Big Inspired Goal

Be recognized as the best undergraduate mechanical engineering program in the world and the alma mater for the world's most influential engineers.

Envisioned Future

- The strength of our undergraduate program will be fueled by opportunities for learning and knowledge creation that flow out of a vibrant and vital graduate research program.
- Graduates of our program (both undergraduate and graduate) will be highly sought after by top universities, corporations, and engineering enterprises and will lead many such organizations.
- Our graduates will understand the influence of the Spirit and how it applies to their profession and the creative process.
- Faculty, staff, students, and alumni will be recognized as individuals of faith and integrity.
- Our faculty will be recognized nationally and internationally as experts in their fields.
- The technology created within our department will have significant economic and societal impacts.
- Our curriculum will be exemplary; our methods and materials will be widely respected and used by others.
- We will have external partners that readily provide resources and other support necessary to fulfill our core purpose.
Introduction

The purpose of this undergraduate student guide is to provide you with information that will help you make decisions and get the most out of your BYU education. Underpinning this guide and at the foundation of our philosophy of education in the department is this principle: “You are responsible for your education.” Although we obviously have a large influence on the quality of your educational experience, you are ultimately responsible for how much you learn. We encourage and expect you to do more than “play the game” of getting grades. We want you to learn. If you wish to be a successful engineer you will need to learn for the rest of your life.

There are numerous opportunities to learn for which you will not receive a grade (although we would encourage you to document these activities in an optional portfolio). For example, we have a fine Projects Lab. A mechanical engineer should have experience in basic fabrication processes. We do not have time in the curriculum to teach you how to use the machines in the Projects Lab, so we provide opportunities to learn on your own. When things get busy, we open the Projects Lab on Saturdays. You should also consider getting involved in one of the student clubs or societies as an important enhancement to your classroom learning.

Everything in this guide is important. Please read it carefully and refer to it often. We will provide updates from time to time as necessary. We are glad you are interested in mechanical engineering. It is a great profession and we look forward to helping you obtain a world-class education.
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ADVISEMENT OVERVIEW FORM
Mechanical Engineering: An Overview
Mechanical Engineering: An Overview
What is Mechanical Engineering?

Engineering is the applied arm of science and therefore requires an understanding of traditional science and math, as well as an understanding of techniques and application in real world systems and devices. The mechanical engineer applies this understanding to synthesize new products that benefit humanity. In other words, engineers use math and science to come up with creative solutions to problems.

Mechanical engineering is built upon three main areas of study: thermal and fluid science, mechanical systems, and design and manufacturing.

Thermal and fluid science includes the study of thermodynamics, fluids, and heat transfer. Some examples of thermal applications are:

- Designing a rocket engine
- Predicting lift for an airplane wing
- Modeling wave action

Mechanical systems include the study of materials, dynamics, vibrations, and controls. Some examples of mechanical systems applications are:

- Building a robot
- Developing a control system for a satellite

Design and manufacturing includes computer-aided design, design, and manufacturing. Some examples of design and manufacturing applications are:

- Designing new hybrid vehicle drive trains
- Designing and testing prosthetics
What do Mechanical Engineers do?
There are many different career paths for individuals with a Mechanical Engineering degree.

- Transportation
- Manufacturing
- Communication
- Power Generation
- Computer-aided Engineering
- Agriculture
- Aerospace
- Materials
- Biomedical Engineering
- Research
- Design
- Analysis
- Testing
- Operations
- Technical Sales
- Management
- Business
- Law

A traditional engineering career can be characterized as having three phases: entry level engineer, established engineer and leading engineer. Not all engineers become CEOs of companies, but all engineers have the opportunity to be agents of change for society. Leading engineers benefit mankind through the application of their expertise or the management of others. Established engineers are the “backbone” of the engineering industry. They participate in product development and research programs that give them experience and allow them to mature into leading roles. The career of an entry level engineer usually begins under the direction of other engineers as he or she participates in product development and research programs. The undergraduate university experience prepares you for a successful engineering career. However, advancement from one level to another depends on your own work, study, and commitment.
Where do Mechanical Engineers work?

Of the 122 bachelor’s degree graduates in April 2018, 55 (45%) were starting jobs with an average salary of about $61,643. There were 34 (28%) students who were accepted to graduate schools.

What classes will I take?
As a mechanical engineering student, you will take courses in each of the main technical areas that characterize mechanical engineering (thermal and fluid science, mechanical systems, and design and manufacturing). These courses are shown on the Flow Chart, which is available further along in this guide as well as on the ME website. You will learn fundamental phenomena associated with each area and the physical laws or principles which govern those phenomena. You will learn how to use these laws to model and predict behavior, often using the computer as a tool. Other skills are also important. An engineer must know, for example, how to communicate effectively, how to work well with others, how to learn new things, and how to define and solve problems. Thus the technical areas are only part of your education (although a very important part) that must be complimented by other skills. These other skills will also be taught as you learn the technical material.
What are the Educational Objectives and Program Outcomes?

The Mechanical Engineering Department at Brigham Young University pursues the following educational objectives:

- Teach the fundamental concepts of math, science, and mechanical engineering to produce graduates who demonstrate technical excellence and provide service to their profession, community, family, and church.
- Instill a desire and ability to learn continuously, both through study and faith, to enable graduates to meet the changing demands of their profession and personal life.
- Provide practical and open-ended engineering experiences to develop graduates who think independently and demonstrate leadership and creativity.
- Engage students in activities to produce graduates who communicate and work effectively and ethically with people of diverse backgrounds.

The department fully supports the Aims of a BYU Education and is committed to the idea of integrating spiritual and secular learning.

To assure that the educational objectives are reached, the department has articulated twelve Program Outcomes for the Bachelors Degree. Each student graduating from this program is expected to have the following skills, abilities, and traits:

1. A basic understanding of fundamental physical phenomena and governing principles.

2. The ability to develop and solve mathematical models of fundamental physical phenomena and apply them to predict the behavior of engineering systems.

3. The ability to use engineering principles to design an innovative system, component, or process to meet desired needs.

4. The expertise to plan and conduct an experimental program and evaluate the results.
The department has articulated twelve outcomes of the BS program. Each student graduating from this program is expected to have these skills, abilities, and traits.

5. The ability to use modern engineering tools and techniques in engineering practice.

6. An understanding of manufacturing processes and planning.

7. Effective oral and written communication skills.

8. The ability to work with and lead others to accomplish common goals.

9. An appreciation of history, philosophy, literature, science, and the fine arts and how they influence the culture and behavior of societies.

10. Personal behavior demonstrating and practicing high moral and ethical standards.

11. The ability to practice engineering in a global environment.

12. A desire for and commitment to lifelong learning and service.

All courses in the curriculum are designed to help achieve these outcomes. For further information regarding individual course outcomes, please see the University’s Undergraduate Catalog.
You are in control of your education.
Take the wheel and steer!

The introduction to this guide discusses our desire for you to take responsibility for your education. How do you do this? The best way is for you to take responsibility for your learning. In each course you take, you should strive to learn what is being taught, whether or not you see the relevance. Be an active participant, seeking to take advantage of all learning opportunities, both in and out of the classroom. In addition, you must become familiar with the department program, procedures, and course requirements. Learning and knowing this information is your responsibility.

We suggest the following ideas:

**Freshman year:**
Take the prerequisite courses and get good grades.
Apply to the program (even if you are going on a mission—your spot will be held). Fill out the application on the ME website, https://meapply.byu.edu/apply.

Attend the Advisement Overview to learn about program requirements. This is required as part of ME EN 191.

**Sophomore year:**
Start a portfolio. Keep your best work from your ME classes. Include reflections on your learning activities.
Find and meet your assigned faculty advisor (assignments occur after admittance).
Start thinking about internships or doing research in a professor’s lab (meaning that you need to be proactive and learn what is available and what the professors do).

Join a club or start volunteering in a lab (again, be proactive).

**Junior year:**
Meet with your faculty advisor to plan your technical electives, discuss graduate school or career options, and show your portfolio.
Continue taking courses that will keep you on track for graduation.
Add more items to your portfolio (engineering week work, design/lab projects or write-ups from junior courses).

If you have had an internship or other professional experience, include this in your portfolio.
Apply for Capstone (usually this will happen in late March or early April. Watch around the department for advertisements).

**Senior year:**
Do a final graduation check with the Undergraduate Advisor.
Apply for graduation online.
Complete your Graduation Survey, and Exit Interview (these are NOT optional).
Finish Capstone.
Frequently Asked Questions
How do I get into the major?

BYU’s Mechanical Engineering major is a limited Enrollment program, which means we only admit a certain number of students per year. In order to be admitted to our program, you must complete the required application courses, and then fill out and submit the application. We admit based on the GPA of the application courses. Typically, students with a 3.3 average or higher will get into the major. The application courses are:

1. ME EN 191
2. The first physics course taken at BYU from the sequence: PHYSICS 121, PHYSICS 123
3. The first math course taken at BYU from the sequence: MATH 112, 113, 302, 303, 313, 314, 334
4. The first mechanics course taken at BYU from the sequence: MeEn 101, CeEn 203, CeEn 204

For more information regarding the application process go to: http://me.byu.edu/content/applying-professional-program.

What if my grades aren’t high enough?

Remember, we are looking at the Application Courses for the GPA, so don’t panic if you get a C in American Heritage! If you are unhappy about the grades you get in the Application Courses, you may take each of those courses again one time, and we will use the higher grades for your application.

How many times can I apply?

You may apply more than once but be aware of University policy. Students must declare a major by the time they have earned 60 BYU credits (excluding language credit). Once a student has earned 75 BYU credits, they will not be allowed to change their major, unless special permission is granted.
Do I have to take ME EN 191?
Yes. You have to pass it before you can apply to the program.

What classes do I take each semester?
We have provided a flowchart to help you navigate your way through the program. You are not required to follow it exactly, but in order to graduate in a timely manner you should try to follow it as closely as possible, paying close attention to prerequisite requirements (see flowchart on adjacent page).

What is Capstone?
Capstone is our two-semester senior design project course (ME EN 475 and ME EN 476). All Mechanical Engineering students are required to take it. It is intended to be the culminating project of your undergraduate experience, and you will take it during your final year in the program. Please see the Capstone website (capstone.byu.edu) for more information.

capstone.byu.edu

What Technical Electives can I take?
The Technical Electives are meant to allow you freedom to pursue courses that will give you a “specialty” in your particular areas of interest. The department has provided a list of approved Technical Electives. If a course is not on the list, you may NOT count it as a Technical Elective. You can find the current list of approved Technical Electives on p. 15.
Technical Elective Requirements
1. At least 12 credit hours (4 courses)
2. At least 6 credit hours (2 courses) in Mechanical Engineering
3. No courses below 300 level
4. A maximum of 3 credit hours in Me En 497R or other independent project courses
5. All courses must be selected from the following list. If a student wishes to count a course not listed, approval must be granted before the course is taken. Approval is requested by submitting a petition to the department undergraduate committee.
6. No course used to satisfy other major course requirements can be used as an elective.

Mechanical Engineering
Any Class 400 or higher

Computer Science
C S 312 - Algorithm Design and Analysis
C S 324 - Systems Programming
C S 330 - Concepts of Programming Languages
C S 340 - Software Design and Testing
C S 345 - Operating Systems Design
C S 355 - Introduction to Graphics and Image Processing
C S 356 - Designing the User Experience
C S 405 - Creating and Managing a Software Business
C S 412 - Linear Programming and Convex Optimization
C S 418 - Bioinformatics
C S 428 - Software Engineering
C S 431 - Algorithmic Languages and Compilers
C S 450 - Computer Vision
C S 452 - Database Modeling Concepts
C S 453 - Fundamentals of Information Retrieval
C S 455 - Computer Graphics
C S 456 - Introduction to User Interface Software
C S 460 - Computer Communications and Networking
C S 462 - Large-Scale Distributed System Design
C S 465 - Computer Security
C S 470 - Introduction to Artificial Intelligence
C S 478 - Tools for Machine Learning
C S 484 - Parallel Processing
C S 486 - Verification and Validation
C S 493R - Computing Competitions
C S 513 - Robust Control

Civil and Environmental Engineering
CE EN 304 - Civil Eng Materials: Metals, Woods, Composites
CE EN 306 - Civil Eng Materials: Concrete, Masonry, Asphalt
CE EN 321 - Structural Analysis
CE EN 332 - Hydraulics and Fluid Flow Theory
CE EN 341 - Elementary Soil Mechanics
CE EN 361 - Introduction to Transportation Engineering
CE EN 414 - Engineering Applications of GIS
CE EN 421 - Structural Steel Design
CE EN 424 - Reinforced Concrete Design
CE EN 427 - International Megastructures
CE EN 431 - Hydrology
CE EN 433 - Hydraulic Engineering
CE EN 439 - Water Resources Study Abroad
CE EN 442 - Foundation Engineering
CE EN 451 - Environmental Engineering Processes
CE EN 461 - Geometric Design of Highways
CE EN 467 - International Megacities
CE EN 472 - Civil Engineering Design
CE EN 500 - (CE-Me) Design and Materials Applications
CE EN 501 - (CE-Me) Stress Analysis and Design of Mechanical Structures
CE EN 503 - (CE-Me) Plasticity and Fracture
CE EN 504 - (CE-Me) Computer Structural Analysis and Optimization
CE EN 505 - Portland Cement Concrete Mixture Design and Analysis
CE EN 507 - (CE-Me) Linear Finite Element Methods
CE EN 508 - (CE-Me) Structural Vibrations
CE EN 514 - Geospatial Environmental Engineering
CE EN 521 - Seismic-Resistant Steel Buildings
CE EN 523 - (CE-Me) Aircraft Structures
CE EN 525 - Bridge Structures
CE EN 528 - Masonry Design
CE EN 529 - Timber Design
CE EN 531 - Principles of Hydrologic Modeling
CE EN 534 - Hydroinformatics
CE EN 535 - Hydraulic Design of Channels Control Structures
CE EN 540 - Geo-Environmental Engineering
CE EN 544 - Seepage and Slope Stability Analysis
CE EN 545 - Geotechnical Analysis Earthquake Phenomena
CE EN 547 - Groundwater Modeling
CE EN 551 - Water Treatment Facilities Design
CE EN 555 - Environmental Chemistry
CE EN 562 - Traffic Engineering:
Characteristics/Operations
CE EN 563 - Pavement Design
CE EN 565 - Urban Transportation Planning
CE EN 570 - (CE-Me) Computer-Aided Engineering Software Development
CE EN 572 - Computer-Aided Geometric Design
CE EN 575 - (CE-Me) Optimization Techniques in Eng.

**Chemical Engineering**
CH EN 386 - Chemical Reaction Engineering
CH EN 410 - Principles of Reservoir Engineering
CH EN 412 - Introductory Nuclear Engineering
CH EN 433 - Energy Engineering
CH EN 436 - Process Control and Dynamics
CH EN 451 - Chemical Engineering Plant Design and Process Synthesis
CH EN 461 - Chemical Engineering Problem Solving through Experiential Learning
CH EN 475 - Unit Operations Laboratory 1
CH EN 476 - Separations
CH EN 477 - Unit Operations Laboratory 2
CH EN 479 - Unit Operations Laboratory
CH EN 481 - Introduction to Semiconductor Processing
CH EN 499 - Mentored Research and Thesis
CH EN 513 - Molecular Modeling
CH EN 518 - Biomedical Engineering Principles
CH EN 519 - Biochemical Engineering
CH EN 528 - Industrial Catalytic Processes
CH EN 531 - Thermodynamics of Multicomponent Systems
CH EN 533 - Transport Phenomena
CH EN 535 - Kinetics and Catalysis
CH EN 541 - Computer Design Methods
CH EN 578 - Polymer Science and Engineering

**Chemistry**
CHEM 351 - Organic Chemistry 1
CHEM 351M - Organic Chemistry 1 - Majors
CHEM 352 - Organic Chemistry 2
CHEM 353 - Organic Chemistry Laboratory--Nonmajors
CHEM 354 - Organic Chemistry Laboratory--Majors
CHEM 355 - Organic Chemistry Laboratory 2 - Nonmajors
CHEM 357 - Industrial Organic Chemistry
CHEM 391 - Technical Writing Using Chemical Literature
CHEM 455 - Synthesis and Qualitative Organic Analysis
CHEM 462 - Physical Chemistry 1
CHEM 463 - Physical Chemistry 2
CHEM 464 - Physical Chemistry Laboratory 1
CHEM 465 - Physical Chemistry Laboratory 2
CHEM 467 - Physical Chemistry for Engineers
CHEM 468 - Biophysical Chemistry
CHEM 481 - Biochemistry
CHEM 481M - Biochemistry--Majors
CHEM 482 - Mechanisms of Molecular Biology
CHEM 489 - Structural Biochemistry
CHEM 514 - Inorganic Chemistry
CHEM 518 - Advanced Inorganic Laboratory
CHEM 521 - Instrumental Analysis Lecture
CHEM 523 - Instrumental Analysis Laboratory
CHEM 552 - Advanced Organic Chemistry
CHEM 553 - Advanced Organic Chemistry
CHEM 555 - Organic Spectroscopic Identification
CHEM 561 - Chemical Thermodynamics
CHEM 563 - Reaction Kinetics
CHEM 565 - Introduction to Quantum Chemistry
CHEM 567 - Statistical Mechanics
CHEM 569 - Fundamentals of Spectroscopy
CHEM 571 - Polymer and Materials Chemistry
CHEM 581 - Advanced Biochemical Methodology 1
CHEM 583 - Advanced Biochemical Methodology 2
CHEM 584 - Advanced Biochemistry Methods 1
CHEM 586 - Advanced Biochemistry Methods 2

**Electrical and Computer Engineering**
EC EN 323 - Computer Organization
EC EN 330 - Introduction to Embedded System Programming
EC EN 340 - Electronic Circuit Design 1
EC EN 360 - Electromagnetic Fields and Waves
EC EN 380 - Signals and Systems
EC EN 424 - Computer Systems
EC EN 425 - Real-Time Operating Systems
EC EN 427 - Embedded Systems
EC EN 445 - Introduction to Mixed-Signal VLSI
EC EN 446 - Power Electronics
EC EN 450 - Introduction to Semiconductor Devices
EC EN 452 - Experiments in Integrated Circuit Development
EC EN 462 - Electromagnetic Radiation and Propagation
EC EN 464 - Wireless Communication Circuits
EC EN 466 - Introduction to Optical Engineering
EC EN 483 - (EC En-Me En 431) Design of Control Systems
EC EN 485 - Introduction to Digital Communication Theory
EC EN 487 - Introduction to Discrete-Time Signal Processing
EC EN 521 - Introduction to Algorithm Design
EC EN 523 - Computer System Reliability
EC EN 528 - Computer Architecture
EC EN 541 - Active and Passive Filter Design
EC EN 543 - CMOS Amplifier Design
EC EN 548 - Analog CMOS Circuit Design
EC EN 549 - VLSI Communication Circuit Design
EC EN 550 - (EC-Me) Microelectromechanical Systems (MEMS)
EC EN 551 - Introduction to Digital VLSI Circuits
EC EN 555 - Optoelectronic Devices
EC EN 560 - Electromagnetic Wave Theory
EC EN 562 - Optical Communication Components and Systems
EC EN 563 - Applied Computational Electromagnetics
EC EN 564 - Radar and Communication Systems
EC EN 566 - Microwave Remote Sensing
EC EN 567 - Medical Imaging and Image Reconstruction
EC EN 595 - Fundamentals of Patents and Other Intellectual Property

Math
MATH 402 - Modeling with Uncertainty and Data 1 Laboratory
MATH 403 - Modeling with Uncertainty and Data 1 Laboratory
MATH 404 - Modeling with Uncertainty and Data 2 Laboratory
MATH 405 - Modeling with Uncertainty and Data 2 Laboratory
MATH 410 - Introduction to Numerical Methods
MATH 411 - Numerical Methods
MATH 431 - Probability Theory
MATH 436 - Modeling with Dynamics and Control 1 Laboratory
MATH 437 - Modeling with Dynamics and Control 1 Laboratory
MATH 438 - Modeling with Dynamics and Control 2 Laboratory
MATH 439 - Modeling with Dynamics and Control 2 Laboratory
MATH 447 - Introduction to Partial Differential Equations
MATH 450 - Combinatorics
MATH 451 - Introduction to Topology
MATH 465 - Differential Geometry
MATH 473 - Group Representation Theory
MATH 485 - Mathematical Cryptography
MATH 487 - Number Theory
MATH 510 - Numerical Methods for Linear Algebra
MATH 511 - Numerical Methods for Partial Differential Equations
MATH 521 - Methods of Applied Mathematics 1
MATH 522 - Methods of Applied Mathematics 2
MATH 532 - Complex Analysis
MATH 534 - Introduction to Dynamical Systems 1
MATH 536 - Applied Discrete Probability
MATH 540 - Linear Analysis
MATH 541 - Real Analysis
MATH 547 - Modeling and Analysis of Partial Differential Equations
MATH 553 - Foundations of Topology 1
MATH 554 - Foundations of Topology 2
MATH 561 - Introduction to Algebraic Geometry 1
MATH 562 - Introduction to Algebraic Geometry 2
MATH 565 - Differential Geometry
MATH 570 - Matrix Analysis
MATH 571 - Algebra 1
MATH 572 - Algebra 2
MATH 586 - Introduction to Algebraic Number Theory
MATH 587 - Introduction to Analytic Number Theory

Manufacturing
MFG 331 - Metals Processes
MFG 333 - Industrial Automation
MFG 340 - Quality Systems in Manufacturing
MFG 355 - Plastics Materials and Processing
MFG 381 - Lean Manufacturing & System Design
MFG 431 - Tool Design
MFG 440 - Six Sigma for Manufacturing
MFG 456 - Introduction to Composites
MFG 531 - Advanced Computer-Aided Manufacturing Programming
MFG 532 - Manufacturing Systems
MFG 533 - Manufacturing Information Systems
MFG 574 - Advanced Tool Design
MFG 575 - Packaging Technologies
MFG 580 - Manufacturing Simulation

Physics
PHSCS 318 - Introduction to Mathematical Physics
PHSCS 321 - Mechanics
PHSCS 330 - Computational Physics Lab 2
PHSCS 360 - Statistical and Thermal Physics
PHSCS 416 - Writing in Physics
PHSCS 427 - Introduction to Astrophysics
Can I get an emphasis?
Technically we do not offer an emphasis; however, if you are interested in pursuing an area of focus, you can choose your Technical Electives to steer you in that direction.

For example, if you are interested in Aerospace, you could take ME EN 523 (Design of Aircraft Structures), ME EN 426 (Gas Turbine and Jet Engine Design) and ME EN 415 (Applied Aerodynamics and Flight Mechanics). The other technical electives that you choose are up to you, but these classes would give you a foundation for the material pertaining to Aerospace.

Where can I go if I have questions or if I need help?
Parents, siblings, and roommates are excellent sources of advice and wisdom, but if you have questions about the ME major, please come to us.

- We have a caring and knowledgeable Undergraduate Advisor, Miriam Busch, who is always willing to help. You can make an appointment by calling the main Mechanical Engineering office at 801-422-2625.
- We have a Peer Advisor who has experienced the program first-hand and can help answer questions and provide support. You can contact them at me-advisement@byu.edu
- We have an excellent Advisement Center in the College. You can make an appointment there by calling 801-422-4325, or by stopping in 246 EB.
- We have a well-maintained website. Please visit us there at me.byu.edu
- Don’t hesitate to make an appointment with your faculty advisor, or a professor from one of your classes. We have a fantastic faculty who care very much about your success. You can get contact information for any of our faculty or staff from our website.
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<td>Design/Manufacturing</td>
<td>MeEn 550 Microelectromechanical Systems (MEMS)</td>
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<td>MeEn 575 Optimization Techniques in Engineering</td>
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<td>MeEn 576 Product Design</td>
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<td>MeEn 578 CAD/CAM Applications</td>
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<td>Dynamics and Vibration</td>
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Student Opportunities
Student Clubs and Societies
BYU, the College, and the Department provide many interesting and exciting programs. These programs provide valuable opportunities for learning and growth, and will help you learn leadership skills, gain technical experience, and distinguish yourself as an emerging professional.

Department Sponsored Student Chapters of Professional Societies

1. American Society of Mechanical Engineers (ASME)—promotes the art, science and practice of multidisciplinary engineering and allied sciences around the globe.

2. American Institute of Aeronautics and Astronautics (AIAA)—the heart of aerospace. With more than 31,000 members, AIAA is the world’s largest professional society devoted to the progress of engineering and science in aviation, space, and defense.

3. Society of Automotive Engineers (SAE)—a global association of more than 128,000 engineers and related technical experts in the aerospace, automotive and commercial-vehicle industries. SAE International’s core competencies are life-long learning and voluntary consensus standards development.

4. Society for the Advancement of Materials and Process Engineering (SAMPE)—an international society that provides information on new materials and processing technologies through chapter technical presentations, two journal publications, symposia and commercial expositions in which professionals can exchange ideas and air their views. As the only technical society encompassing all fields of endeavor in materials and processes, SAMPE provides a unique and valuable forum for scientists, engineers, designers and academicians.
Fulton College of Engineering and Technology Sponsored Societies

1. Tau Beta Pi (Engineering Honor Society)—founded in 1885 to mark in a fitting manner those who have conferred honor upon their alma mater by distinguished scholarship and exemplary character as undergraduates in the field of engineering, or by their attainments as alumni in the field of engineering, and to foster a spirit of liberal culture in the engineering colleges.

2. Society of Women Engineers (SWE)—a national educational and service organization founded in 1950. SWE is the driving force that establishes engineering as a highly desirable career aspiration for women. SWE empowers women to succeed and advance in those aspirations and be recognized for their life-changing contributions and achievements as engineers and leaders.

3. Global Engineering Outreach (GEO)—this group works to solve global needs by creating community-driven development through the design and implementation of sustainable engineering projects. They work to train and involve internationally responsible engineering students.

If you are interested in getting involved in any these groups, you can find more information on the ME website. BYU also maintains an excellent website for campus clubs at clubs.byu.edu/home.
Summer Internships

Another important opportunity is an internship. The Mechanical Engineering Department does not require students to obtain an internship, but we strongly encourage it. You do not have to wait until you are a junior or senior—sophomores and even freshmen can get an internship.

An internship is a career-appropriate job that you take before you have finished your education. Internships are different than “co-ops.” A “co-op” is a job opportunity at an outside company that is sponsored by the University and for which you get course credit. Because of liability issues, few co-ops are available.

Advantages of an Intern Experience

Few engineering students have a clear picture of what an engineer actually does. As an intern, you get to work alongside engineers on real-world problems and gain valuable experience. Not all jobs are equally challenging, but most companies try to find an interesting project that will benefit both the intern and the company.

Companies realize that summer internships are great recruiting tools. You get a good look at the company and they get a good look at you. If you have a good experience, you are more likely to accept an offer for permanent employment after you graduate. If they like you, they are more apt to give you a good offer than someone they don’t know.

How to Obtain an Internship

1. Visit the College Advisement Center (246 EB). They have information and job listings, as well as a dedicated Career Counselor.
2. The University Career Services Center (2400 WSC) has job listings. They also have many resources to help you research companies to contact.
3. Use BYU Handshake. This is an online resource that connects BYU students to employers and allows users to search job listings, apply for jobs, communicate with recruiters, and schedule on-campus interviews. Log in to handshake.byu.edu.

4. The Mechanical Engineering Department External Relations Coordinator, Kelly Marcum (350 EB), can help you identify opportunities and can also review your resume.

5. Attend the BYU STEM Career Fair. Each Fall and Winter semester, leading companies come to our campus to advertise and recruit. This is an opportunity for you to talk to a representative in person, and many will accept resumes for internships. Come prepared.

6. Talk to people, network with friends and relatives, and find out what jobs are available. Send out resumes. Make appointments for interviews. The more effort you make, the more likely you are to get an internship.

Take practical and consistent measures to obtain an internship. We have resources to assist you in finding and preparing for opportunities, but ultimately the effort and initiative required to succeed depends on you.
Advisement Overview Questionnaire

(Bring this completed form to the Advisement Overview at 346 EB)

Name__________________________Student ID___________________Email__________________

The purpose of the Overview is to provide an opportunity for students to visit the Department of Mechanical Engineering Suite, meet the academic advisor, become familiar with the Suggested Graduation Plan, learn how to plan courses and register in MyMap, and how to prepare for admission into the ME Professional Program. Please read over the Undergraduate Guide before the Overview and answer the following questions. The Academic Advisor will sign it at the Overview, following which the student must upload it to Learning Suite for credit.

1. Why have you chosen to investigate Mechanical Engineering?

2. What classes in Mechanical Engineering sound most interesting to you? (Browse classes on Flowchart, p. 14)

3. What activities are you interested in, to help prepare you to be a mechanical engineer? (See p. 22-25)

4. Look over the Educational Objectives and Program Outcomes for Mechanical Engineering and list what outcomes best match your goals and interests. (See p. 6)

5. Summarize the process for applying to the ME Professional Program. (See p. 12)

6. What do you see as your role in accomplishing the Big Inspired Goal and Envisioned Future for the Department of Mechanical Engineering? (See inside cover)

7. What concerns do you have about coursework and other preparation for the degree?

Advisor Signature____________________________________Date__________________________