 Houston Community College	Department of <b>Drafting &amp; Design Engineering Technology</b>	Semester: <b>Summer 2017</b>
<b>DFTG-1305</b> <b>Technical Drafting</b>	<h1>Syllabus</h1>	Class (CRN) # <b>11749</b>
<b>Semester Credit Hours (SCH):</b> 96 <b>Credit Hours:</b> 3 <b>Format:</b> Lecture: 1/3 Lab and/or Web: 2/3 Weekly class meetings and home assignments: For 16-wk regular semester: 6 hrs. (4-5 hrs. for WE class) For 2 <sup>nd</sup> Start 12-wk term: 8 hrs. (4.8-6 hrs. for WE class) For Summer 8wk term: 12 hrs. (7.2-9 hrs. for WE class) <b>Note:</b> Web Enhanced classes include online assignments.	Professor/Instructor: <a href="#">Francis Ha</a> Contact phone number: <a href="tel:713-718-5544">713-718-5544</a> Other phone number: Best times to call: <a href="#">Any time, please leave a message if needed.</a> Email: <a href="mailto:francis.ha@hccs.edu">francis.ha@hccs.edu</a>	<b>Class meeting information:</b> <ul style="list-style-type: none"> <li>• Campus: Spring Branch</li> <li>• Date: Monday &amp; Wednesday</li> <li>• Time: 5:30pm-10:00pm</li> </ul>
<i>Any question or concern, please contact your instructor first. You can also contact Lead Faculty or department administration for further assistance. Thank you.</i>	Faculty Department Chair: Francis Ha Phones: 713 718-5544 Rowena Hubbard, Dept. Assistant: 713-718-7264 Email: <a href="mailto:francis.ha@hccs.edu">francis.ha@hccs.edu</a>	<b>Office:</b> 1265 Pinemont Dr., Suite 151, MC 1376 Houston, Texas 77018.

Revised 17-0604 fh

PREREQUISITE: None

### Message from the instructor:

Please feel free to contact me concerning any problems that you are experiencing in this course. You do not need to wait until you have received a poor grade before asking for my assistance. Your performance in my class is very important to me. I am available to hear your concerns and just to discuss course topics. See me either before or after class as I may not have an office at this campus or contact me by email or a phone call.

## A. YOUR CLASS

**A1. COURSE DESCRIPTION:** This course is designed to provide the *beginning* drafting student with fundamental *manual* drafting skills. It covers an introduction to the principles of drafting to include terminology and fundamentals, including sizes and shape descriptions, projection methods, geometric construction, sections, auxiliary views, and dimensioning.

**A2. TEXTBOOK:**            **“Technical Drawing with Engineering Graphics”**  
 by Frederick E. Giesecke, newest Edition (14<sup>th</sup> or 15<sup>th</sup> Edition)  
 published by Prentice Hall, Pearson Education Inc. [required]

**A3. REQUIRED COURSE MATERIALS** - See attached Drawing Equipment List

**A4. COURSE OBJECTIVE** - 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 tolerance.

### A5. KNOWLEDGE & SKILLS

- a. Understand the drafter's role in industry
- b. Exposure to ANSI drafting standards & standard drawing sheet sizes used in industry
- c. Use of manual drafting instruments
- d. Proficiency in using and reading an architect, metric, decimal, and engineers' scale
- e. Understanding the alphabet of lines used on engineering drawings
- f. Technical sketching and freehand lettering
- g. Geometric Constructions
- h. Multi-view Projections (create drawings of simple objects using Multi-view or Orthographic Projection)
- i. Apply dimensions to drawings using ANSI drafting practices
- j. Isometric Drawing (create an Isometric view of an object from given multi views)
- k. Sectional Views (create full, half, partial, removed, revolved, offset views of objects with dimensions)
- l. Auxiliary Views (create full and partial views with dimensions)

### A6. SCANS SKILLS:

The Department of Labor has identified skill sets that U.S. employers want most in entry-level employees. It is our commitment to prepare every student with the knowledge and skills needed to succeed in today's dynamic environment. Toward this end the following skills will be included in this course:

- Decision making: specifies goals and constraints, generates alternatives, considers risks and chooses best alternative.

- Organize/maintain information: Organizes, processes, and maintains written or computerized records and other forms of information in a systematic fashion.
- Arithmetic: performs basic computations; uses basic numerical concepts such as whole numbers and percentages in practical solutions, makes reasonable estimates of arithmetic results without a calculator and uses tables, graphs, diagrams, and charts to obtain and convey quantitative information.
- The student will be presented problems in which they must establish their objective, and organize and maintain appropriate documentation and dimensioned drawing details in achieving that objective.

**A7. COURSE WORK:** The course will consist of 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.

## B. GENERAL INFORMATION (for all classes)

### B1. RECOMMENDED DRAWING EVALUATION:

- a. The following grading criteria shall be used for lab drawings:

Point Value	Assessment	Grade
5	Excellent	A
4	Good	B
3	Average	C
2	Poor	D
1	Failure	F

Table 1 – Grading Criteria

- b. The above point value shall be made to the following areas of the drawing to determine the final drawing grade:

Drawing Area Assessment	Point Value from Table 1 assessment
Accuracy	
Lettering	
Line Quality	
Dimensions	
Layout	
Total	Total No./5= Final Grade

Table 2 – Final Drawing Grade Determination

### B2. COURSE EVALUATION PROCEDURE:

The student will be evaluated and receive a final grade based upon the following criteria:

- Laboratory work consisting of assigned technical drawing problems.
- A minimum of two tests (plus the final examination):  
**Note:** Individual instructors may schedule more tests if desired
- Class and laboratory attendance, active participation in class, professional attitude and growth in terms of technical skill development and teamwork within the laboratory environment shall be taken into consideration.

### B3. STUDENT EVALUATION (the instructor can modify these percentages):

Attendance (lecture sessions)	10%
Drawing assignments	40%
Chapter Exams	10%
Final Project	20%
Final Exam	20%
<b>Total:</b>	<b>100%</b>

### B4. GRADING PROCEDURE

A = 90-100	B = 80-89
C = 70-79	D = 60-69
F = 59 and below.	I = Incomplete (*)
(*) Fail to submit Final project or not show up at the Final Exam.	
Fx = Student stops to show up during to the semester until the end of the semester.	

The drawing portion of the above evaluation criteria shall be based on the layout, dimensional accuracy, neatness, and timely completion.

## C. HCC POLICIES

**C1. LATE ASSIGNMENT POLICY** - Students are encouraged to turn assignments in on time if at all possible. This allows the instructor to grade the work, return it to the student and the student use the feedback as a learning tool.

**C2. MAKE-UP TEST/PROJECT POLICY** - The student must request a make-up test and it should be scheduled at the earliest possible date following the quiz (or mid-term) missed. NO make-up test is given for the final examination.

**C3. EXTRA CREDIT:** Extra credit work is offered only to assist students that that have a grade range of “D” or “F” at the mid-term break. This work cannot be substituted for regular assignments and can only raise the final grade to a maximum of a “C”.

**C4. STUDENTS WITH DISABILITIES** - Any student with a documented disability (e.g. physical, learning, psychiatric, vision, hearing, etc.) who needs to arrange reasonable accommodations for the classroom and/or testing must contact the appropriate HCC Disability Support Service (DSS) Counselor at the beginning of each semester. Faculty is authorized to provide only the accommodations requested by the Disability Support Services Office. Students who are requesting classroom and/or testing accommodations must first contact the DSS office for assistance prior to the beginning of each semester. At Northwest college, please call 713.718.5422.

**C5. 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 absence. You may be dropped from the class and get an F grade if you are absent more than 12.5% of the instruction hours (lecture and lab). For example: A 12.5% of 96-hour course, meeting twice per week for 3 hours per class meeting equals 12 hours. If you are absent more than 4 class meetings, you may drop.

**C6. WITHDRAWAL** - It is your responsibility to withdraw from the class if you cannot complete it. Failure to do so will result in an F grade. Check the calendar for official last day to withdraw.

**Note:** *Although it is your responsibility to officially withdraw from a class, please discuss with your instructor first. Consistent class attendance is very important. However, if you have to miss a class for a valid reason, your instructor may be able to help you catch up with the class. Please let your instructor know as soon as possible if you have to miss a class. Valid reason is decided on a case by case basis. Departments and programs governed by accreditation or certification standards may have different attendance policies.*

**C7. REPEAT COURSE** - Students who repeat a course three or more times may soon face significant tuition/fee increases at HCC and other Texas public colleges and universities. If you are considering course withdrawal because you are not earning passing grades, confer with your instructor/counselor as early as possible about your study habits, reading and writing homework, test-taking skills, attendance, course participation, and opportunities for tutoring or other assistance that might be available.”

**C8. RELIGIOUS HOLIDAYS** - If you observe a religious holiday and miss class, you must notify your instructor in writing two weeks in advance to arrange to take a test or make up an assignment. A religious holiday is "a holy day observed by a religion whose place of worship is exempt from property taxation under Section 11.20, Tax Code."

**C9. 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;
  - Bribing another person to obtain a test that is 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.com>

**C10. ADVISING** - A senior advisor is connected to this class section and will meet with the class within the first two weeks of instruction. The senior advisor will review the advising syllabus and the ways in which you can communicate with him/her. Students are required to meet with their senior advisor at least twice within the semester. Participation in these advising sessions is required and will be a part of the grade in this success class.

**C11. EGLS3** – (Evaluation for Greater Learning Student Survey System) Click [here](#) or visit [www.hccs.edu/EGLS3](http://www.hccs.edu/EGLS3)

At Houston Community College, professors believe that thoughtful student feedback is necessary to improve teaching and learning. During a designated time, you will be asked to answer a short online survey of research-based questions related to instruction. The anonymous results of the survey will be made available to your professors and division chairs for continual improvement of instruction. Look for the survey as part of the Houston Community College Student System online near the end of the term.

**C12. HCC PUBLIC EMERGENCY PLAN** – Click [here](#) or log into

<http://www.hccs.edu/district/departments/police/crime-prevention--safety/hcc-public-emergency-plan/>

Every member of the Houston Community College community should understand his or her role in emergency situations. All faculty, staff, and students should review this plan so they can support their colleagues should an emergency arise.

Evacuation routes and assembly areas are posted throughout the campus(s). If you are faced with a situation that requires evacuation, proceed in an orderly fashion to the designated assembly area. If a situation arises that requires you to shelter-in-place, you will be given instructions to proceed to a designated area - do not leave the building. **In Case of Emergency** Dial 911 or call HCC Police at **713-718-8888**. To update your emergency contact information, log into PeopleSoft on the Student Sign-Ins page. The "[Run.Hide.Fight.](#)" video provide the information you need to survive an active shooter event. (Fall 2015).

**C13. DISCRIMINATION**

Students should be aware that discrimination and/or other harassment based on race, sex, gender identity and gender expression, national origin, religion, age, disability, sexual orientation, color or veteran status is prohibited by HCC Policy G.1 Discrimination and Harassment and D.1.1 Equal Educational Opportunities. Any student who feels they have been discriminated against or harassed on the basis of race, sex, gender identity, gender expression, national origin, religion, age, disability, sexual orientation, color or veteran status including sexual harassment, has the opportunity to seek informal or formal resolution of the matter. All complaints/concerns should be directed to the Office of Institutional Equity, Telephone: **713 718-8271**, click [here](#) or visit [oiie@hccs.edu](mailto:oiie@hccs.edu). Additional information may be obtained online. Click [here](#) or visit: <http://www.hccs.edu/district/departments/institutionalequity/>

Complaints involving sexual misconduct to include but not limited to: sexual assault, stalking, dating violence, sexual harassment or domestic violence should be directed to the HCC Title IX Coordinator, Ms. Renée Mack at **713 718-8272** or [renee.mack@hccs.edu](mailto:renee.mack@hccs.edu) (Fall 2015).

**C14. TITLE IX OF THE EDUCATION AMENDMENTS OF 1972, 20 U.S.C. A§ 1681 ET. SEQ.**

Title IX of the Education Amendments of 1972 requires that institutions have policies and procedures that protect students' rights with regard to sex/gender discrimination. Information regarding these rights are on the HCC website under Students-Anti-discrimination. Students who are pregnant and require accommodations should contact any of the ADA Counselors for assistance.

It is important that every student understands and conforms to respectful behavior while at HCC. Sexual misconduct is not condoned and will be addressed promptly. Know your rights and how to avoid these difficult situations. Click [here](#) or log into: [www.edurisksolutions.org](http://www.edurisksolutions.org). Sign in using your HCC student e-mail account, then go to the button at the top right that says **Login** and enter your student number. (Fall 2016)

Please see next pages for Course Contents or Schedule, and Required Tool List.

## Course Contents for DFTG-1305

2017 Ver.

(Based on Technical Drawing, by Frederick E. Giesecke)

Please see your instructor for updated class schedule.

The objectives, order of presentation and source of reference for each unit shall be as follows:

### Unit 1: Introduction to Drafting (Chapter 1: World Wide Graphics)

At the end of this unit, the student will be able to:

1. Understand the function of a draftsman in an engineering environment.
2. Identify the different types of engineering drawings.
3. Understand the technical skills required for a draftsman.
4. Identify the various trade publications, associations and standards used in industry.

### Unit 2: Drafting Instruments (Chapter 2: Layouts and Lettering)

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 2: Layouts and Lettering)

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 4: Geometry)

At the end of this unit, the student should be able to:

1. Define common 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 3: Sketching)

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 multi-view sketch of an object

### Unit 6: Multi-view Projection (Chapter 5 (14<sup>th</sup>) or 6 (15<sup>th</sup>): Orthographic Projection)

At the end of this unit the student will be able to:

1. Define the six views used in multi-view projection.
2. Draw selected views of a given object.

### Unit 7: Isometric Projection (Chapter 15 (14<sup>th</sup>) or 22 (15<sup>th</sup>): Axonometric Projection)

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: Dimensioning (Chapter 10 (14<sup>th</sup>) or 11 (15<sup>th</sup>): Dimensioning)

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 9: Sectional Views (Chapter 7 (14<sup>th</sup>) or 8 (15<sup>th</sup>): Sectional Views)

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 10: Auxiliary Views & Revolutions (Chapter 8 (14<sup>th</sup>) or 9 (15<sup>th</sup>): Auxiliary Views)

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.

## DFTG-1305 – Technical Drafting REQUIRED DRAFTING TOOLS

Update: 17-0112

#	Type	Item
1	Drawing Instruments	<b>0.3mm Mechanical Pencil</b> (HB Lead) (1)
2		<b>0.5 mm Mechanical Pencil</b> (B lead) (1)
3		<b>0.7mm Mechanical Pencil</b> (BB lead) (1)
4		<b>12" English/Metric Ruler</b>
5		<b>Compass</b> (good quality & large enough to draw a 12" diameter circle)
6		<b>30/60-degree Triangle</b> - (8"-12" large)
7		<b>45 degree Triangle</b> - (8"-12" large)
8		<b>French Curves</b> (or irregular curves)
9		<b>Circle Template</b>
10		<b>Ellipse Template</b>
11		<b>Protractor</b>
12		<b>Architect Scale</b>
13		<b>Engineer's Scale</b>
14		<b>Metric Scale</b> (Make sure one of the scale's sides reads 1:1 or 1:100 for full scale)
15		<b>Caliper, Digital-type</b> (Accuracy to $\pm .001"$ or 0.03mm) (2)
16		<b>Erasing Shield</b>
17		<b>Art Gum Eraser</b>
18		<b>Roll of drafting tape</b> (3/8" or 1/2" wide)
1	Optional	Divider
2		Adjustable Triangle with protractor
3		Dusting Brush
4		Sand Paper Pad
5		Dry Cleaning Pad
6		3-ring Binder
7		Small Calculator
8		Drafting paper (3)

**NOTES:**

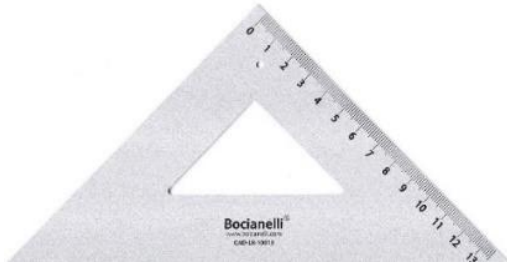
- (1) This item may be found at Hobby Lobby, Michael's, or Texas Arts Supplies at Montrose St. Houston, TX
- (2) This item may be found at Sears, Hobby Lobby, Michael's, or Harbor Freight Tools [www.harborfreight.com](http://www.harborfreight.com)
- (3) The lab will provide drafting papers (plain, isometric and vellum) and reproduction (laser printing).

DFTG 1305 – Technical Drafting  
**REQUIRED DRAFTING TOOLS**

17-0112 fh

Description	Description
<p><b>1. Mechanical Pencils</b></p>  <p>0.3mm</p> <p>0.5mm</p> <p>0.7mm</p> <p>0.3mm (H or HB lead)                      0.5mm (HB or B lead)                      0.7mm (B or BB lead)  <i>Type, body's color, and style may be different</i></p>	<p><b>12. Caliper 3 digital</b> (Accuracy to <math>\pm 0.001''</math> or <math>.03\text{mm}</math>)</p> 
<p><b>2. Compass</b></p>  <p>Compass Lead</p>	<p><b>13. Erasing Shield</b></p>  <p>STAEOTLER 529 50</p>
<p><b>3. 30/60 Degree Triangle</b> (8"-12" Large)</p> 	<p><b>14. Art Gum Eraser</b></p> 

4. 45 Degree Triangle (8"-12" Large)



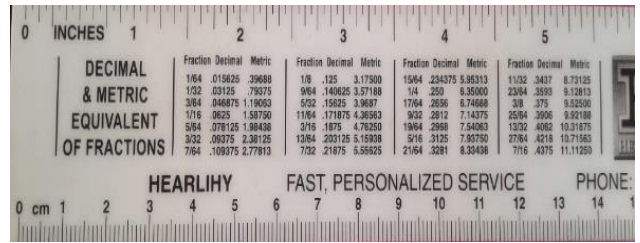
15. Roll of Drafting Tape (3/8" wide)



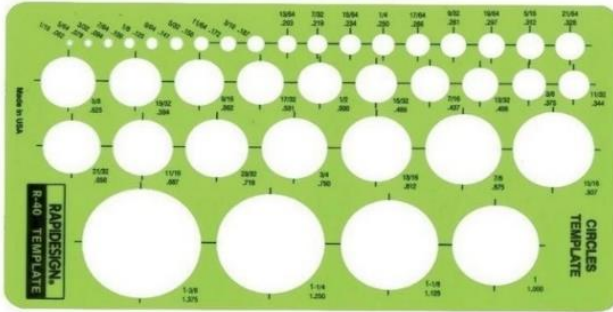
5. French Curves (or Irregular curve)



16. Soft Ruler

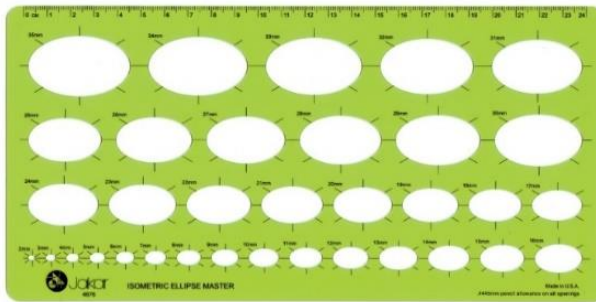


6. Circle Template



**Optional Tools:**

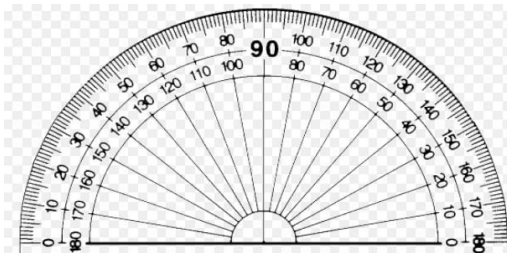
7. Ellipse Template



17. Divider



8. Protractor



18. Adjustable Triangle with protractor





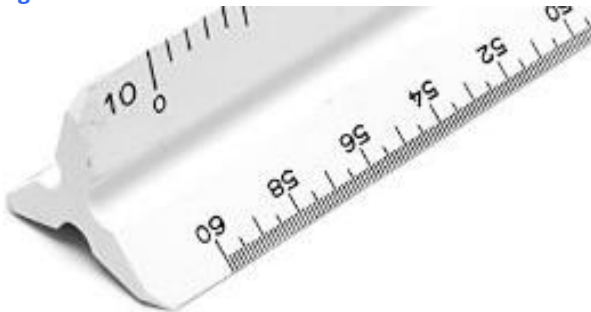
9. Architect scale



19. Dusting Brush



10. Engineer scale



20. Sand Paper Pad



11. Metric scale

(Make sure one of the scale's sides should be 1;1 or 1:10,1:100)



NOTES:

- Most items may be found at Hobby Lobby, Michael's, or Texas Arts Supplies at Montrose St., Houston.
- The Caliper may be found at Sears, Hobby Lobby, Michael's, or Harbor Freight Tools, or online.
- The lab will provide drafting papers (plain, isometric and vellum) and reproduction (laser printing).
- You will not need any type of inking tools for this class.