versus Explicit Localization
 - 4.9 Setting the Culture of the Thread Based on User Selection
- 5 Debugging, Tracing and Error Handling
 - 5.1 Error Pages
 - 5.2 Enabling Tracing
 - 5.3 Tracing Information
 - 5.4 Writing Trace Information
 - 5.5 Application Level Tracing
 - 5.6 Page Level Tracing
- 6 Asynchronous JavaScript and XML
 - 6.1 Server Side Ajax
 - 6.2 Client Side Ajax
 - 6.3 Ajax Toolkit

6.4	Setting up and implementing Ajax
7	ASP.NET MVC
7.1	ASP.NET MVC Framework
7.2	URL Routing Engine
7.3	Routing Configuration
7.4	Wiring Controller, Model, and View
7.5	Data Access and Modelling
7.6	Unit Testing and ASP.NET MVC
8	Web Services and Windows Communication Foundation
8.1	Overview of Web Services
8.2	Limitation of Web Services
8.3	Fundamental of WCF
8.4	Service Endpoints
8.5	Service Contract, Operation Contract and Data Contract
8.6	Data Contract Serializer
8.7	WCF Service Instance Management
8.8	RESTfull WCF Services
8.9	Testing WCF Service using WCFTestClient
8.10	Self Hosting of WCF Services
8.11	Consuming WCF Services
9	IIS Hosting
9.1	Web Application Hosting
9.2	Web Service Hosting
9.3	WCF Service Hosting
9.4	Application Pool
9.5	Application Configuration in IIS
10	Windows Presentation Foundation and XAML
10.1	Introduction to WPF and XAML
10.2	Types of WPF Application
10.3	WPF Assemblies
10.4	XAML-Free WPF Application
10.5	XAML-Centric WPF Application
10.6	Transforming Markup into a .NET Assembly
10.7	Programming with WPF Controls

References:

1	ASP.NET 4.0 Unleashed	Stephen Walther	Sams
2	Beginning ASP.NET 4.5: In C# and VB (Programmer to Programmer)	Imar Spaanjaars	Wrox
3	Professional ASP.NET 4.5: In C# and VB	Bill Evjen Bill Evjen	Sams
4	ASP.NET MVC Framework Unleashed	Stephen Walther	Wrox
5	Essential Windows Communication Foundation (WCF): For .NET Framework 3.5	Steve Resnick	Pearson
6	Windows Presentation Foundation Unleashed (WPF)	Adam Nathan	Sams
7	Programming Microsoft ASP.NET 4	Dino Esposito	Microsoft Press
8	C# 5.0 in a Nutshell: A Desktop Quick Reference	Joseph Albahari	O'Reilly

9	Microsoft Visual Studio 2012 Unleashed	Lars Powers	Sams
10	Pro ASP.NET 4.5 in C#: Third Edition (Paperback)	Matthew MacDonald	Apress
11	Beginning ASP.NET 4.5 in C#: Novice to Professional	Matthew MacDonald	Apress

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT

M.Sc. (IT) Programme (Semester 7)

Paper: 703 / Subject: Software Engineering

Effective From: June, 2014

Credits: 4

Total Hrs: 4

Objective: To provide insights about software engineering project planning, scheduling, SCM fundamentals and advanced object-oriented software engineering concepts. Students would be able to do planning, analysis, design and management of a software development process efficiently after learning this course.

Prerequisite: System Analysis and Design, OOP Concepts

- 1 **Project Management and Software Matrices**
 - 1.1 Project Management
 - 1.2 Software Measurements
 - 1.3 Metrics for Software Quality
 - 1.4 Cost and Efforts Estimation Model

- 2 **Project Scheduling**
 - 2.1 Relationship between People & Effort
 - 2.2 Defining a Task set for the Software Project
 - 2.3 Selecting & Refining Software Engineering Tasks
 - 2.4 Scheduling and Tracking Techniques
 - 2.5 Earned Value Analysis

- 3 **Risk Management**
 - 3.1 Software Risk
 - 3.2 Risk Identification
 - 3.3 Projection
 - 3.4 Refinement
 - 3.5 RMMM Plan

- 4 **Change Management**
 - 4.1 Software Configuration Management
 - 4.2 SCM Repository
 - 4.3 SCM Process

- 5 **Object Oriented Analysis and Design**
 - 5.1 Object Oriented Paradigm & Concepts
 - 5.2 Identifying the elements of an Object Model
 - 5.3 Management of Object Oriented Software Projects
 - 5.4 Generic Components of the OO Analysis & OOA Process
 - 5.5 Object Relationship Model
 - 5.6 Object Behavior Model
 - 5.7 Generic Components of the OO Design & System Design Process

5.8	OOAD using UML
6	Web Engineering
6.1	Attributes of web based application
6.2	Framework of Web engineering
6.3	Analyzing Web-Based system
6.4	Design of Web-Based Application
6.5	Testing of Web Application
6.6	Management Issues
7	Software Design patterns
7.1	Design Principles and Techniques
7.2	Software Architecture
7.3	Architectural Pattern
7.4	Other design patterns
8	Software Quality Assurance
8.1	Software Quality Assurance
8.2	Cost of Quality
8.3	Framework and Standards SQA Framework
8.4	Formal Inspection and technical review
8.5	SQA Plan
8.6	Components of Software Quality Assurance
8.7	Software Quality Assurance Plan
8.8	Quality Standards: ISO 9000 and Companion ISO Standards, CMM, CMMI, PCMM, Malcolm Bridge, Three- Sigma, Six- Sigma

References:

1	Software Engineering A practitioner's approach	Roger S Pressman	McGraw Hill
2	Object Oriented Modeling Design	James Rumbaugh, Michael Blaha	PHI
3	An Integrated Approach to Software Engineering	Pankaj Jalote	Narosa Pub.
4	Object-Oriented Software Engineering	Timothy C. Lethbridge, Robert Laganier	TMH, 2008.
5	Software quality assurance – from theory to implementation	Daniel Galin	Pearson education, 2009.
6	Effective Methods for Software Testing, 2nd Edition	William E. Perry	Second Edition, Wiley
7	Software Engineering- A programming approach	D. Bell, I. Morrey	PHI

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT

M.Sc. (I.T.) Programme (7th Semester)

Paper : 704 / Optimization Techniques

Effective From: June – 2014.

Credits 4

Total Hrs. 4

Objective: To impart knowledge of various Optimization Techniques to solve real life problem.

Prerequisite: Basic knowledge of Mathematics.

- 1 **Job Sequencing**
- 1.1 Processing n jobs through 2 machines
- 1.2 Processing n jobs through 3 machines
- 1.3 Processing 2 jobs through m machines
- 1.4 Processing n jobs through m machines

- 2 **Network Analysis**
- 2.1 Project Evaluation and Review Technique (PERT)
- 2.2 Critical Path Method (CPM)

- 3 **Queuing Theory**
- 3.1 Essential features of queuing system
- 3.2 Performance measurement of queuing system
- 3.3 Classification of queuing model
- 3.4 Single server queuing model
- 3.5 Multi-server queuing model

- 4 **Simulation**
- 4.1 Simulation Introduction
- 4.2 Types of simulation
- 4.3 Steps of simulation process
- 4.4 Advantages and disadvantages of simulation process
- 4.5 Stochastic simulation and random numbers

- 5 **Dynamic programming**
- 5.1 Dynamic programming
- 5.2 Developing optimum decision policy
- 5.3 Dynamic programming under certainty
- 5.4 Shortest route problem
- 5.5 Multiple separable Return function and single additive constraints
- 5.6 Additive separable Return function and single additive constraints
- 5.7 Additive separable Return function and single multiplicative constraints

References:

- 1 S.D. Sharma; Kedar Nath, Ram Nath & Co.
- 2 Kantiswarup, P.K.Gupta and Manmohan: Sultan Chand and Sons.
- 3 Introduction to Operation Research Computer Oriented algorithm; B.E. Gillet
- 4 Operation research an Introduction; H.A. Taha
- 5 Optimization for Engineering Design, Algorithms and Examples Prentice; Kalyanmoy Deb; Hall of New Delhi, India, 2000
- 6 PERT and CPM : Principles and Applications; 2nd edition, 1975; Srinath L.S.

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT

M.Sc. (I.T.) Programme (7th Semester)

Paper: 705 / Subject: Practical

Effective From: June, 2014

Credits: 6

Total Hrs: 6

The students are required to carry out practical work during the semester, based upon the theory subjects – 701 and 702.

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT

M.Sc.(I.T.) Programme (7th Semester)

Paper: 706 / Subject: Part Time Project based on .Net Technology

Effective From: June, 2014

Credits: 8

Total Hrs: 8

- The students are required to develop part time project based on .Net Technology.
- The students must prepare documentation of the project completed as per the Software Engineering Guidelines.
- At the end of the semester, the students have to submit their project report in bounded form to the institution.
- Project Completion Certificate issued by the institute [M.Sc.(I.T.) Programme] is mandatory for appearing in Project Presentation and Viva – Voce.
- The Project Presentation and Viva – Voce will be conducted as per the University exam schedule.

The students have to submit the following reports at the institution:

1. Project Joining Report
2. Project Title Report
3. Progress Report
4. Project Completion Certificate
5. Institution Certificate
6. Non disclosure of Source Code Certificate (In case the student is unable to submit project source code)