CS701 OL -- Advanced Web Application Development

Course Description

The Advanced Web Application Development course builds upon its predecessor (MET CS 601) and concentrates primarily on building rich client web applications in the browser. The course is divided into various modules covering in depth the following technologies: Flash & Flex 3 (Adobe), AJAX (Asynchronous Javascript and XML), GWT (Google Web Toolkit), Silverlight (Microsoft), and JavaFX. Along with the fundamentals underlying these technologies, several applications will be showcased as case studies. Students work with these technologies starting with simple applications and then examining real world complex applications. At the end of this course, students would have mastered the latest and widely used web application development methodologies.

Course Overview

The following are some of the major topics covered in this course:

- Flex and ActionScript
  - Layouts, controls, charts, and data access
- AJAX and GWT
  - Server interaction, layouts, and controls
- Silverlight
  - Layouts, controls, charts, and data access
- JavaFX
  - Controls, charts, and data access

Course Learning Objectives

By successfully completing this course you will be able to:

- Learn the properties of Rich Internet Applications (RIA)
- Study the development of these applications in various frameworks
- Interpret external data (XML) and visualize in web applications
- Inspect popular Web 2.0 mashups like Flickr, Mapquest, EBay, Digg, Delicious, etc.

Course Outline
Module 1 - Introduction, ActionScript

- Lecture 1 - Course Overview
- Lecture 2 - ActionScript

Module 2 - Flex, part 1

- Lecture 1 - Flex Containers
- Lecture 2 - Flex Controls
- Lecture 3 - Advanced Controls

Module 3 - Flex, part 2

- Lecture 1 - Flex Behaviors
- Lecture 2 - Flex Charts

Module 4 - AJAX and GWT

- Lecture 1 - AJAX (Asynchronous JavaScript and XML)
- Lecture 2 - GWT (Google Web Toolkit)

Module 5 - Silverlight, part 1

- Lecture 1 - Silverlight Overview
- Lecture 2 - Silverlight Layouts and Controls

Module 6 - Silverlight, part 2 and JavaFX

- Lecture 1 - Silverlight Controls (Continued)
- Lecture 2 - Networking
- Lecture 3 - Charts
Course Materials

Required texts


Various online resources

Study Guide

The following material is collected here for your convenience but the required readings, discussion particulars, and assignment particulars can be found within the modules, in the "Discussion" section of the course, and in the "Assignment" sections respectively.

**Module 1 Study Guide and Deliverables**

**Readings:** Lecture 2 (ActionScript)
*Flex 3 Bible* Chapters 1, 2, 3, 4, 6, 22

**Discussions:** Discussion 1 postings due November 1 at 6:00 AM ET

**Assignments:** Assignment 1 due November 1 at 6:00 AM ET
Module 2 Study Guide and Deliverables

Readings:
- Lecture 1 (Flex - Containers)
  *Flex 3 Bible* Chapters 7, 9, 12, 20
- Lecture 2 (Flex - Controls)
  *Flex 3 Bible* Chapters 8, 13
- Lecture 3 (Flex - Advanced Controls)
  *Flex 3 Bible* Chapters 16, 17, 18

Discussions:
- Discussion 2 postings due November 8 at 6:00 AM ET

Assignments:
- Assignment 2 due November 8 at 6:00 AM ET

Module 3 Study Guide and Deliverables

Readings:
- Lecture 1 (Flex - Behaviors)
  *Flex 3 Bible* Chapters 14, 15
- Lecture 2 (Flex - Charts)
  *Flex 3 Bible* Chapters 19
- Lecture 3 (Flex - Data Access)
  *Flex 3 Bible* Chapters 21

Discussions:
- Discussion 3 postings due November 15 at 6:00 AM ET

Assignments:
- Assignment 3 due November 15 at 6:00 AM ET

Module 4 Study Guide and Deliverables

Readings:
- Read the online lectures
- TK

Discussions:
- Discussion 4 postings due November 22 at 6:00 AM ET

Assignments:
- Assignment 4 due November 22 at 6:00 AM ET

Module 5 Study Guide and Deliverables

Readings:
- Lecture 1 (Silverlight Overview)
  *Expression Blend 3 with Silverlight* Chapters 1, 2, 3, 10
- Lecture 2 (Silverlight - Layouts and Controls)
Expression Blend 3 with Silverlight Chapters 4, 9

Discussions: Discussion 5 postings due November 29 at 6:00 AM ET
Assignments: Assignment 5 due November 29 at 6:00 AM ET

Module 6 Study Guide and Deliverables
Readings: Lecture 1 (Silverlight Controls .. Cont.)
Expression Blend 3 with Silverlight Chapter 5
Discussions: Discussion 6 postings due December 6 at 6:00 AM ET
Assignments: Assignment 6 due December 6 at 6:00 AM ET

Module 7 Study Guide and Deliverables
Readings: There are no readings
Discussions: There is no discussion
Assignments: There is no assignment
Assessments: The final exam opens at 9:00 AM on December 8 and closes at 11:59 PM on December 11

Course Grading Information

The grade for the course is determined by the following:

<table>
<thead>
<tr>
<th>Overall Grading Percentages</th>
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<tbody>
<tr>
<td>Active class participation</td>
<td>10%</td>
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<tr>
<td>Programming assignments</td>
<td>60%</td>
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<tr>
<td>Proctored Final Examination</td>
<td>30%</td>
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