North Central State College

MASTER SYLLABUS
2019-2020

A. Academic Division: Business, Industry and Technology

B. Discipline: Industrial Technology – Engineering Design

C. Course Number and Title: ENRD2150 Computer Aided Design I

D. Course Coordinator: Chris Barker
Assistant Dean: Toni Johnson, PhD

Instructor Information:
- Name: Click here to enter text.
- Office Location: Click here to enter text.
- Office Hours: Click here to enter text.
- Phone Number: Click here to enter text.
- E-Mail Address Click here to enter text.

E. Credit Hours: 3
Lecture: 2 hours
Laboratory: 2 hours

F. Prerequisites: None

G. Syllabus Effective Date: Fall, 2019

H. Textbook(s) Title:

Technical Drawing 101 with AutoCAD 2017
- Author(s): Fuller, Rameirez, Smith
- Copyright Year: 2016
- Edition: 1st
- ISBN: 9781630570415

I. Workbook(s) and/or Lab Manual: None, Additional materials supplied by the instructor.

J. Course Description: This course is designed to introduce the student to fundamentals of Computer Aided Drafting and 3D Modeling. The student will create single-view, multi-view, sectional, and auxiliary view drawings with dimensions and tolerances. The student will also draw a multiple sheet/multiple part assembly drawing complete with a bill of materials. TAG: OET012 CAD – CTAG: CTMET005

K. College-Wide Learning Outcomes:

College-Wide Learning Outcome	Assessments - - How it is met & When it is met
Communication – Written	
Communication – Speech	
Intercultural Knowledge and Competence	
Critical Thinking	
Information Literacy	
Quantitative Literacy	

L. Course Outcomes and Assessment Methods:

Upon successful completion of this course, the student shall:

Outcomes	Assessments – How it is met & When it is met
1. Demonstrate an in-depth proficiency of a commercial CAD system	Met in the first fourth of the semester 1.1 Demonstrate technical applications common to all types of drafting. 1.2 Define and interpret drawing scale. 1.3 Utilize drafting symbols and line types in accordance with technical standards and practices. 1.4 Apply standard dimensioning techniques. 1.5 Interpret information from drawings, prints and sketches. 1.6 Apply appropriate annotations on sketches and drawings. 1.7 Use correct tolerancing techniques when dimensioning
2. Draw a variety of components utilizing orthographic drawings	Met in the first fourth of the semester 2.1 Produce basic orthographic drawings**.** 2.2 Explain the theory of orthographic projection. 2.3 Identify the six principal views of an object. 2.4 Produce three-view orthographic drawing.
3. Detail, dimension and specify tolerances on engineering drawings	Met in the second fourth of the semester 3.1 Demonstrate technical skills for making detail drawings complete with dimensions. 3.2 Dimension drawings using the appropriate tolerancing methods.
4. Utilize and apply the principles of sections to draw sectional views	Met in the second fourth of the semester 4.1 Demonstrate technical skills for making sectional view drawings. 4.2 Define and identify types of sectional views. 4.3 Illustrate the types of breaks and symbols used in drawing sectional views. 4.4 Produce CAD sectional view drawings. 4.5 Differentiate material types or individual parts by style of cross-hatching
5. Understand the principles of primary auxiliary views	Met in the third fourth of the semester 5.1 Demonstrate technical skills for making auxiliary view drawings. 5.2 Explain terminology and concepts associated with auxiliary view drawings. 5.3 Produce a CAD auxiliary view drawing.
6. Prepare an assembly drawing, details of the assembly, and a bill of materials	Met in the third fourth of the semester 6.1 Demonstrate technical skills for making mechanical engineering working drawings. 6.2 Distinguish a working drawing from other drawings. 6.3 Use assembly modeling, and top-down and bottom-up methods to draw objects. 6.4 Produce detailed machine, assembly, bill of material and fabrication drawings.

Outcomes	Assessments – How it is met & When it is met
7. Draw a multiple sheet/multiple part working drawing	Met in the last fourth of the semester 7.1 Given a project assignment with pictorial drawings, demonstrate technical skills for making mechanical engineering working drawings by creating detail and assembly drawings based upon the criteria specified on the assessment instrument
8. Use a PC based CAD program to create 3D solids models	Met in the last fourth of the semester 8.1 Given an engineer's sketch of an object, evaluate a sketch and generate a model utilizing CAD software by completing a 3D model and an engineering drawing according to ANSI and/or ASME standards

M. Topical Timeline (Subject to Change):

1. Drawing setup and organization
   a. Geometric construction
   b. Modifying the drawing
   c. Changing properties of objects
2. Adding dimensions
   a. Managing dimension styles
3. Working with text, fields, and tables
4. Multiview and auxiliary view projections
5. Analyzing 2D drawings
6. Creating parametric drawings
7. Working with drawing layouts
8. Solid modeling fundamentals
9. Creating a 2D drawing from a 3D model

N. Course Assignments:

Graded assignments:

- Written assignments
- Drawing exercises
- Solid Modeling exercises
- Midterm
- Final Exam

Assessment

Student will be assessed on competed projects and additional assignments may be given to reinforce competency. Midterm and Final Exam evaluations will be given.

O. Recommended Grading Scale:

NUMERIC	GRADE	POINTS	DEFINITION
93–100	A	4.00	Superior
90–92	A-	3.67	Superior
87–89	B+	3.33	Above Average
83–86	B	3.00	Above Average
80–82	B-	2.67	Above Average

77–79	C+	2.33	Average
73–76	C	2.00	Average
70-72	C-	1.67	Below Average
67–69	D+	1.33	Below Average
63-66	D	1.00	Below Average
60-62	D-	0.67	Poor
00-59	F	0.00	Failure

P. Grading and Testing Guidelines:

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Q. Examination Policy:

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R. Class Attendance and Homework Make-Up Policy:

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S. Classroom Expectations:

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T. College Procedures/Policies:

Important information regarding College Procedures and Policies can be found on the syllabus supplement located at https://sharept.ncstatecollege.edu/committees/1/curriculum/SiteAssets/SitePages/Home/SYLLABUS%20SUPPLEMENT.pdf

The information can also be found Choose an item.