Spring 1-1-2020

MET 105-102: Applied Computer Aided Design

Mark Lanfrank

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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. A. Sengupta/ Mark Lanfrank, PE

COURSE DESCRIPTION  A second course in Computer Aided Design (CAD), additional AutoCAD topics include blocks, move and copy, array, mirror, text, text styles, 3D and isometric modes. Upon successful completion of this course, students should be able to use advanced AutoCAD commands to quickly and efficiently produce 2D and 3D drawings, and also be able to modify the AutoCAD environment (e.g., menus, macros, etc.) to boost productivity.

PREREQUISITE(S)     MET 103

COREQUISITE(S)      None

REQUIRED, ELECTIVE OR SELECTED ELECTIVE  Required

Publisher ISBN: 9781635638646

COMPUTER USAGE      Software: AutoCAD.

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.
3. Create a three dimensional object and standard orthographic views by using AutoCAD software.
4. Show dimensions and tolerances of an object by following the rules.
5. Use AutoCAD to create Sectional, Auxiliary and Detail/Break views of a three dimensional object.

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
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**

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**

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

**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**  
Mark Lanfrank, PE

**Course Coordinated by**  
Dr. A. Sengupta

**Class Hours**  
Tuesday 6:00 PM to 8:50 PM  
FENS 160

**Office Hours**  
Wednesday 02:30 PM – 04:00 PM (by appointment only)  
Tuesday 02:30 AM – 05:00 PM (by appointment only)

Or by appointment: (973) 596-6072 or ml56@njit.edu

**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**

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<thead>
<tr>
<th>Grade</th>
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<tbody>
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<td>A</td>
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<td>85 to 89</td>
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<td>B</td>
<td>80 to 84</td>
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<td>1</td>
<td>Jan. 21</td>
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| 2      | Jan. 28  | Command Entry/Point Coordinates Entry, &/Help                         | Ch 3 & 4
#3,#6,#11,#13&
,.#5,#20,#22 – HMW#1
| 3      | Feb. 4   | Line Standards & Layers/View Tools                                    | Ch 5 & 6
#2,#3,#6, #8 &#5,#8#11
HMW#2
| 4      | Feb. 11  | Object Snap tools/AutoTrack/Multiview Drawings                       | Ch 7 & 8
#6,#8,#9,#10 &#4,#7,#8-HMW#3
| 5      | Feb. 18  | Text Styles/Text Placement tools/Modification tools                   | Ch 9, 10, 11
#6,#7,#8,#12
&amp;#2,#10,#12
HMW#4 assignment
| 6      | Feb. 25  | Arraying & Patterning                                               | Ch 12
HMW#5 assignment |
| 7      | Mar. 3   | Grips/Other selection tools/Polyline/Spline                          | Ch 13, 14, 15                                                |
| 8      | Mar. 10  | Dimension Styles/Linear, aligned, angular dims                       | Ch 16 thru 20                                               |
| 9      | Mar. 24  | Tables, Section views and Graphic Patterns                           | Ch 21, 22, & 23                                             |
| 10     | Mar. 31  | Blocks: Creation & insertion, Blocks with attributes
Project Due Beginning of Class | Ch 24, 25, 26                                               |
| 11     | Apr. 7   | Layout setup, Plotting Layouts                                       | Ch 27, 28, 29                                               |
| 12     | Apr. 14  | Annotative Objects                                                  | Ch 30, 31                                                   |
| 13     | Apr. 21  | External References                                                 | Ch 31- HMW#10 assignment                                    |
| 14     | Apr.28   | Introduction to 3D, UCS, Solid Primitives, Sheet sets, Miscellaneous topics | Ch 32,33                                                   |
| 16     | TBD      | FINAL EXAM                                                           |                                                              |