


CMR Institute of Technology, Bangalore		 <b>CMR</b> INSTITUTE OF TECHNOLOGY
Department(s): Master of Computer Applications		
Semester: 05	Section(s): -	
<b>OBJECT ORIENTED MODELING AND DESIGN PATTERNS</b>		<b>13MCA51</b>
Course Instructor(s): Ms. Moumita Roy		Lectures/week: 05
Course duration: July 2016 – November 2016		

### Course Objective:

- Introducing students to the concepts and terms used in the object-oriented approach to systems analysis and design
- Highlighting the importance of object-oriented analysis and design and its limitations.
- Showing how we apply the process of object-oriented analysis and design to software development.
- Pointing out the importance and function of each UML model throughout the process of object-oriented analysis and design and explaining the notation of various elements in these models.
- Providing students with the necessary knowledge and skills in using object-oriented CASE tools

### Course Pre-requisites:

- ☑ ☑ Students should be familiar in basic object oriented language and designing part
- Objective of learning object oriented modeling and design pattern helps to design any project in a simple and flexible manner and it reduces the coding part.
- Object –oriented modeling and design is a way of thinking about problems using models organized around real-world concepts.

The fundamental construct is the object, which combines both data structure and behavior. Object oriented models are useful for understanding problems, communicating with application experts, modeling enterprises, preparing documentation and designing programs and databases.

### Course Outcome:

- After completing this course the student will be able to : .
- Construct models to Show the importance of systems analysis and design in solving complex problems.
- Will be able to differentiate how the object-oriented approach differs from the traditional approach to systems analysis and design. .
- Explain the importance of modeling and how the Unified Modeling Language (UML) represents an object-oriented system using a number of modeling views.
- Construct various UML models (including use case diagrams, class diagrams, interaction diagrams, state chart diagrams, activity diagrams, and implementation diagrams) using the appropriate notation.
- Recognize the difference between various object relationships: inheritance, association, whole-part, and dependency relationships.
- Show the role and function of each UML model in developing object-oriented software.
- Apply the Umbrello or Rational Software Suit for the construction of UML models and expressing the appropriate notation associated with each model.
- Develop an appreciation for and understanding of the risks inherent to large-scale software development,
- Develop an understanding of the application of OOAD practices from a software project management perspective

Class #	Chapter #	Topics to be covered	% Of Portion covered	
			Chapter wise	Cumulative
1	<b>Chapter -1 INTRODUCTION Modeling Concepts, Class Modeling</b>	What is object orientation? What is OO development? OO themes;	<b>13.46</b>	<b>13.46</b>
2		Evidence for usefulness of OO development;		
3		OO modeling history, Modeling as design technique: Modeling, abstraction;		
4		The three models class modeling: object and class concepts;		
5		Links and association concepts;		
6		Generalization and inheritance;		
7		A sample class model, Navigation of class models; Practice tips.		
8	<b>Chapter -2 Advanced Class Modeling, State Modeling</b>	Advanced object and class concepts	<b>11.53</b>	<b>24.99</b>
9		Association ends, N-ary associations, Aggregation		
10		Abstract classes, Multiple inheritance, Metadata		
11		Reification, Constraints Derived data,		
12		Packages, Practical tips		
13	State Modeling: events, states , Transitions and conditions			
14	<b>Chapter-3 Advanced State Modeling, Interaction Modeling</b>	Advanced state modeling; Nested state diagrams, Signal generalization; concurrency; A sample state model;	<b>11.53</b>	<b>36.52</b>
15		Relation of class and state models; Practical tips		
16		Interaction Modeling: use case models		
17		Sequence models; Activity models		
18		Use case relationships; Procedural sequence models;		
19		Special constructs for activity models		
20		Process overview: Development stages;		
21	<b>Chapter -4 Process overview: System conception, Domain analysis</b>	Development life cycle.	<b>11.53</b>	<b>49.98</b>
22		System conception: Devising a system concept;		
23		Elaborating a concept, preparing a problem statement.		
24		Domain analysis: overview of analysis		
25		Domain class model, domain state model		
26	Domain interaction model, Iterating the analysis			
27	<b>Chapter -5 Application Analysis, System design</b>	Application analysis; Application interaction model; Application state model;	<b>13.46</b>	<b>63.44</b>
28		Adding operations; Overview of system design Estimating performance		
29		Making a reuse plan; Breaking a system into sub systems;		
30		Identifying concurrency; Allocation of sub-systems		
31		Management of data storage;		
32		Handling global resources;		
33		Choosing a software control strategy; Handling boundary conditions		
34	<b>Chapter -6 Class design, Implementation modeling Legacy systems</b>	Setting the trade off priorities; Common architectural styles; Architecture of the ATM system as the example		
34		Class design: Overview of class design, bridging the gap;	<b>13.46</b>	<b>76.90</b>
35		Realizing use cases; designing algorithms ; Recursing downwards, Refactoring;		
36		Design optimization; Reification of behavior; Adjustment of inheritance; Organizing a class design; ATM example		
37		Implementation Modeling; Overview of implementation; Fine tuning classes;		
38		Fine tuning generalizations; Realizing associations; Testing		
39	Legacy systems: Reverse engineering; Building the class models; Building the interaction model			

40		Building the state model; Reverse engineering tips; wrapping; maintenance		
41	<b>Chapter 7 Design Patterns, Idioms</b>	What is a pattern and what makes a pattern? Pattern categories;	<b>23.10</b>	<b>100</b>
42		Relationships between patterns; Pattern description;		
43		Communication patterns: Forwarder receiver;		
44		Client- Dispatcher-server		
45		Publisher-Subscriber		
46		Management patterns;		
47		Command processor		
48		View handler		
49		Idioms: introductipn		
50		What can idioms provide? Idioms and style		
51		Where to find idioms; Counted pointer example		
52		Revision		

### Syllabus for Internal Assessment Test:


Internal Assessment Test	Syllabus
T1	Unit # 1, 2, 3
T2	Unit # 4, 5
T3	Unit # 6, 7

#### Text Books:

Sl #	Title of the Book	Chapters	Authors	Publisher	Edition
1	Object-Oriented Modeling and Design with UML	Chap 1 – 17 & 23	Michael Blaha, James Rumbaugh	Pearson	II
2	Pattern Oriented Software Architecture	Chap 1 - 4	Frank Buschmann	John Wiley & sons	Vol I

#### Reference Books:

Sl #	Title of the Book	Authors	Publisher	Edition
1	Object Oriented Analysis and Design with Applications	Grady Booch	Pearson	III
2	Object-Oriented Analysis, Design and Implementation	Brahma Dathan	Universities Press	II
3	UML 2 Toolkit	Hans-Erik Eriksson	Wiley-Dreamtech	
4	Object Oriented Analysis and Design using UML	Simon Benett	Tata McGrawHill	II

CMR Institute of Technology, Bangalore		
Department(s) : MCA		
Semester: 05	Section(s):	
Subject: SYSTEM SIMULATION AND MODELING	13MCA52	Lectures /Week :05
Course Instructor(s) : Kavitha K		
Course Duration : July 2016 to November 2016		

**Course Objectives:**

This subject provides students with  
 The basic system concept and definitions of system .  
 Techniques to model and to simulate various systems.  
 The ability to analyze a system and to make use of the information to improve the performance.

**Course Prerequisites:**

Basic knowledge of numerical mathematics, probability and statistics, and Programming skills in programming languages: • Java

**Course Outcome:**

Upon completion of the subject, students will be able to  
 Understand the system concept and apply functional modeling method to model the activities of a static system.  
 Understand the different simulation models.  
 Simulate manually certain real time problems using simulation models.

Lecture #	Book & Sections	Topics	Portions Coverage %	
			Individual	Cumulative
1 to 6	TB1: 1.1-1.10	<b>Unit1: Introduction:</b> When simulation is the appropriate tool and when it is not appropriate; Advantages and disadvantages of Simulation, Areas of application; Systems and system environment; Components of a system; Discrete and continuous systems, Model of a system;Types of Models; Discrete-Event System Simulation; Steps in a Simulation Study	6	12
7 to 16	TB1: 5.1-5.6	<b>Unit 2:Statistical Models in Simulation</b>  Review of terminology and	10	25

		<p>concepts: Random Variables, Probability Distribution,</p> <p>Probability distribution function; Useful statistical models: Discrete distributions,</p> <p>Continuous distributions, Poisson process, Empirical distributions.</p>		
17 to 24	<p>TB1: 7.1-7.4 ,8.1-8.3</p>	<p><b>Unit 3:Random-Number Generation, Random-Variate Generation</b></p> <p>Properties of random numbers; Generation of pseudo-random numbers; Techniques for generating random numbers; Tests for Random Numbers, Random-Variate Generation:</p> <p>Inverse transform technique; Acceptance-Rejection technique; Special properties</p>	8	38
25 to 34	<p>TB1: 6.1-6.2,2.1-2.2</p>	<p><b>Unit 4:Queuing Models</b></p> <p>Characteristics of queuing systems; Queuing notation Simulation Examples: Queuing, Inventory System</p>	10	54
35 to 41	<p>TB1: 3.1-3.2,4.4</p>	<p><b>Unit 5: General Principles, Simulation Software</b></p> <p>Concepts in Discrete-Event Simulation: The Event-Scheduling / Time-Advance</p> <p>Algorithm, World Views, Manual simulation Using Event Scheduling; List processing.</p> <p>Simulation in Java;</p>	7	66
42 to 48	<p>TB1: 9.1-9.7</p>	<p><b>Unit 6: Input Modeling</b></p> <p>Data Collection; Identifying the distribution with data; Parameter estimation; Goodness of</p>	7	77


		Fit Tests; Fitting a non-stationary Poisson process; Selecting input models without data; Multivariate and Time-Series input models, uniformity and independence, Chi-Square test, K-S Test.		
49 to 55	TB1: 10.1-10.3	<b>Unit 7: Verification and Validation</b> Verification, Calibration, and Validation; Optimization: Model building, verification and validation; Verification of simulation models; Calibration and validation of models.	7	88
56 to 62	TB1: 11.1-11.5	<b>Unit 8: Estimation of Absolute Performance &amp; Computer System Simulation</b> Types of simulations with respect to output analysis; Stochastic nature of output data; Absolute measures of performance and their estimation; Output analysis for terminating simulations; Output analysis for steady-state simulations.	7	100

### Syllabus for Internal Assessment Test

Internal Assessment Test	Syllabus
T1	Class # 01 - 24
T2	Class # 25 - 48
T3	Class # 49 - 62

## Literature

Book Type	Code	Author & Title	Publication Info	
			Edition & Publisher	ISBN #
Text Book	TB1	Jerry Banks, John S. Carson II, Barry L. Nelson, David M. Nicol: Discrete-Event System Simulation,	5 <sup>th</sup> Edition, Pearson	976-81-317-5896
Reference Book	REF1	Lawrence M. Leemis, Stephen K. Park: Discrete – Event Simulation: A First Course,	Pearson / Prentice-Hall, 2006	978-01-314-29178
Reference Book	REF1	Averill M. Law: Simulation Modeling and Analysis,	4th Edition, Tata McGraw-Hill	978-0073401324
Reference Book	REF1	Simulation 5ed Ross Elsevier	<i>Elsevier</i> Science	978-0-12-415825-2
Reference Book	REF1	Theory of modeling and simulation, Zeiglar, Elsevier	<i>Elsevier</i> Science	9780127784557

CMR Institute of Technology, Bangalore		
Department(s): Master of Computer Applications		
Semester: 05	Section(s): - A	
Programming using C#.NET	13MCA53	Lectures/week: 06
Course Instructor(s): Ms. Gomathi T		
Course duration: July 2016 – November 2016		

### Course Objective:

To write Simple C# Programs using Visual Studio and to create windows based application and web based applications using C#.NET

### Course Pre-requisites:

Fundamentals of web technologies and OOPs knowledge would be an advantage.

### Course Outcome:

- Understand .NET framework
- Create C# Console Applications
- Create GUI with windows forms
- Understand ADO.NET
- Create connection to a database
- Web app development with ASP.NET

Class #	Chapter Title / Reference Literature	Topic	Percentage of portion covered	
			Reference	Cumulative
1	<b>Unit 1 : Getting Started with .NET FRAMEWORK 4.0/</b>	Benefits of .net framework; Architecture of .NET framework 4.0. Components of .NET framework 4.0; CLR ; CTS ; Metadata and assemblies	8	8
2		.NET framework class library; Windows forms , ASP.NET and ASP.NET AJAX		
3		ADO.NET, Windows workflow foundation		
4		Windows Presentation Foundation ; Windows Communication Foundation		
5		Windows CardSpace and LINQ		
6	<b>Unit 2 : Introducing C#</b>	Need of C# , C# Pre-processor directives	8	16
7		Creating a simple C# Console Application, Identifiers and keywords		
8		Data Types, Variables and Constants : Value types, Reference types, Type Conversions		
9		Boxing and unboxing , Variables and constants		
10		Expression and operators; Operator Precedence, Using the NULL Coalescing operator; Using the :: (Scope resolution) operators and using the is and as operators.		
11		Control flow statements: Selection statements, Iteration statements and Jump statements		
12	<b>Unit 3 : Namespaces, Classes,</b>	Namespaces , The system namespace, Classes and objects: Creating a class	8	24
13		Creating an Object, using this keyword, Creating		



	<b>Objects and Structures /</b>	an array of objects, Using the nested classes		
14		Defining partial classes and methods, Returning a value from a method and describing access modifiers		
15		Static classes and static class members		
16		Properties: Read-only Property, Static property, Accessibility of accessors and anonymous types		
17		Indexers, Structs: Syntax of a struct and access modifiers for structs.		
18	<b>Unit 4: Object Oriented Programming/</b>	Encapsulation: Encapsulation using accessors and mutators	11	35
19		Encapsulation using properties		
20		Inheritance: Inheritance and constructors, Sealed classes and sealed methods, Extension methods		
21		Polymorphism: Compile time polymorphism/ Overloading, Run time polymorphism/ Overriding.		
22		Abstraction: Abstract classes, Abstract methods.		
23		Interfaces: Syntax of interfaces, Implementation of interfaces, Interfaces and inheritance		
24	<b>Unit 5 : Delegates and Events and Exception Handling</b>	Delegates: Creating and using Delegates	10	45
25		Multicasting with delegates		
26		Events: Event sources, Event handlers		
27		events and delegates, Multiple event handlers		
28		Exception Handling: The try/catch/finally statement		
29	Checked and unchecked statements			
30	<b>Unit 6: Graphical user interface with windows forms</b>	Introduction, Windows forms, Event handling	23	68
31		A simple Event-Driven GUI		
32		Visual studio generated GUI code		
33		Delegates and Events- Handling mechanism		
34		Another way to create event handler, Locating event information		
35		Control properties and layout, Labels, Text boxes and buttons		
36		Group boxes and panels, Check boxes and radio buttons		
37		Tooltips, mouse-event handling, keyboard event handling		
38		Menus, Month calendar control, Date Time picker control		
39		Link Label control, Listbox control,		
40		CheckedListBox control		
41		Combobox control, Treeview control,		
42		List view control, Tab control		
43		Multiple document interface windows		
44	<b>Unit 7: Data Access with ADO.NET</b>	Understanding ADO.NET; Describe the architecture of ADO.NET	16	84
45		ADO.NET Entity framework,		
46		Creating Connection Strings		
47		Syntax for connection strings		
48		Creating a connection to a database		
49		SQL server database, OLEDB database, ODBC Data Source		
50		Creating a Command Object.		
51		Working with data adapters		
52		Adding multiple table to a dataset		
53		Creating a data view, Using Data Reader to work		


		with databases		
54	<b>Unit 8 : Web App Development with ASP.NET</b>	Introduction, Web basics, Multitier Application Architecture	16	100
55		First Web application: Build Web Time Application		
56		Examining WebTime.aspx's Code – behind file		
57		Standard Web Controls : Design form, validation, session, cookies		
58		Selecting a programming language and display recommendation based on session values		
59		Database- Driven ASP.NET Guestbook		
60		Build web form – Modify code-behind file		
61		Testing an ASP.Net Ajax application		
62		Password-Protected Books database application		

### Syllabus for Internal Assessment Test

Internal Assessment Test	Syllabus
T1	Class # 01 – 05, 30-43, 44-53, 54-62,
T2	Class # 6 – 22
T3	Class #23-29 + Previous Syllabus Revision

### Literature

Book Type	Code	Author & Title	Publication Info	
			Edition & Publisher	ISBN #
Text Book	TB1	.NET 4.0 Programming, Black Book, Kogent Learning Solutions Inc.,	Wiley Dream Tech Press	9789350040430
Text Book	TB2	Paul Deitel and Harvey Deitel: C# 2010 for programmers	4 <sup>th</sup> edition, Pearson Education	978-0132618205
Reference	RB1	Andrew Trolsen: Pro C# 5.0 and the .NET 4.5 Framework	6 <sup>th</sup> edition Weily - Appress	1430242337.
Reference	RB2	Bart De Smet: C# 4.0 Unleashed, Pearson Education	SAMS Series	9788131761762
Reference	RB3	Hebert Shildt: Programming in C#4.0	Tata McGraw Hill	978-0071741163

CMR Institute of Technology, Bangalore		
Department(s): Master of Computer Applications		
Semester: 05	Section(s): -	
Service Oriented Architectures (SOA)	13MCA545	Lectures/week: 05
Course Instructor(s): Ms. Helen Josephine V.L.		
Course duration: July 2016 – November 2016		

**Course Objective:**

- To understand the Service Oriented Architecture concepts, Service Orientation and web Service Fundamentals.
- To realize how Service Oriented Architecture (SOA) based solutions are developed in practice.
- To Learn how to build SOA with web services.

**Course Pre-requisites:**

Fundamentals of Software Engineering knowledge would be an advantage.

**Course Outcome:**

- Understand Service-Oriented principles
- Design different types of services for SOA
- Create service oriented business modelling
- Know the features provided by key WS-\* specifications
- Creating design standards for SOA based solutions
- Understand web service technology within the context of SOA

Class #	Chapter Title / Reference Literature	Topic	Percentage of portion covered	
			Reference	Cumulative
1	<b>Unit 1 : Introduction to SOA, Evolution of SOA</b>	Fundamentals of SOA	11	11
2		Common Characteristics of contemporary SOA		
3		Common Characteristics of contemporary SOA		
4		Common tangible benefits of SOA		
5		A SOA timeline		
6		The continuing evolution of SOA		
7		The roots of SOA		
8	<b>Unit 2 : Web Services and Primitives of SOA</b>	The Web Services framework	13	24
9		The Web Services framework		
10		Services roles		
11		Services models		
12		Service endpoints and service descriptions, abstract description, Concrete description		
13		Metadata and service contacts, semantic descriptions, Service description advertisement and discovery		
14		Messaging		
15		Notes and Message paths		
16	<b>Unit 3 : Web Services and Contemporary SOA</b>	Message Exchange patterns	23	47
17		Service Activity		
18		Coordination		
19		Atomic Transactions		
20		Business activities		
21		Orchestration		
22		Choreography		
23		Addressing		
24		Reliable Messaging		
25		Correlation		
26		Policies		
27		Meta data Exchange		
28		Security		
29		Notification and eveneng.		
30	<b>Unit 4 : Principles of Service –</b>	Services- Orientation and the enterprise	13	60
31		Anatomy of service-oriented Architecture		
32		Common Principles of Service Orientation		

33	<b>Orientation</b>	How Service Orientation principles interrelate – Service reusability, Service contract, Service loose coupling		
34		Service Abstraction, Service Composability, Service Autonomy		
35		Service statelessness, Service discoverability		
36		Service Orientation and object orientation		
37		Native Web Service support for service orientation principles		
38	<b>Unit 5 : Service Layers</b>	Service Orientation and contemporary SOA	11	71
39		Service Layer Abstraction		
40		Application service layer		
41		Business Service Layer		
42		Orchestration Service Layer		
43		Agnostic Services		
44		Service Layer configuration scenarios		
45	<b>Unit 6: Business Process Design</b>	WS-BPEL Language basics	13	84
46		WS-BPEL Language basics		
47		WS-Coordination overview		
48		Service oriented business process redesign		
49		WS-Addressing language basics		
50		WS-Addressing language basics		
51		Ws-Reliable messaging language basics		
52		Ws-Reliable messaging language basics		
53	<b>Unit 7: Enterprise Applications</b>	Learning Objectives	16	100
54		Architectural Considerations		
55		Architectural Considerations		
56		Solution Architecture for Enterprise Applications		
57		Solution Architecture for Enterprise Applications		
58		Solution Architecture for Enterprise Applications based on SOA		
59		Solution Architecture for Enterprise Applications based on SOA		
60		Software Platforms for Enterprise Applications.		
61		Packaged Application Platforms		
62		Enterprise Application Platforms		

### Syllabus for Sessionals :

Sessional #	Syllabus
T1	Class # 01 – 52
T2	Class # 53 - 60

### Literature:

Book Type	Code	Author & Title	Publication info	
			Edition & Publisher	ISBN #
Text Book	TB1	Thomas Erl: Service Oriented Architecture- Concepts, Technology and Design  (listed topics only from Chapters 3,4,5,6,7,8,9,16,17)	Pearson Education, 2013	978-0133858587
Text Book	TB2	Shankar Khambhapaty, Service Oriented Architecture for Enterprise and Cloud Applications, 2nd Edition  (listed topics only from Chapter 5,6)	Wiley-India, 2012	978-8126519897
References	RB1	Frank cohen: FastSOA	Elsevier, 2010	978-0080522944
References	RB2	Eric Newcomer, Greg Lomow: Understanding SOA with Web Services	Pearson Education, 2009.	9780321180865

CMR Institute of Technology, Bangalore



Department(s): Master of Computer Applications

Semester: 05

Section(s): A

Web 2.0 & Rich Internet Applications

13MCA552

Lectures/week: 06

Course Instructor(s): Mrs. Uma B

Course duration: 1 Aug 2016 – 23 Nov 2016

### Course Objective:

To make the student evolve from a intermittent to a professional web developer

### Course Pre-requisites:

Good knowledge of CSS, Javascript and server side scripting languages.

### Course Outcome

- Define and illustrate rich internet concepts and applications
- Analyze the working of development models in web designing.
- Illustrate appropriate component lifecycle techniques using frameworks
- Evaluate and implement state based systems using data models and data binding

Class #	Chapter Title / Reference Literature	Topic	Percentage of portion covered	
			Reference	Cumulative
1		<b>Introduction- Ajax-1</b> , Web 2.0 & Rich Internet Applications	11.54	11.54
2		Overview of Ajax, Example of using web page text		
3		Chatting in real time, Dragging and Dropping, Downloading Images		
4		Dragging and Dropping, Downloading Images		
5		Creating Ajax Applications: An example, Analysis of ajax.html		
6		Creating the JavaScript , Creating and opening the XHR object, Data download		
7		Displaying the fetched data, Connecting to the server, Adding server-side programming		
8		Adding server-side programming		
9		Sending data to the server using GET and POST, Using Ajax together with XML		
10		Using Ajax together with XML		
11		<b>Ajax-2</b> , Handling multiple XHR objects in the same page, Using two XHR objects, Using an array of XHR objects	11.54	23.08
12		Using inner functions, Downloading JS, Connecting to google suggest		
13		Creating google.php, Downloading from other domains with Ajax		
14		Downloading from other domains with Ajax, HTML header request and Ajax		

15		Defeating caching, Examples. Building XML and working with XML in JavaScript		
16		Building XML and working with XML in JavaScript		
17		Getting the document element, Accessing any XML element, Handling whitespace in Firefox		
18		Handling cross browser whitespace, Accessing XML data directly		
19		Validating XML, Further examples of RIA with Ajax		
20		<b>Ajax-3</b> , Drawing user's attention to downloaded text,		
21		Styling text, colors and background using CSS		
22		Setting element location in the web pages, Setting the stacking order of web page elements		
23		Further examples of using Ajax. Displaying all the data in an HTML form, Working with PHP server variables, Getting the data in to array format,		
24		Wrapping applications in to a single PHP page, Validating input from the user, Validating integers and text, DOM	11.54	34.62
25		Appending new elements to a web page using the DOM and Ajax, Replacing elements using the DOM		
26		Handling timeouts in Ajax, Downloading images with Ajax, Example programs		
27		<b>Flex – 1</b> , Introduction: Understanding Flex Application Technologies		
28		Using Flex Elements, Working with Data Services (Loading Data at Runtime)		
29		The Differences between Traditional and Flex Web Applications		
30		Understanding How Flex Applications Work, Understanding Flex and Flash Authoring.		
31		Building Applications with the Flex Framework: Using Flex Tool Sets, Creating Projects		
32		Building Applications, Deploying Applications	15.38	50
33		Framework Fundamentals: Understanding How Flex Applications Are Structured		
34		Loading and Initializing Flex Applications		
35		Understanding the Component Life Cycles, Loading One Flex Application into Another Flex Application		
36		Differentiating Between Flash Player and the Flex Framework, Caching the Framework		
37		Caching the Framework, Understanding Application Domains, Localization		
38		Managing Layout: Flex Layout Overview		
39		Making Fluid Interfaces, Putting It All Together		
40		<b>Flex – 2</b> MXML: Understanding MXML Syntax and Structure		
41		Making MXML Interactive. Working with UI Components	15.38	88.46
42		Working with UI Components: Understanding UI Components, Buttons, Value Selectors		
43		Text Components, List-Based Controls, Pop-Up Controls, Navigators, Control Bars		
44		Customizing Application Appearance: Using Styles, Skinning components		
45		Customizing the preloader, Themes, Runtime CSS		
46		<b>Flex – 3</b> Action Script: Using Action Script		
47		MXML and Action Script Correlations		
48		Understanding Action Script Syntax		
49		Variables and Properties, Inheritance	11.54	100
50		Interfaces, Handling Events		
51		Error Handling, Using XML		
52		<b>Flex – 4</b> Managing State: Creating States, Applying		
53				

		States		
54		Defining States, Adding and Removing Components, Setting Properties		
55		Setting Styles, Setting Event Handlers, Using Action Scripts to Define States		
56		Managing Object Creation Policies, Handling State Events		
57		Understanding State Life Cycles, When To Use States		
58		Using Effects and Transitions: Using Effects, Creating Custom Effects		
59		Using Transitions, Creating Custom Transitions		
60		<b>Flex – 5</b> Working with Data: Using Data Models, Data Binding, Enabling Data Binding for Custom Classes		
61		Data Binding Examples, Building data binding proxies		
62		Validating and Formatting Data: Validating user input, Formatting Data.		

### Syllabus for Sessionals :

Sessional #	Syllabus
T1	Class # 01 – 18
T2	Class # 19 - 39
T3	Class # 40 - 52

### Literature:

Book Type	Code	Author & Title	Publication info	
			Edition & Publisher	ISBN #
Text Book	TB1	Steven Holzner: Ajax: A Beginner's Guide, Tata McGraw Hill, 2009.  (Listed topics from Chapters 3, 4, 6, 7, 11, 12)	Tata McGraw Hill, 2009	978-81-317-1472-0
Text Book	TB2	Chafic Kazon and Joey Lott: Programming Flex 3, O'Reilly, 2009. (Listed topics from Chapters 1 to 8, 12 to 15)	O'Reilly, 2009.	978-81-203-4326-9
References	RB1	Getting Started with Flex 3, Jack Herrington and Emily Kim, O'Reilly, 1 <sup>st</sup> Edition, 2008.	O'Reilly, 1 <sup>st</sup> Edition, 2008..	978-8173716720
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