ITT Technical Institute

CD331T

Design and Drafting Capstone Project

Onsite and Online 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 CD250T Engineering Graphics II or equivalent and CD310T Civil Drafting and Introduction to GIS or equivalent

Course Description:

An introduction to the theory and practical development, planning, management and presentation of a drafting project from start to finish. Topics include techniques of project planning, project design and execution, documentation and presentation. Students are required to apply project management techniques to a Capstone Project.

COURSE SUMMARY

COURSE DESCRIPTION

An introduction to the theory and practical development, planning, management and presentation of a drafting project from start to finish. Topics include techniques of project planning, project design and execution, documentation and presentation. Students are required to apply project management techniques to a Capstone Project.

MAJOR INSTRUCTIONAL AREAS

1. Preproduction–determination of project direction and scope
2. Production–project development
3. Post-production–project assembly
4. Technical review
5. Final presentation

COURSE LEARNING OBJECTIVES

By the end of this course, you should be able to:

1. Identify the important characteristics of a project.
2. Demonstrate understanding of the tasks involved in the various phases of a project.
3. Create a project plan using Microsoft Project.
4. Monitor the progress of a project using Microsoft Project.
5. Draft a project proposal that outlines the proposed solution for a drafting and design project.
6. Create the relevant documentation, models, and specifications for a drafting and design project.
7. Develop a portfolio.

COURSE OUTLINE

MODULE 1: PROJECT PLANNING AND RESEARCH

COURSE LEARNING OBJECTIVES COVERED

- Identify the important characteristics of a project.
- Demonstrate understanding of the tasks involved in the various phases of a project.
- Create a project plan using Microsoft Project.

TOPICS COVERED

- Phases of a Project
- Planning the Project
- Project Research
- Concept Phase and Study Phase of a Project
- Project Settings in Microsoft Project

MODULE LEARNING ACTIVITIES	GRADED	OUT-OF-CLASS TIME
Readings: ITT Tech Virtual Library> Basic Search> • *Planning and Scheduling Using Microsoft Project 2010>* Chapters 1-4 • *Project 2010 Bible> As needed to help you prepare for your project* • *Practical Project Management for Building and Construction>* As needed to help you prepare for your project • *LEED-New Construction Project Management> As needed to* help you prepare for your project	No	6 hr
Lesson: Study the lesson for this module.	No	1 hr
Discussion: Participate in the discussion titled "Phases of Project Management."	Yes	N/A
Project: Read and begin the project.	No	1 hr
Project Planning: Submit an overall description of the project titled "Project Tasks and Activities."	Yes	2 hr

Total Out-Of-Class Activities: 10 Hours

MODULE 2: PROJECT PROPOSAL AND DESIGN

COURSE LEARNING OBJECTIVES COVERED

- Demonstrate understanding of the tasks involved in the various phases of a project.
- Create a project plan using Microsoft Project.
- Monitor the progress of a project using Microsoft Project.
- Draft a project proposal that outlines the proposed solution for a drafting and design project.

TOPICS COVERED

- Project Documentation
- Project Settings in Microsoft Project
- Creation of a Project Schedule in Microsoft Project
- Creation of Tasks in Microsoft Project
- Study Phase and Design Phase of a Project
- Drafting a Project Proposal

MODULE LEARNING ACTIVITIES	GRADED	OUT-OF-CLASS TIME
Readings: ITT Tech Virtual Library> Basic Search> • *Planning and Scheduling Using Microsoft Project 2010>* Chapters 5-8 • *Project 2010 Bible> As needed to help you prepare for your* project	No	8.5 hr
Lesson: Study the lesson for this module.	No	1.5 hr
Project Planning: Submit the first draft of the baseline schedule for tracking the progress of the project titled "Project Schedule."	Yes	4 hr
Project Solution: Submit the proposal for the project titled "Project Proposal Documentation."	Yes	4 hr

Total Out-Of-Class Activities: 18 Hours

MODULE 3: PROJECT IMPLEMENTATION AND MONITORING PART I

COURSE LEARNING OBJECTIVES COVERED

- Demonstrate understanding of the tasks involved in the various phases of a project.
- Create a project plan using Microsoft Project.
- Monitor the progress of a project using Microsoft Project.
- Create the relevant documentation, models, and specifications for a drafting and design project.

TOPICS COVERED

- Modifying Task Information in Microsoft Project
- Monitoring and Documenting the Implementation Phase of the Project
- Creating Sustainable Project 3D Models
- Scheduling Resources and Assigning Costs in Microsoft Project
- Implementation Phase of the Project
- Parametric Modeling and Building Information Modeling (BIM)

MODULE LEARNING ACTIVITIES	GRADED	OUT-OF-CLASS TIME
Readings: ITT Tech Virtual Library> Basic Search> - *Planning and Scheduling Using Microsoft Project 2010>* Chapters 9-12 - *Project 2010 Bible> As needed to help you prepare for your* project	No	8.5 hr
Lesson: Study the lesson for this module.	No	1 hr
Discussion: Participate in the discussion titled "Project Planning and Implementation."	Yes	N/A
Project Planning: Submit a report on planned resources and cost of the project and project progress titled "Planning Project Resources and Costs."	Yes	4 hr
Project Documentation: Submit the first draft of the project design titled "Sketch Preliminary Design Drawings."	Yes	4 hr

Total Out-Of-Class Activities: 17.5 Hours

MODULE 4: PROJECT IMPLEMENTATION AND MONITORING PART II

COURSE LEARNING OBJECTIVES COVERED

- Demonstrate understanding of the tasks involved in the various phases of a project.
- Create a project plan using Microsoft Project.
- Monitor the progress of a project using Microsoft Project.
- Create the relevant documentation, models, and specifications for a drafting and design project.

TOPICS COVERED

- Customizing the Timescale and Share Information in Microsoft Project
- Submitting Preliminary Drawings of the Project
- Modifying Tasks Using the Gantt Chart in Microsoft Project
- Creating and Refining Drawings of the Project

MODULE LEARNING ACTIVITIES	GRADED	OUT-OF-CLASS TIME
Readings: ITT Tech Virtual Library> Basic Search> • *Planning and Scheduling Using Microsoft Project 2010>* Chapters 13-14 • *Project 2010 Bible> As needed to help you prepare for your project* • *Realistic Architectural Visualization with 3ds Max and Mental Ray>* As needed to help you prepare for your project • *Deconstructing the elements with 3ds Max: Create Natural fire, earth, air and water without plug-ins> As needed to help you prepare for your project* • *Getting the Job Done! Managing Project Teams and Task Forces for Success> As needed to help you prepare for your project*	No	8.5 hr
Lesson: Study the lesson for this module.	No	1 hr
Project Planning: Submit the project progress report created using Microsoft Project titled "Project Gantt Chart."	Yes	3 hr

MODULE LEARNING ACTIVITIES	GRADED	OUT-OF-CLASS TIME
Project Documentation: Submit the updated draft of the project design titled "Project Design Drawings."	Yes	3 hr

Total Out-Of-Class Activities: 15.5 Hours

MODULE 5: PROJECT IMPLEMENTATION AND MONITORING PART III

COURSE LEARNING OBJECTIVES COVERED

- Demonstrate understanding of the tasks involved in the various phases of a project.

- Create a project plan using Microsoft Project.

- Monitor the progress of a project using Microsoft Project.

- Create the relevant documentation, models, and specifications for a drafting and design project.

TOPICS COVERED

- Implementing Design Changes

- Updating Project Data in Microsoft Project

- Modifying Project Models

- Making Drawing Revisions for Projects

- Planning the Final Project Presentation

MODULE LEARNING ACTIVITIES	GRADED	OUT-OF-CLASS TIME
Readings: ITT Tech Virtual Library> Basic Search> - *Planning and Scheduling Using Microsoft Project 2010>* Chapters 15-17 - *Project 2010 Bible> As needed to help you prepare for your* project	No	8.5 hr
Lesson: Study the lesson for this module.	No	1 hr
Discussion: Participate in the discussion titled "2D and 3D Models."	Yes	N/A
Project Planning: Submit the updated project report titled "Project Data."	Yes	3 hr
Project Solution: Submit the final draft of the project proposal titled "Final Project Presentation."	Yes	4 hr

Total Out-Of-Class Activities: 16.5 Hours

MODULE 6: PORTFOLIO

COURSE LEARNING OBJECTIVES COVERED

- Develop a portfolio.

TOPICS COVERED

- Creating a Portfolio

MODULE LEARNING ACTIVITIES	GRADED	OUT-OF-CLASS TIME
Readings: • Foliotek http://www.foliotek.com/demos (Scroll down to the "Presentation-Getting Started" section to view a video on the basic steps for creating a portfolio)	No	3 hr
Lesson: Study the lesson for this module.	No	1 hr
Discussion: Participate in the discussion titled "Effective e-Portfolio."	Yes	1 hr
Portfolio: Submit the project portfolio titled "My Portfolio."	Yes	4 hr

Total Out-Of-Class Activities: 9 Hours

EVALUATION AND GRADING

EVALUATION CRITERIA

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

CATEGORY	WEIGHT
Discussion	15%
Project Planning	30%
Project Documentation	25%
Project Solution	20%
Portfolio	10%
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

OTHER ITEMS

- Microsoft Project 2010

RECOMMENDED RESOURCES

- <u>Books and Professional Journals</u>
  - o Bertoline, G. (2011). *Fundamental of graphics communication. Glencoe, IL: McGraw-Hill.*
  - o Bethune, J. (2013). *Engineering design and graphics with Autodesk® Inventor® 2013 (Custom ed.). Boston, MA: Pearson Custom.*
  - o Booth, D., Shames, D., and Desberg, P. (2010). *Own the room: Business presentations that persuade, engage & get results. McGraw-Hill.*
  - o Boothroyd, G. (2010). *Product design for manufacture and assembly. New York, NY: CRC Press.*
  - o Bruce, R. G., Dalton, W. K., Neely, J. E., and Kibbe, R. R. (2010). *Modern materials and manufacturing processes (Custom 2nd ed.). Boston, MA: Pearson Custom.*
  - o Cooke, Helen, and Tate. (2011). *The McGraw-Hill 36-hour course: Project management (2nd ed.). New York, NY: The McGraw-Hill Companies, Inc.*
  - o Cusson, R., and Cardoso, J. (2010). *Realistic architectural visualization with 3ds Max and mental ray (2nd ed.). Waltham, MA: Focal Press.*
  - o Dix, M., and Riley, P. (2011). *Discovering AutoCAD 2012. Upper Saddle River, NJ: Prentice Hall.*
  - o Dodds, J., and Johnson, S. (2011). *Mastering Autodesk Navisworks 2012. Sybex.*
  - o Fisk, P. (2010). *People, planet, profit: How to embrace sustainability for innovation and business growth. Kogan Page.*
  - o Giesecke, F. (2010). *Technical drawing with engineering graphics (Custom 14th ed.). Upper Saddle River, NJ: Prentice Hall.*
  - o Grabowski, R. (2011). *The illustrated AutoCAD 2012 quick reference. Florence, KY: Delmar Publishing.*
  - o Hoyle, D. (2009). *ISO 9000 Quality Systems Handbook: Using the Standards as a Framework for Business Improvement (6th ed.). Taylor and Francis.*
  - o Keeler, M., and Burke, B. (2009). *Fundamentals of integrated design for sustainable building. Hoboken, NJ: John Wiley.*

- o Liebing, R. W. (2007). *Construction of architecture: from design to build. New York, NY: John Wiley & Sons.*

- o Muller, E. J. and Grau, P. A. (2009). *Architectural drawing and light construction. Englewood Cliffs, NJ: Prentice Hall.*

- o Murch, R., and Johnson, A. (2000). *Open source: A guide to free software. Upper Saddle River, NJ: Prentice Hall.*

- o Nicholas, J. M. (1989). *Managing business and engineering projects: Concepts and implementation. Upper Saddle River, NJ: Prentice Hall.*

- o Onstott, S. (2004). *Photoshop for architects. [CD-ROM].*

- o Ramsey, C. G., and Sleeper, H. R. (2010). *Architectural graphic standards for residential construction. New York, NY: John Wiley & Sons.*

- o Randolph, A. W., and Posner, B. Z. (1992). *Getting the job done! Managing project teams and task forces for success. Upper Saddle River, NJ: Prentice Hall.*

- o Richard, P., and Fitzgerald, J. (2015). *Introduction to AutoCAD 2015: A modern perspective. Upper Saddle River, NJ: Prentice Hall.*

- o Tickoo, S., Purdue University, and CADCIM Technologies. (2013). *Exploring AutoCAD Civil 3D 2013 (Custom 1st ed.). Boston, MA: Pearson Custom.*

- o Ursiny, T., DeMoss, G., and Morel, J. (2007). *The top performer's guide to speeches and presentations: Essential skills that put you on top. Naperville, Illinois: Sourcebooks, Incorporated.*

- o Wakita, O. A., Linde, R. M., and Bakhoum, N. R. (2011). *The professional practice of architectural working drawings (4th ed.). Indianapolis, IN: John Wiley.*

- o Zimmerman, P. (2006). *Harnessing Autodesk Civil 3D 2007. San Rafael, CA: Autodesk Press.*

- Professional Associations
    - o American Design Drafting Association
    - o American Institute of Architects
    - o American Institute of Steel Construction
    - o American Society of Civil Engineers
    - o American Society of Landscape Architects
    - o American Society of Mechanical Engineers
    - o Autodesk User Group International (AUGI)
    - o Industrial Designers Society of America
    - o Materials Research Society

- o Project Management Institute
- o SkillsUSA-VICA
- o Society of Automotive Engineers
- o Society of Manufacturing Engineers
- o Women In Technology International
- ITT Tech Virtual Library (accessed via Student Portal | https://studentportal.itt-tech.edu)
  - o Basic Search>
    - Cusson, R., & Cardoso, J. (2010). *Realistic architectural visualization with 3ds Max and mental ray (2nd ed.). Burlington, MA: Focal Press.*
    - Draper, P. (2009). *Deconstructing the elements with 3ds Max: Create natural fire, earth, air and water without plug-ins (3rd ed.). Amsterdam: Elsevier/Focal Press.*
    - Harris, P. E. (2010). *Planning and scheduling using Microsoft Project 2010. Victoria: Australia Eastwood Harris.*
    - Marmel, E. J. (2010). *Project 2010 bible.* Indianapolis, IN: Wiley Publishing, Inc.
    - Ottosson, H. (2012). *Practical project management for building and construction. Boca Raton: CRC Press.*
    - Randolph, A. W., & Posner, B. Z. (1992). *Getting the job done! Managing project teams and task forces for success. Upper Saddle River, NJ: Prentice Hall.*
    - Ursiny, T. E., DeMoss, G., & Morel, J. (2007). *The top performer's guide to speeches and presentations: Essential skills that put you on top.* Naperville, Illinois: Sourcebooks.
    - Yellamraju, V. (2011). *LEED-new construction project management.* New York: McGraw-Hill.

- <u>Other References</u> (all links accessed 02/18/16)
  - o CAD Digest

    http://www.caddigest.com
  - o CAD User Magazine

    http://www.caduser.com
  - o CADALYST Online

    http://www.cadalyst.com

Note: All links are subject to change without prior notice.

- Information Search

  Use the following keywords to search for additional online resources that may be used

  for supporting your work on the course assignments:
  - o Architectural drafting
  - o CAD
  - o Civil drafting
  - o Design
  - o Drafting
  - o GIS

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 scenario-based lessons and activities that are similar to what you are expected to perform while working on drafting and design projects. Your progress will be regularly assessed through a variety of assessment tools including discussions, project planning, project documentation, project solution, and a portfolio.

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)