Richland College is determined to prepare the student with the knowledge and skills you need to succeed in today's dynamic work environment. Towards this end, foundation skills and workplace competencies (SCANS skills) have been designed into the curriculum for Engineering Technology and Semiconductor Manufacturing.

CATALOG DESCRIPTION
An introduction to computer-aided drafting. Emphasis is placed on setup; creating and modifying geometry; storing and retrieving predefined shapes; placing, rotating, and scaling objects, adding text and dimensions, using layers, coordinate systems, and plot/print to scale. (2 Lec., 4 Lab)

COURSE LEARNING OUTCOMES
Demonstrate the use of CAD hardware and software to create, display, and plot/print working drawings.

In addition: This is the first course in computer-aided design which can be used by electronics and mechanical technicians, architects and landscape architects or anyone who finds it necessary to learn to use a CAD system to produce graphics or interface with design software. Two dimensional multiview drawings and three dimensional models will be produced. (2 Lec., 4 Lab.)
COURSE DESCRIPTION:

Course Number: DFTG 1309

Course Title: BASIC COMPUTER AIDED DRAFTING

Credit Hours: 3    Lecture Hours: 2    Lab Hours: 4

Suggested Prerequisites: None

An introduction to computer-aided drafting. Emphasis is placed on setup; creating and modifying geometry; storing and retrieving predefined shapes; placing, rotating, and scaling objects, adding text and dimensions, using layers, coordinate systems, and plot/print to scale.

TEXTBOOK:


OR


SUPPLIES:

Flash Drive
Pencil/Pen
Paper
Calculator

COURSE REQUIREMENTS:

Students are encouraged to take notes in class and will turn assigned material in for grading. To receive full credit for your work, it must be turned in one week from the date of the assignment, unless otherwise specified by the instructor. Late work will be accepted but only partial credit will be given. Students must participate and complete lab assignments during the scheduled lab time, unless alternative arrangements are made.
METHOD OF PRESENTATION:
The class will be presented using formats that will include lectures, lab experience, demonstrations, discussions and/or group participation. Student participation and interaction is expected.

METHOD OF EVALUATION:
Evaluation will be based upon completion of all assigned work. The course average will be computed as follows:

- **Hour Exams** ................................................................. 20%
- **Quizzes** ................................................................. 10%
- **Oral report & Presentation** ................................. 5%
- **Laboratory Grade** .................................................. 30%
- **Final Exam/Project** .................................................. 15%
- **Attendance** ............................................................. 10%
- **Instructor Evaluation** ............................................... 10%

**INSTRUCTOR EVALUATION** means your Attendance, Punctuality, Class Participation and Organization. Class begins at 5:40 p.m. and ends at 8:25 p.m. If you are not at your computer when the class begins, you are late. If you leave class before 8:25 p.m., you are considered absent. You are expected to be present for the entire class meeting on both Tuesdays and Thursdays. All excused absenteeism must be supported by valid documents (IE: doctor’s note, Validity of an excused absence is at the discretion of your instructor.)

(Attendance, punctuality, - 5 pts / day for unexcused absence.
Late 3 times (less than 5 minutes) = 1 unexcused absence -5 pts,
5 minutes or more = 1 unexcused absence -5 pts. Each late arrival is -3 pts)

Unless otherwise specified by the instructor, the grading system will be:

- 90 - 100 .....A
- 80 - 89.....B
- 70 - 79.......C
- 60 - 69.....D
- 59.........F
ATTENDANCE POLICY:

In order to be successful students must attend and participate in enrolled courses. You are expected to attend all classes and are fully responsible for your attendance. If at any time you wish to drop this course, or to withdraw from the college, initiate that action yourself. Do not assume that if you stop attending class you will be automatically dropped. It is the student’s responsibility to drop or withdraw. You must withdraw from this course before the drop date specified to receive a grade of “W”.

COURSE CERTIFICATION DATE:

MONDAY, FEBRUARY 4, 2019, is the Certification Date for this course.

WITHDRAWAL POLICY:

If you are unable to complete this course, it is your responsibility to withdraw formally.

The withdrawal request must be received in the Registrar’s Office by ___WEDNESDAY, APRIL 17, 2019___ (COURSE DROP DATE). Failure to do so will result in your receiving a performance grade, usually an “F”.

If you drop a class or withdraw from the college before the official drop/withdrawal you will receive a “W” (Withdraw).

CLASSROOM POLICIES:

Determined by Instructor—see list at end of Course Outline

CLASSROOM FOOD AND DRINK POLICY:

Food and drink are not allowed in the classroom. (ref. OM CHB-801)

INSTITUTIONAL POLICIES:

“Institutional Policies relating to this course can be accessed from the following link: www.richlandcollege.edu/syllabipolicies

QEP: LEARNING TO LEARN: DEVELOPING LEARNING POWER

“Richland’s Quality Enhancement Plan (QEP) provides techniques, practices, and tools to help students develop the habits, traits or behaviors needed to be effective lifelong learners empowering success in college and in life.”

For information log onto http://www.richlandcollege.edu/cep/
SYLLABUS CHANGE DISCLAIMER:
The instructor reserves the right to amend a syllabus as necessary

COURSE OBJECTIVES

1.00 Demonstrate 2-D geometry construction

1.01 Utilize geometry creation commands
1.02 Employ drawing layout procedures
1.03 Demonstrate CAD drawing setup process
1.04 Control (types and colors) line characteristics
1.05 Demonstrate multiple object creation techniques
1.06 Determine most efficient process for drawing creation
1.07 Control drawing viewing area
1.08 Demonstrate text creation

2.00 Demonstrate 2-D geometry editing

2.01 Apply object selection editing techniques
2.02 Apply drawing editing procedures
2.03 Revise existing dimensioned objects
2.04 Scale, move, and rotate entities
2.05 Represent fillets, rounds, holes, chamfers, and runouts
2.06 Demonstrate text editing

3.00 Create production drawing-details

3.01 Create necessary views using orthographic projection
3.02 Explain orthographic view design representation
3.03 Produce orthographic view detail drawings
3.04 Use metric, engineer's, and architect's units
3.05 Establish standard conforming dimensioning parameters
3.06 Use baseline and datum dimensioning process
3.07 Produce unilateral and bilateral tolerance dimensions
3.08 Layout a sectioned view
3.09 Demonstrate choosing and positioning hatch patterns, mixed hatch patterns

4.00 Demonstrate geometric constructions

4.01 Construct polygons
4.02 Bisect a circular arc
4.03 Bisect an angle
4.04 Divide a line into equal parts
4.05 Set off a distance along a line
4.06 Draw a line through a point and perpendicular to a line
4.07 Draw a triangle with side given
4.08 Draw a right triangle with one side and hypotenuse given
4.09 Draw a circle through three points
4.10 Draw a circle tangent to a line at a given point
4.11 Construct line tangent to two arcs or circles
4.12 Construct arc tangent to two lines
4.13 Construct arc tangent to two arcs
4.14 Set off a given length along a given arc

5.0 Customize a CAD environment

5.01 Set preferences
5.02 Set CAD environment variables
5.03 Change Program properties
5.04 Display and hide toolbars

6.0 Demonstrate specific CAD/Computer Skills

6.01 Demonstrate file(deleting, copying and renaming) manipulation
6.02 Identify system requirements to run CAD software
6.03 Demonstrate software menu manipulation
6.04 Describe drawing file naming guidelines
6.05 Adjust plotting parameters
6.06 Produce a drawing plot and position correctly on page

7.00 Math Course Goals

7.01 Demonstrate math operations involving angles
7.02 Addition of whole numbers and decimal fractions
7.03 Subtraction of whole numbers and decimal fractions
7.04 Multiplication of whole numbers and decimal fractions
7.05 Division of whole numbers and decimal fractions
7.06 Express common fractions as decimal fractions
7.07 Convert millimeter-inch equivalents
7.08 Identify common polygons
7.09 Define properties of circles
7.10 Find areas of shapes

8.00 Cost Analysis

8.01 Construct a 3D Multi-View drawing
8.02 Calculate the volume of the part from your detailed drawing
8.03 Manually calculate the volume of part
8.04 Employ technology (AUTOCAD) and confirm manual volume calculations
8.05 Explore the functionality of part and define the physical and mechanical requirement and select material
8.06 Calculate the material cost per part
8.07 Estimate production cost per manufacturing process chosen to produce part.

Compose a cost analysis report in WORD, identifying manufacturing process used to produce part. Document all resources during your investigation. Also, be prepared to defend your choice of material and manufacturing process used. Report will be evaluated by Engineering Technology faculty and feedback will be provided in a one-on-one setting.

Guidelines for Research and Oral Report

Investigate manufacturing processes available to engineers in today’s rapidly changing, but advanced technological world and predict which manufacturing process would be appropriate and cost effective to produce designed part.

Compose a short presentation on the manufacturing process that you have chosen to produce the part and reasons for choosing process and material. Feel free to include videos (YouTube), Power Points and any other creative, thinking outside the box tool/s that demonstrate and help translate to the class the manufacturing process identified.

SCANS SKILLS:

The skill standards listed in this section are from the Secretary of Labor’s Commission on Achieving Necessary Skills (SCANS) report. SCANS skills activities shown in bold indicate learning activities specific to this class.

MAXIMIZE RESOURCE ALLOCATIONS

Allocate time by organizing class time to accomplish class activities and assignments. Feedback on observed effective use of available time will be provided.

*Estimate the materials and manufacturing cost for one part per a cost analysis.*

(Project Proposal 8.00)
USE INFORMATION SKILLS

Acquire, Evaluate, Organize, Maintain, Interpret, Communicate, and Process information through means such as lectures, literature, computer resources, lab reports, portfolios, and group discussions to accomplish class requirements and successfully achieve the learning outcomes.

**Acquire information by** contacting companies and determine raw material cost and manufacturing cost. (Project Proposal 8.00)

**Evaluate Information** by collecting and evaluating system data and comparing it to calculated results.

**Evaluate information by** reviewing the information acquired during proposal and determining the best material and manufacturing process at the best price. (Project Proposal 8.00)

**Organize information by** preparing a proposal for the components you have selected. (Project Proposal 8.00) and by organizing a portfolio of all the drawings created in this class.

**Interpret information** gathered from the manufacturing industry and calculate the part weight/volume, cost of raw material and manufacturing cost. (Project Proposal 8.00)

**Communicate information** by giving an oral report and submitting cost analysis for evaluation.

EMPLOY INTERPERSONAL SKILLS

**Participate as a team member** by interacting within groups during lab or group projects. Feedback on observed team participation will be provided.

USE TECHNOLOGY

**Select Technology** by identifying computer resources to accomplish a defined task.

**Apply Technology** by utilizing computer applications to complete defined tasks.

**Maintain Technology** by monitoring, evaluating, adjusting, and repairing electronic equipment.
Troubleshoot technology by applying troubleshooting techniques as needed to interact, assess, and correct system malfunctions.

**ENHANCE BASIC SKILLS**

Demonstrate (technical) writing skills through written lab reports, technical presentations, etc.

Demonstrate listening skills by acquiring, interpreting, and evaluating data from lectures and group discussions required for class assignments.

Demonstrate reading competence through the understanding and interpretation of written materials, including texts, manuals, graphs, tables, schedules, and charts to explain or solve engineering technology problems.

Demonstrate arithmetic skills utilizing numerical values, such as percentages and dimensions, acquiring data from tables, charts, and graphs to convey or solve engineering technology related problems.

Demonstrate mathematical skills by selecting and applying appropriate mathematical formulas to explain and solve engineering technology related problems.

**APPLY THINKING SKILLS**

Exhibit decision-making skill when selecting tools, mathematical formulas, data records, and project selections.

Use problem-solving skills in the application of scientific and engineering principles to solve real world problems.

Visualize mind’s eye concept by organizing and processing symbols, graphs, objects, and other information, such as determining a circuit operation from a schematic, seeing a finished product from a blue print, and seeing a product from a CAD line drawing and schematic.

Exhibit reasoning skills by using logic to draw conclusions from available data and applying scientific standards and principles to solve technical problems.

**DISPLAY APPROPRIATE PERSONAL QUALITIES**

Exhibit responsibility by demonstrating task completion to required standards, paying attention to detail, attendance, punctuality, and enthusiasm. Feedback on observed responsibility exhibited will be provided.
Exhibit self-esteem by showing confidence in one’s own skills and abilities and an awareness of one’s capabilities. Feedback on observed self-esteem exhibited will be provided.

Demonstrate appropriate social skills by the interaction in-group or team setting, which includes self-assertion, listening, and participation. Feedback on observed social skills exhibited will be provided.

Display self-management skills by demonstrating task completion to required standards, paying attention to detail, attendance, punctuality, and enthusiasm. Feedback on observed self-management skills exhibited will be provided.

Display integrity/honesty by demonstrating behavior consistent with professional and ethical standards commonly held in industry and society. Feedback on observed integrity/honesty exhibited will be provided.
# COURSE OUTLINE:

**SEMESTER / YEAR:**  **SPRING / 2019**  **COURSE / SECTION:**  **DFTG 1309 / 83501**

**CLASS MEETING DAYS AND TIMES:**  **TUESDAY & THURSDAY-5:40–8:25 p.m.**

**INSTRUCTOR:**  **PAT ZIPPER**  **OFFICE NUMBER:**  **WH192**

**PHONE NUMBER:**  **972-238-6325**  **EMAIL:**  **patengr@dcccd.edu**

**OFFICE HOURS:**  **M 7-2 T 7-11 & 4-5 W 7-2 TH 7-11 & 4-5 F 8-1**

OR CONTACT INSTRUCTOR FOR AN APPOINTMENT

**NOTE:**  THIS SCHEDULE AND COVERAGE OF THE MATERIAL ON THIS SYLLABUS ARE SUBJECT TO CHANGE ACCORDING TO THE NEEDS OF THE CLASS.

<table>
<thead>
<tr>
<th>WEEK</th>
<th>TOPICS and ASSIGNMENTS</th>
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| **Week 1** | Session 1: *Introduction/Review Syllabus/Getting Started*  
For next class review Chapter 1, 2 and read Chapter 3  
Session 2: *Draw Command Concepts*  
For next class read Chapter 4 and review point entry methods |
| **Week 2** | Session 1: *Selection Sets*  
For next class read Chapters 5 & 6  
Session 2: *Helpful Commands/Basic Drawing Setup*  
For next class read Chapters 7 |
| **Week 3** | Session 1: *Object Snap & Object Snap Tracking*  
For next class read chapter 8  
Session 2: *Draw Commands I*  
For next class review chapter 8 and other chapters for exam |
| **Week 4** | **EXAM #1**  
Session 1: *EXAM #1*  
For next class read chapter 9  
Session 2: *Modify Commands I*  
For next class read chapter 24,26,27 |
| **Week 5** | Session 1: *Multiview Drawing*  
For next class review Chapter 19  
Session 2: *Grip Editing*  
For next class read chapter 14 |
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<th>Week</th>
<th>Session 1:</th>
<th>Session 2:</th>
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<tr>
<td>Week 6</td>
<td>Plotting</td>
<td>Oral Reports</td>
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<td>For next class present oral report</td>
<td>For next class read chapter 28</td>
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<td>Week 7</td>
<td>Dimension</td>
<td>Dimension Styles and Dim. Variables</td>
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<td>For next class read chapter 29</td>
<td>For next class read chapter 10 &amp; 20</td>
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<td>Week 8</td>
<td>Viewing Commands &amp; Advanced Selection Sets</td>
<td>Advanced Drawing Setup I</td>
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<td>For next class study for exam</td>
<td>For next class read Chapter 11</td>
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<td>Week 9</td>
<td>Layers &amp; Object Properties</td>
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<td>For next class read chapter 12</td>
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<td>Week 10</td>
<td>Layouts, &amp; Viewports; Advanced Layouts, Annotative Objects and Plotting</td>
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<td>For next class read chapter 15</td>
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<td>Week 11</td>
<td>Modify Commands II</td>
<td>Inquiry Commands</td>
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<td>For next class read chapter 17</td>
<td>For next class review chapter 18</td>
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<td>Week 12</td>
<td>Text and Tables</td>
<td>EXAM #3 – Finish Drawings</td>
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<td>Review chapter 18</td>
<td>For next class read chapter 21</td>
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<td>Week 13</td>
<td>Blocks, Design Center and Tool Palettes</td>
<td>Block Attributes and Data Links; Object Linking and Embedding</td>
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<td>For next class read chapter 22,31</td>
<td>For next class read chapter 30</td>
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| Week 14 | Session 1: *X*references  
For next class read chapter 33,34,35,36,37  
Session 2: **FINAL PROJECT** |
|---------|---------------------------------------------------------------------------------------------------------------------------------|
| Week 15 | Session 1: **FINAL PROJECT**  
Session 2: **FINAL PROJECT** |
| Week 16 | Session 1: **FINAL PROJECT**  
Session 2: **FINAL PROJECT** |

**SPRING, 2019 SEMESTER**  
**TUESDAY, JANUARY 22, 2019 -- THURSDAY, MAY 16, 2019**

**PROFESSIONAL DEVELOPMENT DAYS**  
**THURSDAY, FEBRUARY 28, 2019 – FRIDAY, MARCH 1, 2019**  
Friday evening, Saturday and Sunday classes will meet.

**SPRING BREAK**  
**MARCH 11, 2019 THROUGH MARCH 15, 2019**

**HOLIDAY**  
**FRIDAY, APRIL 19, 2019**

**FINAL EXAM**  
**TUESDAY, MAY 14, 2019**
ADDITIONAL INFORMATION AND COURSE OUTLINE:

--DUE TO COMPUTERS IN THE LAB--NEITHER FOOD, NOR DRINK ARE ALLOWED IN THE CLASSROOM.

--YOU MAY NOT ATTACH ANY ELECTRONIC EQUIPMENT TO THE CLASS COMPUTERS OR THE PLUGS AT THE TABLES.

--ALL ELECTRONIC EQUIPMENT MUST BE TURNED OFF WHILE YOU ARE IN THE CLASSROOM, EXCEPT FOR MEDICALLY NECESSARY DEVICES.

--YOU MAY NOT CREATE, OPEN, READ, SEND OR RECEIVE EMAIL OR INSTANT MESSAGES, TEXT MESSAGE OR ANY ELECTRONIC COMMUNICATIONS WHILE YOU ARE IN THE CLASSROOM, UNLESS IT IS ASSOCIATED WITH A MEDICAL DEVICE OR SITUATION.

--YOU MAY ONLY USE THE INTERNET IF I HAVE GIVEN YOU AN ASSIGNMENT TO BE DONE FOR THIS CLASS

--ONLY STUDENTS REGISTERED IN THE COURSE MAY BE IN THE CLASSROOM DURING CLASS TIME

--THERE ARE NO MAKE-UP EXAMS/TESTS

--ALL EXAMS/TESTS ARE CLOSED TEXT AND CLOSED NOTES.

--THE INSTRUCTOR WILL KEEP ALL EXAMS/TESTS AFTER REVIEWING THE EXAM/TEST WITH STUDENTS AND NOTIFYING STUDENTS OF THEIR GRADES.

--STUDENTS MAY NOT COPY WITH ANY DEVICE THE EXAMS/TESTS.

--BEFORE EACH EXAM/TEST, A STUDY SHEET WILL BE GIVEN TO STUDENTS LISTING THE TOPICS TO BE REVIEWED FOR THE EXAMS/TESTS.

--ALL EXAMS/TESTS ARE COMPREHENSIVE.

--EXAM/TEST QUESTIONS ARE CREATED FROM TEXTBOOK, LECTURE AND LAB INFORMATION.

--EXAMS/TESTS LISTED IN THE ATTACHED COURSE OUTLINE AS EXAM #1, EXAM#2 OR EXAM#3 MAY CONSIST OF A COMBINATION OF TRUE/FALSE, MULTIPLE CHOICE, MATCHING OR APPLICATION QUESTIONS OR DRAWING PROBLEMS.
Student Acknowledgement
Please read and sign this page and turn it in to your instructor.

Student Name ___________________________ Date ______________________

DFTG 1309. 83501 SPRING, 2019, SEMESTER

Course Name and Section Number

I have read the syllabus and understand what is required of me in this course. I have had the opportunity to ask the instructor questions about the syllabus.

My instructor has reviewed the syllabus during class and explained the requirements of the course. I have had the opportunity to ask the instructor questions about the syllabus.