



Engineering & Applied Science

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

STUDENTS WITH A PURPOSE

At Gonzaga, SEAS faculty members constantly encourage students to innovate. **The project-based first-year seminar 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 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 to offer students in each field modern facilities and lab equipment for hands-on experiments and research. Classrooms and labs in the Herak building, the gold-level LEED-certified PACCAR building, and the new John & Joan Bollier Center for Integrated Science & Engineering allow **Gonzaga students to 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.

TOP
10%

(Nationwide ranking, US News & World Report, Best Undergraduate Engineering Program (No Doctorate) since 2016)

THE JESUIT DIFFERENCE

Gonzaga University lives its mission of *cura personalis*, or “care for the whole person.” SEAS faculty values this 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, and 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

All Gonzaga students may apply to attend the 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's Civil Engineering graduates create the systems that protect human health and the environment, including 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 lives, transform the way we interact with society, and improve the quality of our environments. ECE graduates apply their knowledge in many fields ranging from green energy generation to electric vehicles, artificial intelligence and autonomous control to fitness and biomedical monitoring, robotics and sensor networks to 5G communications, and beyond.

AVERAGE FIRST-YEAR SALARY

\$77,866

(Class of 2022)

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.

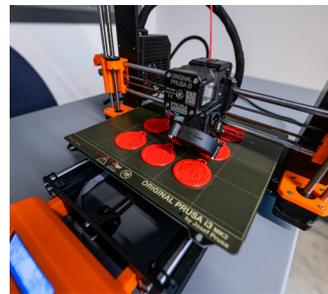
All SEAS undergraduate programs meet or exceed standards of the Computing & Engineering Accreditations Commissions of ABET.

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.



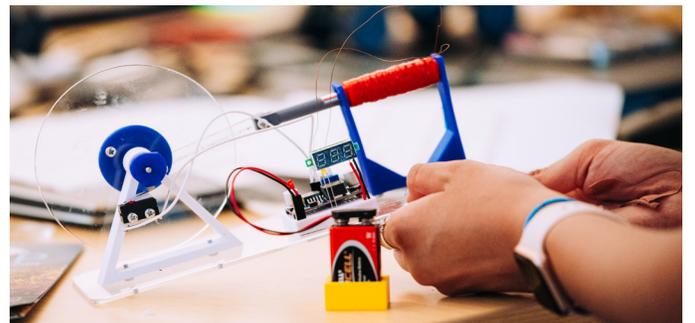
FUNDAMENTALS OF ENGINEERING EXAM

88.9%

AVERAGE PASS RATE

(3-year average)

National average: 72.6%



SENIOR DESIGN PROJECTS

Seniors are challenged to solve real-world problems. Small teams of seniors are paired with faculty advisors and 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:

- Improvements to a language learning software used by Gonzaga's English as a Second Language classes
- A pathway and parking area redesign for increased ADA accessibility to a popular fishing area
- A detection system to assess the integrity of power lines during major weather events and restore power more quickly
- An aircraft deicing design using embedded thermal emitters instead of externally applied chemicals

Explore Senior Design projects at gonzaga.edu/cede.



One senior design team redesigned an airplane seat using alternative materials, suppliers, and assembly methods to decrease shipping emissions and in-service fuel consumption while increasing seat durability and use of post-consumer recycled materials.

Visit gonzaga.edu/cede to see more projects!

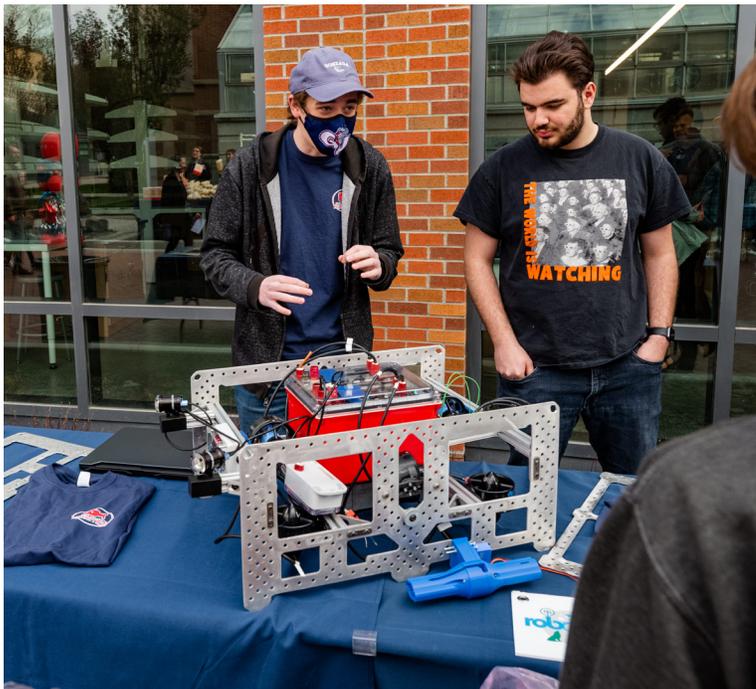


ZAGS MAKE CONNECTIONS

“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

Left: 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



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.

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. These 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
- DCI Engineers/James Hardie
- F5 Networks
- HP
- Intel Corporation
- Kaiser Aluminum
- Lockheed Martin
- Microsoft
- Nike
- United States Armed Forces



“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



FACULTY CONTACTS

CIVIL ENGINEERING

Mark Muszynski, Ph.D., P.E.

DEPARTMENT CHAIR

MUSZYNSKI@GONZAGA.EDU

ELECTRICAL & COMPUTER ENGINEERING

Yanqing Ji, Ph.D.

DEPARTMENT CHAIR

JY@GONZAGA.EDU

MECHANICAL ENGINEERING

Jennifer Shepherd, Ph.D.

INTERIM DEPARTMENT CHAIR

SHEPHERD@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

GONZAGA
UNIVERSITY