

DSGN112 Syllabus

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Prerequisites: DRFT109, DRFT110, and MATH114

Alternative learning opportunities including independent study and distance delivery experience exist by obtaining the permission of the instructor.

I COURSE DESCRIPTION

Architectural, electrical and mechanical working drawings are prepared for residential, light commercial and commercial buildings.

II TASK INVENTORY

- A. Create a complete set of drawings for a residence and/or light commercial building
- B. Reference applicable codes and specifications
- C. Utilize an architectural style
- D. Incorporate applicable codes
- E. Sketch a space-plan
- F. Draw and dimension floor plans
- G. Draw building sections
- H. Draw elevations
- I. Draw stair layouts and sections
- J. Create floor and roof framing plans

K. Prepare a room finish schedule

L. Create a door and window schedule

M. Draw an electrical plan

N. Draw a mechanical Plan

O. Prepare site development drawings

III PERFORMANCE OBJECTIVES

Upon completion of this course, students will be able to do the following:

1. Design a residence and/or light commercial building
2. Create and interpret multi-view drawings, symbols, notations, and scales
3. Read and incorporate local and national codes and specifications into a set of plans
4. Utilize an architectural style
5. Sketch a space plan
6. Dimension a set of architectural plans
7. Incorporate kitchen and bath layouts into a set of plans
8. Create details utilizing a construction type
9. Draw floor and roof framing plans
10. Draw stair details
11. Create a room finish schedule
12. Create door and window schedules and details
13. Draw electrical plans
14. Draw mechanical plans

III B. CONTENT OUTLINE

1. Residential and Light Commercial Construction

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A. Introduction to Architectural Working Drawings

1. Architectural working drawings
2. Architectural styles
3. Specifications
4. Scales
5. Standard symbols and linework
6. Terminology, notes, and abbreviations

B. Dimensioning

1. Rules
2. Procedures
3. Floor plans

C. Drawing the Floor Plan

1. Layout
2. Dimensioning
3. Notation
4. Hatching
5. Checking

D. Conventional Wood Framing

1. Characteristics of wood
2. Types of structures
3. Floor framing
4. Wall framing
5. Roof framing

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E. Building Sections

1. Construction methods
2. Typical sections

F. Elevations

1. Exterior materials
2. Drawing elevations

G. Special Framing

1. Bay and overhangs
2. Partitions
3. Furring
4. Backing
5. Stairs and decks

H. Sitework

1. Site plan
2. Restrictions
3. Contours and profiles
4. Finishing Grading
5. Drafting the plot plan

I. Foundations and Footings

1. Types
2. Sill anchorage
3. Crawl space ventilation
4. Waterproofing and dampproofing

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5. Areaways
6. Concrete slabs
7. Sizing of footings

J. Masonry

1. Wall Construction
2. Veneer
3. Flashing and dampproofing
4. Lintels and bond beams
5. Mortar and joints
6. Chimneys and fireplaces

K. Roofing and Weatherproofing

1. Roofing
2. Exterior finish materials
3. Flashing and edging
4. Downspouts and gutters
5. Insulation
6. Ventilation of construction spaces

L. Room Finishes

1. Materials
2. Finishes
3. Schedules

M. Doors

1. Door selection

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2. Hardware

3. Schedules

4. Details

N. Windows

1. Selection

2. Details

3. Schedules

O. Cabinetry and millwork

1. Cabinet construction

2. Kitchen and bathroom planning

3. Details

II. Electrical and Mechanical Systems and Specifications

A. Specifications

B. Electrical

1. Power

2. Lighting

C. Plumbing

1. Plans

2. Isometrics

D. Heating, Ventilating and Air Conditioning

1. Plans

2. Heat loss calculations

III. Commercial Construction

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A. Code differences

1. Safety
2. Open access

B. Functional differences

IV GRADING PROCEDURES

This course will be graded as follows:

50% assigned drawings and tasks

20% tests and lab tests

30% written final test

The following grading standard will be used:

| <u>Percentage</u> | <u>Letter Grade</u> | <u>Numerical</u> |
|-------------------|---------------------|------------------|
| 95-100 | A | 4 |
| 85-94 | B | 3 |
| 75-84 | C | 2 |
| 65-74 | D | 1 |
| 0-64 | F | 0 |

Late tests or retakes = 66% of grade received - Two week limit on late work, tests and retakes

The regular attendance of class is considered integral to the academic and technical skills development of students. Therefore a serious lack of attendance can be considered detrimental to learning as well as passing. It is the responsibility of the student to make arrangements with the instructor should extenuating circumstances apply. Lecture times and topics, tests and scheduled lab times will be posted at the start of the week on the department board. Students may make arrangements to utilize their home computers to fulfill lab obligations, but lecture attendance should be considered required.

Near the end of the semester all students are provided the opportunity to evaluate this course through the standard College of Technology evaluation procedure. Constructive comments are always welcome and are considered a valuable source of information

leading to overall improvement of curriculum and faculty.

Student portfolios are a component of assessment. Drafting students are required to compile an overall portfolio, which will be reviewed during the 4th semester DSGN231 course. Applicable material from this course should be included.

Competencies obtained through this course also pertain to the National Occupational Certification Testing Institute (NOCTI) exam, which is used as an external assessment tool for the Drafting Program.

V STUDENT REFERENCES

1 - USB storage device

Recommended Reference:

Software internal documentation
AutoCAD textbook from DRFT109 & DRFT110
Library materials
Classroom materials in the form of printouts and distributed data files
Internet resources – Websites as directed by topic

Textbook – As directed at the beginning of the semester. Textbooks are available in the bookstore and are recommended. Additional textbooks may be helpful or may be used as an option. I view the textbook for this class as a resource containing supplemental reading and exercises.

VI CONTACT HOURS & CREDITS

LECTURE LAB TOTAL HOURS CREDITS

___0___ ___144___ _____144_____ ___5_____

VII. ASSISTANCE

The primary source of assistance is, of course, the instructor. Occasionally I will not be available during lab time, but usually I will be here and available. Students should not hesitate to bring questions to my attention during lab time. If I am busy with someone else or another matter, please be patient and assured that I will address your question as soon as possible. During lab time I am here to be of assistance.

In addition, I not only encourage the use of help documentation and web resources, but expect students to do so. Take full advantage of the wealth of information and depth available at your fingertips by whatever means. At times, knowing how and where to find the answer can be as, or even more advantageous than knowing it.

My priority of response when not in the classroom is always email. Whenever you have a question that cannot wait or a concern regarding you and this course, do not hesitate to email me at the email address listed above. The majority of time I will get back to you very soon, but on occasion it may take longer due to other factors or considerations.

Students should also utilize each other as a resource for classroom situations and study groups. This is how information is often shared on the job and often leads to an overall interpretation of information. I encourage students to feel free to provide help, as well as ask for help among each other whenever to do so is practical and done with mutual regard. Take advantage of every resource available, whether I am available or not there are many available options where learning is concerned.

VIII. METHODOLOGIES AND LEARNING STYLES

The class will generally follow a process of guided exploration of a topic or component of the software, assignment of a task or lab exercise that familiarizes the student with the topic and testing of the students' familiarity with the material. Each topic generally takes one to two weeks to cover with the lecture\demonstration taking place during the lecture class periods. Labs take place during the scheduled lab sessions. Assignments are generally called for by 1:00pm - Friday, so plan ahead.

Material will be distributed using the network. Testing and submittal of assignments will also often be done using the network as well as email. Students should be familiar with and must be able to navigate networks with minimal effort.

I believe that students should be active participants in their learning where applicable. Students that participate in the lecture\demonstration components of the course should have little difficulty mastering the material. Many topics will be covered in this course, some in great depth and others just the surface of what can be done. Regardless of what is taught in the classroom, every student has a responsibility to explore the software beyond what is available in class. It is hoped that this methodology of exploration remains with the student beyond the end of the course and becomes a keystone of a technological curiosity.

IX. SAFETY

While the Drafting Lab areas may be low-risk areas by comparison, safety is always a prime concern. Electrical and lifting hazards are the most obvious concerns and situations should be treated accordingly. Any safety issue should be brought to the attention of the instructor immediately.

Material Safety Data Sheets (MSDS) are posted in the classrooms. All students shall conduct themselves in a safe manner. Students traveling into other labs must abide by posted restrictions including (but not limited to) safety glasses. Classrooms are equipped with first aid stations; a fire extinguisher is located in the hallway.

In case of alarm, students are required to evacuate the building per the evacuation chart located near the door of each classroom. Students should also be alert to situations of violence, extreme weather, etc.

X. STUDENT CONDUCT

Students must read and be familiar with the Code of Conduct as published in the Student Handbook, policies and procedures as outlined in campus publications, MSU-Billings and Drafting Program policies.

Students in this (or any) program of study should be especially aware of the severe consequences of plagiarism. Students that submit work that is not their own will be dealt with quickly and severely. It will be the recommendation of the faculty to remove such students from the University.

Students that have a concern regarding any inappropriate conduct should bring it to the attention of their instructor, advisor or Department Chair immediately. Inappropriate conduct situations will be reviewed immediately.

XI. CELL PHONES, TEXTING, INTERNET CONSIDERATIONS AND CHILDREN IN THE CLASSROOM

When **cell phones** ring and students respond in class or leave class to respond, it disrupts the class. Therefore, the use by students of cell phones, pagers, PDAs, or similar communication devices during scheduled class lectures is not allowed. All such devices must be turned off or put in a silent (vibrate) mode and ordinarily should not be taken out during lectures. Given the fact that these same communication devices are an integral part of the University's emergency notification system, an exception to this policy would occur when numerous devices activate simultaneously. When this occurs, students may consult their devices to determine if a university emergency exists. If that is not the case, the devices should be immediately returned to silent mode and put away. Other exceptions to this policy may be granted at the discretion of the instructor.

Texting during lectures is not acceptable.

Most lectures involve student interaction with the computer as material is presented and software is explored. During lectures students are to be focused on the task at hand and not use Facebook, Instant Messaging, YouTube and other distractive **Internet** activities. During lab times, Internet activity is to be appropriate.

Children, likewise, represent a disruptive element for the classroom. They also increase the risk of accidents and incidents occurring in the laboratory. For those reasons, children should not be brought to either the classroom or the laboratory.

XII. DISABILITY SUPPORT SERVICES

MSU Billings is committed to providing equal access. If you anticipate barriers related to the format or requirements of this course, please meet with me so that we can discuss ways to ensure your full participation in the course. If you determine that disability-related accommodations are necessary, please contact Disability Support Services (247-3029; located in the Tech Building, room A008). We can then plan how best to coordinate your accommodations.

XIII. ACADEMIC SUPPORT CENTER

Free tutoring services for students are available in the Academic Support Center at the COT, A035, Monday through Thursday, 8 a.m.-6 p.m. and Friday, 8 a.m.-5 p.m. The Academic Support Center on the senior campus is open from 8 a.m.-7 p.m. Monday through Thursday, 8 a.m. -5 p.m. Friday, and 9 a.m. – noon Saturday. Tutors are available to assist students with math, writing, reading, anatomy and physiology, and other specialty areas for specific majors. See <http://www.msubillings.edu/asc/> for more information or call 247-3022 (COT) or 657-1641 (senior campus).