DFTG 1305 –Technical Drafting
Course ID: 74010 – Spring 2011
Stafford Campus – Room W105 | 6:00 - 9:00 pm | Tue/Thurs
2 hour lecture – 4 hour lab for 16 weeks

Instructor: Melvin Freeman

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COURSE DESCRIPTION:
Introduction to the principles of drafting to include terminology and fundamentals, including sizes and shape descriptions, projection methods, geometric construction, sections, auxiliary views, and reproduction process.

PREREQUISITE:
This is a beginning level drafting class.

TEXT:
All students will be required to purchase the text book:
Technical Drawing, 12th - Frederick E. by Giesecke [required]
& A Working Study Guide For Technical Drafting I – by Melvin R. Freeman [required]

MATERIALS REQUIRED:
See attached Drawing equipment List

COURSE GOALS:
Introduce the student to the basic skills necessary for the drafting field.

LEARNING OUTCOMES:
Demonstrate an understanding of geometric construction, various view selections, and principles of working drawings, competency in drafting principles in plane geometry, technical sketching, orthographic projection theory and practice, auxiliary views, and competency in sectioning, dimensioning, and tolerancing.
COURSE OBJECTIVES:
Upon completion of the course, the student should be able to:
- Understanding the drafter's role in industry
- Using the various manual drafting instruments to produce technical drawings
- Producing free-hand sketches
- Identifying the various lines used on an engineering drawing
- Demonstrating good free-hand lettering
- Defining common geometric shapes
- Creating views of an object using orthographic projection
- Drawing isometric, oblique and perspective views of objects
- Drawing sectional views of an object
- Applying the basic rules of dimensioning for part manufacture
- Drawing auxiliary views and revolutions of inclined surfaces
- Creating intersection and development drawings

COURSE WORK:
The course will consist of the Study Guide and textbook reading assignments, lectures, class exercises, and drafting lab assignments. The student is expected to read and study the text Before the lecture on the unit. Study Guide units will be assigned either as homework or class work, at the instructor's option.

Note: Refer to the "Course Outline & Assignment" document for scheduled weekly activities - Refer to the "Drafting Equipment & Supplies" list for drafting equipment requirements.) The student should bring the Study Guide, textbook, and drafting instruments every day, unless otherwise instructed.

GRADING
Exams and assignments will be given during the semester that will determine how successful you are at mastering the course material and basic skills. If you are having limited success at mastering the course material, contact the instructor for assistance.

Grading Percentage
<table>
<thead>
<tr>
<th>Assignments</th>
<th>50% of the final grade</th>
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<tbody>
<tr>
<td>Mid-term</td>
<td>Counted as a lab grade</td>
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<tr>
<td>Final exam</td>
<td>50% of the final grade</td>
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The instructor may schedule more tests if desired.

Class and laboratory attendance, active participation in class, professional attitude and growth in terms of technical skills development and teamwork within the laboratory environment shall be taken in to consideration.
STUDENT ASSIGNMENTS

Drawing assignments from each chapter will be assigned to enhance the learning of the subject matter. Each assignment will stress the basic skills that a student must have to gain proficiency in the use of the subject matter. The assignment will enhance the student’s ability to produce a clear and accurate drawing.

INSTRUCTIONAL METHODS:

DTFG 1305 Technical Drafting is a beginning drafting course. It is taught with the assumption that the student has had no prior experience or exposure to drafting.

As a professor, I will lecture on each chapter and demonstrate the technique of certain concepts. Work tutorials, exercises and problem will provide the student an opportunity to master the drawing practice.

In order to become proficient in the use of basic drafting techniques, a student must read the text book and complete the exercises in a timely manner.

GRADING

Assignments will be given during the semester that will determine how successful you are at mastering the course material and basic skills. If you are having limited success at mastering the course material, contact the instructor for assistance.

Grading Scale
90-100 A
80-89 B
70-79 C
60-69 D
Below 59 F

AMERICANS WITH DISABILITIES ACT (ADA) COMPLIANCE

Any student with a documented disability (e.g. physical, learning, psychiatric, vision, hearing, ect) who needs to arrange reasonable accommodations must contact the Disability Support Services Office (DSSO) of their respective college at the beginning of each semester. Faculty is authorized to provide only the accommodation(s) requested by the DSSO. For information and services at HCC Southwest, contact: DR. Becky Hauri, ADA Counselor, at 713.718.7910.
CLASS ATTENDANCE:
You are expected to attend all lecture classes and labs. You are also responsible for all materials covered in either lecture or lab. In the case of your absence, you must contact the instructor to obtain make-up assignments or arrange make-up testing, either of which can be distributed at the instructor's discretion. Class attendance is checked daily.

The instructor has the authority to drop you from the class for excessive absences, that is, you may be dropped from a course after accumulating absences in excess of 12.5 percent of the total hours of instruction (lecture and lab).

For example:
A 3-credit hour lecture class meeting 3 hours per week - 2 absences (6 hrs.) is 12.5% of the class.
A 3-credit hour lecture/lab class meeting six hours per week - 2 absences (12 hrs.) is 12.5% of the class.

Administrative drops are at the discretion of the instructor. It is your responsibility to drop a course, should you choose not to complete it. Failure to withdraw officially will result in you receiving a grade of "F" in the course.

Note: Although it is your responsibility to officially withdraw from a course, it is always a good idea to discuss any attendance problems with your instructor first. Class attendance is very important, but your instructor may be able to help you catch up. If you become ill or know you are going to miss class for some reason, tell your instructor as soon as possible.

Departments and programs governed by accreditation or certification standards may have different attendance policies.

SCHOLASTIC DISHONESTY:
Students are responsible for conducting themselves with honor and integrity in fulfilling course requirements. College System Officials may initiate penalties and/or disciplinary proceedings against a student accused of scholastic dishonesty. "Scholastic dishonesty" includes, but is not limited to, cheating on a test, plagiarism, and collusion.

"Cheating" on a test includes:
- Copying from another student's test paper;
- Using materials during a test that are not authorized by the person giving the test;
- Collaborating with another student during a test without authority;
- Knowingly using, buying, selling, stealing, transporting, or soliciting in whole or part the contents of an un-administered test;
- Bribery another person to obtain a test that is to be administered.

"Plagiarism" means the misuse of another's work and the deliberate incorporation of that work into work you offer for credit. "Collusion" means the unauthorized collaboration with another person in preparing work offered for credit.

Determination of scholastic dishonesty will be at the discretion of the instructor.

Reference the following web link for additional information:
http://www.hccs.cc.tx.us/handbookiStudentP.htm
Required Drafting Instruments & Equipment:

Drafting equipment is manufactured within a wide variance of quality and cost. Do Not purchase your equipment from retailers such as Target, K-Mart, or Wal-Mart etc. Suggested sources are the HCC Bookstore located at the Central Campus on Holman Street, Office Depot or other engineering and office supply stores.

Drawing instruments:

(1) 5 mm Mechanical Pencil (H, F, lead)
(1) 7 mm Mechanical Pencil (H, F, Lead)
(1) 5 mm Mechanical Pencil (with blue non print lead)
(1) Compass (of good quality & large enough to draw a "12 diameter circle)
(1) Dividers
(1) 30/60 degree Triangle - (8"-12" lg)
(1) 45 degree Triangle - (8"-12" lg)
   An Adjustable Triangle with protractor may also be used in addition to the (2) triangles
(1) Irregular Curve
(1) Lettering Guide
(1) Small Circle Template
(1) Protractor (not necessary if an adjustable triangle used)
(1) Architect Scale
(1) Engineer's Scale
(1) Metric Scale (Make sure one of the scales reads 1:1 or 1:100 for full scale)

Accessories:

(1) Sand Paper Pad
(1) Erasing Shield
(1) Dusting Brush
(1) Art Gum Eraser
(1) Roll of drafting tape
(1) Pink Pearl Eraser
(1) Dry Cleaning Pad

Other:

(1) 3-Ring Binder
(1) Calculator (suggest one with trig functions, square rot key etc.)

You will not need any type of inking tools or equipment.

Note: The school provides drafting paper (tracing paper) and reproduction
COURSE CONTENT

The course material is divided into (13) units. The objectives, order of presentation and source of reference for each unit shall be as follows:

Unit 1: Introduction To Drafting (Chapter 1 Textbook; Section 1 - Study Guide)
At the end of this unit the student will be able to:
1. Understand the function of a draftsperson in an engineering environment.
2. Identify the different types of engineering drawings.
3. Understand the technical skills required for a draftsperson.
4. Identify the various trade publications, associations and standards used in industry.

Unit 2: Drafting Instruments (Chapter 2 Textbook; Section 2 - Study Guide)
At the end of this unit the student will be able to:
1. Identify drafting equipment and describe its usage.
2. Describe the types and standard sizes of drafting paper.
3. Use the different drafting scales to create a simple drawing.
4. Identify and draw the alphabet of lines.
5. Draw horizontal, vertical and inclined lines in a prescribed manner.

Unit 3: Lettering (Chapter 4 Textbook; Section 3 - Study Guide)
At the end of this unit the student will be able to:
1. Draw guidelines for lettering.
2. Demonstrate good engineering lettering style and technique.
3. Identify the different methods for producing lettering on an engineering drawing.

Unit 4: Geometric Constructions (Chapter 5 Textbook; Section 4 - Study Guide)
At the end of this unit the student will be able to:
1. Define common geometric shapes.
2. Bisect angles and lines.
3. Divide a line into equal parts.
4. Construct a perpendicular from a point to a line.
5. Construct a tangent from a point to a circle.
6. Construct an ellipse.

Unit 5: Technical Sketching (Chapter 6 Textbook; Section 7 - Study Guide)
At the end of this unit the student will be able to:
1. Understand the principles of good free-hand sketching.
2. Create a free-hand isometric & oblique sketch of an object.
3. Create a free-hand multiview sketch of an object.

Unit 6: Multiview Projection (Chapter 7 Textbook; Section 5 - Study Guide)
At the end of this unit the student will be able to:
1. Define the six views used in multiview projection.
2. Draw selected views of a given object.

Unit 7: Isometric Projection (Chapter 18 Textbook; Section 6 - Study Guide)
At the end of this unit the student will be able to:
1. Draw an isometric view of an object from three given views.
2. Draw isometric circles.
3. Draw inclined surfaces in isometric.
Unit 8: Perspective Drawing (Chapter 20 Textbook)
At the end of this unit the student should be able to:
1. Understand the principles of perspective drawing.
2. Create a one-point perspective drawing.
3. Create a two-point perspective drawing.

Unit 9: Dimensioning (Chapter 13 Textbook; Section 9 - Study Guide)
At the end of this unit the student will be able to:
1. Understand the basic principles of dimensioning.
2. Identify the components of dimensioning (dimension line, extension line, leader etc.)
3. Create a fully dimensioned mechanical drawing.
4. Create a fully dimensioned architectural drawing (floor plan).

Unit 10: Sectional Views (Chapter 9 Textbook; Section 8 - Study Guide)
At the end of this unit the student will be able to:
1. Understand the principles of sectional views.
2. Identify the components of sectional views (cutting plane, sectional lining etc.).
3. Identify and draw the different types of sectional views.

Unit 11: Auxiliary Views & Revolutions (Chapter 10,11, Textbook)
At the end of this unit the student should be able to:
1. Understand the principle of auxiliary views.
2. Draw auxiliary views of an object.
3. Understand the principle of revolutions.
4. Draw revolutions of an object.

Unit 12: Intersections & Developments (Chapter 21 Textbook)
At the end of this unit the student should be able to:
1. Determine the correct visibility between two surfaces
2. Identify, define and create the intersection of two solids
3. Identify, define and create the developments of various solids and transition pieces

Unit 13: Working Drawings / Reproduction & Control of Drawings (Chapters 15, 16, Textbook)
At the end of this unit the student should be able to:
1. Define working drawings
2. Create detail drawings for part manufacture and to accepted ANSI drafting standards.
3. Understand current reproduction techniques used in industry.