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DDSN 114.01: Introduction to CAD

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Missoula College UM
Department of Applied Computing and Engineering Technology
Course Syllabus

DDSN 114 – 01 Intro to CAD

Credit: 3

Prerequisite: M 090/M 111 (MATH 005/MAT 110) or equivalent.

Term: Autumn 2018

Meetings:

Lectures Tuesday & Thursday 4:30PM to 6:00PM at TT 06 West Campus of Missoula College

Final Exam: Thursday 12/13/2018 from 3:20PM - 5:20PM in TT 06

Faculty Contact:

Steve Shen - steve.shen@umontana.edu

Phone: (406) 243-7914

Office Hours: Monday and Wednesday 1:00PM to 2:00PM, Tuesday and Thursday 12:00PM to 1:00PM, or by appointment

Office Location: River Campus Room 422

Course Description

DDSN 114 - Intro to CAD, 3 cr. Offered autumn. Prereq./coreq. M 090/M 111 (MATH 005/MAT 110) or equivalent. An introduction to computer aided design and drafting software for production of drawings and plans for architecture and engineering systems. Fundamentals of two dimensional drafting and drawing management for professional design.

Course Overview

In recent years, with the advancement of computer and computing engineering, computer aided design (CAD), computer aided manufacturing (CAM), computer aided engineering (CAE), SolidWorks, and 3D and 4D printing have assumed an increasingly important role in the development and advancement of modern civilization and technology. Practically, every aspect of our day-to-day activities is affected by some type of CAD/CAM systems. CAD/CAM/CAE and 3D printing systems are found in abundance in all sectors of industry, such as manufacturing, drones, and many others.

CAD, or computer-aided design and drafting (CADD), is the use of computer technology to aid in the creation, modification, analysis, optimization, and documentation of a design. CAD software replaces manual drafting with an automated process to increase the productivity of the designer, improve the quality of design, improve communications through documentation, and to create a database for manufacturing. CAD output is often in the form of electronic files for print, machining, or other manufacturing operations.

AutoCAD is the most popular application software for CAD and drafting software application, developed and marketed by Autodesk. AutoCAD was released as a mobile- and web app as well, marketed as AutoCAD 360, since 2010. AutoCAD 360 is an account-based mobile and web application enabling registered users to view, edit, and share AutoCAD files via mobile device and web using a limited AutoCAD feature set — and using cloud-stored drawing files. AutoCAD is used across a wide range of industries, by architects, project managers, engineers, graphic designers, and many other professionals.

The course DDSN 114 Intro introduces CAD as a design system in addition to the application software. The course uses design, modeling, and drafting as the building blocks. As indicated in the textbook, the course is designed to bring the real power of SolidWorks as a powerful modeling and design system instead of only a software program. The theoretical concepts behind the various functions of SolidWorks are introduced in the course. The course provides plenty of illustrations, step-by-step instructions, and rich and challenging end-of-chapter projects.

This course introduces the terminology, concepts, processes, and the fundamental methods of design, modeling, and drafting of AutoCAD. The course is hands-on oriented for the students to gain practical skills in AutoCAD. Problem-based projects and problem-solving strategies are emphasized throughout the course. Students will have opportunities to work hands-on in teams to practice the basic functionalities of AutoCAD, and to exercise project management.

Course Objectives

Upon completion of the course, the student should be able to:

1. Demonstrate an understanding of fundamental CAD concepts and AutoCAD interface.
2. Describe AutoCAD concepts.
3. Explain 2D CAD/CAM modeling concepts.
4. Demonstrate an understanding of Engineering Design Process (EDP), CAD Process, Manufacturing Process, and Computer Aided Manufacturing (CAM) Process.
5. Understand and describe the basic AutoCAD Design process.
6. Describe the building blocks of design, modeling, and drafting concepts.
7. Create, annotate, and plot 2D drawings using AutoCAD.
8. Understand geometric construction.
9. Understand and demonstrate dimensioning concepts and techniques.
10. Assemble these drawings in industry-standard plan form and produce plotted hardcopies ready for distribution.

Required Materials

Introduction to AutoCAD 2017: A Modern Perspective

Richard & Fitzgerald, Pearson, ©2017

ISBN-13: 978-0-13-450695-1

AutoCAD software (Free for students)

Assessment

Grades will be weighted and graded as follows:

Homework Assignments	15%
Lab Exercises	15%
Midterm Exam	15%
Chapter Projects	20%
Final Project	15%
Final Exam	20%

Grading Scale:

90-100%	A
80-89%	B
70-79%	C
60-69%	D

Topic Outline

1. Introduction to AutoCAD
2. Quick Start Tutorial
3. Controlling the Drawing Display
4. Basic Drawing Commands
5. Drawing Tools and Drafting Settings
6. Managing Object Properties
7. Basic Editing Techniques
8. Advanced Editing Techniques
9. Drawing and Editing Complex Objects
10. Pattern Fills and Hatching
11. Annotating Drawings
12. Outputting, Plotting, and Publishing

Academic Integrity:

All students must practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or a disciplinary sanction by the University. All students need to be familiar with the Student Conduct Code. The Code is available for review online at: [Student Conduct Code](#).

Using the Web to research materials and concepts is an integral part of learning in the twenty-first century. Studying with other students is a productive method of learning. A certain amount of collaborating on concepts with other students and using resources found on the Internet in an assignment is recommended. Copy and paste is not acceptable. It is expected that each student will input his/her assignment into the computer, and each student must be able to explain any assignment turned in. Collaboration on exams is strictly forbidden.

Dropping and Adding Courses or Changing Sections, Grading or Credit Status

University Policy for dropping courses or requesting grading/credit status changes can be found in the catalog: [Add/Drop Policy](#).

Students should become familiar with all academic policies.

For Complete Academic Policies Please View the UM Catalog at: [Academic Policies](#).

Disability Accommodations:

Eligible students with disabilities will receive appropriate accommodations in this course when requested in a timely way. Please contact me after class or in my office. Please be prepared to provide a letter from your DSS Coordinator. For more information, visit the Disability Services website at <http://www.umt.edu/dss> . Or call 406.243.2243 (voice/text).

Changes to Syllabi:

NOTE: Instructor reserve the right to modify syllabi and assignments as needed based on faculty, student, and/or environmental circumstances. If changes are made to the syllabus, amended copies will be dated and made available to the class.

Cell Phone and other Electronic Communication Devices Policy:

All electronic communication devices must be tuned off and stowed away prior to the start of class.

Attendance Policy:

Regular classroom attendance is expected.

Exam, Project, and Assignment Policy:

All exams are to be taken on the assigned date and time. Projects and assignments are due at the start of class on the assigned date and time. Late assignments will be accepted at the instructor's discretion. Rescheduling of an exam will be approved at the discretion of the instructor and only in extraordinary situations.

Learning Management System:

It is the responsibility of the student to access and familiarize herself/himself with the Learning Management System (LMS) for the course (Moodle). Access & training is available through UMLearn <http://umonline.umt.edu>