Spring 1-1-2020

MET 103-002: Engineering Graphics and Introduction to CAD

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COURSE NUMBER	MET 103
COURSE NAME	Engineering Graphics and Introduction to CAD
COURSE STRUCTURE	(1-2-2) (lecture hr/wk - lab hr/wk – course credits)
COURSE COORDINATOR/ INSTRUCTOR	Dr. S. Rahman
COURSE DESCRIPTION	Basic principle of Engineering Graphics, blueprint reading and geometric constructions are reviewed. Multi-view projections and 3D visualization are introduced. CAD software named Inventor Professional is studied extensively. Using Inventor students learn dimensioning, creating Sectional, Auxiliary and Detail/Break views.
PREREQUISITE(S)	None.
COREQUISITE(S)	None.
REQUIRED, ELECTIVE OR SELECTED ELECTIVE	Required.
REQUIRED MATERIALS	Instruments: Pencil, Eraser, Scales (Eng. & Arch.), Triangles (30-60 and 45-45), Compass, Protractor. Text: *Autodesk Inventor 2020 and Engineering Graphics* by Randy H. Shih – *SDC* Publications
COMPUTER USAGE	Inventor Professional 2020
COURSE LEARNING OUTCOMES (CLO)	By the end of the course students should be able to: 1. Read a blue print. 2. Create standard orthographic views of a three dimensional object by using geometric tools (without CAD software). 3. Create a three dimensional object and standard orthographic views by using Inventor. 4. Show dimensions and tolerances of an object by following the rules. 5. Use Inventor to create Sectional, Auxiliary and Detail/Break views of a three dimensional object.
CLASS TOPICS	Introduction to Engineering graphics & CAD, Line types/Geometric constructions, Introduction to Inventor, Scales in Engineering Graphics/Inventor, Shape Description, Orthographic Projections, 3D Visualization, Dimensioning, Sectional Views, Auxiliary Views, Detail/Break views, Axonometric Drawings, Assembly/Working Drawings, Discipline-specific projects.
STUDENT OUTCOMES	The Course Learning Outcomes support the achievement of the following MET Student Outcomes and TAC of ABET Criterion 9 requirements: **Student Outcome a** - an ability to select and apply the knowledge,

techniques, skills, and modern tools of the discipline to broadly-defined engineering technology activities.
Related CLO – 1 thru 5

Student Outcome d - an ability to design systems, components, or processes for broadly-defined engineering technology problems appropriate to program educational objectives.
Related CLO – 3 thru 5

GRADING POLICY	Homework & class participation	20 %
	Tests (3x15%)	45 %
Note: Grading Policy may be modified by Instructor for each Section in the Course)	Final Exam	35 %

Note: You may not pass the course if you are having failing grades (<60%) on the tests and final exam.
There are three tests and a final exam during the semester.

ACADEMIC INTEGRITY   NJIT has a zero-tolerance policy regarding cheating of any kind and student behavior that is disruptive to a learning environment. Any incidents will be immediately reported to the Dean of Students. In the cases the Honor Code violations are detected, the punishments range from a minimum of failure in the course plus disciplinary probation up to expulsion from NJIT with notations on students' permanent record. Avoid situations where honorable behavior could be misinterpreted. For more information on the honor code, go to
http://www.njit.edu/academics/honorcode.php

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 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
COURSE COORDINATED BY   Dr. S. Rahman
Dr. T. Juliano

COURSE OUTLINE

Week #	Date	Topic	Chapter (Assignments)
1		Introduction to Engineering graphics & CAD	1
		Pictorials and Sketching (BY HAND)	
2		Geometric Construction (BY HAND)	
		Orthographic Projection and	
		Multiview Constructions (BY HAND)	
3		Parametric Modeling Fundamentals	2
		Constructive Solid Geometry Concepts	3
4		Geometric Construction	4
5		Model History Tree, **Test #1**	5
6		Geometric Construction Tools	6
7		Orthographic Projection and	
		Multiview Constructions	7
8		Dimensioning and Notes	8
9		Tolerancing and Fits, **Test #2**	9
10		Pictorials and Sketching	10
11		Section Views & Symmetrical Features in Design	12
12		Auxiliary Views and Reference Geometry	11
		Test #3	
		Break view & Detail view	
13		Threads and Fasteners	13
		Assembly Modeling and Working drawings	14
14		**Review**	
15	TBA	*Final Examination (Cumulative)*	

CLASS HOURS

Thursday   1:00 PM – 3:50 PM   FENS 160

OFFICE HOURS (GITC 2105)

Monday   2:00 PM – 04:30 PM (by appointment only)
Tuesday   1:00 PM – 02:20 PM
Wednesday   1:00 PM – 02:20 PM
Friday   10:45 AM – 02:20 PM (by appointment only)

by appointment contact: **(973) 596-6072** or **rahman@njit.edu**

HOMEWORK - IMPORTANT

Homeworks are **due the week following the date they are assigned, and must be given to the instructor.**