



## **Architectural Drafting (DFTG 1317)**

**Credit:** 3 semester credit hours (2 hours lecture, 4 hours lab)

### **Prerequisite/Co-requisite:**

1. 1310 Microstation (required)
2. Knowledge of basic computer operations and file management.
3. Basic understanding of general drafting practices using both hand tools and CADD.

### **Course Description**

This course is designed to introduce students to the basic skills needed to draw, detail, and design residential structures using standard construction practices involving wood, engineered materials, steel, concrete, and concrete block, as well as using “green” construction practices. A host of real-world problems will expose students to a variety of drafting experiences and require them to go through the same thought processes that a professional CAD technician faces daily, including view layout, dimension placement, section placement, and more.

### **Required Textbook and Materials**

1. *Architectural Drafting and Design, 6<sup>th</sup> ed.* by Jefferis, Madsen & Madsen. Pearson Prentice Hall.
  - a. ISBN number is 13: 978-1435481626
2. Notebook & loose leaf paper.
3. Drafting Kit
4. Flash Drive

### **Course Objectives**

1. Upon completion of this course, the student will be able to:
2. Demonstrate an understanding of light frame building components
3. Demonstrate an understanding of light frame construction methods
4. Demonstrate an understanding of the principles of working drawings
5. Demonstrate competency in preparing working drawings for residential structures.
6. Demonstrate an understanding of terms, symbols, practices and procedures involved in residential drafting
7. Demonstrate competency in utilizing residential materials in residential drafting
8. Demonstrate an ability to use reference materials in order to create working drawings based on an assigned project programming
9. Demonstrate competency in detail-oriented plans that include dimensioning, multiple scale drawings, and sections

### **Course Outline**

- A. Introduction

1. Introduction of faculty and students
  2. Review Syllabus
  3. Review Class Policies
  4. Review Lab Assignments
- B. Professional Architectural Careers
  1. Drafter/CAD Technician
    - a. The Entry-Level CAD Drafter
    - b. The Experienced Technician/Detailer
    - c. Employment Opportunities
    - d. Educational Requirements
    - e. Educational Recommendations
    - f. Personal Requirements
    - g. Workplace Ethics
    - h. Copyright Protection
  2. Designer
- C. Exploring Residential Design and Professional Practice: Design Basics
  - a. Financial Considerations
  - b. The Client
  1. The Design Process
    - a. Initial Contact
    - b. Preliminary Design Studies
    - c. Room Planning
    - d. Initial Working Drawings
    - e. Final Design Considerations
    - f. Completion of Working Drawings
  2. Permit Procedures
  3. Job Supervision
- D. Common Scales used in Architecture
  - a. Architect's Scale
  - b. Civil Engineer's Scales
  - c. Metric Scales
  1. Common Types of Drawings
  2. The Theory of Orthographic Projection
- a. The Glass Cube
  - b. Freehand Sketching
  - c. Sketching Techniques
  - d. Sketching Straight Features
  - e. Sketching Circular Features
  - f. Keeping Proportions in Freehand Sketches
  - g. Isometric Sketches
  3. Drawing Layout Using a Computer
  4. Applying Math Skills in an Electronic World
    - a. Standard Units of Measurement of Length and Area
    - b. Working with Linear Foot Measurements
    - c. Working with Board Foot
    - d. Using Square Foot, Square, and Cubic Measurements
    - e. Geometric Calculations of Area and Volume
  - E. Managing Your CAD Work Environment
    1. Equipment
    2. Work Habits
  - F. National Building Codes
    1. National Code Options
    2. International Model Codes
    3. Choosing the Right Code
    4. Basic Tools of the Model Codes
  - G. Interior Design Considerations
    1. Living Areas
    2. Sleeping Areas
    3. Service Area
    4. Traffic Patterns
    5. Providing Universal Accessibility
  - H. Exterior Styles and Considerations
    1. Elements of Design
    2. Principles of Designs
      3. Common Plan Styles
      4. Common Residential Styles
  - I. Environmental Design Considerations
    1. Zoning
    2. Integration of the Home to the Site
  - J. Land Descriptions and Drawings
    1. Legal Descriptions

- 2. Land Drawings
- 3. Site Related Drawings
- 4. Site Related Drawing Layouts
- K. Floor Plans – Symbols, Annotation and Dimensions
  - 1. Symbols
  - 2. Dimensions
  - 3. Annotation
  - 4. Floor plan layout
  - 5. Using CAD
- L. Roof Plans
  - 1. Symbols
  - 2. Dimensions
  - 3. Annotation
  - 4. Roof plan layout
  - 5. Using CAD
- M. Foundation Plans
  - 1. Symbols
  - 2. Dimensions
  - 3. Annotation
  - 4. Foundation plan layout
  - 5. Using CAD
- N. Elevations
  - 1. Symbols
  - 2. Dimensions
  - 3. Annotation
  - 4. Elevation layout
  - 5. Using CAD
- O. Electrical Plans
  - 1. Symbols
  - 2. Dimensions
  - 3. Annotation
  - 4. Elevation layout
  - 5. Using CAD
- P. Plumbing and HVAC
  - 1. Symbols
  - 2. Dimensions
  - 3. Annotation
  - 4. Elevation layout
  - 5. Using CAD
- Q. Final Project
  - 1. Set of working Drawings
  - 2. Dimensions
  - 3. Annotation
  - 4. Using Manual & Microstation to draw

### Grade Scale

|          |   |
|----------|---|
| 90 – 100 | A |
| 80 – 89  | B |
| 70 – 79  | C |
| 60 – 69  | D |
| 0 – 59   | F |

### Course Evaluation

Final grades will be calculated according to the following criteria:

- 1. Tests 30%
- 2. Drawing Projects 40%
- 3. Professionalism 10%
- 4. In-class Assignments 20%

**Note:** The instructor of this course reserves the right to alter the percentages and activity groups of this course. The Grading Scheme is accurate as of the beginning of the semester, however, it may change according to circumstances unforeseen or unknown at this time.

### Course requirements

- 1. Read chapters and complete reviews
- 2. Study handouts

3. Complete drawings
4. Attend class and take notes from lectures

### **Course Policies**

1. If you miss a scheduled test due to (expressed) illness or injury come by and see me as soon as you are back – Do Not wait until the next class period.
2. If you have a valid Doctors excuse, I will allow a makeup test.
3. If you DO NOT have a Doctors excuse you must take the test as soon as possible at a point deduction.
4. For every day that you do not take the test or turn in the assignment there will be an additional 10% points deduction on your test score per class day thereafter, up to 7 days, then it will no longer be accepted.
5. Your drawing project grade will have a 10% point penalty for every class day that it is late up to 7 days, then it will no longer be accepted.
6. You are expected to act as professionals and will be evaluated each class period on a scale of 0 to 5. Giving a possible 5 points per class.
  - a. 5 points - You make full use of the allotted class time to work on the assigned project.
  - b. 3 points Did not make full use, but did make use of majority or the allotted class time to work on the assigned project – this could be arriving a little late, or taking a little too long of a break, or leaving a little early.
  - c. 2 points Wasted excess amount of the assigned class time on activities other than the assigned project – this could be arriving excessively late, or taking excessive breaks, or leaving excessively early, or spending excessive amount of time in conversation about things other than the assigned project, etc.
  - d. 1 point Spent the majority of the allotted class time on things other than the assigned work – this could be in discussion of things other than the assigned work or working on homework for other classes etc.
  - e. 0 points Missed class or worked on homework or course work for other classes. Using email, instant messenger, chat room, etc. during the class period will result in a “0” professionalism grade for that class period. Using Internet for other than required class use during the class period will result in a “0” professionalism grade for that class period. A class period is defined as the time from the start till the end of class – it includes the break time.
7. No food, drinks, or use of tobacco products in class.
8. No foul or harsh language will be tolerated. Students who disrupt the class or act unruly will be dismissed from class and appropriate disciplinary action will result.
9. No discussion of your social life and/or problems during a lecture or lab – this needs to be done outside of the classroom.
10. No talking while the instructor is lecturing.
11. Do not interrupt a lecture – raise your hand.
12. Keep discussion of assignments to a low level (voice level) during lab time.

13. The use of Cell phones, Beepers, or text messaging without prior approval, is not permitted during class. Listening to music and using earplugs or earbuds are not permitted in class. (Employers do not allow them on the job.)
  - a. Turn your cell phones, beepers, or text messaging off during class and put them up. If I see your phone out, I will assume that you feel it is more important than the class material and I will therefore count you absent for that day.
  - b. If you leave the class room during class time, I will assume you are answering the phone or text messaging and will count you absent.
  - c. If you have a justifiable reason or emergency situation where you need to receive phone calls or text messages, discuss this with me before class, and we will make accommodations for that day.
14. Do not bring children to class.
15. No Cheating of any kind will be tolerated. Students caught cheating or helping someone to cheat can be removed from the class for the semester. Cheating can result in expulsion from LIT.
16. If you wish to drop a course, the student is responsible for initiating and completing the drop process. If you stop coming to class and fail to drop the course, you will earn an 'F' in the course.
17. Classroom computers have access to the internet.
  - a. Student usage of the internet will be monitored.
  - b. Proper usage of the internet will be allowed. Used for classroom research or as directed.
  - c. Any unauthorized use of the internet will not be tolerated.
  - d. Improper usage of the internet, such as profanity, pornography, gambling, etc... will result in disciplinary action not limited to expulsion from LIT.

### **Disabilities Statement**

The Americans with Disabilities Act of 1992 and Section 504 of the Rehabilitation Act of 1973 are federal anti-discrimination statutes that provide comprehensive civil rights for persons with disabilities. Among other things, these statutes require that all students with documented disabilities be guaranteed a learning environment that provides for reasonable accommodations for their disabilities. If you believe you have a disability requiring an accommodation, please contact the Special Populations Coordinator at (409) 880-1737 or visit the office in Student Services, Cecil Beeson Building.

### **Student Code of Conduct Statement**

It is the responsibility of all registered Lamar Institute of Technology students to access, read, understand and abide by all published policies, regulations, and procedures listed in the LIT Catalog and Student Handbook. The LIT Catalog and Student Handbook may be accessed at [www.lit.edu](http://www.lit.edu) or obtained in print upon request at the Student Services Office.

### **Course Schedule**

| <b>Week No.</b> | <b>Topic</b>                     | <b>Recommended Reading</b> |
|-----------------|----------------------------------|----------------------------|
| 1               | Course introduction and policies | Handouts and Text          |

# DFTG-1305 Course Syllabus Spring 2013

|    |                                                                                                                                                                             |                     |
|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
|    | <ul style="list-style-type: none"> <li>a. Lecture</li> <li>b. Lab: Lettering Technique, Lines Practice</li> </ul>                                                           | book chapters 1 - 2 |
| 2  | Professional Practice <ul style="list-style-type: none"> <li>a. Lecture: Equipment, Lettering, and Scales</li> <li>b. Lab: Lines Practice</li> <li>c. Scale Test</li> </ul> | Chapters 3 - 7      |
| 3  | Codes in Design <ul style="list-style-type: none"> <li>a. Lecture</li> <li>b. Lab: Finish intro packet</li> </ul>                                                           | Chapter 8           |
| 4  | The Design Process <ul style="list-style-type: none"> <li>a. Lecture</li> <li>b. Lab: Group Project</li> </ul>                                                              | Chapter 9           |
| 5  | Site Layout Considerations <ul style="list-style-type: none"> <li>a. Lecture</li> <li>b. Lab: Sketching Exercises</li> <li>c. Exam 1</li> </ul>                             | Chapter 10          |
| 6  | Interior Design Considerations <ul style="list-style-type: none"> <li>a. Lecture</li> <li>b. Lab: 3-view Drawing Exercises</li> </ul>                                       | Chapter 11          |
| 7  | Floor Plan Techniques <ul style="list-style-type: none"> <li>a. Lecture</li> <li>b. Lab: Assign Blue Print Reading Exercise</li> </ul>                                      | Chapters 13 - 16    |
| 8  | Architectural Dimensioning <ul style="list-style-type: none"> <li>a. Lecture</li> <li>b. Lab: Assign Floor Plan Manual Drawing</li> <li>c. Test 2</li> </ul>                | Chapter 17          |
| 9  | Spring Break – All drawings from this point on will be completed in CAD ( Microstation).                                                                                    |                     |
| 10 | Roof Plans <ul style="list-style-type: none"> <li>a. Lecture</li> <li>b. Lab: Assign Final Set of Working Drawings to be completed on Microstation</li> </ul>               | Chapters 26 - 28    |
| 11 | Foundation Plans <ul style="list-style-type: none"> <li>a. Lecture</li> <li>b. Lab: 3-d object dimensioning</li> </ul>                                                      | Chapters 32 - 35    |
| 12 | Elevations <ul style="list-style-type: none"> <li>a. Lecture</li> <li>b. Lab: Continue working on</li> </ul>                                                                | Chapters 19 - 20    |

|               |                                                                                                           |                  |
|---------------|-----------------------------------------------------------------------------------------------------------|------------------|
| Final Project |                                                                                                           |                  |
| 13            | Electrical Plans<br>a. Lecture<br>b. Lab: Auxiliary Assignment                                            | Chapters 18      |
| 14            | Sections and Details<br>a. Lecture<br>b. Lab: Continue working on<br>Final Project                        | Chapters 29 - 30 |
| 15            | HVAC/MEP Drawings<br>a. Lecture: Symbolology<br>b. Lab: Continue working on<br>Final Project<br>c. Test 3 | Chapters 36 - 37 |
| 16            | Final Assignment Work week                                                                                | Finish drawings  |
| 17            | Finish the Final Project this week                                                                        |                  |
| 18            | Finals Week – determine due date based on the LIT Finals<br>Schedule                                      |                  |