ENGR 120—Information and Policies

Course
ENGR 120—Graphical Communications and Spatial Analysis
Section: 02  Section: 01
Room: ET 315  Room: ET 315
Day: Tuesday  Day: Friday
Time: 6:00–7:50 p.m.  Time: 10:00–11:50 a.m.

Instructor
Donald W. Mueller, Jr., Ph.D., P.E.
Office: ET 327H
Hours: 12:00–1:00 T Th F and 4:30–5:30 W†
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Email: mueller@engr.ipfw.edu
Web: http://www.engr.ipfw.edu/~mueller

S. Scott Moor, Ph.D., P.E.
Office: ET 321F
Hours: 9:30–10:30 M W, 1:00–2:30 T Th, and 4:30–5:30 T†
Phone: (260) 481–6020
Email: moors@ipfw.edu
Web: http://www.engr.ipfw.edu/~moor

Text
A Tutorial Guide to AutoCAD® 2008 by Shawna Lockhart
Introduction to Graphics Communications for Engineers 2009 by Gary Bertoline

Prerequisites
MA 153 Algebra and Trigonometry I

Description
The principles of engineering graphics are applied to the visualization, communication, and graphical analysis of problems. Included is the utilization of sketching and computer-aided design to create and analyze computer generated geometric models, manipulative coordinate systems, generate selective views, conform to graphic and data standards, and interpret engineering drawings.

The course introduces the student to basic computer-aided design methods through the use of engineering related graphical exercises. Drafting in two- and three-dimensions is accomplished while exposing the student to methods of modifying and detailing existing engineering drawings.

Topics
1. Lines, geometric shapes, and text
2. Views, panning, and zooming
3. Drawing aids and modification tools
4. Drafting conventions and dimensioning
5. Segmentation and organization in layers
6. Multiview drawing
7. Cross-sections and isometric views
8. Wireframe, surface, and solid models

†Please stop by anytime that I am in my office.
Quizzes

Quizzes or in-class exercises will be given periodically—some will be announced, while others will not. There will be no make-up quizzes or exercises. Your lowest quiz or in-class exercise score will be dropped.

Homework

You are expected to work the assigned homework problems individually, although you may discuss the assignments.‡ You may collaborate, but not copy or submit anyone else’s work. Homework is due at the beginning of the class period after which it is assigned unless otherwise specified. Homework must be submitted before class begins—you may not print homework during class time. Late homework will not be accepted.

Projects

Two projects will be assigned during the semester. The first project will be an individual project—all work must be your own.‡ You may not collaborate with others on this project. A brief technical memo will be required. The second project will be a team project, i.e. you will work with at least one other person. A technical report and an oral presentation will be required. Oral presentations will be given on the last day of class.

Midterm Exam

There will be an in-class, closed-book/closed-note midterm exam. Approximately 50% of the midterm will be short answer questions, and 50% will require drawing with AutoCAD. The midterm for Section 01 will be Friday, March 6 and for Section 02 will be Tuesday, March 3.

Final Exam

The final exam schedule is:

<table>
<thead>
<tr>
<th>Section</th>
<th>Day</th>
<th>Date</th>
<th>Time</th>
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<tbody>
<tr>
<td>01</td>
<td>Wednesday</td>
<td>May 6</td>
<td>8:00 a.m. – 10:00 a.m.</td>
</tr>
<tr>
<td>02</td>
<td>Tuesday</td>
<td>May 5</td>
<td>5:45 p.m. – 7:45 p.m.</td>
</tr>
</tbody>
</table>

Approximately 50% of the exam will be short answer questions, and 50% will require drawing with AutoCAD.

Grades

Averages will be calculated using the following point distribution:

Quizzes 20 %
Homework 20 %
Projects 20 %
Midterm Exam 20 %
Final 20 %
Total 100 %

Grades will be assigned in accordance with the following criteria§:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Range</th>
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<tbody>
<tr>
<td>A</td>
<td>≥ 93%</td>
</tr>
<tr>
<td>A-</td>
<td>90–93%</td>
</tr>
<tr>
<td>B+</td>
<td>87–90%</td>
</tr>
<tr>
<td>B</td>
<td>83–87%</td>
</tr>
<tr>
<td>B-</td>
<td>80–83%</td>
</tr>
<tr>
<td>C+</td>
<td>77–80%</td>
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<tr>
<td>C</td>
<td>73–77%</td>
</tr>
<tr>
<td>C-</td>
<td>70–73%</td>
</tr>
<tr>
<td>D</td>
<td>60–70%</td>
</tr>
<tr>
<td>F</td>
<td>&lt; 60%</td>
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</table>

‡Penalties for academic dishonesty may exceed the value of the assignment and might result in a grade of F for the course.
§These are the maximum cut-offs.
Policies

You may not submit another student’s electronic file or any portion of another student’s electronic file. Doing so will result in a penalty greater than the value of the assignment and possibly an F for the course. Do not share your electronic files with anyone.

You are expected to use your IPFW account to send and receive email related to this course. Please send email only from your IPFW email account.

During class time, computers are to be used only for material related to this class. No internet surfing, game playing, or chatting!

Eating and drinking are not allowed in the computer lab. If you do carry a drink, it should have a lid and please be careful.

As a courtesy to the instructor and other students, do not be late for class and turn off your cell phone.

No late homework or in-class exercise submission.

Consult the student handbook for information pertaining to academic honesty, the grade appeal process, or grievance policies.

Students with a disability should contact the SSD office at Walb 113 (481-6657) for a description of services available.

Comments

Graphical communication is very important for engineers, and this class is important.

Although we will use AutoCAD, this is not a class in AutoCAD.

If you work hard and are organized and well-prepared, you will do well in this class.

Please feel free to stop by any time if you have any comments or suggestions. Any suggestions that will benefit the class are appreciated, and I will try my best to address any concerns that you might have.

If you do not feel comfortable discussing matters with me, feel free to speak to the other faculty member teaching the course and he can come speak with me.

Quote to consider:

“The mere imparting of information is not education, above all the effort must result in making a man think and do for himself.”

Carter G. Woodson 1875-1950
ENGR 120—Graphical Communications and Spatial Analysis

**Description**  The principles of engineering graphics are applied to the visualization, communication, and graphical analysis of problems. Included is the utilization of sketching and computer-aided design to create and analyze computer generated geometric models, manipulative coordinate systems, generate selective views, conform to graphic and data standards, and interpret engineering drawings.

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**Course Outcomes**  A student who successfully fulfills the course requirements will be able to:

1. Create two-dimensional drawings of an object. \([k]\)
2. Dimension parts according to convention. \([k]\)
3. Represent an object in a multiview orthographic drawing. \([k]\)
4. Create an isometric drawing of an object. \([k]\)
5. Create a sectioned view of an object. \([k]\)
6. Create a solid model of an object. \([k]\)
7. Create a drawing as part of a team. \([d]\)
8. Communicate important aspects of a drawing orally and in writing. \([g]\)
9. Use modern computer tools for drawings, memos, and presentations. \([g]\)

**Program Outcomes**  Engineering programs must demonstrate that their graduates have:

(a) an ability to apply knowledge of mathematics, science, and engineering
(b) an ability to design and conduct experiments, as well as to analyze and interpret data
(c) an ability to design a system, component, or process to meet desired needs
(d) an ability to function on multi-disciplinary teams
(e) an ability to identify, formulate, and solve engineering problems
(f) an understanding of professional and ethical responsibility
(g) an ability to communicate effectively
(h) the broad education necessary to understand the impact of engineering solutions in a global and societal context
(i) a recognition of the need for, and an ability to engage in life-long learning
(j) a knowledge of contemporary issues
(k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.