ITT Technical Institute

SD2799

Software Development Capstone Project

Onsite and Online Course

SYLLABUS

Credit hours: 4.5

Contact/Instructional hours: 60 (30 Theory Hours, 30 Lab Hours)

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

Prerequisites: Must be taken during the student's final quarter of study, and requires prior satisfactory completion of SD2550 Application Development Using Java I or equivalent

Course Description:

This course provides the opportunity for students to use knowledge and skills acquired in the program of study to research, design, develop and promote a desktop or mobile application

COURSE SUMMARY

COURSE DESCRIPTION

This course provides the opportunity for students to use knowledge and skills acquired in the program of study to research, design, develop and promote a desktop or mobile application.

MAJOR INSTRUCTIONAL AREAS

1. Project management
2. Software development lifecycle
3. Web application programming
4. Windows application programming
5. Database design, implementation, and deployment
6. System testing and deployment
7. Team dynamics
8. Documentation
9. Presentation skills

COURSE LEARNING OBJECTIVES

By the end of this course, you should be able to:
1. Apply project management concepts and techniques to a software development project.
2. Use Microsoft Project to help plan and manage a software development project.
3. Determine the requirements for a medium-sized development project.
4. Design an effective software solution for a given problem.
5. Implement an effective software solution for a given problem.
6. Develop and execute a test plan for a software solution.
7. Work in teams on a medium-scope project.
8. Create the necessary documentation for a software solution.
9. Deliver a professional presentation on the design and functionality of the software solution.

COURSE OUTLINE

MODULE 1: ANALYZING THE PROJECT REQUIREMENTS

COURSE LEARNING OBJECTIVES COVERED

- Apply project management concepts and techniques to a software development project.
- Work in teams on a medium-scope project.

TOPICS COVERED

- Project Life Cycle
- Project Team
- Team Meeting Agenda

MODULE LEARNING ACTIVITIES	GRADED	OUT-OF-CLASS TIME
Reading: ITT Tech Virtual Library> Browse> Browse by format> Books> Books24x7> *A Guide to the Project Management Body of Knowledge (PMBOK® Guide), Fifth Edition> Chapter 2*	No	2 hours
Lesson: Study the lesson for this module.	No	1 hour
Discussion: Participate in the discussion titled "Team Meeting Agenda."	Yes	N/A
Project: Read and begin the project.	No	1 hour
Project: Begin work on Project Documentation.	No	3 hours

Total Out-Of-Class Activities: 7 Hours

MODULE 2: DEVELOPING A PROJECT PLAN

COURSE LEARNING OBJECTIVES COVERED

- Apply project management concepts and techniques to a software development project.
- Use Microsoft Project to help plan and manage a software development project.
- Determine the requirements for a medium-sized development project.
- Work in teams on a medium-scope project.

TOPICS COVERED

- Project Management Plan
- Project Requirements
- Work Breakdown Structure
- Project Documentation Tips and Tricks

MODULE LEARNING ACTIVITIES	GRADED	OUT-OF-CLASS TIME
Reading: ITT Tech Virtual Library> Browse> Browse by format> Books> Books24x7> • *A Guide to the Project Management Body of Knowledge* (PMBOK® Guide), Fifth Edition> Chapters 4 and 5 • *Dynamic Scheduling with Microsoft Office Project 2007: The Book By and For Professionals*> Chapters 2, 3, 7, and 10	No	8 hours
Lesson: Study the lesson for this module.	No	1 hour
Discussion: Participate in the discussion titled "Selecting a Programming Language."	Yes	N/A
Project: Submit Project Documentation.	Yes	3 hours
Project: Begin work on Project Implementation Part 1.	No	5 hours

Total Out-Of-Class Activities: 17 Hours

MODULE 3: CREATING THE DATABASE DESIGN

COURSE LEARNING OBJECTIVES COVERED

- Design an effective software solution for a given problem.

- Implement an effective software solution for a given problem.

- Work in teams on a medium-scope project.

TOPICS COVERED

- Use Cases

- Database Design

- Normalization

- Project Implementation Part 1 Tips and Tricks

MODULE LEARNING ACTIVITIES	GRADED	OUT-OF-CLASS TIME
Reading: ITT Tech Virtual Library> Basic Search> Li, L. (2002). Use Case Patterns. *International Journal Of Software Engineering & Knowledge Engineering, 12(1), 19.*	No	1 hour
Reading: *Introduction to Database and XML with jQuery:* - Chapter 4 - Chapter 5	No	4 hours
Lesson: Study the lesson for this module.	No	1 hour
Discussion: Participate in the discussion titled "Use Case Modeling."	Yes	N/A
Project: Submit Project Implementation Part 1.	Yes	5 hours
Project: Begin work on Project Implementation Part 2.	No	6 hours

Total Out-Of-Class Activities: 17 Hours

MODULE 4: DEVELOPING THE SOFTWARE APPLICATION

COURSE LEARNING OBJECTIVES COVERED

- Implement an effective software solution for a given problem.

- Develop and execute a test plan for a software solution.

- Work in teams on a medium-scope project.

- Create the necessary documentation for a software solution.

TOPICS COVERED

- Physical Database Design

- MySQL

- Database Testing

- Project Implementation Part 2 Tips and Tricks

MODULE LEARNING ACTIVITIES	GRADED	OUT-OF-CLASS TIME
Reading: ITT Tech Virtual Library> Browse> Browse by Format> Books> Books24x7> *The Art of Software Testing, Third Edition> Chapter 4*	No	2 hours
Reading: *Introduction to Database and XML with jQuery:* • Chapter 6 • Chapter 7	No	4 hours
Lesson: Study the lesson for this module.	No	1 hour
Discussion: Participate in the discussion titled "Automated Testing."	Yes	N/A
Project: Submit Project Implementation Part 2.	Yes	6 hours
Project: Begin work on Project Implementation Part 3.	No	6 hours

Total Out-Of-Class Activities: 19 Hours

MODULE 5: REVISING AND DEBUGGING THE SOFTWARE APPLICATION

COURSE LEARNING OBJECTIVES COVERED

- Implement an effective software solution for a given problem.
- Develop and execute a test plan for a software solution.
- Work in teams on a medium-scope project.
- Create the necessary documentation for a software solution.

TOPICS COVERED

- Debugging
- Application Testing
- Application Revision
- Project Implementation Part 3 Tips and Tricks

MODULE LEARNING ACTIVITIES	GRADED	OUT-OF-CLASS TIME
Reading: ITT Tech Virtual Library> Browse> Browse by Format> Books> Books24x7> *The Art of Software Testing, Third Edition> Chapters 5-8*	No	4 hours
Lesson: Study the lesson for this module.	No	1 hour
Discussion: Participate in the discussion titled "Verification Versus Validation."	Yes	N/A
Project: Submit Project Implementation Part 3.	Yes	8 hours
Project: Begin work on Project Presentation.	No	3 hours

Total Out-Of-Class Activities: 16 Hours

MODULE 6: PRESENTING THE SOFTWARE APPLICATION

COURSE LEARNING OBJECTIVES COVERED

- Apply project management concepts and techniques to a software development project.

- Use Microsoft Project to help plan and manage a software development project.

- Determine the requirements for a medium-sized development project.

- Design an effective software solution for a given problem.

- Implement an effective software solution for a given problem.

- Develop and execute a test plan for a software solution.

- Work in teams on a medium-scope project.

- Create the necessary documentation for a software solution.

- Deliver a professional presentation on the design and functionality of the software solution.

TOPICS COVERED

- Project Presentation Tips and Tricks

MODULE LEARNING ACTIVITIES	GRADED	OUT-OF-CLASS TIME
Lesson: Study the lesson for this module.	No	0.5 hour
Final Exam: Prepare for the final exam.	No	5 hours
Project: Submit Project Presentation.	Yes	3 hours
Final Exam: Take the final exam.	Yes	N/A

Total Out-Of-Class Activities: 8.5 Hours

EVALUATION AND GRADING

EVALUATION CRITERIA

The graded assignments will be evaluated using the following weighted categories:

CATEGORY	WEIGHT
Discussion	10%
Project Documentation	15%
Project Implementation	45%
Project Presentation	10%
Final Exam	20%
TOTAL	100%

GRADE CONVERSION

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

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

	)	
F	(0.0)	<60%

LEARNING MATERIALS AND   REFERENCES

REQUIRED RESOURCES

COMPLETE TEXTBOOK PACKAGE

- Conger, S., Blanchard, J., & Goldberg, K. H. (2014). *Introduction to Database and XML with jQuery* (Custom Edition). Boston, MA: Pearson Custom.

  * Note-This textbook was issued in a previous course.

OTHER ITEMS

- Microsoft Project

RECOMMENDED RESOURCES

- <u>Books and Professional Journals</u>
  - Eclipse Developer's Journal (http://eclipse.sys-con.com/)
  - Software Developer's Journal (http://sdjournal.org/)
- <u>Professional Associations</u>
  - Google Developers Group (https://developers.google.com/groups/)
  - Mobile Device Developers (http://mobidogs.com/)
  - The World Wide Web Consortium (W3C) (http://www.w3.org/)
  - The User Experience Professionals Association (UXPA) (https://uxpa.org/)
- <u>ITT Tech Virtual Library</u> (accessed via Student Portal | https://studentportal.itt-tech.edu)
  - Basic Search >
    - Android 3 SDK programming for dummies [electronic resource] Rajiv Ramnath, Roger Crawfis, Paolo Sivilotti.
    - Android apps for absolute beginners, second edition [electronic resource] Wallace Jackson; technical reviewer, Chád Darby.
    - Beginning Android application development [electronic resource] Wei-Meng Lee.
    - Boronczyk, T. (2009). *Beginning PHP6, Apache, MySQL Web Development.* Indianapolis, IN: John Wiley.
    - Harris, A. B. (2009). *PHP 6/MySQL Programming for the Absolute Beginner. Boston, MA: Cengage Learning.*

- Jarrett, C., & Gaffney, G. (2009). *Forms That Work: Designing Web Forms for Usability. Amsterdam: Elsevier/Morgan Kaufmann.*
- Learn Android app development [electronic resource] Wallace Jackson; technical reviewer, Michael Thomas.
- Mathew, N., & Stones, R. (2008). *Beginning Linux Programming (4th ed.).* Indianapolis, IN: John Wiley.
- McDaniel, A. (2010). *Perl and Apache: Your Visual Blueprint for Developing Dynamic Web Content. Indianapolis, IN: John Wiley.*
- O'Connor, T. J. Waltham (2013). *Violent Python A Cookbook for Hackers, Forensic Analysts, Penetration Testers and Security Engineers. Waltham, MA: Syngress Publishing.*
- Pro Android 4 [electronic resource] Satya Komatineni, Dave MacLean; technical reviewers, Eric Franchomme... [et al.].
- Proctor, R. W., & Vu, K. L. (2011). *Handbook of Human Factors in Web Design. Boca Raton, FL: CRC Press.*
- Professional Android 4 application development [electronic resource] Reto Meier.
- Programming business applications for the Android tablet [electronic resource] James C. Sheusi.
- Rosebrock, E., & Filson, E. (2004). *Setting Up LAMP Getting Linux, Apache, MySQL, and PHP Working Together. Alameda, CA: Sybex.*
- Soyinka, W. (2009). *Linux Administration: A Beginner's Guide (5th ed.). McGraw-Hill/Osborne.*
- Valade, J. (2010). *PHP & MySQL For Dummies (4th ed.). Indianapolis, IN: John Wiley.*
- Vaswani, V. *(2007). PHP Programming Solutions. McGraw-Hill/Osborne.*

- <u>Other References</u>
  - Adobe Dreamweaver Help and Tutorials (https://helpx.adobe.com/dreamweaver/topics.html)
  - Android Developers Site (http://developer.android.com)
  - Bram, T. (2013). Plain and simple. *Entrepreneur, 41(10), 22.*
  - Java Developers Site (http://java.com/en/download/faq/develop.xml)

- o Reinecke, K., & Bernstein, A. (2013). Knowing what a user likes: a design science approach to interfaces that automatically adapt to culture. *MIS quarterly, 37(2), 427-A11.*

INSTRUCTIONAL METHODS AND TEACHING STRATEGIES

The curriculum employs a variety of instructional methods that support the course objectives while fostering higher cognitive skills. These methods are designed to encourage and engage you in the learning process in order to maximize learning opportunities. The instructional methods include but are not limited to lectures, collaborative learning options, use of technology, and hands-on activities.

To implement the above-mentioned instructional methods, this course uses several teaching strategies, such as critical thinking, team discussions, comprehensive skills assessment, and team work. Your progress will be regularly assessed through a variety of assessment tools including discussion, project, and a final exam.

OUT-OF-CLASS WORK

For purposes of defining an academic credit hour for Title IV funding purposes, ITT Technical Institute considers a quarter credit hour to be the equivalent of: (a) at least 10 clock hours of classroom activities and at least 20 clock hours of outside preparation; (b) at least 20 clock hours of laboratory activities; or (c) at least 30 clock hours of externship, practicum or clinical activities. ITT Technical Institute utilizes a "time-based option" for establishing out-of-class activities which would equate to two hours of out-of-class activities for every one hour of classroom time. The procedure for determining credit hours for Title IV funding purposes is to divide the total number of classroom, laboratory, externship, practicum and clinical hours by the conversion ratios specified above. A clock hour is 50 minutes.

A credit hour is an artificial measurement of the amount of learning that can occur in a program course based on a specified amount of time spent on class activities and student preparation during the program course. In conformity with commonly accepted practice in higher education, ITT Technical Institute has institutionally established and determined that credit hours awarded for coursework in this program course (including out-of-class assignments and learning activities described in the "Course Outline" section of this syllabus) are in accordance with the time-based option for awarding academic credit described in the immediately preceding paragraph.

ACADEMIC INTEGRITY

All students must comply with the policies that regulate all forms of academic dishonesty or academic misconduct. For more information on the academic honesty policies, refer to the Student Handbook and the School Catalog.

INSTRUCTOR DETAILS

Instructor Name	
Office Hours	
Contact Details	

(End of Syllabus)