

San José State University
Aviation and Technology Department
Tech 20A Computer-Aided-Graphics, Fall 2017

Contact Information

Instructor: Kiarash Haydari Shayesteh

Office Hours: 11:20 AM – 12:PM

Telephone: (530) 304 – 1195

Class Times: Th 10:30 AM – 11:20 AM Lect
12:00 PM – 2:45 PM Lab

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Classroom: ENG 103

Office Location: ENG 103

Course Information

Prerequisites: None

Course Format

The course relies on lecture materials presented in class and students are strongly encouraged to attend.

Course Materials

Copies of the course materials including the syllabus, lecture slides, homework assignments, etc. may be found on the SJSU Canvas site for the courses. Login instructions can be found at <http://online.sjsu.edu>.

You must be **registered** in the course to receive access

Course Description

Introduction to Computer-Aided-Graphical communication tools. Orthographic projections, section and auxiliary views and dimensioning standards. Development of visualization and technical sketching skills in conjunction with orthographic and pictorial projections. Dimensioning and tolerancing utilizing 2D and 3D commercially available software. 2 units, 1-hour lecture and 3 hours lab

Course Learning Outcomes

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

- Freehand sketch a 2 D and 3D view of an object (isometric, oblique and perspective).
- Draw the standard two-dimensional views (top, front and profile) of an object.
- Draw section and auxiliary views.
- Properly dimension standard views for fabrication.
- Apply the proper tolerances to parts.
- Draw complicated two-dimensional views of an object using Computer-Aided software tools.
- Draw three-dimensional objects (solid modeling).

Required Text/Readings

Textbook

Bertoline and Wiebe “Fundamentals of Graphics Communication”, 6th ed., 2011, McGraw-Hill

Other

AutoCAD (2D) tutorial

Course Requirements and Assignments

Homework will be assigned weekly.

Final Examination or Evaluation

The final exam will be comprehensive, covering all material presented in class.

Grading Information

Homework	20%
Midterm Exam 1	20%
Midterm Exam 2	20%
Group Project	20%
Final Exam	20%

Determination of Grades

Course grade will be based on homework assignments, exams, project, and final exam. There will be no curving of grades. Final grades will be assigned as follows:

	A	94-100		A -	90-93	
B +	87-89		B	83-86		B - 80-82
C +	77-79		C	73-76		C - 70-72
D +	67-69		D	63-69		D - 60-62
			F	< 60		

Examinations

Two 75-minute midterm exams and one 2-1/4 hour final examination.

Class Project

Teams of 3 students each will be involved in preparing a proposal for design and fabrication of a product within the size limitation of the 3D printers to demonstrate the form and functional goals of the design. The design is expected to culminate the learning in the course and the application of the equipment, material selection and inspection for form and function.

Class Protocol

Class participation and attendance are strongly encouraged. Use of cell-phones are not allowed. Laptop computers and tablet are allowed only for taking lecture notes.

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/>

Tech 20A Computer-Aided-Graphics Fall 2017 Course Schedule/Outline

Week/Subject	Reading Assign. (Chapter)	
1	Lect - Introduction, course organization, project discussion Lab- No lab	
2	Lect- Orthographic projection and standard 2D views Lab AutoCAD; Intro to the CAD lab. and Tutorial 1 (lab. work #1)	(1, 5)
3	Lect Auxiliary views; classifications and applications Section views; full, half and broken, conventions Lab Project design discussion, AutoCAD; Tutorial 2 (lab. work #2)	(6) (8)
4	Lect Pictorials; Isometric, oblique and perspective Lab AutoCAD; Lab. work #3 (Multiview)	(7)
5	Lect Dimensioning and Tolerancing; rules and standards Lab AutoCAD; Lab. work #4 (section and auxiliary views)	(9)
6	Lect Freehand sketching techniques, spatial visualization, exam review Lab AutoCAD, Lab. work #5 (dimensioning and tolerancing)	(1, 2, 7)
7	Lect Exam 1 (one hour) Lab Intro to solid modeling, Lab. work #6 (sketching, extrusion)	
8	Lect Introduction to parametric modeling Lab Solid modeling and shop drawings, Lab. work #7 (solid modeling)	
9	Lect Formal engineering drawing and practices, shop drawings Lab Assembly and exploded views Lab. work #8 (assembly)	(11)
10	Lect Engineering Design Process; Concurrent engineering, Refinement Lab Exam 2 (one hour)	(1)
11	Lect Introduction to 3D drawings; wireframe, surface and solid modeling, primitive solids, Boolean Operation, Lab Solid modeling; assembly and exploded views, Lab. work #9 (design a table)	(4)
12	Lect Solids modeling; Extrusions, Revolutions, Sweeps and Rendering Lab Design project documentation	(4)
13	Lect Solids modeling; Top-down and bottom-up design approach Lab Design project documentation	(4)
14	Thanksgiving Holiday – Campus Closed	
	Lect Structural, welding and electrical drawings, manufacturing processes Lab Design project documentation	
15	Lect Review discuss projects Lab Final Exam	