



Photo credit: MSE Department

HOW TO USE THIS MAP

Use this map to help plan and guide your experience at UC Berkeley, including academic, co-curricular, and discovery opportunities. Everyone's Berkeley experience is different and activities in this map are suggestions. Always consult with your advisors whenever possible for new opportunities and updates.

CONNECT WITH US

Cal Day

Come to UC Berkeley's annual **Open House** in April for information sessions, campus tours, special talks, and more.

Golden Bear Orientation

Join your peers in the campus-wide UC Berkeley **orientation** program for all new students.

Events

Attend department events with students, faculty, and staff. Visit mse.berkeley.edu for news and updates.

ADVISING

For department-specific advising, including course equivalencies, exceptions, and enrollments, contact the MSE undergraduate adviser at medinakohzad@berkeley.edu. Students are also encouraged to meet with an MSE faculty advisor and discuss their program progress, research opportunities, and career plans. See mse.berkeley.edu/advising/.

Visit Engineering Student Services in 230 Bechtel for advising on degree requirements and completion, academic progress, petitions and exceptions, academic difficulty, change of major/joint majors/simultaneous degrees, cancellations/withdrawals/readmission, and education abroad. See engineering.berkeley.edu/students/ess-advising/.

Visit vcue.berkeley.edu/majormaps for the latest version of this major map.

MATERIALS SCIENCE AND ENGINEERING

Bachelor of Science

INTRODUCTION TO THE MAJOR

Materials Science and Engineering (MSE) encompasses all natural and synthetic materials – their extraction, synthesis, processing, properties, characterization, and development for technological applications. Materials Engineers are involved in every aspect of technology, ranging from the design of materials for use in consumer electronics, medical and healthcare applications, energy generation and storage, transportation (from vehicles to bridges), and beyond. MSE teaches core fundamentals while preparing students to solve modern-day materials challenges. Students can also become involved in cutting-edge research in one of the many faculty-led research groups. The MSE program is ABET accredited.



Photo credit: Elena Zhukova

“I love the way Materials Science and Engineering is so directly relevant to understanding the world around me and consequently essential to solving so many of the world's problems.”

– Avni Singhal

DEGREE OPTIONS

WITHOUT MATERIALS, THERE IS NO ENGINEERING

The curriculum provides a strong foundation in the science and engineering of materials, leveraging both classroom and hands-on laboratory experiences, while offering you freedom to explore areas of your choice.

Students can also pursue joint majors, hybrids of MSE and other majors for a single degree, offered with many other departments.

Students may also opt for a combined Bachelor of Science/Master of Science with a fifth year of research and classroom intensive graduate study that prepares students for careers in engineering, engineering management, government, and/or industrial sectors.

AMPLIFY YOUR MAJOR

- Engage in undergraduate research with world-leading faculty or scientists at the **Lawrence Berkeley National Laboratory**.
- Get involved with the **Materials Science Engineering Association**.
- Learn about technology innovation abroad with **GLOBE Ambassadors**.
- Consider a MSE **joint major** or 5th year **BS/MS degree**.

MATERIALS SCIENCE AND ENGINEERING

Bachelor of Science

DESIGN YOUR JOURNEY



	FIRST YEAR	SECOND YEAR	THIRD YEAR	FOURTH YEAR	WHAT CAN I DO WITH MY MAJOR?
Explore your major	<p>Meet with your ESS advisor to discuss your academic plans.</p> <p>Familiarize yourself with major and college requirements, and the MSE Curriculum.</p> <p>Talk to the MSE faculty advisors about department programs and research opportunities.</p> <p>Enroll in the first year MSE courses: MSE 45/L - Properties of Materials/Laboratory.</p>	<p>Meet with your department and ESS advisors to discuss your academic progress.</p> <p>Complete lower division prerequisites and start planning your upper division courses.</p> <p>Plan now if considering a combined BS/MS program, joint or double major, simultaneous degree, minor, or study abroad.</p>	<p>Focus on upper division requirements like the MSE 12X series and math/stats/data elective.</p> <p>Continue meeting with your department and ESS advisor to review your academic progress.</p> <p>Submit paperwork for a joint or double major, simultaneous degree, minor, or study abroad.</p> <p>Plan your elective courses — expand your education with targeted choices.</p>	<p>Meet with your ESS adviser to do an official degree check and plan for your final year.</p> <p>Complete any “bucket list” courses and remaining major, college, and campus requirements.</p> <p>Complement your major with a certificate, course thread, or summer minor.</p> <p>Complete applications to the 5th year BS/MS program or other graduate programs.</p>	<p>Upon graduation, MSE students are prepared for a number of different career paths. Many go on to graduate studies at prestigious universities. Others head directly into the workforce hired as engineers in Silicon Valley, the biotechnology sector, the aerospace field, and beyond.</p>
Connect and build community	<p>Join the Materials Science and Engineering Association (MSEA) student organization.</p> <p>Take advantage of tutoring and workshops for Engineering students.</p> <p>Attend office hours and seek help when you need it.</p> <p>Find student opportunities in the ESS newsletter.</p>	<p>Attend MSEA and department events like MSE Town Halls, and get to know faculty, staff, and students.</p> <p>Follow Berkeley MSE on Facebook, Twitter, Instagram and LinkedIn.</p> <p>Get to know Engineering professors and graduate student instructors during their office hours.</p>	<p>Give back by becoming an ESS peer advisor.</p> <p>Join the Berkeley Engineering group on LinkedIn.</p> <p>Attend MSE weekly seminars and other events — get to know a new group of individuals.</p> <p>Continue attending department events and parties.</p>	<p>Join a professional association such as the Materials Research Society.</p> <p>Give back as part of MSEA - support younger students as they find their own way.</p> <p>Connect with alumni groups and leverage your network as you prepare to graduate.</p>	<p>Employers</p> <p>Amazon Apple Applied Materials Bayer Healthcare Baxter BP Chevron Dow Dupont Exponent Exxon First Solar FormFactor Inc. Google Hewlett Packard Intel Imerys Imprint Energy Johnson & Johnson Lam Research Lockheed Martin Micron Technology SpaceX Tesla</p>
Discover your passions	<p>Browse research taking place in Engineering centers, institutes, and labs.</p> <p>Attend the Undergraduate Research and Scholarships Fair in September and October.</p> <p>Discover new interests in a Freshman Seminar or student-run DeCal course.</p> <p>Read about faculty research in MSE — find out who is doing what and make time to chat with them.</p>	<p>Consider pursuing research with a group in MSE (see resources for Engineering and MSE students).</p> <p>Apply for internships or research opportunities outside Berkeley (like an REU research program). Check Berkeley Lab and UCSF as well.</p> <p>Check out design and maker opportunities at the Jacobs Institute.</p>	<p>Look for new experiences—work in a new lab or spend a summer at a company or national lab.</p> <p>Explore your mission and impact as an Engineer through the LeaderShape Institute.</p> <p>Apply innovation to healthcare through a Fung Fellowship.</p> <p>Explore entrepreneurship through the Sutardja Center and Skydeck.</p>	<p>Put your plan into action! Going to grad school? Getting a job? Make time to achieve your goals.</p> <p>Keep seeking new experiences or settle in to make impact in one you like.</p> <p>Going to pursue a PhD? Apply for fellowships like the NSF GRFP, NDSEG, and others.</p> <p>Teach your own DeCal course or consider being an instructor for ENGIN 98.</p>	<p>Graduate Programs</p> <p>Chemical Engineering, PhD Electrical Engineering, PhD Finance, PhD Law, JD Materials Science & Engineering, PhD Nuclear Engineering, PhD Solid State Physics, PhD</p>
Engage locally and globally	<p>Attend the Calapalooza student activities fair and get involved with a student organization such as MSEA.</p> <p>Find service opportunities through the Public Service Center.</p> <p>Explore study, internship, and research abroad options with Berkeley Study Abroad. Find out what it will take and the best timing for this.</p>	<p>Work with a community organization in an American Cultures Engaged Scholarship course such as ENGIN 157AC.</p> <p>Apply to GLOBE Ambassadors, a learning and travel program for Engineering students.</p> <p>Mentor local youth with Pioneers in Engineering, Berkeley Engineers and Mentors, or Engineering for Kids.</p>	<p>Consider a leadership role in MSEA.</p> <p>Take your engineering skills international through Engineers Without Borders.</p> <p>Experience life at another UC or colleges on a visitor and exchange program.</p> <p>Going abroad? Apply for travel funding from GLOBE Scholars.</p>	<p>Serve as a student representative on a college committee.</p> <p>Hone your leadership skills with the Peter E. Haas Public Service Leaders program.</p> <p>Explore service opportunities after graduation, such as Peace Corps, Teach for America, or U.S. Department of State.</p>	
Reflect and plan your future	<p>Visit the Career Center and Career Counseling Library.</p> <p>Sign up for Handshake and CareerMail. Create a resume and LinkedIn page at an ESS workshop.</p> <p>Explore career resources on the Engineering and Career Center website.</p> <p>Start exploring internships and research experiences.</p>	<p>Meet with a Career Center counselor to discuss your career options and goals.</p> <p>Explore career opportunities through a winter externship, and informational interviews.</p> <p>Pursue an internship and attend an internship career fair.</p> <p>Make your summer work for you—research in a campus lab or intern at a company.</p>	<p>Attend career and graduate school fairs such as the STEM Career & Internship Fair.</p> <p>Discuss graduate and professional school options with advisors and professors.</p> <p>Sign up for a ESS career workshop, networking dinner, speaker series, or career conference.</p> <p>Make an advising appointment in ESS and explore options such as 5th year MS, MEng, and PhD.</p>	<p>Ask professors and graduate student instructors for recommendation letters.</p> <p>Utilize job search tools from the Career Center. Meet employers at Employer Info Sessions and On-Campus Recruiting.</p> <p>Attend the job offer negotiation workshop in ESS.</p> <p>Apply to jobs, graduate school, and other opportunities.</p>	<p>Examples gathered from the First Destination Survey of recent Berkeley graduates.</p>