

ITT Technical Institute
CD230
Architectural Drafting II
Onsite and Online Course

SYLLABUS

Credit hours: 4


Contact/Instructional hours: 50 (30 Theory Hours, 20 Lab Hours)

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

Prerequisites: CD130 Architectural Drafting I, CD220 Materials and Processes or equivalent

Course Description:

A continuation of Architectural Drafting I through the functional planning of a progressively complex project using light construction systems. Drawings incorporating foundations, elevations, wall sections and roof framing details will be created using drafting and CAD techniques.



COURSE SUMMARY

COURSE DESCRIPTION

A continuation of Architectural Drafting I through the functional planning of a progressively complex project using light construction systems. Drawings incorporating foundations, elevations, wall sections and roof framing details will be created using drafting and CAD techniques.

MAJOR INSTRUCTIONAL AREAS

1. Principles of Light Construction
2. Footings and Foundations
3. Building Information Model (BIM)
4. Walls, Doors, and Windows
5. Sections, Elevations, Details, and Annotations.

COURSE LEARNING OBJECTIVES

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

1. Apply BIM to develop a residential project.
2. Use walls and foundation systems in architectural projects.
3. Apply the various construction techniques to the design of architectural elements such as walls, windows, and doors in an architectural project.
4. Apply the various construction methods for creating roofs and floors.
5. Evaluate exterior and interior finish materials.
6. Use elevations, sections, and views in architectural projects.
7. Use the different structural components in architectural design.
8. Create details in architectural drawings.
9. Design stairs and fireplaces for an architectural project.
10. Describe how to write specifications for architectural projects.
11. Interpret commercial construction drawings.

COURSE OUTLINE

MODULE 1: BUILDING INFORMATION MODELING

COURSE LEARNING OBJECTIVES COVERED

- Apply BIM to develop a residential project.
- Use walls and foundation systems in architectural projects.

TOPICS COVERED

- Building Information Modeling
- Getting Started with Revit
- Residential Working Drawings

| MODULE LEARNING ACTIVITIES | GRADED | OUT-OF-CLASS TIME |
|---|--------|-------------------|
| Reading: Goldberg, Chapters 1 and 2. | No | 3 hr |
| Reading: Grau, Muller, & Fausett, Chapters 2 and 18. | No | 1.5 hr |
| Lesson: Study the lesson for this module. | No | 1.5 hr |
| Discussion: Participate in the discussion titled "Mixed-Use Building." | Yes | N/A |
| Lab: Complete the lab titled "Sketching and Editing in Revit." | Yes | N/A |
| Quiz: Prepare for Quiz 1. | No | 2 hr |
| Project: Read and begin the project. | No | 1 hr |

Total Out-Of-Class Activities: 9 Hours

MODULE 2: WALLS, WINDOWS, DOORS, FOOTINGS, AND FOUNDATIONS

COURSE LEARNING OBJECTIVES COVERED

- Apply BIM to develop a residential project.
- Use walls and foundation systems in architectural projects.
- Apply the various construction techniques to the design of architectural elements such as walls, windows, and doors in an architectural project.
- Use the different structural components in architectural design.

TOPICS COVERED

- Walls
- Windows and Doors
- Footings and Foundations

| MODULE LEARNING ACTIVITIES | GRADED | OUT-OF-CLASS TIME |
|---|--------|-------------------|
| Reading: Goldberg, Chapters 3, 4, 5, and 6. | No | 6 hr |
| Reading: Grau, Muller, & Fausett, Chapter 12 (pp. 234-264). | No | 2.5 hr |
| Lesson: Study the lesson for this module. | No | 2 hr |
| Discussion: Participate in the discussion titled “Designing Footing and Foundation.” | Yes | N/A |
| Lab: Complete the lab titled “Creating Different Structural Components.” | Yes | N/A |
| Short Answer: Submit the short answer titled “Components of a Building.” | Yes | 3 hr |
| Quiz: Take Quiz 1. | Yes | N/A |
| Project: Continue work on Project Part 1. | No | 5 hr |

Total Out-Of-Class Activities: 18.5 Hours

MODULE 3: ROOFS, FLOORS, AND FINISH MATERIALS

COURSE LEARNING OBJECTIVES COVERED

- Apply BIM to develop a residential project.
- Use walls and foundation systems in architectural projects.
- Apply the various construction techniques to the design of architectural elements such as walls, windows, and doors in an architectural project.
- Apply the various construction methods for creating roofs and floors.
- Evaluate exterior and interior finish materials.
- Use the different structural components in architectural design.

TOPICS COVERED

- Roofs
- Floors
- Finish Materials

| MODULE LEARNING ACTIVITIES | GRADED | OUT-OF-CLASS TIME |
|---|--------|-------------------|
| Reading: Goldberg, Chapters 7, 8, and 10. | No | 5 hr |
| Reading: Grau, Muller, & Fausett, Chapter 12 (pp. 328-361). | No | 2.5 hr |
| Lesson: Study the lesson for this module. | No | 2 hr |
| Discussion: Participate in the discussion titled "Selecting Finish Materials." | Yes | N/A |
| Quiz: Prepare for Quiz 2. | No | 2 hr |
| Lab: Complete the lab titled "Creating Roofs and Floors." | Yes | N/A |
| Quiz: Take Quiz 2. | Yes | N/A |
| Project: Submit Project Part 1. | Yes | 4 hr |

Total Out-Of-Class Activities: 15.5 Hours

MODULE 4: SECTIONS, ELEVATIONS, AND DETAILS

COURSE LEARNING OBJECTIVES COVERED

- Apply BIM to develop a residential project.
- Use walls and foundation systems in architectural projects.
- Apply the various construction techniques to the design of architectural elements such as walls, windows, and doors in an architectural project.
- Apply the various construction methods for creating roofs and floors.
- Evaluate exterior and interior finish materials.
- Use elevations, sections, and views in architectural projects.
- Use the different structural components in architectural design.
- Create details in architectural drawings.

TOPICS COVERED

- Sections
- Elevations
- Detail Drawings
- Structural Members

| MODULE LEARNING ACTIVITIES | GRADED | OUT-OF-CLASS TIME |
|--|--------|-------------------|
| Reading: Goldberg, Chapters 11, 13, and 16. | No | 4.5 hr |
| Reading: Grau, Muller, & Fausett, Chapter 14. | No | 2.5 hr |
| Lesson: Study the lesson for this module. | No | 2 hr |
| Discussion: Participate in the discussion titled “Sections and Elevations.” | Yes | N/A |
| Short Answer: Submit the short answer titled “Details of Drawing.” | Yes | 3 hr |
| Lab: Complete the lab titled “Creating Sections and Elevations.” | Yes | N/A |
| Quiz: Prepare for Quiz 3. | No | 2 hr |
| Project: Submit Project Part 2. | Yes | 4 hr |

Total Out-Of-Class Activities: 18 Hours

MODULE 5: STAIRS AND FIREPLACES

COURSE LEARNING OBJECTIVES COVERED

- Use elevations, sections, and views in architectural projects.
- Use the different structural components in architectural design.
- Create details in architectural drawings.
- Design stairs and fireplaces for an architectural project.
- Interpret commercial construction drawings.

TOPICS COVERED

- Stairs
- Fireplaces

| MODULE LEARNING ACTIVITIES | GRADED | OUT-OF-CLASS TIME |
|---|--------|-------------------|
| Reading: Goldberg, Chapter 9. | No | 3 hr |
| Reading: Grau, Muller, & Fausett, Chapter 14 (pp. 426-458). | No | 2.5 hr |
| Lesson: Study the lesson for this module. | No | 2 hr |
| Discussion: Participate in the discussion titled “Stairs and Fireplaces in Buildings.” | Yes | N/A |
| Short Answer: Submit the short answer titled “Design of Stairs and Fireplaces.” | Yes | 3 hr |
| Lab: Complete the lab titled “Creating Stairs and Fireplaces.” | Yes | N/A |
| Quiz: Take Quiz 3. | Yes | N/A |
| Project: Continue work on Project Part 3. | No | 4 hr |

Total Out-Of-Class Activities: 14.5 Hours

MODULE 6: COMMERCIAL CONSTRUCTION DRAWINGS

COURSE LEARNING OBJECTIVES COVERED

- Apply BIM to develop a residential project.
- Use walls and foundation systems in architectural projects.
- Apply the various construction techniques to the design of architectural elements such as walls, windows, and doors in an architectural project.
- Apply the various construction methods for creating roofs and floors.
- Evaluate exterior and interior finish materials.
- Use elevations, sections, and views in architectural projects.
- Use the different structural components in architectural design.
- Create details in architectural drawings.
- Design stairs and fireplaces for an architectural project.
- Describe how to write specifications for architectural projects.
- Interpret commercial construction drawings.

TOPICS COVERED

- Specifications
- Commercial Drawings
- Renderings and 3D Printing

| MODULE LEARNING ACTIVITIES | GRADE D | OUT-OF- CLASS TIME |
|---|------------|--------------------------|
| Reading: Goldberg, Chapters 19 and 21. | No | 3 hr |
| Reading: Biehler & Fane, Chapters 2 and 12. | No | 1.5 hr |
| Reading: Grau, Muller, & Fausett, Chapters 10 and 17. | No | 2 hr |
| Lesson: Study the lesson for this module. | No | 2 hr |
| Lab: Complete the lab titled "Writing Drawing Specifications." | Yes | N/A |
| Project: Submit Project Part 3. | Yes | 4 hr |

Total Out-Of-Class Activities: 12.5 Hours

EVALUATION AND GRADING

EVALUATION CRITERIA

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

| CATEGORY | WEIGHT |
|--------------|--------|
| Lab | 20% |
| Short Answer | 15% |
| Quiz | 15% |
| Discussion | 15% |
| Project | 35% |
| 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

- Goldberg, H. E. (2015). *Revit Architecture 2015: A hands-on guide (1st ed.)*. Peachpit Press.
- Biehler, J., & Fane, B. (2014). *3D printing with Autodesk (1st ed.)*. Upper Saddle River, NJ: Que Publishing.

OTHER ITEMS

- Grau, P. A. III, Muller, E. J., & Fausett, J. G. (2009). *Architectural drawing and light construction (8th ed.)*. Upper Saddle River, NJ: Pearson Prentice Hall.

Note: This textbook was issued in a previous course

RECOMMENDED RESOURCES

- Books and Professional Journals
 - Ching, F. (2014). *Building Construction Illustrated*. Hoboken, NJ: Wiley.
- Professional Associations
 - American Design Drafting Association
<http://www.adda.org/>
 - American Institute of Architects
<http://www.aia.org/>
 - American Institute of Building Design
<http://www.aibd.org/>
 - American Institute of Constructors
<http://www.professionalconstructor.org/>
 - ASM International: The Materials Information Society
<http://www.asminternational.org/>
 - American Society of Interior Designers
<https://www.asid.org/>

- Construction Specifications Institute
<http://www.csinet.org/>
- ITT Tech Virtual Library (accessed via Student Portal | <https://studentportal.itt-tech.edu>)
 - School of Study> School of Drafting and Design> Recommended Links> Articles and books>
 - ART, DESIGN AND VISUAL THINKING: AN INTERACTIVE TEXTBOOK
 - Michael Karbo's Online Service
 - World Class CAD
 - School of Study> School of Drafting and Design> Recommended Links> Building Codes>
 - Bulk.Resource.org
 - International Code Council Free Resources

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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 hands-on labs, case studies, and lessons. Your progress will be regularly assessed through a variety of assessment tools including short answer, discussion, project, quiz, and lab.

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

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|-----------------|--|
| Instructor Name | |
| Office Hours | |
| Contact Details | |

(End of Syllabus)