ITT Technical Institute

IT315T

Web Site Design and Development

Capstone Project

Onsite Course

SYLLABUS

Credit hours: 4

Contact/Instructional hours: 60 (36 Theory Hours, 24 Lab Hours)

Prerequisite(s) and/or Corequisite(s):

Prerequisites: Completion of a minimum of 80 credits earned in the program of study including IT313T Scripting and Web Authoring III or equivalent

Course Description:

Development of a complex business application Web site from start to completion in an area jointly agreed upon by the student as well as the faculty member. Issues of e-commerce will be discussed. The faculty member acts more as a facilitator and project manager for this final assignment.

Syllabus: Web Site Design and Development Capstone Project

Instructor:	_____
Office hours:	_____
Class hours:	_____

Major Instructional Areas

1. Major components of project management and teamwork
2. Analyses of and response to a Request for Proposal (RFP) or a business case
3. Analyses of technologies available and selection of the right technologies for solving a problem
4. Project design, development, documentation, and implementation
5. Technical or business presentation of a solution
6. General skills assessment

Course Objectives

1. Relate and apply important concepts of project management to the actual capstone project proposed for this course.
2. Use Microsoft Office Project to develop a project plan for the actual capstone project.
3. Develop complete project documentation for a Web application.
4. Analyze the requirements for and specifications of the capstone project.
5. Apply standard practice in the software development life cycle to ensure functionality and usability based on original requirements.
6. Incorporate major software engineering concepts and methods throughout the design and development process of the proposed project to produce a Web application package using chosen Web programming concepts.
7. Perform user testing and functional testing for a Web application system by using different testing methods.
8. Deploy a Web application in a functional environment.
9. Present a developed Web application professionally and perform brief user training.
10. Complete a comprehensive skills assessment for the program of study.

SCANS Objectives

SCANS is an acronym for Secretary's Commission on Achieving Necessary Skills. The committee, created by the National Secretary of Labor in the early 1990s, created a list of skills and competencies that the committee feels are necessary for employees to function in a high-tech job market.

1. Maintain information to maximize retention and expression of knowledge.
2. Work effectively as part of a team and contribute ideas, suggestions, and effort to the group.
3. Know how technological systems work and operate effectively.
4. Demonstrate competence in understanding systems.
5. Utilize interpersonal skills and communication techniques.
6. Demonstrate competence in selecting a technology, including determining the desired outcomes and applicable constraints.
7. Apply decision-making skills to specify goals and constraints.
8. Identify the need for data, obtain it from existing sources or create it, and evaluate its relevance and accuracy.
9. Demonstrate competence in monitoring and correcting performance.

Course Outline

Unit	Activities

1—
Introduction to the Capstone Project
	• Define project management terminology and apply the terms to the capstone project.
	• Explore Microsoft Office Project 2003.
	• Discuss the capstone project or the Request for Proposal (RFP) to identify the following components:
	  o Objectives and the scope
	  o Requirements and specifications
	  o Resources required to deliver the product including human resources, time, funds, space, and tools
	  o Tasks
	  o Deliverables
	  o Milestones
	• Set up teams and define the roles and responsibilities of each team member.
	• Elect peers for roles in the capstone project.
	• Start configuring project phases, milestones, major deliverables, individual tasks, the final product, and timelines in the project plan using Microsoft Office Project 2003.
	• Identify research resources and the methodology.
	• Start research on project components with data gathering.
	• Understand the individual skills assessment process and start preparing for the process.
	
	<u>Deliverable</u>:
	Submit Project Documentation 1 Part I: Team Meeting Agenda

2—
Project Planning
	• Continue using Microsoft Office Project 2003 to develop the project plan.
	• Identify and apply the characteristics of the phases of project management to the capstone project case study or the RFP.
	• Discuss problem-solving strategies.
	• Produce a framework for the project plan.
	• Identify major milestones and individual tasks.
	• Deliver the preliminary project plan for review, including project phases, milestones, major deliverables, individual tasks, final product, and timelines.
	• Continue research on project components with data gathering.
	• Start Project Documentation Part II to:
	  o Create a scope document and a project charter.
	  o Create a system requirements document.
	  o Create the **conceptual design document.**
	  Work on the preliminary project plan.
	
	<u>Deliverable</u>:
	Project Documentation 1: Continued

3— Project Control	• Modify and finalize the project plan based on instructor feedback. • Further discuss the project requirements. • Create a Gantt chart for your project using Microsoft Office Project 2003. • Review research resources and the methodology. • Analyze the data gathered so far and identify areas for further research.

Unit	Activities

	• Continue research on project components.
	• Assign individual work based on agreed structure and format.
	• Plan Web server and Web site setup procedures and timelines.
	• Assign individual roles and tasks based on requirements including the following:
	  ○ Checking milestones, individual work, and teamwork status
	  ○ Summarizing data gathering
	  ○ Conducting data analysis
	  ○ Identifying needs for further data gathering
	  ○ Identifying preliminary possible solutions based on data
	  ○ Identifying need for technological consultation with the instructor
	  ○ Implementing the Web server and Web site setup plan
	
	<u>Deliverables</u>:
	• Submit Project Documentation I, including:
	  ○ Scope document and project charter
	  ○ System requirements document
	  ○ Conceptual design document
	• Project Documentation 2 Draft: Evaluate WBS Status

4—
Project Execution
	• Discuss technologies available for solutions.
	• Identify technology options for solutions.
	• Identify the structure and format of both written and spoken presentations.
	• Implement the Web server and Web site setup plan.
	• Create the critical design review document outlining the details of the system design life cycle.
	• Lay out and filter available technologies for possible solutions:
	  ○ Narrow the number of possible solutions to two.
	  ○ Identify a third choice as an alternative solution.
	• Assign detailed tasks to individuals, such as writing, drawing diagrams, referencing, collecting detailed specification data, and formatting.
	• Review the **detailed design** to ensure that design implementation meets customer requirements and expectations.
	• Review how to install and set up a Web server.
	
	<u>Deliverables</u>:
	Project Documentation 2 Final

5— Project Development: Part I	• Assign detailed tasks to individuals for preparation work on the solution of choice and alternative solution, if any. • Implement a Web server setup plan. • Implement an interface design plan. • Implement a Web application design plan. • Discuss and formalize a process for designing, implementing, maintaining, and managing a solution. • Create process and prepare **for testing of software or hardware** configuration items, including adequate versions of software or hardware and testing procedures to ensure quality control and management of different Web browsers and operating systems. • Discuss the financial aspects of the solution at all stages of the project. Ensure that the design is completely and accurately documented and ready for **formal release to customer site.** • Allocate resources for detailed design, implementation, management, and other miscellaneous aspects of the solution.

Unit	Activities
	• Review testing procedures for software or hardware, including configuration items. <u>Deliverable:</u> Team Project Deliverable 1 Draft 1

6—
Project Development: Part II
	• Perform a application overview identifying the following, and update if applicable:
	  ○ Functionality: The characteristic of a system that refers to whether or not the system can perform all the functions listed in the project section
	  ○ Consistency: The characteristic of a system that refers to whether or not the system flows smoothly, without breakdown during usage. In addition, the system should have proper usage prompts and error handling methods. The screens and pages must be similar in interface look and feel.
	  ○ Performance: The characteristic of a system that refers to how efficiently the system responds to user actions, determined by both the application and server performance.
	  ○ User friendliness: The characteristic of a system that refers to the ergonomic and usability factors in the system interface design and whether or not the navigational links among pages are organized and smooth
	  ○ Visual effect: The characteristic that refers to the effective use of graphics and color to achieve visual appeal in Web page design
	
	<u>Deliverable:</u>
	Team Project Deliverable 1 Draft 2

7— Project Development: Part III	• Continue with the draft application overview if necessary. • Continue coding on the capstone project Web application. • Answer the individual skills assessment questions. • Submit the first team project deliverables: the Web server setup plan, the interface design plan, and the Web application design plan. <u>Deliverable:</u> Team Project Deliverable 1 Final

8—
Project Development: Part IV
	• Continue coding on the capstone project Web application.
	• Consult with the team on design phase uniformity to include:
	  ○ Coding guidelines
	  ○ Common, global module
	  ○ System tracking and comments
	
	<u>Deliverable:</u>
	Team Project Deliverable 2 Draft 1

9—
Project Deployment
	• Continue coding on the capstone project Web application.
	• Install and configure server operating systems to:
	  ○ Run the server setup.
	  ○ Configure a server client.
	• Set up Domain Name Server (DNS) and Dynamic Host Configuration Protocol (DHCP) servers.
	• Set up File Transfer Protocol (FTP) servers.
	• Set up Web servers.
	• Implement the Web application.
	• Test the Web application using test subjects.

Unit	Activities
	Deliverables: • Application Deployment • Team Project Deliverable 2 Final
10— Mock Presentation	• Continue coding on the capstone project Web application. • Conduct a team project presentation trial. • Present Microsoft Office Project 2003 documentation for instructor review. • Perform last-minute design changes to the Web application if necessary. Deliverables: • Team Project Presentation Trial Run • Minutes from all team meetings
11— Final Project Presentation	• Team project presentation • Peer evaluation Deliverable: Team Project Presentation

Instructional Methods

Part of the first four units will cover project selection and project management techniques using Microsoft Office Project or other open source project management tool to help in managing your project for the course. You will begin to build your project plans and seek approval for the final project from the instructor. After getting approval, you will begin the project development phase of the course.

To ensure that you have acquired necessary knowledge to graduate from the program, you will receive an **Individual Skills Assessment** questionnaire at the beginning of the course. Your instructor will conduct an interview with you based on these assessment questions beginning mid-quarter, depending on the class size (i.e., if the class is large, the interviews may start earlier in the quarter and vice versa). This process provides an opportunity for you to systematically review the important subjects covered in the program. You will also get practice discussing your understanding of such topics in a spoken form, which is a necessary skill in your career development, particularly during your job search.

A major portion of the course will be devoted to the capstone project. You will work in teams to develop a software application for a case study. The project will be evaluated on the documentation, teamwork, presentation, and the actual Web application.

Complete **project documentation** in accordance with the project management guidelines is required. The milestone deliverables and the complete project will need to be submitted in a timely manner to the instructor for review.

For the **teamwork** portion, you will receive a blank Teamwork Evaluation Form at the beginning of the course. As you work with your team, you will fill out this form and turn in the completed version at the end of the course. Areas for evaluation will be:

- Participation
- Team organizational contributions
- Interpersonal communication performance
- Subject area expertise contributions

For the **Web application** portion, grades will be based on application's quality in the following areas:

- Functionality (whether or not the system can perform all the functions listed in the project section)

- Consistency (whether or not the system flows smoothly, without breakdown, during usage and has proper usage prompts and error-handling methods)
- Performance (how efficiently the system responds to users' actions, determined by both the application and server performance)
- User-friendliness (the ergonomic and usability factors in the system interface design and whether or not the navigational links among pages are intuitive and smooth)
- Visual effect (the effective use of graphics and color to achieve visual appeal in Web page design)

You will present your complete project at the end of the course. Grades will be based on the quality of the **presentation** in the following areas:

- Conformation to formalities—stated rules
- Clarity of explanation about system functionality and design methodology

Instructional Materials and References

Student Textbook Package

Wood, Dawn Parrish, Mary E. Pascarella and David R. Foley. *Essentials: Microsoft Office Project 2007, Custom Edition*. Pearson Custom Publishing, 2012

Note: In addition to the textbook *Essentials: Microsoft Office Project 2007*, all textbooks for the previous Web Development courses will be used directly or indirectly as reference for this course.

References

ITT Tech Virtual Library

Log on to the ITT Tech Virtual Library at http://library.itt-tech.edu/ to access online books, journals, and other reference resources selected to support ITT Tech curricula.

Books

You may click “Books” or use the “Search” function on the home page to find the following books.

>Ebrary

- Bucki, Lisa, and Gary Chefetz. *Managing with Microsoft Project 2002*. Boston: Course Technology, 2002.
- Fujita, H., and M. Mejri, eds. *New Trends in Software Methodologies, Tools and Techniques*. Amsterdam, Netherlands: IOS Press, 2005.
- Heerkens, Gary. *Project Management*. New York: McGraw-Hill Trade, 2001.
- Heldman, Kim. *Project Management JumpStart*. Alameda, CA: Sybex, Inc., 2003.
- Richman, Larry L. *Project Management Step-by-Step*. New York: AMACOM, 2002.

>NetLibrary

- Gorton, Ian. *Essential Software Architecture*. Berlin, NY: Springer Science & Business Media, 2006.
- Lewis, James P. WorkSmart Series. 3rd ed. *Fundamentals of Project Management*. New York: AMACOM Books, 2007.
- Mendes, Emilia. *Cost Estimation Techniques for Web Projects*. Hershey, PA: IGI Publishing, 2008.
- Westland, Jason. *The Project Management Life Cycle: A Complete Step-by-Step Methodology for Initiating, Planning, Executing & Closing a Project Successfully*. Philadelphia, PA: Kogan Page, 2006.

Program Links

You may click “Program Links” or use the “Search” function on the home page to find the following program links.

- Information Technology - Web Development (ITW)> Recommended Links

Other References

The following resources can be found **outside** of the ITT Tech Virtual Library.

Web sites

- ASP.NET Tutorial
  http://www.w3schools.com/aspnet/ (accessed Dec. 2, 2009)
  Free online tutorials on various aspects of ASP.NET
- Learn VB.NET programming including ASP.NET, ADO.NET, and VS.NET
  http://visualbasic.about.com/od/learnvbnet/Learn_VBNET_Visual_Basic_for_the_new_millenium.htm (accessed Dec. 2, 2009)
  Page of links to free online tutorials on .NET technology

- The Official Microsoft ASP.NET 2.0 Site
  http://www.asp.net/ (accessed Dec. 2, 2009)
  Microsoft site with video tutorials, blogs, articles, downloads, and news related to ASP.NET

All links to Web references outside of the ITT Tech Virtual Library are always subject to change without prior notice.

Course Evaluation and Grading

Evaluation Criteria

The final grades will be based on the following categories:

CATEGORY	WEIGHT
Team Project	
• Documentation	20%
• Teamwork	10%
• Presentation	10%
• Web Application	45%
Individual Skills Assessment	15%
Total	**100%**

Grade Conversion Table

The final grades will be calculated from the percentages earned in the course, as follows:

A	90–100%	4.0
B+	85–89%	3.5
B	80–84%	3.0
C+	75–79%	2.5
C	70–74%	2.0
D+	65–69%	1.5
D	60–64%	1.0
F	<60%	0.0

(End of Syllabus)