



North Central State College

MASTER SYLLABUS

2026-2027

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

B. Discipline: Mechanical Engineering Technology

C. Course Number and Title: MECT1150 Fundamentals of Engineering Design

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

E. Credit Hours: 2

Lecture: 1 hours

Laboratory: 3 hours

F. Prerequisites: None

G. Last Course/Curriculum Revision Date: Fall 2026 Origin date: 07/28/2011

H. Textbook(s) Title:

Autodesk Inventor 2022 with Engineering Graphics

- Author: Randy H. Shih
- Copyright Year: 2022
- Edition: 1st
- ISBN: 9781630574352

I. Workbook(s) and/or Lab Manual: None; Class Handouts will be distributed

J. Course Description: An introductory course to acquaint the student with the tools used to convey design concepts and product information in the engineering arena. 3D visualization, using sketching, drawing, solid modeling and computer aided drafting will be used. The course will also introduce the main concepts in developing an engineering design project.

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. Make orthographic sketches from isometric drawings of simple machined objects.	Drawing assignments & exams Week 5, midterm exam
2. Create multi-view drawings of simple machined objects.	Drawing assignments & exams Week 7, midterm exam
3. Successfully use Architect and Engineering Scales	Drawing assignments & exams Week 2, midterm exam
4. Display knowledge of standard engineering symbols and lettering, numbering and dimensioning, including Bills of Materials.	Drawing assignments, Week 9 Final project
5. Identify and apply standard engineering symbols (GDT)	Drawing assignments, Week 9
6. Use 3D modeling software to develop 3D models and assemblies of standard machined parts based on dimensions taken from standard isometric or orthographic drawings.	Drawing assignments & exams Weekly, midterm and final exam
7. Create properly dimensioned orthographic drawings from 3D models using 3D software.	Computer assignments & exams Weekly, midterm and final exam
8. Draw, dimension and print basic machined parts.	Computer assignments & exams Week 4, midterm and final exam
9. Describe and discuss the role of engineers in industry.	Written assignment Week 10
10. Describe the general design process used in engineering projects.	Written assignment Week 12

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	Average
67–69	D+	1.33	Below Average
63–66	D	1.00	Below Average
60–62	D-	0.67	Below Average
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
Course Coordinator:	N/A		
Course Number:	MECT-1150-CN1	Course Title:	Fundamentals of Engineering
Semester / Session:	Fall 2025	Start / End Date:	8/17/2025 – 12/11/2026

Instructor Information

Name:	Fisher Kalb	Credentials:	BASMET
Phone Number:	N/A	E-Mail Address:	fkalb@ncstatecollege.edu
			Tuesdays: 10:00 A.M. to 10:30 A.M. and 2:10 P.M. to 5:00 P.M.
Office Location:	Kehoe Center – Room 012	Office Hours:	Wednesdays: 10:00 A.M. to 5:30 P.M.

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

Week	Topics	Assignment	Due Date
1	Roll of Engineers, Measuring Tools, & Orthographic Drawing	Orthographic Drawing Lab	Week 2
2	Introduction to Inventor	Chapter 2 Parts	Week 3
3	Orthographic Drawing Details & Extrusion	Chapter 3 Parts	Week 4
4	Geometric Constraints, Parameters, & Parametric Constraints	Chapter 4 Parts	Week 5
5	History Tree & iProperties	Chapter 5 Parts	Week 6
6	Profiles & Offset Command	Chapter 6 Parts	Week 7
7	Orthographic Drawing & Midterm Review	Chapter 7 Parts	Week 8
8	Midterm Exam	Midterm Exam	Week 8
9		Fall Break	
10	Dimensioning & Notes	Chapter 8 Parts	Week 11
11	Tolerancing, Fits, & GD&T Symbols	Chapter 9 Parts	Week 12
12	Auxiliary Views & Reference Geometry	Chapter 11 Parts	Week 13
13	Section Views & Symmetrical Features in Designs	Chapter 12 Parts	Week 14
14	Assemblies	Chapter 14 Parts	Week 15
15	Final Exam	Final Exam	Week 15
16	Introduction to Stress Analysis	Chapter 15 Parts	Week 17
17	Threads & Fasteners	Chapter 13 Parts	Week 17

II. Grading and Testing Guidelines:

Final Grade Calculation

Activity	Qty	Points	Percentage
Quizzes	8	10	10

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Assignments	14	10	40
Midterm Exam	1	100	25
Final Exam	1	100	25

1. **Topic description #1**
 - a. Roll of Engineers, Measuring Tools, & Orthographic Drawing
2. **Topic description #2**
 - a. Introduction to Inventor
3. **Topic description #3**
 - a. Orthographic Drawing Details & Extrusion
4. **Topic description #4**
 - a. Geometric Constraints, Parameters, & Parametric Constraints
5. **Topic description #5**
 - a. History Tree & iProperties
6. **Topic description #6**
 - a. Profiles & Offset Command
7. **Topic description #7**
 - a. Orthographic Drawing & Midterm Review
8. **Topic description #8**
 - a. Midterm Exam
9. **Topic description #9**
 - a. Dimensioning & Notes
10. **Topic description #10**
 - a. Tolerancing, Fits, & GD&T Symbols
11. **Topic description #11**
 - a. Auxillary Views & Reference Geometry
12. **Topic description #12**
 - a. Section Views & Symmetrical Features in Designs
13. **Topic description #13**
 - a. Assemblies
14. **Topic description #14**
 - a. Final Exam
15. **Topic description #15**
 - a. Introduction to Stress Analysis
16. **Topic description #16**
 - a. Threads & Fasteners

III. Examination Policy:

1. The reasons for which a student will be excused from taking an examination _____
 - a. Hospitalization (with documented verification)

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- 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** meeting 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.