San José State University
Aerospace Engineering
AE20 Computer-Aided Design for Aerospace Engineers, Fa11 2016

Instructor:	Robert Benzio
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Office Hours:	Tues & Thurs before lab or by appointment
Class Days/Time:	Lecture Tues 16:30 - 17:20 Engr. 339 Lab Section 1 Tues 18:00 - 20:45 Engr. 407 Lab Section 2 Thurs 18:00 – 20:45 Engr. 407
Classroom:	E339
Prerequisites:	None

Faculty Web Page and MYSJSU Messaging

Course materials such as syllabus, handouts, notes, assignment instructions, etc. can be found on the Canvas Leaning Management System course login website at http://sjsu.instructure.com. You are responsible for regularly checking with the messaging system through MySJSU at http://my.sjsu.edu.

Course Description

The course provides an introduction to the fundamentals of drafting and computer-aided design with applications in aircraft and spacecraft design. Students will team up with juniors and seniors to work on aerospace engineering design projects.

Course Goals

Introduce students to:

1. Technical freehand sketching.
2. Technical drawing.
3. 2D and 3D computer-aided design tools (CATIA, Inventor, or other CAD software available).

Course Learning Outcomes (CLO)

Students completing the course will be able to:

1. Freehand sketch a 3D view of an object (isometric, oblique and perspective).
2. Draw the standard 2D views (top, front and profile) of an object.
3. Apply simple and complex constrained 2D sketches to create solid features.
4. Construct 3D solid models from sketch geometry using extrusions, revolutions, and sweeps.
5. Create part features such as holes, shells, fillets, chamfers, threads and drafts.
6. Construct and annotate layout drawings.
7. Build basic 3D assemblies with assembly constraints.
8. Layout 3D exploded assembly drawings with balloon labels and a bill of materials parts list.

Course Relationship to BSAE Program Outcomes

	A	B	C	D	E	F	G	H	I
Learning Objectives									
1 – 2	+								
3 – 4,	++								
5	+++	+++							
6, 12 – 13		+++		✓	✓			++	+++
7 - 11	++								
14	+++	+++	✓	✓	✓		✓	++	

+: Skill level 1 or 2 in Bloom's Taxonomy
++: Skill level 3 or 4 in Bloom's Taxonomy
+++: Skill level 5 or 6 in Bloom's Taxonomy
✓ Skill addressed but not assessed

Required Texts/Readings

Textbook

ENGINEERING DRAWING&DESIGN-W/CD
5th ed., CENGAGE Learning,
David A. Madsen, David P. Madsen
ISBN: 9781111309572Other Readings

Approximate Weekly Schedule

Week	Topics
01	Introduction to CAD
02	Creating sketches
03	Creating parts
04	Creating parts continued
05	Creating features
06	Creating features continued
07	Cover basic drafting standards
08	Cover basic drafting standards continued
09	Create drawings
10	Create drawings continued
11	Creating assemblies
12	Creating assemblies continued
13	Creating exploded views
14	Advanced sketching, constraining and modeling techniques
15	Advanced sketching, constraining and modeling techniques
16	Final project due.

Course Requirements and Assignments

Grading of CAD Files					
CATEGORY	For an F- 0	For a D- 1	For a C- 2	For a B- 3	For an A- 4
CAD models	Models missing or skipped entirely. No evidence of models in file.	Models poorly created.	Models adequately created but with some inaccuracies.	Models adequately created.	Models adequately created with work planes and sketches turned off. Also clean and named features in model tree with minimum features needed and includes; iProperties filed out.(i.e. name, material, part number).
CAD Drawings	No evidence of drawings or cannot open drawing file. No dimensioning	Drawings poorly created. No dimensioning	Drawings adequately created, with some dimensioning.	Drawings adequately created, with dimensioning.	Drawings adequately created, with correct dimensioning.
CAD Assemblies	No evidence of assembly or cannot open assembly file.	Assembly poorly created.	Assembly adequately created, but with some inaccuracies.	Assembly adequately created.	Assembly adequately created with all parts and assemblies constrained properly.
CAD Exploded view file (i.e. Inventor Presentation file)	No evidence of exploded view file or cannot open file.	Exploded view poorly created	Exploded view adequately created, but with some inaccuracies.	Exploded view adequately created.	Exploded view adequately created with grouping, order of tweaks, and good spacing for animation.

Grading Information

Grading:

Homework + Labs	20%
Project + Presentation	20%
Midterm Exams	30%
Final Exam	30%

100 – 97% A+
96 – 93% A
92 – 90% A-
89 – 85% B+
84 – 80% B
79 – 76% B-
75 – 72% C+
71 – 68% C
67 – 64% C-
63 – 61% D+
60 – 57% D
56 – 53% D-
< 53% F. All exams must be taken to receive a passing grade.

University Policies

Per University Policy S16-9, university-wide policy information relevant to all courses, such as academic integrity, accommodations, etc. will be available on Office of Graduate and Undergraduate Programs' Syllabus Information web page at http://www.sjsu.edu/gup/syllabusinfo/.

AE Department and SJSU policies are also posted at http://ae.sjsu.edu/program-policies.