Virginia Western Community College
CAD 242
Computer Aided Drafting III

Prerequisites
CAD 111 and CAD 241

Course Description
Focuses on teaching students the design of parts by parametric solid modeling. Topics covered will include, but not limited to, sketch profiles; geometric and dimensional constraints; 3-D features; model generation by extrusion, revolution and sweep; and the creation of 2-D drawing views that include sections, details and auxiliary. (Credit will not be awarded for both CAD 242 and DRF 242.)

Semester Credits: 3 Lecture Hours: 2 Lab/Recitation Hours: 2

Required Materials

Textbook:
SolidProfessor, Author: Shih, ISBN: 13:MTC:25441123

Other Required Materials:
Sample Problems from Text and Internet Sources
Storage devices:
Required: free cloud based storage account.
Recommended additional: USB portable

To complete assignments outside the classroom, the student will need access to a current computer and a high-speed internet service and media player. The college provides an open lab for those students without home access to needed software. Students should provide their own stapler and pencil sharpener as these items are not provided in the classrooms.

The following supplementary materials are available:
Tutoring: available free of charge in the open lab M302.
VWCC offers an open computer lab format available throughout each semester if needed.
AutoDesk provides each student with access to a downloadable full version of the Inventor program. The student can download the program onto their personal computer from the storage site provided in Blackboard.

Course Outcomes

At the completion of this course, the student should be able to:

1. **Create a solid model of manufactured parts using adaptive and parametric techniques.**

2. **Create assemblies of solid models and create working drawings using adaptive and parametric techniques.**

3. **Create working drawings for solid models and assemblies.**

4. **Create parametric parts and edit parts using multiple vectors.**

5. **Using reverse engineering the student will be able to create models from existing manufactured items.**

6. **Use additive manufacturing (3-D Printer) to create a physical model of virtual solid models.**

7. **Work as a team to create a part of a model that will integrate correctly into the whole project.**

Topical Description

(Outline chapters and sections to be covered in the book – may include timeline)

Week	Topics
1	Introduction, User Interface, Demonstration of Software. Chapters 1-2; Basic Sketching Concepts – Fully Constraining Techniques
2	Chapter 3: Simple Modeling Techniques – Extrude, Revolve
3	Chapter 3 & 4: Fillets and Chamfers
4	Chapter 4: Advanced modeling techniques & Test Review & Practice
5	**Test #1**
6	Chapter 5: Creating drawing views – "paperspace" – Dimensioning, Centerlines, Page/Sheet Setup, Shading-Materials, Sectioning
7	Chapter 6: Assemblies – Train Exercise – Drive Constraints
8	Assemblies cont. (Animations, Content Center Parts, Automatic Mating Parts)
9	Review and catch-up
10	Animations in Presentation Files and Test Review & Practice
11	**Test #2**
12	Chapter 7
13	Chapter 7 Cont.
14	Table Driven Design
15	Part Modeling (3D Printer)
16	Exam and Course Review, **Final Project Presentations & Submissions**
	Exam

Notes to Instructors

(List information about optional topics, departmental exams, etc)

1. 3D printers are available in Room W106 and W119 (FABLAB)
2. The final exam/project is worth 20 % .