

New Jersey Institute of Technology
Department of Engineering Technology
MET 105 Applied Computer Aided Design

COURSE NUMBER	MET 105
COURSE NAME	Applied Computer Aided Design
COURSE STRUCTURE	1-2-2 (lecture hr/wk - lab hr/wk – course credits)
COURSE COORDINATOR/ INSTRUCTOR	Dr. J. Sodhi/ Ramy Shamroukh
COURSE DESCRIPTION	This course applies Computer Aided Design (CAD) and technical communication to diverse Engineering Technology career paths. Students will explore several topics including engineering graphics, 2D and 3D CAD, technical drawings, dimensioning/tolerancing, and engineering/industrial standards. Upon successful completion of this course, students are expected to identify and apply these areas to the relevant industry sector.
PREREQUISITE(S)	None
COREQUISITE(S)	None
REQUIRED, ELECTIVE OR SELECTED ELECTIVE	Required
REQUIRED MATERIALS	Technical Drawing 101 with AutoCAD 2026. Ashleigh Fuller, Antonio Ramirez, Douglas Smith, SDC Publications ISBN: 978-1-63057-752-0
COMPUTER USAGE	Software: AutoCAD.
COURSE LEARNING OUTCOMES (CO)	<p>By the end of the course students should be able to:</p> <ol style="list-style-type: none">1. Read and interpret an engineering drawing and identify key information.2. Construct orthographic and isometric views of an object using manual drafting.3. Model two and three dimensional objects and create corresponding architectural and mechanical drawings using CAD software.4. Annotate technical drawings with dimensions and tolerances according to standards using CAD software.
CLASS TOPICS	Workspaces, Toolbars, Pallets/Drawing Templates, Command Entry, Point Coordinates Entry, Line Standards & Layers, View Tools, Text Styles/Placement Tools, Arraying & Patterning, Polyline, Spline, Dimension Styles, Tables, Section Views and Graphic Patterns, Blocks Creation and Insertion, Layout Setup

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STUDENT OUTCOMES The Course Learning Outcomes support the achievement of the following MET Student Outcomes:

Student Outcome (1) an ability to apply knowledge, techniques, skills and modern tools of mathematics, science, engineering, and technology to solve broadly-defined engineering problems appropriate to the discipline;

Related CO – 1 thru 4

Student Outcome (2) - an ability to design systems, components, or processes meeting specified needs for broadly-defined engineering problems appropriate to the discipline;

Related CO – 3, 4

Student Outcome (3) - An ability to apply written, oral, and graphical communication in broadly-defined technical and non-technical environments; and an ability to identify and use appropriate technical literature;

Related CO – 1 thru 4

GRADING POLICY	Projects & Homework	25 %
	Tests	40 %
	Final	30 %
	Class Participation	5 %

Note: There are two exams during the semester. The Final Exam is cumulative.

ACADEMIC INTEGRITY “Academic Integrity is the cornerstone of higher education and is central to the ideals of this course and the university. Cheating is strictly prohibited and devalues the degree that you are working on. As a member of the NJIT community, it is your responsibility to protect your educational investment by knowing and following the academic code of integrity policy that is found at: [NJIT Academic Integrity Code](#).

Please note that it is my professional obligation and responsibility to report any academic misconduct to the Dean of Students Office. Any student found in violation of the code by cheating, plagiarizing or using any online software inappropriately will result in disciplinary action. This may include a failing grade of F, and/or suspension or dismissal from the university. If you have any questions about the code of Academic Integrity, please contact the Dean of Students Office at dos@njit.edu.”

GENERATIVE AI Student use of artificial intelligence (AI) is permitted in this course for certain assignments and activities. It is not permitted to be used in the assignments noted by the instructor, as doing so would undermine student learning and achievement of course learning outcomes. Additionally, if and when students use AI in this course,

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the AI must be cited as is shown within the [NJIT Library AI citation page](#) for AI. If you have any questions or concerns about AI technology use in this class, please reach out to your instructor prior to submitting any assignments.

STUDENT BEHAVIOR

- No eating or drinking is allowed at the lectures, recitations, workshops, and laboratories.
- Cellular phones must be turned off during the class hours – if you are expecting an emergency call, leave it on vibrate.
- No headphones can be worn in class, unless allowed by the professor. No video or audio recording of the class or material
- Unless the professor allows the use during lecture, laptops should be closed during lecture.
- During laboratory, if you are finished earlier, you must show the professor your work before you leave class
- Class time should be participative. You should try to be part of a discussion

MODIFICATION TO COURSE

The Course Outline may be modified at the discretion of the instructor or in the event of extenuating circumstances. Students will be notified in class of any changes to the Course outline.

PREPARED BY

Ramy Shamroukh/ Dr. J. Sodhi

COURSE COORDINATED BY

Dr. J. Sodhi

CLASS HOURS

Thursday 6:00 PM to 8:50 PM PCMALL36

OFFICE HOURS

By appointment:

E-mail ramy.shamroukh@njit.edu

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HOMEWORK & PROJECT - IMPORTANT

1. Homework sets are due one week after they are assigned. **Late Assignments will not be accepted.**
2. Projects are due on the dates indicated. No late projects will be accepted.

GRADING LEGEND

GRADE	NUMERIC RANGE
A	90 to 100
B+	85 to 89
B	80 to 84
C+	75 to 79
C	70 to 74
D	60 to 69
F	0 to 59

NJIT ONLINE INFORMATION

The instructor will discuss these requirements on the first day of the course and/or post on their Learning Management System (LMS). Please become familiar

- Canvas: <https://canvas.njit.edu/>
- Zoom: <https://njit-edu.zoom.us/>
- Online Proctoring: <https://ist.njit.edu/online-course-exam-proctoring>

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MET 105 - COURSE OUTLINE

<u>Week #</u>	<u>Date</u>	<u>Topic</u>	<u>Book Chapter/ Exercises</u>
1	9/4	Review of Multiview Drawing (Chapter 2)	Ch 2 HMW #1
2	9/11	Introduction to AutoCAD & its user interface Workspaces, Toolbars, Pallets/Drawing Templates (Chapter 4)	Ch 4 Exercise 4-1 HMW#2
3	9/18	Draw, Modify, Text, and Settings Tools (Chapter 4)	Ch 4 Exercise 4-2 HMW#3
4	9/25	Object Snaps, Plotting, and Drawing Projects (Chapter 4)	Ch 4 HMW#4
5	10/9 (No Class on 10/2)	Dimensioning Mechanical Drawings, Tolerance Basics (Chapter 5)	Ch 5 HMW#5 assignment
6	10/16	Dimensioning With AutoCAD (Chapter 5) Test #1	Ch 5 HMW#6 assignment
7	10/23	Dimensioning Architectural Drawings (Chapter 6)	Ch 6 HMW#7 assignment
8	10/30	Isometric Drawings (Chapter 7)	Ch 7 HMW#8 assignment
9	11/6	Sections (Chapter 8)	Ch 8 HMW#9 assignment
10	11/13	Blocks (Chapter 9) Capstone Project	Ch 9 HMW#10 assignment
11	11/20	Test #2	HMW#11 assignment
12	11/25 (Tues on Thurs Schedule)	3D Modeling Basics (Chapter 10)	Ch 10 HMW#12 assignment
13	12/4	Auxillary Views (Appendix E)	Appendix E HMW#13 assignment
14	12/11	GD&T Basics (Appendix D) Capstone Project Due	Appendix D
15	TBD	FINAL EXAM	