Engineering – At a Glance

• Seven departments
• 13 undergraduate degrees (eight are accredited by ABET; one by ATMAE)
• 73 full-time tenured/tenure-track faculty
• 140 adjunct faculty
• 4200 undergraduate students
• 2400 graduate students
• 30+ student organizations
• Hands-on, project-based curricula
Undergraduate Degree Programs

- Aerospace Engineering
- Aviation
- Biomedical Engineering
- Chemical Engineering
- Materials Engineering
- Civil Engineering
- Computer Engineering
- Electrical Engineering
- General Engineering
- Industrial and Systems Engineering
- Industrial Technology
- Mechanical Engineering
- Software Engineering
2014 Awards

- SJSU College of Engineering is ranked 3rd nationally among public universities (without doctoral program, excluding service academies)
- SJSU engineering students defy gravity in NASA’s educational flight program
- SJSU Biomedical ENG Student Society wins national Outstanding Achievement Award
- SJSU mechanical engineering students win 2nd place in ASHRAE International Design Competition
- SJSU materials engineering student wins CSU Student Research Competition
- SJSU chemical engineering student team wins AIChE Regional Design Competition with chemical-powered car
- SJSU Aircraft Design Team wins 3rd place in national Design-Build-Fly competition
Opportunities

• Global Technology Initiative (GTI)
• Salzburg Global Seminar
• Corporate, federal, and alumni-funded scholarships
  – Silicon Valley Engineering Scholars
  – Engineering Leadership Pathways Scholars
• EXCEED program for incoming freshmen
• Engineering Ambassadors
• Location in Silicon Valley
  – Industry-sponsored research and projects, internships, professional societies
Upcoming

• Supplemental Criteria for Transfer Admissions (currently planned for F16)
• Supplemental Criteria for Freshmen Admissions (planned for future)
• TMC (still in progress)
**Aerospace Engineering**

<table>
<thead>
<tr>
<th>Degrees Offered:</th>
<th>BS Aerospace Engineering and MS Aerospace Engineering</th>
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</table>
| Areas of Curriculum/Research Focus: | • Aerodynamics aerospace structures  
• Aircraft and spacecraft design  
• Space systems engineering  
• Flight mechanics  
• Dynamics  
• Stability and control |
| Distinguishing Characteristics: | Small class sizes; hands-on learning experiences; |
| Careers: | Aerospace engineering; aircraft and space systems research, design, development, testing and integration; navigation |

*Sean Snyder, Senior Aerospace Engineering*

*Designing and working on machines that can explore the universe feels amazing. Our team is building a maglev train, and the research can apply both to land and to an orbital space station.*
Aviation

Degrees Offered: BS Aviation

Areas of Specialization:
- Professional flight
- Operations
- Aviation management
- Maintenance management

Distinguishing Characteristics: Fundamentals of aviation (mathematics, science and general courses relevant to aviation); specialized training; student flying clubs

Careers: Major airports and airlines, general aviation airports, air charter operators, and the military

Since my sophomore year in high school, I wanted to attend SJSU to complete my degree in aviation and pursue my dream career as a pilot. I have strong interests in understanding the mechanics and engineering aspects of airplanes and helicopters.

Enrique Taitt, Freshman, Aviation
### Biomedical Engineering

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<tr>
<th>Degrees Offered:</th>
<th>BS Biomedical Engineering and MS Biomedical Engineering</th>
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<tr>
<td>Distinguishing</td>
<td>Curriculum developed in partnership with potential employers; project teams; state-of-the-art technology; hands-on laboratory environment; exploration of ethical issues; preparation to function in a U.S Food and Drug Administration regulated environment</td>
</tr>
<tr>
<td>Characteristics:</td>
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<tr>
<td>Careers:</td>
<td>Biomedical devices, bioelectronics and instrumentation; imaging, bioinformatics and manufacturing</td>
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</tbody>
</table>

*SJSU is one of the few universities that offers biomedical engineering in the Bay Area. We are in the heart of Silicon Valley, and employers here love students who have had hands-on experience in internships and labs and who are involved in the clubs the college offers.*

Alexis Haire, Junior, Biomedical Engineering
Chemical Engineering

Degrees Offered:
BS Chemical Engineering and MS Chemical Engineering

Graduate Areas of Specialization:
• Biotechnology
• Environmental health and safety
• Semiconductors and polymers

Graduate and Undergraduate Area of Specialization:
• Biochemical Engineering

Careers:
Chemical process engineer, chemical plant manager, product engineer and automation engineer; semiconductor processing, biotechnology, and industrial chemicals

My favorite hands-on experience is the ChemE car competition. Our student chapter of the American Institute of Chemical Engineers designed and built a small-scale car fueled solely by chemical reaction. To compete against universities around the world was an amazing experience.

Maribel Locsin, Senior, Chemical Engineering
Civil and Environmental Engineering

Degrees Offered: BS Civil Engineering and MS Civil Engineering

Curriculum Areas of Focus:
- Construction
- Environmental
- Geotechnical
- Structural
- Transportation
- Water resources engineering

Distinguishing Characteristics:
Award-winning professors; hands-on laboratory experience; and active student clubs

Careers:
Construction or environmental engineer; geotechnical or structural engineering; transportation and water resources

Adam Rondeau, Senior, Civil Engineering

I like applying math, physics and material properties to real-world problems, I really enjoyed my hands-on concrete labs and annual Steel Bridge student competition from the American Society of Civil Engineers.
## Computer Engineering

### Degrees Offered:
BS Computer Engineering and MS Computer Engineering

### Graduate Areas of Specialization:
- Embedded systems
- Networking systems
- Secure systems
- Systems design

### Distinguishing Characteristics:
Curriculum includes computer hardware design, embedded systems, software design and the construction of real and virtual systems for enterprises; hands-on practice using the latest developments in emerging technologies

### Careers:
Computer hardware design, embedded systems, network systems, secure systems and systems design

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**Sarah Fried,**
Freshman,
Computer Engineering

*My favorite hands-on learning experience was an SJSU engineering camp I participated in called EXCEED. I designed and built my own mobile shelving unit, which was donated to a nonprofit organization.*
Electrical Engineering

Degrees Offered:
BS Electrical Engineering and MS Electrical Engineering

Graduate Areas of Specialization:
- Analog electronics
- Digital system design
- Networking and communication
- Digital signal processing
- Integrated circuit design and fabrication

Careers:
Design, fabrication, product or applications engineer; technical sales or management

Uche Igwe, Junior, Electrical Engineering

It has been a great opportunity to attend SJSU, one of the top engineering programs in the country, because it’s located in Silicon Valley, which is known as the hub of all things innovative. The program continues to give me a broad understanding of engineering so that I have the flexibility to see a wide range of jobs after graduation.
General Engineering

Degrees Offered: BS General Engineering; MS Civil Engineering; MBA/MSE Business Administration and Systems Engineering; MBA/MSSE Business Administration and Software Engineering, undergraduate minors include Business and Green Engineering

Graduate Areas of Specialization:
- Bioinformatics
- Electronic materials and devices
- Green technology
- Environmental health and safety

Careers: Bioinformatics, electronic materials and device engineering; environmental health and safety, and green technology

When I toured SJSU and learned about the opportunities in the engineering field, I knew that the campus was a good fit for me. As an engineer, I can have a part in almost any major business.

Daniel Fix, Freshman, General Engineering
### Degrees Offered:
- BS Industrial and Systems Engineering
- MS Industrial and Systems Engineering
- MS Human Factors and Ergonomics
- MSE General Engineering
- Engineering Management

### Graduate Areas of Specialization:
- Manufacturing and service organizations
- Human factors and ergonomics
- Engineering management

### Careers:
- Systems engineer or analyst
- Supply chain or process engineer
- Quality assurance engineer
- Human factors engineer
- Management consultant

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Diane Ashley Licardo, Junior, Industrial and Systems Engineering

**My favorite hands-on learning experience was building robots, combining multiple disciplines from computer engineering for programming to mechanical engineering for overall design.**
# Industrial Technology

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<tr>
<th>Degrees Offered:</th>
<th>BS Industrial Technology (Computer Electronics and Network Technology or Manufacturing Systems, Green Manufacturing)</th>
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<tbody>
<tr>
<td>Distinguishing Characteristics:</td>
<td>Practical hands-on experiences; in depth technical knowledge; use of current programming languages to analyze and solve industrial problems</td>
</tr>
<tr>
<td>Careers:</td>
<td>High-tech systems, computers, networks, green technologies, electronic devices, and manufacturing</td>
</tr>
</tbody>
</table>

Allen Dutra, Senior, Industrial Technology, Computer Electronics and Network Technology

*The curriculum is about applying theory in real-world applications. Designing and building automated systems with microcontrollers and transducers is by far my favorite hands-on learning experience.*
# Materials Engineering

<table>
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<tr>
<th>Degrees Offered:</th>
<th>BS Materials Engineering and MS Materials Engineering</th>
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</table>
| Graduate Areas of Specialization: | • Biomaterials  
• Composites  
• Electronic and magnetic materials  
• Polymers  
• Semiconductor processing  
• MEMS  
• Microelectronic packaging  
• Nanotechnology |
| Careers: | Materials engineer, materials scientist, semiconductor engineer, metallurgical engineer, failure analysis engineer or characterization scientist |

Patrick Ala, Senior, Materials Engineering

I choose SJSU because it gave me a chance to pursue a degree in materials engineering. I highly enjoy the hands-on training. At SJSU, you’ll learn the things you need to know to become an engineer, and you’ll have an opportunity to network with industry professionals from Silicon Valley.
## Mechanical Engineering

<table>
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<tr>
<th>Degrees Offered:</th>
<th>BS Mechanical Engineering and MS Mechanical Engineering</th>
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</table>
| Graduate Areas of Specialization: | • Energy systems  
• Electronics cooling  
• Electronics packaging and reliability  
• Robotics  
• Product design  
• Finite element analysis and CAD  
• Mechatronics and MEMS  
• Automation and manufacturing |
| Careers: | Mechanical design engineer, mechanical manufacturing engineer, simulation engineer, semiconductor manufacturing and equipment |

Kyle Schmidt,  
Senior Mechanical Engineering

For my senior project, I was a member of an engineering team that designed and built a human-powered vehicle for an American Society of Mechanical Engineers competition. I value the one-on-one time with my professors and the camaraderie of my fellow engineers.
Software Engineering

Degrees Offered: BS Software Engineering and MS Software Engineering

Graduate Areas of Specialization:
- Cloud computing and virtualization
- Cybersecurity
- Enterprise software technologies
- Networking software
- Software systems engineering

Careers:
Software engineer, software developer, software engineering manager, and product marketing manager

Akshay Wattal, Graduate Student, Software Engineering

Being in Silicon Valley, SJSU provides me with a lot of career opportunities. The software engineering courses are relevant to industry and up to date with the latest trends. For my big data analytics project, the program provided hands-on experiences working with new and different technologies.