

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**

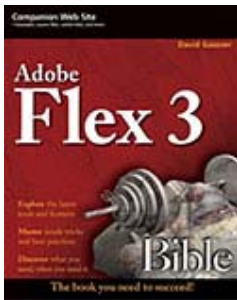
Module 6 - Silverlight, part 2 and JavaFX

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

- Lecture 4 - **JavaFX Introduction**

Course Materials

Required texts



Gassner, D. (2008). *Flex 3 Bible*. Hoboken, NJ: Wiley. (ISBN 13: 978-0-470-28764-4)



Gaudioso, V. (2009). *Foundation Expression Blend 3 with Silverlight*. New York: APress. (ISBN-10: 1-4302-1950-5 / ISBN-13: 978-1-4302-1950-7)

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) <i>Flex 3 Bible</i> 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
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- 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:

Overall Grading Percentages	
Active class participation	10%
Programming assignments	60%
Proctored Final Examination	30%