

San José State University
Mechanical Engineering Department
ME 195A, Senior Design Project I, Fall 2019

Course and Contact Information

Instructors:

Section 1 (44343): Prof. Raghu Agarwal, Room E135
Section 2 (44344) : Prof. Raymond Yee, Room E111
Section 3 (44345): Prof. Winncy Du, Room E192
Section 4 (44346): Prof. Furman, 115 Terraine St.
(<https://goo.gl/maps/VayYRWqwrtoQdXbM6>)
Section 5 (44347) Prof. Viswanathan, Room E114
Section 6 (47732) Prof. Mokri, Room E141
Section 7 (50691) Prof. Zaidi, Room E133

Contact Information:

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Prof. Mokri: james.mokri@sjsu.edu

Office Hours:

Dr. Agarwal: T TH 4:30 - 6:00 PM
Dr. Yee: M 1-2 PM, W 4-5 PM
Dr. Du: MW: 10:50-11:50 AM
Dr. Furman: MTTh: 1:30-2:30 PM
Dr. Viswanathan: W TH 12:00 – 13:00 or by appointment in E310
Dr. Zaidi: T 1:30-2:30 PM in Engr 133
Prof. Mokri: W 12:30 in Engr 113

Class Days/Time:

Wednesday, 1:30-4:15 pm

Prerequisites:

ME 114, ME 154 and ENGR 100W (with grade C- or better in each)
ME 195A&B sequence must be completed in the same academic year

GE/SJSU Studies Category: Area S

SJSU Studies Policies

To receive credit for SJSU Studies Areas S and V, students must complete both Engr 195A and Engr 195B, each with a grade of C or better. In addition, they must complete their senior project course sequence and earn a grade of C or better in each course (ME 195A and ME 195B).

Students are strongly encouraged to satisfy GE Areas R, S, and V with courses from departments other than the major department. Completion of, or co-registration in, a 100W course is strongly recommended. A minimum aggregate GPA of 2.0 of 2.0 in GE Areas R, S, and V shall be required of all students.

Course Format

Technology Intensive, Hybrid, and Online Courses

This class requires the use of Canvas, so you will need access to the internet. Most, if not all, assignments during the semester will require the use of a computer for word processing, spreadsheets, computational analysis, CAD drawings, etc. Electronic communication with your instructor and teammates is also required.

Faculty Web Page and MYSJSU Messaging

Course materials such as syllabus, handouts, notes, assignment instructions, etc. can be found on the [ME 195 web page](#) and/or on [Canvas Learning Management System course login website](#) at <http://sjsu.instructure.com>. You are responsible for regularly checking your email to learn of any updates.

Course Description

First half of a one-year team project carried out under faculty supervisions. Project will proceed from problem definition to analysis, design and validation, experimentation including possible construction and testing.

Course Goals

The overall goals for the course are to:

1. Provide senior students a capstone experience in design from concept to fabrication and validation of the final product.
2. Familiarize students with general industry practices, such as planning, scheduling, budgeting, part procurement, fabrication, assembly, and functional tests.
3. Develop students' creative abilities in solving open-ended design problems.
4. Develop students' engineering judgment as well as their confidence in making and accepting responsibility for design decisions.
5. Develop students' oral and written communication skills necessary to describe the assumptions, methods, and results of engineering analysis, synthesis, and decision making associated with their design
6. Make students aware of the importance of teamwork in the design of products and provide them with an opportunity to develop team and leadership skills.
7. Develop students' understanding of professional practices, as well as global, environmental, and societal issues relevant to mechanical engineering.

GE Learning Outcomes (GELO)

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

1. Describe how identities (i.e. religious, gender, ethnic, racial, class, sexual orientation, disability, and/or age) are shaped by cultural and societal influences within contexts of equality and inequality.
2. Describe historical, social, political, and economic processes producing diversity, equality, and structured inequalities in the U.S.
3. Describe social actions which have led to greater equality and social justice in the U.S. (i.e. religious, gender, ethnic, racial, class, sexual orientation, disability, and/or age).
4. Recognize and appreciate constructive interactions between people from different cultural, racial, and ethnic groups within the U.S.

Course Learning Outcomes (CLO)

By the end of the course each student should be able to:

Design Skills

1. Apply the complete product development process including:
 - a) Defining the problem/societal need, carrying out market study/economic and budget analyses
 - b) Developing a complete set of functional specifications the design solution must meet
 - c) Generating solution concepts
 - d) Selecting the most promising design concept using structured methodologies
 - e) Developing design models and/or drawings for prototype and final design components
 - f) Procuring, fabricating, and assembling prototype and final design hardware
 - g) Evaluating, testing, and analyzing prototype and final design components and systems
 - h) Identifying future modifications and improvements that could be made to the design based on test data
 - i) Writing a project report and making presentations
2. Develop a schedule, and meet schedule and budget constraints.
3. Interact effectively with vendors, suppliers, and shop personnel.

Communication Skills

4. Write high quality design reports (i.e., using correct language and terminology, correct technical information, and professionally prepared graphs and tables).
5. Give clear, informative, technically correct oral presentations using professionally prepared visual aids.

Team Skills

6. Work harmoniously and effectively on a team to complete a design project.

Self, Society, and Equality in the US

7. Describe how his or her identity and social interactions have been shaped by mobile technology (GELO 1)
8. Analyze how his or her engineering projects can produce diversity, equality, and structured inequalities in the U.S. (GELO 2)
9. Discuss how technology helps to promote greater equality and social justice in the U.S. among the disabled. (GELO 3)
10. Describe how mobile technology can promote constructive interactions between people from different cultural, racial, and ethnic groups within the U.S., OR how mobile technology widens the divide between from different cultural, racial, and ethnic groups within the U.S (GELO 4)

Required Texts/Readings

Textbook

None

Other Readings

Links to additional online readings will be posted online.

Course Requirements and Assignments

ME 195A involves extensive work in teams. You'll be working with your team to define your project and its specifications and go through the phases of design. Successfully completing ME 195B means that you need to have a complete, optimized design at the end of ME 195A. Scheduling and spreading out your work evenly throughout the semester is a very important. You must attend all Wednesday sessions. Assignments are described on the next page.

Proposal and Progress Reports

The project proposal outlines the deliverables and specifications for your project. Follow the guidelines on the ME 195 website unless otherwise noted by your instructor. Progress reports may be required by individual instructors, and they will provide you with information about required format and due dates.

Presentations

Three group presentations are scheduled throughout the semester. All team members must present and be prepared to answer questions. Guidelines are shown on the [ME 195 website](#).

Individual Writing Assignments

These are assignments based on the seminar/online modules sessions. They are required of all students in ME 195A. Note that each assignment is worth 5% of your total grade, so put good effort into these papers. Assignment details are posted on Canvas. Students are encouraged to take a look at good example papers from last year as well as the grading rubric before beginning writing. Assignments must be submitted via Canvas. "Turnitin.com" will be used to check for plagiarism.

Final report (Final Evaluation)

Start your final report early (Week 6). Unless otherwise noted by your instructor, the final report should follow the format included in the "ME 195B Final Report Evaluation Rubric" shown on the course website. ME 195A reports typically go through Chapter 4. Your final report should incorporate and discuss appropriate engineering standards/codes for your project. Consult your instructor to see which sections he or she wants you to complete. The final report serves as your final evaluation for the course, per university policy.

Individual Performance/Participation Evaluation

Your instructor will give you a score for your individual team contributions. Items that factor into this score may include team meeting participation, performance in presentations, individual contributions to the final report, and an individual performance evaluation form that each team member must complete. Your instructor will let you know which form to complete.

Expected time commitment

Success in this course is based on the expectation that students will spend, for each unit of credit, a minimum of 45 hours over the length of the course (normally 3 hours per unit per week with 1 of the hours used for lecture) for instruction or preparation/studying or course related activities including but not limited to internships, labs, clinical practica. Other course structures will have equivalent workload expectations as described in the syllabus.

Grading Information

A letter grade will be assigned to each student by the section instructor at the end of the semester and will be based on evaluation of the following course requirements:

- (5%) Project proposal and progress reports as required
- (25%) Delivery of at least three presentations on achievements and timely progress
- (15%) Individual writing assignments (three total)
- (40%) Final report and semester achievements
- (15%) Individual performance/participation evaluation

Grade Distribution

A	93-100	A-	90-92.9		
B+	87-89.9	B	83-86.9	B-	80-82.9
C+	77-79.9	C	73-76.9	C-	70-72.9
D+	67-69.9	D	63-66.9	D-	60-62.9

Notes about Grading:

1. No extra credit will be made available.
2. No late work will be accepted except for the final report, which will be penalized by lowering the report grade according to the rules established by each section instructor.

Classroom Protocol

It is expected that each team member will be present in class each week, working with his or her team. Missing or coming late to team meetings without an approved excuse will result in lower grades on the individual performance/participation evaluation. Each team member must participate in each oral presentation or else he/she will receive a grade of “0” for that presentation. The only exceptions are university-authorized excuses, such as being ill with a note from a doctor, or if arrangements were made in advance with the instructor.

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](http://www.sjsu.edu/gup/syllabusinfo/) at <http://www.sjsu.edu/gup/syllabusinfo/>”

ME 195A Senior Design Project I Course Schedule, Fall 2019

Schedule is subject to change with fair notice via email. Assignments are due by 11:59 pm unless otherwise noted.

Week	Date	Topics, Readings, Assignments, Deadlines	Assignments Due
1	Aug 21	General session on overview of ME 195A/B and project topics in room E189. Subsequent meeting with individual section instructors.	Dr. Yee
2	Aug 28	Individual sessions on project descriptions and team organization	
3	Sept 4	Individual sessions on project proposals	Proposal due 9/4
4	Sept 11	Individual sessions	Start Online Module Assignment (#3)
5	Sept 18	Seminar: GE requirements (Society & Technology) Speaker: Dr. Nicole Okamoto	Room E189 & Time 1:30PM
6	Sept 25	Project oral presentation #1 Note: Should start preparing for your final report	Indiv. Writing Assignment 1 due 9/30 (Monday)
7	Oct 2	Individual session: Project Report Preparation discussion	
8	Oct 9	Individual sessions	
9	Oct 16	Seminar: GE requirements – The effect of mobile technology on face-to-face communication Speaker: Dr. Buff Furman	Room E189 & Time 1:30PM
10	Oct 23	Project oral presentation #2	Indiv. Writing Assignment 2 due 10/28 (Monday)
11	Oct 30	Individual sessions	
12	Nov 6	Individual sessions	
13	Nov 13	Individual sessions Online module Assignment due	Indiv. Writing Online Module Assignment (#3) due 11/13 (Wed)
14	Nov 20	Project oral presentation #3	
15	Nov 27	Non-instructional day (campus open, but no class)	
Last Day of Instruction	Dec 4	Individual sessions – final report work plus planning for spring Final project report and individual performance evaluation forms due by Dec 9 (Monday) at 12:15 PM	