

***Technical Design 200 Syllabus*****Instructors:**

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Office hours: Monday thru Thursday 10-12:30

**Course Description:**

This course is an introduction to computer aided drafting (CAD) using the AutoCad 2017 software program. In many respects, it is a continuation of Tec-D 107. It provides additional practice in many of the technical design skills necessary to effectively communicate technical information for design and manufacturing. These include continued use of the drafting vocabulary, as well as more practice working with and visualizing real world 3-dimensional objects as they are perceived in 2-dimensional drafting. In addition, this class familiarizes the student with the basics of using a computer to generate drawings. This class focuses primarily on the basic 2D drafting commands common with most CAD programs, although some of the later assignments give the student an opportunity to explore the 3D environment and how to use it to generate 2D drawings.

**Course Outcomes:**

Upon successful completion of this course, the student will be able to:

- Use the Microsoft Windows operating system to perform various file management operations such as copying, renaming, deleting, printing, and organizing files.
- Use basic drawing, editing, and dimensioning commands of Autocad to construct, modify, and display, computer generated drawings.
- Understand the basic terms, concepts, and techniques used in computer aided Drafting common to most CAD systems
- Visualize three dimensional objects based on two dimensional drawings.
- Be able to generate a technical drawing of a simple shape using industry standard orthographic views utilizing 3rd angle projection.
- Be able to generate orthographic views including normal, sectional, and auxiliary views.

**Prerequisite:**

Technical Design 107 technical drawing or by instructor permission. The instructor will often waive the prerequisite if the student has completed hand drawing technical design classes in the past or can demonstrate an understanding of graphic standards and 3<sup>rd</sup> angle projection.

**Required Text and Materials:**

The text for this course is:

**Autocad Tutor for Engineering Graphics 2013 and Beyond**, Lang,  
Autodesk Press

This class will cover chapters 1 thru 11.

**Course Requirements:*****Assignments***

The first portion of every class is dedicated to demonstrations, lectures, or activities designed to convey knowledge and understanding of the subject. After class demonstrations, an assignment will be given which will test your abilities to apply the information from the demonstration and from the book readings. Unless noted otherwise, drawing assignments are due by the end of the following class.

**Revising or correcting drawings:**

Drafting assignments may be revised or corrected per the instructor comments for an improved grade up to 90% of the total points possible. Correct and print a revised drawing, staple your original 'red line' to the drawing, and place it in the in-box. You only get one chance to revise a drawing, so be sure to make all the corrections the first time.

**What is Cheating and what is allowed**

All assignments are to be the original work performed by the student. Students may collaborate for ideas, concepts, and support, but each shall create and produce their own drawings. Sharing of computer files, or cutting and pasting drawings, is strictly forbidden. Consulting with each other is encouraged, but make sure you are the one creating your drawing.

**Drawing Assignment Grading Criteria:**

Your work will be assessed and graded employing the following criteria. Not all criteria will apply to every assignment. Assignments must be judged to be at least 50% complete before they will be graded.

- Assignment accuracy – does your drawing convey the proper information clearly. Is the object being represented correct and complete, and dimensionally accurate? 1 pt
- Technical Accuracy – does your drawing follow the proper graphic standards: line weights and types, dimensions, labels, and technically correct? 1 pt
- Third angle projection – are you correctly arranging multiple views? 2 pt
- Critical Proofing – If there is something obviously wrong with your drawing and you ignore it, you may lose big points even if it is a minor error. This is because you need to learn to look critically at your own work (called proofing), particularly after it has been printed, and correct any minor issues before turning

it in. Before turning in a final print, take 3 minutes to look it over and make sure there is nothing obviously wrong. You can even ask someone else to look at it, sometimes a fresh set of eyes will see things you don't. If you see things that could be done better, but you don't have time or feel incapable of fixing them, mark up your own drawing. Seeing a problem is half of fixing it. You will get a better grade if you point out your drawing deficiencies so I don't have to. 1 pt

- Composition - Is your drawing properly composed? Is it centered on the sheet? Does it look organized, neat, and tidy, or is it a hodgepodge of data randomly thrown onto the sheet. 1 pt
- Timeliness – Is it turned in by the due date? 1 pt
- Does it have your name? Assignments without a name will not receive credit, and might not be returned (how would that work?) worth infinite points.

### Drawing Storage Recommendations

Electronic drawing files (or copies) shall be stored on the network 'common' drive during the quarter. Only you and the instructor have access to your folder. Although the instructor grades from paper drawings, your electronic files are used to answer grading questions. If your drawing files are not stored at this location, you may not receive credit for them. At the end of the quarter, students wishing to keep their electronic drawings should transfer their files to a portable media. The 'common' drive is periodically purged of all old student drawings. DO NOT store your drawings on the lab computer (C drive or desktop). The computers are purged of all files daily and you will lose them. DO NOT store the only copy of your drawing on a thumb drive. They are often lost; this is akin to "the dog ate my homework".

### Turning in assignments:

All assignments are to be plotted and turned in on paper. This alerts the instructor that your drawing is finished. If you do not turn in a paper plot of your drawing, you will not receive credit for that drawing. The instructor keeps a cardboard box at the teaching station, the 'in box', where finished drawings should be submitted.

### ***Portfolio***

A portfolio is required for this class. The portfolio is NOT a history of this class. It is a tool designed to showcase your talents so you can get a job. I require a portfolio in this class to get you started thinking about this, and I review the portfolio, not as an instructor, but as if I were a potential employer. Proper preparation of a portfolio allows students to showcase their work as well as hinting about their personality and professionalism. This is an important part of job interviews, and the student will be well served by beginning their portfolio now. The portfolio doesn't have to be expensive, but it should be professional looking and demonstrate your pride of the contents. For additional information for portfolio requirements, refer to my Professor Online web page.

### ***Exams***

A Final exam will be given at the end of the quarter covering material from the entire quarter. It will involve drawing multiple views of an object, including a section view and an auxiliary view, and properly dimensioning the object.

***Attendance and Participation***

Because of the extensive amount of information required to complete the drawing assignments, some of which is not in the book, attendance in all classes is encouraged. This class uses an active learning process where you learn by doing, so most of your time in class will be spent practicing your skills. Help from your instructor is instrumental in mastering the art of technical drafting. Drawings started in class have the advantage of instructor input and guidance. This approach, in most cases, will avoid unnecessary hours spent correcting and re-working drawing errors made during unsupervised drawing sessions.

Your attendance will be noted on a class by class basis and this record counts for a portion of your final grade. *Students arriving after attendance has been taken may not get credit for attendance.* As in most offices, you are allowed a couple of sick days. You can miss up to two classes without it impacting your grade.

**Final Grade**

Your final course grade will be based on a percentage system:

Assignments	60%
Attendance	10%
Portfolio	10%
Final	<u>20%</u>
Total	100%

The final grade recorded with the registrar is based on the percentage of available points you manage to earn during the course compared to the total possible. The total possible may vary depending on the progress of the quarter, but it is always 100%.

93%	4.0
83%	3.0+
73%	2.0+
63%	1.0+
60%	0.7+

Any percentage less than 60% is inadequate to receive class credit, and a grade of 0.0 will be recorded.

**Withdrawal:**

If you decide that you must withdraw from this class, you must do so in conformance with Olympic College policy. A discontinuance of attendance without an Official Withdrawal Form or prior arrangement with the Instructor is an automatic 0.0 (F) for the class. This is school policy and governs all classes conducted at Olympic College.

**About the Instructor and this class**

Ron Raty is a licensed architect with over 25 years of experience in architectural design and project management. He does not think of himself as a professional teacher. Because of this, his classes are managed in a manner similar to a design studio in a company, students should think of themselves as employees. They should arrive at work on time, they should complete their work in a timely manner, they should dress appropriately and act professionally, they should show respect for their fellow employees and their employer. As in the work place, failure to do these things can have consequences.

**American Disabilities Act Statement**

Any student who feels he/she may need an accommodation based on the impact of a disability should contact the office of Access Services. Access Services will inform the instructor of any special accommodations required.

Humanities and Student Services Building, Room 204

Phone: 360-475-7540 or 1-800-259-6718 ext. 7540

Fax: 360-475-7436

E-mail: AccessServices@olympic.edu

**A drafting station at home:**

If you would like to work on your drawings at home, you will need a computer powerful enough to run the Autocad software. Recommended computer specifications are available from the Autodesk website. You can also download student versions of the software for free from Autodesk to install on your home computer or a laptop computer. The download file is also available on the Common drive/Tec-D for those with slower connection speeds.

**A word about equipment:**

The computer lab has 20 CAD stations in it. In addition, there are CAD stations in the Science and Technology computer lab for your use when this CAD lab is not available. Do not modify classroom computers. Downloading data from the internet is prohibited without instructor permission. If repairs are needed to your computer, please notify the instructor. Do not attempt to repair the computer yourself. For those that prefer to use their lap top in class (it is configured and familiar, certainly an advantage), tables are available for your use.

**Cell Phones:**

Cell phone use during lectures and presentations is prohibited in the classroom. Please set your phone to vibrate or turn it off. If you have to take or make a call during class, please step out of the classroom as a courtesy to others.

**Food and Drink:**

In accordance with school policy, food and drinks are not allowed in the drafting room. During lab time, students may come and go as necessary to refresh themselves. Restrooms are down the hall towards the Welding lab.

**Assignment List****Part 1 – Cad tools and Geometric Construction**

1. Draw your name – **Read Chapter 1 and the Syllabus**
2. steel plates - **Read Chapter 3**
3. switch plate - **Read Chapters 4**
4. Gasket – **Read Chapter 2 -**
5. Slotted Plate, and
6. Radial Plate
7. Foundation Plan and
8. Door elevations
9. Metric Tower –
10. Watch Gear – **Read Chapter 5**
11. Metric Brackets –

**Part 2 Normal, Auxiliary and Sectional Views**

12. Orthographic vehicle – **Read Chapter 8**
13. Widgets and Gadgets
14. Bearing Assembly
15. Shim block
16. Valve housing
17. digitize a drawing – **Read Chapter 9**
18. shear mount
19. coupler -
20. Ball in a box
21. Planter Box