COMPUTER SCIENCE & ENGINEERING

Why Should I Go Into Computing and Engineering?

Computers, technology, and electrical engineering play a major role in nearly every industry today. Because of that, even early in your career, you can have a large impact on people's daily lives and can make the world a better place in very real ways.

There is a great demand for people with these skills. Our students find great paid internships and when graduated, they are offered well-paying jobs at all kinds of companies, large and small. These jobs often offer flexible work environments with lots of perks.

There is a misconception that computing, technology, and electrical engineering are only for geeks who sit at a keyboard all day and don't interact with others. The truth is that these careers involve lots of creativity and working with others to solve challenging but impactful problems.

Will I Be a Good Fit?

The short answer is: Yes!!

The longer answer is: Because there are so many opportunities, it's not a matter of whether you are a good fit for one certain career path, but how you find the right path in this area. To help with this, we have designed our majors to give you experiences in many areas upfront. This will help you gain actionable skills in those areas and discover which ones resonate with your specific interests and abilities.

David Miller
DEPARTMENT CHAIR
(208) 496-4536
MILLERDAV@BYUI.EDU

Welcome to the Computer Science and Engineering Department! My name is David Miller, and I currently serve as the department chair. Our department offers courses and majors in areas that are a lot of fun and in great demand right now. We have over 3000 students! Our programs encompass a wide range of fields and career options ranging from artificial intelligence to large-scale software development, web development, robotics, and power systems.

Which Major Should I Pick and How Are They Different?

The short answer:
They have many similarities that overlap and start with many of the same courses, so don't worry too much--pick one and get started. Then, when you learn more of the nuances of these areas you can switch around a little if needed.

The longer answer:
- Software Engineering: Focuses on programming and how software is written in the real world, including designing large systems, gathering requirements, working with teams, and current technologies.
- Computer Science: Like software engineering, but with a little less focus on the process of software development and a little more focus on the computing fundamentals behind it, including emerging areas like machine learning.
- Cloud Computing: Focuses on gaining proficiency in cloud infrastructure technologies and how to use these technologies to build scalable and secure solutions.
- Cybersecurity: Prepares individuals for a career in information security, including protecting computer systems, networks, and data. Students will gain practical skills for defending against cyberattacks.
- Web Design and Development: Focuses on preparing students for a career as a web developer, with both programming skills and graphic design skills.
- Electrical Engineering: Focuses on the study, design, and application of equipment, devices, and systems which use electricity, electronics, and electromagnetism. This includes power generation, power distribution, electronic circuits, electric motors, computers, etc.
- Computer Engineering: A hybrid of Electrical Engineering and Computer Science but instead of going as deep into either side, you learn a lot about both the hardware and software.

Another thing to note, Electrical Engineering and Computer Engineering require the most math, Computer Science requires some math, and Software Engineering, Web Design and Development, Cloud Computing, and Cybersecurity require the least.

What Majors Are There?

In our department, we have these bachelor's degree majors:

- Software Engineering
- Computer Science
- Electrical Engineering
- Computer Engineering
- Cloud Computing
- Cybersecurity
- Web Design and Development

As a part of these majors, you will also customize your experience by choosing a specialty and/or other electives to match your interest and passion.

Why Come to BYU-Idaho For These Programs?

We are a completely undergraduate, teaching-focused institution. You aren't in the way of other things the faculty are focused on. Instead, you are who they are focused on!

Speaking of the faculty, we place a large emphasis on helping you prepare for the industry, so when we hire people, we make sure they have great industry experience. They'll be able to guide you through the principles you're learning and how they'll be used in your career.

In addition, our students develop a great sense of community with each other. Our university learning model focuses on the power of teaching one another, and you'll see that not only in every class, but also in societies, creative works conferences, and hack-a-thons.

What Courses Should I Take My First Semester?

You may have heard somewhere that you should "get your generals first", meaning that you should focus on your general education classes first, then work on your major classes later. This is outdated advice for these degrees. Our I-Plan software will help you start a graduation plan with recommended courses, but here are the courses from each major you should consider taking your first semester, in addition to a religion class and BYUI101.

COMPUTER SCIENCE AND SOFTWARE ENGINEERING
- CSE 100 - Introduction to Computing
- CSE 110 - Introduction to Programming
- WDD 130 - Web Fundamentals
- ECEN 106 – Computer Systems

CYBERSECURITY, CLOUD COMPUTING, WEB DESIGN AND DEVELOPMENT
- CSE 110 - Introduction to Programming
- WDD 130 - Web Fundamentals
- ITM 101 – Introduction to Cloud Technologies

COMPUTER ENGINEERING AND ELECTRICAL ENGINEERING
- ECEN 101 - Introduction to Electrical Engineering
- CSE 110 - Introduction to Programming
- Math 112x - Calculus I. Or, to prepare for Calculus:
    - Math 109 – Precalculus
    - Math 110X – College Algebra

If you're going into Computer or Electrical Engineering, the courses listed above are prerequisites for your future engineering courses. So, it's important to take these as soon as you can – ideally the first semester.

What Should I Do Now to Prepare?

If you have a chance to take a programming or electronics course, that's great. But if not, don't sweat it. Just keep working on your problem-solving skills and study habits and you'll be in great shape.

Once you get here, your teachers or assigned faculty mentor will be happy to answer any other questions that come up.

We look forward to seeing you soon!

Brother Miller

Do I Need a Masters or Ph.D. For These Opportunities?

We help you get prepared for a great job right out of your bachelor's program. Then, if you choose to pursue a graduate degree afterward to open additional doors, we want you to be prepared for that, too. But in any case, you'll be ready for great opportunities right after you graduate.
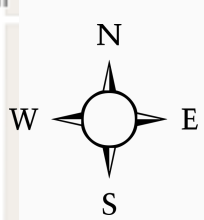
What Societies Are There?

Joining a student led society will quickly integrate you into the culture of computing and engineering and help you meet other students. with similar interests in computing and engineering. We have the following Societies:

- Society of Women Engineers (SWE)
- IEEE - A local chapter of the international organization for electrical engineers
- Computing Society
- Artificial Intelligence
- Amateur Radio Society
- Data Science Society
- Cybersecurity
- Cloud Solutions
- Web Design and Development
- And more!

BYU-Idaho Campus Map

Computer Science & Electrical Engineering classes are primarily held in the Science and Technology Center (STC).

N
W — E
S

W 2nd S

E 2nd S

Snow

Spori

Cornell Ave

Stadium

Romney

Clarke

E 3

Hart

McKay

Smith

BYU-Idaho Center

Manwaring Center

Chapman Hall

W 4th S

W Viking Dr

Heat Pla Biddulph

Taylor

Kimball

Student Health

University Operations

Thomas E. Ricks Gardens

Hinckley

S 1st W

Austin

S 2nd W

Benson

Ricks

S 2nd E

Science and Technology

Centre Square 1

Auxiliary Services

Centre Square 2

Agricultral

Upper Mayfields

Centre Square 3

W 7th S

E 7th S

Rexburg LDS Temple

1st Stake

s ex ty

Science and Technology Center (STC)