Overview of the ME Department

- The department offers two academic degrees:
  - Bachelor of Science in Mechanical Engineering
  - Master of Science in Mechanical Engineering
- Minor in Robotics
- The department accepts freshman and upper-division (junior and senior year) undergraduate students as well as graduate students
- About half of our graduating seniors started transfer students from community colleges in the San Francisco Bay Area and beyond

- ~900 students
- ~780 BSME students
- ~120 MSME students

- 15 Full-time faculty
- 25 part-time faculty
- One admin analyst
- One admin coordinator
- One technician
BSME Curriculum

- General Education: 21 units (changing to 24 units)
- Math/Physics/Chemistry: 30 units
- Lower Division (Introductory) Engineering Courses: 17 units (changing to 18)
  - Programming, CAD, circuits, statics, etc.
- Fundamental Upper Division Coursework: 37 units (changing to 38)
  - Mechanics, thermodynamics, machine design, mechatronics and controls, etc.
- Advanced Design Class: 3 units
- Senior Design Sequence: 6 units
- Electives: 6 units
- Total: 120 units for major (changing to 125)
Curricular Structure of the ME Program

In your senior year, you specialize in one of three areas

- Mechanical Systems Design
  - Covers topics such as advanced mechanical design, manufacturing, and computational analysis of fatigue and stress in your designs.
- Mechatronics (smart electromechanical systems)
  - Covers topics such as sensors, automatic controls systems, and robotics
- Thermofluids Engineering
  - Covers topics such as power generation, water systems, cooling of electronics, and HVAC
Unique Strength of Our Educational Programs at SJSU

- Dynamic curricula: Required fundamentals + contemporary electives
- Hands-on experiences involving projects & prototype construction and testing in many lecture/lab courses
- Modern tools: 3-D printing, sensor/control systems, CAD solid modelling, numerical modelling (ANSYS, IcePak, etc.)
- One-year senior design projects, including design and manufacture of prototypes, and testing
- Well-qualified part-time instructors from Silicon Valley industry who bring in current industrial practices
- In-person student advising every semester
- Easy access to faculty
- Industry internship opportunities
- Active student clubs and organizations
Senior Design Projects

• Students work on one-year group projects, including design and manufacture of prototype for testing and evaluation.
• A chance to apply and integrate the what students have learned into a culminating project.
• The scope of the projects are often considerable, and require background research, market research, design, analysis, implementation, test, and documentation.
• It is a chance for strong technical skills to be put to the test, and for creativity to shine!
Examples of Senior Design Projects by Undergraduate ME students

Satellite Debris Collection Using Innovative Adhesive Methods
https://www.youtube.com/watch?time_continue=3&v=fSlzLBcNSrc

Staircase Climbing Wheelchair (Winner of Regional ASME design Competition)

Our senior design students regularly win ASME’s regional design competition – last spring took 1st & 2nd in poster competition for the western half of the US

Spartan Superway
SAE INTERNATIONAL

SAE Formula Car won the international competition held in Nebraska summer 2015; 1\textsuperscript{st} win ever by a California-based team!

Took 6\textsuperscript{th} place in the largest competition in Michigan in 2017.

You can check out part of the design review in Nebraska in 2017, where they took first place in design:

https://www.facebook.com/FormulaSAE/videos/696687393850747/ (SJSU shows up at about 20 minute point)

SAE Teams – FSAE, FSAE Electric, Mini-Baja
**Internships and Career Opportunities**

**Internships**
- 5-20 hrs/wk in industry or on-campus during school year
- 20-40 hrs/wk during summer

**Example ME Employers**

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<th>Semiconductor</th>
<th>Aerospace/Automotive</th>
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<th>IT and Electronics</th>
<th>Thermal Management</th>
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<tr>
<td>Hewlett-Packard, Apple Computers, Seagate, IBM, Quantum, Gener8 (small-scale design and manufacturing)</td>
<td>Cisco, Google, Hewlett Packard, Applied Thermal, Electronic Cooling Solutions, Facebook</td>
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<th>Biotechnology</th>
<th>Energy/Alternative Energy</th>
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<td>Boston Scientific, Medtronic, Nektar, Genentech, Intuitive</td>
<td>PG&amp;E, Erin Engineering, SunPower, Therma</td>
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Our facilities – the ME machine shop (E 123)
Our facilities – instrumentation & data acquisition lab (E 133 – Drs. Mysore & Zaidi)
Our facilities – Mechatronics lab (E 125 – Dr. Furman)
Our facilities – Robotics lab (E 192 – Drs. Du, Jiang & Sharifi)
Our facilities – Computer-aided Design (CAD) Lab (E 213/215 - Dr. Agarwal)
THANK YOU FOR YOUR
INTEREST IN
OUR DEPARTMENT