The School of Engineering & Applied Science (SEAS) offers real-world solutions through hands-on learning, both inside and outside of the classroom.

APPLIED SCIENCES WITH A PURPOSE

At Gonzaga, SEAS faculty members constantly encourage engineering students to innovate. The project-based first-year course integrates teamwork, writing, public speaking, and other skills employers have come to expect from our graduates. More than a dozen SEAS clubs and student professional organizations present additional opportunities for first-year students to participate in team projects and to network with others who share similar interests.

Excellent engineering and computer science programs require up-to-date technology and tools. SEAS enjoys support from both the University and private industry and offers students modern facilities and lab equipment. Gonzaga’s engineering and computer science programs have their own lab facilities that provide opportunities for hands-on experiments and research in each field. Through the facilities in the Herak building and the gold-level LEED-certified PACCAR building, Gonzaga students gain valuable learning experiences in a variety of applications, including environmental protection, propulsion, computing, electronic circuitry, and machining. The computer aided design (CAD) and engineering (CAE) labs provide a fully-networked computer environment where both hardware and software are regularly updated to better support the needs of students and faculty.

THE JESUIT DIFFERENCE

Gonzaga University lives its mission of *cura personalis*, or "care for the whole person". It starts with respect for all individuals, building up a desire to improve quality of life for others. From their first year to their final year, students think about challenges from local and global perspectives. Graduates continue learning during their whole lifetime.

“Everyone is there to support you to find your own journey of who you want to be as an engineer and grow in your strengths.”
- Mehak Bhargava, Computer Engineering '19

A WORLD OF POSSIBILITIES

Students may apply to attend the Gonzaga campus in Florence, Italy during their sophomore year, and engineering courses are offered there each spring. Additional study abroad opportunities include programs in the Netherlands, Spain, and New Zealand.
THE PROGRAMS
Each Bachelor of Science degree program from SEAS emphasizes a well-rounded education in the Jesuit and humanistic tradition.

Civil Engineering
Gonzaga civil engineers create the systems that protect human health and the environment: safe and sustainable structures, water treatment, and smart infrastructure. Through classroom discussion, lab research, and field practice, the Civil Engineering program prepares students to serve others as professionals, scholars, and entrepreneurs. Our curriculum offers students the opportunity to probe deeper into the sub-disciplines of environmental, geotechnical, structural, transportation, and water resource engineering.

Electrical & Computer Engineering
Students learn to imagine and design new electrical, cyber-physical systems that are built from, and depend on, the seamless integration of computation and electrical/electronic devices. These systems have and will continue to solve grand and complex challenges that enrich our everyday life, transform the way we interact with society, and improve the quality of our environment in which we live. ECE graduates apply their knowledge in many fields ranging from green clean energy generation, electric vehicles, artificial intelligence and autonomous control, fitness and biomedical monitoring, robotics and sensor networks, to 5G communications and beyond. ECE: the future is what we do!

Engineering Management
Combining a solid engineering education with the fundamental business skills taught by Gonzaga’s School of Business Administration, the Engineering Management program develops leaders equipped to handle technical challenges. Each student specializes in one of SEAS’s engineering disciplines while also earning a business minor. Connecting technical knowledge with business concepts prepares students to lead projects, introduce new products, or manage research portfolios. Graduates also have the opportunity to earn a Master’s in Business Administration by adding a fifth year to their Gonzaga studies.

Mechanical Engineering
Career opportunities abound for Gonzaga’s Mechanical Engineering graduates as the program prepares them for both professional practice and for advanced, graduate-level studies. Our faculty bring recognized professional expertise across all areas of mechanical engineering, instilling a broad foundation in mathematical, scientific, and engineering concepts, integrated with design and manufacturing. Lecture, laboratory, and design courses combine theory with practical applications while developing skills with modern tools such as CAD.

Computer Science
Built on a foundation of science, mathematics, and intensive programming, the Computer Science program at Gonzaga offers students a broad range of advanced computer science topics. These include machine learning and intelligent systems, data mining, app development, graphics, networks, databases, cybersecurity, and natural language processing. Exceptional students can assist faculty in their research in sensor networks, human language processing, machine learning for healthcare systems, gerontechnology, knowledge representation and reasoning, human-computer interaction, and software engineering. The department offers concentrations in some of the most exciting areas in computing: data science, software security, and software application development.

FUNDAMENTALS OF ENGINEERING EXAM

88.9%
AVERAGE PASS RATE
(3-year average)
National average: 72.6%

AVGAE FIRST-YEAR SALARY
$76,591
(Class of 2020)

All SEAS undergraduate programs meet or exceed standards of the Computing & Engineering Accreditations Commissions of ABET.
Senior Design Projects

Seniors are challenged to solve real-world problems. Small teams of seniors are paired with faculty advisors and one or more additional industry professionals to take on projects in their field of engineering or computer science. The projects are collected directly from public and private organizations throughout the region, and they represent real engineering and computer science problems that the students could encounter in their careers.

By working through the senior design program, students are exposed to the hands-on technical problem-solving experiences of their professions from companies and organizations they could soon work for or with, while developing the hard and soft skills associated with project management, conflict resolution, communication, and much more.

Senior design projects for 2022 included:

- A device to prevent post-surgery blood clots in veins deep in the body.
- A lightweight, inflatable portaledge for rock climbers who want to spend a night on a big wall climb.
- A demonstration of how a set of man-made dams, simulating natural beaver dams, restore watersheds.
- A printed circuit board for an antenna array that can broadcast and send in multiple directions.

Explore Senior Design projects at gonzaga.edu/cede.

The MySleeve Senior Design team created a sleeve embedded with motion trackers to collect data on a basketball player's shooting form. The team also designed a desktop application and set up a server to analyze and store the data.

Visit gonzaga.edu/cede to see more projects!

Zags Make Connections

“One of the major advantages that the school was able to provide me is hooking me up with a research opportunity with one of the professors. That has really helped me prepare for grad schools by getting some hands-on research experience.”

- Matthew Lugo, Mechanical Engineering ’19

Right: Matthew holds his Senior Design team’s prosthetic hand that adapts to a child’s growth.

SEAS Clubs

SEAS proudly supports a wide variety of student clubs and professional organizations, including:

- American Society for Engineering Management (ASEM)
- American Society of Civil Engineers (ASCE)
- American Society of Mechanical Engineers (ASME)
- Gonzaga Without Borders (GWB)
- GU Drone Club
- GU Robotics
- Institute of Electrical and Electronics Engineers (IEEE)
- Material Advantage
- Society of Automotive Engineers (SAE)
- Society of Women Engineers (SWE)
- Steel Bridge Club
- Tau Beta Pi (Engineering Honor Society)
- Women in Computing
CAREER OUTCOMES

Many nationally-recognized businesses have expanded into the Inland Northwest to take advantage of its natural resources, outdoor recreation options, and entertainment opportunities. Those businesses come to campus specifically to meet SEAS students through career fairs, speaker series, and other special events.

Companies hiring recent graduates include:
- Amazon Web Services
- Apple
- Avista
- Boeing
- Duke Energy Corporation
- F5 Networks
- HP
- Intel Corporation
- Kaiser Aluminum
- Lockheed Martin
- Microsoft
- Nike
- Northrop Grumman

"Working around these people who have similar goals and mindset as you, working towards something bigger, it's a really amazing opportunity."
- Claire Norman, Computer Science ‘19

The John & Joan Bollier Center for Integrated Science & Engineering welcomes an era of collaboration and reflection, allowing students and faculty to approach the world’s problems without limitations.

FACULTY CONTACTS

Civil Engineering
Rhonda Young, Ph.D.
Department Chair
youngr1@gonzaga.edu

Electrical & Computer Engineering
Yanqing Ji, Ph.D.
Department Chair
Ji@gonzaga.edu

Mechanical Engineering
Massimo “Max” Capobianchi, Ph.D., P.E.
Department Chair
capobianchi@gonzaga.edu

Engineering Management
Gary R. Weber, Ph.D., P.E.
Program Chair
weberg@gonzaga.edu

Computer Science
Paul De Palma, Ph.D.
Department Chair
depalma@gonzaga.edu

Dean's Office
Karlene A. Hoo, Ph.D.
Dean of SEAS
seas@gonzaga.edu

For more information:
gonzaga.edu/seas