Overview

In this online engineering course, you will discover how to become a true engineer by exploring the engineering design processes in a hands-on learning environment.

About this course

Do you ever think: “There has to be a better way!” Then engineering is for you! Engineering is for anyone with a passion for problem solving.

This course actively introduces you to skills and tools that engineers use to solve problems while teaching you to think like an engineer. You will learn to identify opportunities, imagine new solutions to problems, model your creations, make data-driven decisions, build prototypes, and showcase your ideas that will impact the world.

Taught by engineering professors and highlighting industry engineers in action, this course will equip you, as an engineer-in-training, with the skills necessary to compete in today’s world of innovation.

Required prior knowledge and skills

To be successful in this course, we recommend English language fluency and computer literacy.

Learning Outcomes

What you’ll learn:

- Engineering design process
- Data driven decision making
- Engineering tools (e.g. CAD, programming, etc.)
- Technical Reports and Presentations

Additional Info

This is a 2 credit hour course at Arizona State University (FSE 100 Introduction to Engineering). It is strongly encouraged that you consult with your institution of choice to determine how these credits will be applied to their degree requirements prior to transferring the credit.
Dr. Haolin Zhu
Haolin Zhu earned her BEng in Engineering Mechanics from Shanghai Jiao Tong University and her Ph.D. in Theoretical and Applied Mechanics from Cornell University, with a focus on computational solid mechanics. After receiving her Ph.D., Dr. Zhu joined Arizona State University as a full time Lecturer and became part of the freshman engineering education team in the Ira A. Fulton Schools of Engineering. She currently holds the title of Senior Lecturer and focuses on designing the curriculum and teaching in the freshman engineering program. She is also involved in the NAE Grand Challenge Scholars Program, the ASU ProMod project, the Engineering Projects in Community Service program, and the Engineering Futures program. Dr. Zhu also designs and teaches courses in mechanical engineering at ASU, including Mechanics of Materials, Mechanical Design, Mechanism Analysis and Design, Finite Element Analysis, etc. She was part of a team that designed a largely team and activity based online Introduction to Engineering course. Her Ph.D. research focuses on multi-scale multiphase modeling and numerical analysis of coupled large viscoelastic deformation and fluid transport in swelling porous materials, but she is currently interested in various topics in the field of engineering education, such as innovative teaching pedagogies for increased retention and student motivation; innovations in non-traditional delivery methods, incorporation of the Entrepreneurial Mindset in the engineering curriculum and its impact.

Alicia Baumann
Ali Baumann received her master’s degree in Electrical Engineering from the University of Wyoming before working as a senior systems engineer at General Dynamics C4 Systems. She is now part of the freshman engineering education team in the Ira A. Fulton Schools of Engineering at Arizona State University. Currently, she focuses on enhancing the curriculum for the freshman engineering program to incorporate industry standards into hands-on design projects. She is an instructor for the Introduction to Engineering program, Engineering Transfer Success program, Engineering Futures program, and the Electrical Engineering department at ASU. She is a winner of the Fulton Top 5% Teaching Award and was nominated for Badass Women of ASU. Her philosophy boasts incorporating large scale systems engineering techniques into collegiate engineering curriculum to better prepare upcoming professionals and develop a student’s resume from day one.
Amy Trowbridge
Amy Trowbridge received her Master’s degree in Biomedical Engineering from Arizona State University (ASU). She is a member of the freshmen engineering education lecturer team in the Ira A. Fulton Schools of Engineering at ASU, focused primarily on enhancing the first year students’ experience through the Introduction to Engineering course curriculum. She is also Director of the National Academy of Engineering (NAE) Grand Challenge Scholars Program (GCSP) at ASU, which aims to prepare students to become globally and socially aware engineers who will lead future efforts to solve the world’s biggest challenges. She is interested in curricular and co-curricular experiences that broaden students’ perspectives and enhance student learning, and encouraging student reflection through the use of digital portfolios.

Dr. Ben Mertz
Ben Mertz received his Ph.D. from the University of Notre Dame in Aerospace Engineering and his B.S. from Rose-Hulman Institute of Technology in Mechanical Engineering, where he is currently an assistant professor. While at ASU, he was a member of the Freshman Engineering Education lecturer team at Arizona State University and designed and taught classes including Introduction to Engineering, Advanced Math Methods for Engineers, Thermofluids, High Speed Aerodynamics, among others. His research background is in aerodynamic flow control, but his current interests are in the scholarship of teaching and learning. Specifically, his interests are in incorporating active learning into large classrooms, improving teamwork both in onsite and online classes, incorporating the entrepreneurial mindset into engineering curriculum, and promoting diversity within competition clubs.
Dr. Anoop S. Grewal

Anoop Grewal received his doctorate in Mechanical and Aerospace engineering (in the field of Theoretical and Applied Mechanics) from Cornell University. His research background is in robotics but his passion lies in engineering education. Currently, he is working as a lecturer at ASU in the Ira A. Fulton Schools of engineering. He is part of the instructional team for “Introduction to Engineering”, a multidisciplinary project based course. He also teaches various mechanical engineering courses e.g. Engineering Mechanics, Control System Design, and System Dynamics and Controls. His teaching philosophy is to promote instinctive/inherent understanding of engineering concepts, and productive student-faculty interactions.