EXPECTED EDUCATIONAL RESULTS
As a result of completing this course, the student will be able to do the following:

1. Provide an overview of computer-aided design/drafting.
2. Describe various areas of engineering which use graphics as an important communication tool.
3. Identify the steps in the design process and describe responsibilities of members of technological team set up to solve engineering problems
4. Use the principles of orthographic projection to produce representations of objects by sketching.
5. Read and produce multi-view orthographic drawings on the computer.
6. Read and produce axonometric and oblique pictorials.
7. Use the concept of scale and read standard scales.
8. Read and produce section and auxiliary views on the computer.
9. Read size information in drawings and insert size information into drawings using concepts of dimensioning and tolerance.
10. Apply steps of engineering design process to a specific problem in a group setting.

GENERAL EDUCATION OUTCOMES

I. This course addresses the general education outcome relating to communications as follows
   A. Students enhance reading skills by reading topics from a textbook and reading material assigned/handed out in the form of notes.
   B. Students develop writing skills i) by producing solutions to design problems using precise technical description of various components and graphic images and ii) by providing short answers to test questions.
   C. Students improve their listening skills by actively participating in class discussion/lecture or demonstration to learn basic language of graphical communication. A group visit to industry with engineering activities associated with the design process is another major contributor.

II. This course addresses the general education outcome relating to problem-solving and critical thinking skills by making them an important part of their course work. Students learn to apply technical problem-solving and use critical thinking techniques to develop several ideas that may solve a design problem of their choice and explain why a particular solution is best suited among several possible ones. The class/home assignments attempt to test their ability to visualize several features of an object that cannot be communicated by any other description but by a drawing.

III. This course addresses the general education outcome relating to mathematical concepts usage and scientific inquiry as follows:
   - Use of correct scales and units for producing multi-view drawings.
   - Assignments require calculations based on geometry to determine sizes of planar figures and use of coordinates for constructing orthographic views. Criteria in the selection of materials in the design of a product require scientific inquiry of property and functional analyses.

IV. Students organize and analyze the information required to produce drawings by Computer-Assisted Design and Drafting software package.
**Dunwoody campus:**  
(Jay Terry)  
Fall & spring  
Students scored 70% or higher in 695 questions out of a total of 819 questions ∼84.86%  

**Comments:**  
- The performance is above the average expected. The use of CAD performance reflected this performance as well  
- Every topic seemed to show positive performance in learning and teaching. The exam was multiple choice and T/F with a drawing technical drawing that made up the majority of the exam.

**Clarkston campus:**  
(Anant Honkan)  

Fall:  
Students scored 70% or higher in 41 questions out of a total of 77 that is 53%  

Spring:  
Students scored 70% or higher in 124 questions out of a total of 196 that is 63%  

**Comments:**  

Fall:  
- One missed over 40% classes or came late by half hour or more.  
- Two did not have Autocad skills (no formal training)  
- Three did not complete more than 50% assignments on time.  
- Four habitually did not participated at all in class discussion  
- Three had no proper study skills  
- Missing a class affected badly being a two meeting schedule.  
- Enforce participation in class. Identify students missing class and determine why they could not use icollege for missed out information.

Spring:  
- One always late by more than 15 min. Did not complete assignments on time. Took help for all assignments.  
- Three students did not study regularly for at least 8 hours as instructed. Two took 15 or more credits and working. Two were not ready with CAD skills.  
- Enforce participation in class. Identify students missing class and determine why they could not use icollege for missed out information.

Assessment questions were from both parts of the final: Part 1 with knowledge which included multiple, choice, true/false and brief answers, part 2 with drawing skills.

(Amit Cholkar)  

Fall  
Q1: Assesses Isometric Drawings and Missing Views.  
Q2: Assesses creating multiviews.  
Q3: Assesses creating sectional views.  
Q4: Assesses concept questions and knowledge of application of tolerances.  

Q1: 88.23% of the students scored more than 70% on this question  
Q2: 70.58% of the students scored more than 70% on this question  
Q3: 23.52% of the students scored more than 70% on this question  
Q4: 88.23% of the students scored more than 70% on this question
Comments:

- The assessment questions were the part of the final exam and it contained 8 questions in total.

- The results are not within the norms expected for questions 2 and 3.

- At this time no changes in teaching methods are required, but increase in the number of problems solved in class and graded homework for problems based on Multiviews and Sectional views is required.

The assessment results reflect the EEOs were achieved to a satisfactory level

Prepared by: Anant Honkan