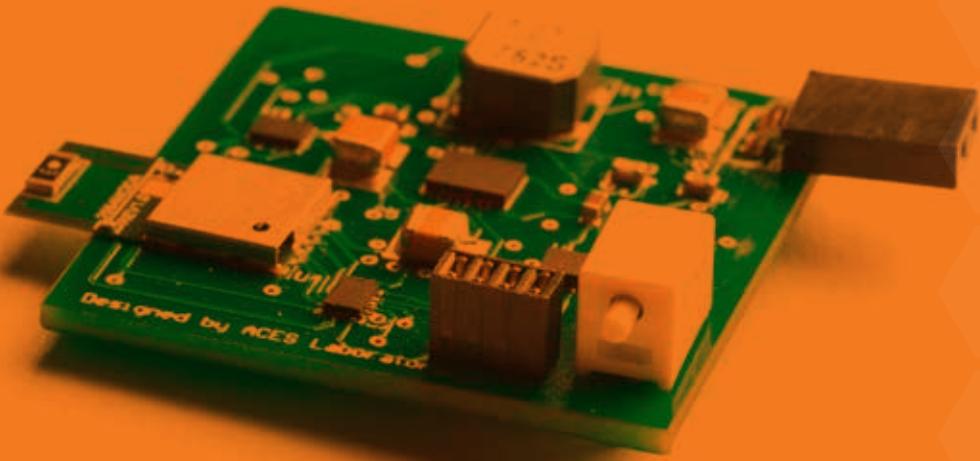




SCHOOL OF
Electrical and Computer
Engineering





Greetings,

The School of Electrical and Computer Engineering at OSU is accepting applications from highly motivated and creative students interested in pursuing a Bachelor of Science degree in electrical engineering (BSEE) or computer engineering (BSCpE). Both of these degrees will prepare students for a dynamic and fulfilling career in the design of just about anything that uses electricity or computers. And since almost everything in our modern society uses electricity or computers, electrical and computer engineers are employed across a wide spectrum of industries working on an ever widening set of applications and technologies. Wireless communication, internet of things, artificial intelligence, renewable energy, cloud computing, and medical robotics are just a few of the modern technologies that intrinsically belong to the field of electrical and computer engineering.

The School prides itself in offering a solid educational experience to our students. Our professors are in the classrooms to provide sound knowledge of engineering fundamentals and are available in their offices for questions and advice. Our programs are supported with laboratory experiences so students can convert fundamental knowledge into hands-on experiences. We offer two capstone courses that focus on the design of electrical devices, components, and systems. Upon leaving our programs, students are ready for just about any entry-level job with regional or national industries. Some graduates choose to continue their studies as graduate students at OSU or other prestigious institutions.

Students, parents, and industrial constituents can rest assured that our programs are of high quality. We are accredited by the leading, internationally recognized accreditation agency, ABET. With a degree from OSU and the seal of approval from ABET, students and parents alike can have the confidence that their educational investment is a wise one. Industry has confidence that our students are well-prepared for the technological challenges that they will face.

It is no wonder that our students are readily employed after receiving their BSEE or BSCpE degrees. Companies regularly visit our classrooms and clubs, and attend our career fairs in search of promising OSU students. Simply put, there are more career opportunities available to electrical and computer engineering graduates than we can graduate.

OSU and the School is committed to make higher education affordable. We strive to keep our tuition and fees competitive with other regional universities. More than that, we have a very robust scholarship program for both in-coming freshmen and our returning students. To learn more about how to apply for an incoming scholarship, please visit ceat.okstate.edu/scholarships.

We encourage you to apply for admission to the School of Electrical Engineering at OSU. That step will be the first of many that will lead to a rewarding career and a high paying job. Should you have any questions, please visit us or contact us: ceat.okstate.edu/visitors and ece.okstate.edu. Go Pokes!

Sincerely,

Jeffrey L. Young
Professor and Head, PE, PhD, F.IEEE

WHAT DO ELECTRICAL AND COMPUTER ENGINEERS DO?

In many ways, electrical and computer engineers do two things. First, we convert and move massive amounts of energy from one place to another for the end user at home or at work. For example, the energy that flows out of a dam is converted into electrical energy and transported hundreds of miles along wires to pump water, light a lamp, turn the shaft of a motor, or run a computer. We also move massive amounts of information all around the world and into space. We develop technologies that process, store, manipulate, and analyze that information. What we call information is to the public a radio tune, a text message, a data packet, or a video stream.

WHAT DO ELECTRICAL AND COMPUTER ENGINEERS DESIGN, MAKE, OR USE?

The list is almost infinite, but for brevity's sake consider the following: Transistors, radios, telephones, televisions, stereo systems, LED lighting, thumb drives, hard drives, computers, printers, robots, microprocessors, radar systems, motors, wind generators, GPS, smart wireless devices, lasers, antennas, electric cars, medical devices, flat panel displays, speech recognition chips, batteries, voice synthesis chips, sensors, unmanned vehicles, navigation systems, telecommunication systems, etc. Think of it this way: If something uses electricity, then an electrical and/or computer engineer probably designed and built it.

WHAT IS THE DIFFERENCE BETWEEN AN ELECTRICAL ENGINEER AND A COMPUTER ENGINEER?

That is a very good question to which there is no singular, definitive answer. Many electrical engineers do computer engineering; many computer engineers work on electrical engineering problems. However, it is safe to say that computer engineers are primarily focused on computers. They may design the electronic chips that are in the computer. They may put those chips together to create the computer. They may interface that computer to the outside world. They may write the operating system or application software that runs on the computer. Electrical engineers, on the other hand, are educated for a broad spectrum of electrical technologies that deal with wireless devices, robotics, medical devices, electronic circuits and chips, electric power generation, machine vision, communication systems, and computers. The list goes on and on.

WHICH DEGREE SHOULD I PURSUE: ELECTRICAL ENGINEERING OR COMPUTER ENGINEERING?

That depends on your interests. Some students are excited about a particular technology; that makes the decision a fairly easy one. Other students may have a passion to apply physics and mathematics to modern technological and societal problems. Those students tend to gravitate towards electrical engineering, given the degree's reliance on high level mathematical and physical principles. Some students simply enjoy making and designing electrical things, which is central to both fields of engineering. However, the decision does not need to be a hard one. Students who are admitted to one of our degree programs can easily switch to the other as they learn more about the other degree program. The difference between these two degree programs is primarily seen in the senior year curriculum. Both degree programs utilize many of the same courses.

DO I HAVE TO BE SMART TO BE AN ELECTRICAL OR COMPUTER ENGINEER?

Being smart always helps in any advanced academic pursuit. However, in engineering, we believe that hard work, initiative, perseverance, passion, and integrity are equally important, if not more important, than being just smart. The engineer has a "can do" attitude. The engineer will tinker with multiple ideas to find the best one. The engineer will work in teams to utilize the strengths and intelligence of all team members. As you progress through our engineering programs, we will not only provide you with engineering knowledge, but challenge your work ethic, improve your organizational skills and time management skills, and constantly impress upon you the importance of professionalism and integrity. We will provide the learning atmosphere; you will need to provide the passion, integrity, hard work and positive attitude. You will leave our program a different and better person. If you want to be a great engineer you can be, even if you are not the top student in your graduating class.

WHAT ARE THE IMPORTANT HIGH SCHOOL CLASSES FOR AN ELECTRICAL OR COMPUTER ENGINEER?

There is no question that students who wish to pursue electrical or computer engineering should have strong mathematical knowledge in the areas of algebra and trigonometry. Pre-calculus and calculus are also important, but not essential. High school physics is also a must. However, believe it or not, as an engineer you will also need good speaking, reading and presentation skills. If you can adequately communicate with your colleagues, customers and bosses about your engineering project, you will do well on your first job. Hence, your courses in English, literature, and communications are likewise important. Our general advice is to be well-rounded in your high school studies and we will supply the rest (and then some).

BECAUSE ADVANCED MATHEMATICS WAS NOT TAUGHT AT MY HIGH SCHOOL, MY MATH KNOWLEDGE MAY BE WEAK. EVEN SO, I LIKE MATH AND DID WELL IN MY MATH COURSES. WHAT SHOULD I DO MY FRESHMAN YEAR TO FIX THIS WEAKNESS?

The engineering college offers a comprehensive placement exam to assess your mathematical knowledge. That exam will determine which math courses are right for you. Both OSU and the engineering college have tutors and tutoring sessions to help you to be successful.

DO I HAVE TO BE GOOD AT CODING (OR PROGRAMMING) TO BE AN ELECTRICAL OR COMPUTER ENGINEER?

Many high schools and STEM-based schools are teaching students how to write computer code. Many high schoolers learn how to write code using tutorials and examples found on the internet. However, such knowledge is not required upon admission into the School. Like most programs across the country, our curriculum will give you many educational opportunities and experiences to learn how to write effective computer codes.

I AM SORT OF AN ARTSY PERSON WITH A BENT TOWARDS TECHNOLOGY. IS ELECTRICAL AND COMPUTER ENGINEERING RIGHT FOR ME?

Maybe. What we can say is that many electrical and computer engineers are artists, musicians, or dancers. We need these kind of people, for they are often the source of mind-boggling creativity. Electrical and computer engineering is more than circuits and computers. It is a conduit for discovery and imagination. If you have an idea, you need to next engineer it. We will help you do that.

I HAVE BEEN ADVISED TO STUDY ENGINEERING AT OSU. I WILL APPLY TO THE ENGINEERING COLLEGE, BUT I CANNOT DECIDE WHICH SCHOOL TO CHOOSE. DO YOU HAVE ANY ADVICE?

We cannot offer an unbiased opinion. We simply love our profession. Clearly, if you like bridges, airplanes, chemical reactions, and gas engines, electrical or computer engineering may not be your first choice. However, electrical and computer engineers build sensors to measure bridge fatigue, design the avionics for aircraft, create algorithms to control chemical processes, and replace gas engines with clean electric motors. We hope this brochure will provide some information to help you with this important decision. If you need more information, please reach out to us.

DO ELECTRICAL AND COMPUTER ENGINEERS SOLVE IMPORTANT SOCIETAL PROBLEMS?

Yes. Electrical and computer engineers are at the forefront of medical device technology. We are leading the way in renewable and clean energy. We have connected the world with our communication, wireless, and mobile technologies. We have automated many menial tasks to free up human potential for more important tasks and to provide a high standard of living for everyone.

DO ELECTRICAL AND COMPUTER ENGINEERS MAKE A DIFFERENCE IN THE WORLD?

Electrical and computer engineers are committed to using the earth's resources in the most efficient manner and to creating electrical technologies that are cleaner and cleaner each year. We strive to provide technologies that will improve quality of life and health care. Unlike so many things in this world, our technologies are becoming less and less expensive, which makes them accessible to everyone. What was once a multi-million dollar super-computer is now a smart phone in everyone's pocket or purse.

IS ELECTRICAL AND COMPUTER ENGINEERING OPEN TO DIVERSITY?

Most definitely. Our doors are wide open to people of all cultures and backgrounds. If you are a minority, non-minority, female or male, we request that you walk through our doors to make our School a vibrant learning culture teeming with ideas from all walks of life. We cannot achieve diversity without you, whomever you may be.