North Central State College

MASTER SYLLABUS	2025-2026

A. Academic Division: Engineering Technology, Business & Criminal Justice Division

B. Discipline: Industrial Technology – Engineering Design

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

D. Assistant Dean: Brooke Miller, M.B.A.

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

F. Prerequisites: None

G. Last Course/Curriculum Revision Date: Fall 2025 Origin date: 07/09/2011

H. Textbook(s) Title:

Technical Drawing 101 with AutoCAD 2025
- Author(s): Congdon-Fuller, Rameirez, Smith
- Copyright Year: 2024
- Edition:
  ISBN: 978-1-63057-656-1

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. 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

N. College Procedures/Policies:

North Central State College believes that every student is a valued and equal member of the community.* Every student brings different experiences to the College, and all are important in enriching academic life and developing greater understanding and appreciation of one another. Therefore, NC State College creates an inclusive culture in which students feel comfortable sharing their experiences. Discrimination and prejudice have no place on the campus, and the College takes any complaint in this regard seriously. Students encountering aspects of the instruction that result in barriers to their sense of being included and respected should contact the instructor, assistant dean, or dean without fear of reprisal.

* *Inclusive of race, color, religion, gender, gender identity or expression, national origin (ancestry), military status (past, present or future), disability, age (40 years or older), status as a parent during pregnancy and immediately after the birth of a child, status as a parent of a young child, status as a foster parent, genetic information, or sexual orientation*

Important information regarding College Procedures and Policies can be found on the syllabus supplement located at https://ncstatecollege.edu/documents/President/PoliciesProcedures/PolicyManual/Final%20PDFs/14-081b.pdf

North Central State College

SYLLABUS ADDENDUM

Academic Division:	Engineering Technology, Business & Criminal Justice	**Discipline:**	Engineering Technology
Course Coordinator:	Alex West		
Course Number:	ENRD-2150-900	**Course Title:**	Computer Aided Design I
Semester / Session:	Spring 2026	**Start / End Date:**	1/12/2026 thru 5/8/2026

Instructor Information

Name:	Fisher Kalb	**Credentials:**	BASMET
Phone Number:	N/A	**E-Mail Address:**	fkalb@ncstatecollege.edu
Office Location:	Room 012	**Office Hours:**	Mondays: 12:30 P.M. to 4:30 P.M. and Wednesdays: 12:30 P.M. to 5:30 P.M.

I. Topical Timeline / Course Calendar (Subject to Change):

Weeks	Topics	Assignment	Due Date
1	Introduction		
	Chapter 1: Technical Drawing		
	Chapter 2: Multiview Drawing	Technical Drawing and Multiview Drawing Quiz	Week 2
		Multiview Drawing Lab	Week 2
2	Chapter 4: Computer Aided Design Basics (Part 1)		
3	Chapter 4: Computer Aided Design Basics (Part 2)	Computer Aided Design Basics Quiz	Week 4
		Project 4.1 Project 4.2 Project 4.3	Week 4
4	Chapter 5: Dimensioning Mechanical Drawings (Part 1)		
5	Chapter 5: Dimensioning Mechanical Drawings (Part 2)	Dimensioning Mechanical Drawings Quiz	Week 6
		Project 5.1 Project 5.2 Project 5.3	Week 6
6	Chapter 6: Dimensioning Architectural Drawings	Project 6.1	Week 7
	Chapter 9: Blocks	Project 9.1	Week 7
7	Chapter 7: Isometric Drawings	Dimensioning Architectural Drawings, Isometric Drawings, and Blocks Quiz	Week 8
		Project 7.1 Project 7.2	Week 8
8	Midterm Exam	Midterm Exam	Week 8
9		SPRING BREAK	
10	Appendix E: Auxiliary Views	Project E.1 Project E.2	Week 11
11	Chapter 8: Sections	Auxiliary Views and Sections Quiz Project 8.1 Project 8.2	Week 12

Weeks	Topics	Assignment	Due Date
12	Chapter 10: 3D Modeling Basics	3D Modeling Basics Quiz Project 10.1 Project 10.2 Project 10.3	Week 13
13	Mechanical Working Drawings	Capstone Project 1.1	Week 14
14	Architectural Working Drawings	Mechanical Working Drawings and Architectural Working Drawings Quiz Capstone Project 2.1	Week 15
15	Final Exam	Final Exam	Week 15
16	Work Week		

II. Grading and Testing Guidelines:

Final Grade Calculation

Activity	Qty	Points	Percentage
Assignments	19	N/A	40%
Quizzes	7	10	10%
Midterm	2	N/A	25%
Final	2	N/A	25%

1. **Introduction**
   a. Introduction to the course

2. **Chapter 1: Technical Drawing**
   a. Describes the details of the technical drawing career

3. **Chapter 2: Multiview Drawing**
   a. Describes the details of orthographic drawings

4. **Chapter 4: Computer Aided Design Basics (Part 1)**
   a. Describes the basic commands and controls to design a model in AutoCAD

5. **Chapter 4: Computer Aided Design Basics (Part 2)**
   a. A continuation of the basic commands and controls to design a model in AutoCAD

6. **Chapter 5: Dimensioning Mechanical Drawings (Part 1)**
   a. Detail, dimension, and specify tolerances on engineering drawings

7. **Chapter 5: Dimensioning Mechanical Drawings (Part 2)**
   a. A continuation to detail, dimension, and specify tolerances on engineering drawings

8. **Chapter 6: Dimensioning Architectural Drawings**
   a. Describes the details of dimensioning architectural drawings

9. **Chapter 9: Blocks**
   a. Describes the way to create and use blocks

10. **Chapter 7: Isometric Drawings**
    a. Describes the way to create an isometric drawing in AutoCAD

11. **Midterm Exam**
    a. Midterm Exam

12. **Appendix E: Auxiliary Views**
    a. Understand the principals of primary and auxiliary views

13. **Chapter 8: Sections**
    a. Utilize and apply the principals of sections to draw sectional views

14. **Chapter 10: 3D Modeling Basics**
    a. Use a PC based CAD program to create 3D solid models

15. **Mechanical Working Drawings**
    a. Draw a multiple sheet/multiple part working drawing

16. **Architectural Working Drawings**
    a. Draw a multiple sheet/multiple part working drawing

17. **Final Exam**
    a. Final Exam

18. **Work Week**
    a. Opportunity to get caught up on missing assignments

III. Examination Policy:

1. The reasons for which a student will be excused from taking an examination _____
   a. Hospitalization (with documented verification)
   b. Death in the immediate family (with documented verification)
   c. Personal illness or illness in immediate family - (doctor's excuse required).

2. A student who misses an examination for any reason is responsible for _____
   a. Contacting the instructor prior to the exam time
   b. Working with instructor on how and when the exam will be made-up.

3. No makeup opportunity will be given for absences of unscheduled quizzes.

IV. Class Attendance and Homework Make-Up Policy:

1. Class attendance is necessary to acquire the knowledge required to _____
   a. Complete weekly assignments

2. Students are responsible for _____
   a. Attending and participating in their classes.
   b. All assignments issued

V. Classroom Expectations:

As a NC State Student, be it it online or hybrid, your conduct in this course is subject to the NC State Student Code of Conduct. (Links to an external site.)

As a future professional in your field, **you will be expected to conduct yourself as a professional in this course in ALL work and communications** - be it assignments, discussion forums, Canvas Inbox, emails etc.

This includes but is not limited to:

- **Being respectful of classmates' opinions, work and comments**
  Good test = Is this something I would/should say to a co-worker in person?

- **Being respectful in communications with the instructor**
  Good test = Is this something I would/should say to my boss in the workplace?
- **Being respectful of diversity**
  Good test = Is this a comment/joke that is at some other groups, ethnicity, political etc. expense?
  Note: Offensive "jokes", slurs or hate speech (Links to an external site.) will NOT be tolerated
- **Using Non-Profane, Appropriate Language**
  Good test = Is this language you would use in the workplace or in front of your grandmother?
- **Using proper. NON-"Text speak" Language to make Yourself Easily Understood**
  Good test = Could my older boss understand what I have written?

Failure to conduct yourself as a professional and meet standards above in this course will result in the following consequences in this course:

- **1st Instance** = Written warning from the instructor documenting issue
  (No points deductions)
- **2nd offense = Mandatory m**eeting with the instructor and or Department Chair or Division Dean
  (Related assignment/Participation subject to Point Deductions)
- **3rd offense:** College Disciplinary procedures filed with the NC State Judicial Committee as a violation of the Student Code of Conduct.
  (Course Grade subject to F)

Extreme or repeated unprofessional behavior will result in initiating college disciplinary procedures as outlined in the NC State Student Code of Conduct. (Links to an external site.) NCSC Disciplinary hearings can result in a variety of consequences, including and up to suspension or being expelled from the college.