College of Science, Engineering and Technology

Engineering Programs

FIND YOUR PURPOSE

GRAND CANYON UNIVERSITY®

PRIVATE. CHRISTIAN. AFFORDABLE.

ENGINEERING

PATHWAYS AND EXPERIENCE

Our contemporary College of Science, Engineering and Technology houses dynamic engineering programs that include diverse areas of study such as robotics, electrical engineering technology, biomedical and mechanical engineering.

Project-Based Learning: We challenge our students to apply their passion for science and technology by bringing their ideas to reality, making engineering breakthroughs and advancing the technological sphere in order to improve both the world and humanity.

Research and Design Early On: Unlike many other universities, students engage in hands-on experiences and have access to high-tech tools and equipment as early as their freshman year. Starting day one, students are encouraged to participate in projects and use advanced technologies to design products that solve real-world problems. They also build relationships with faculty members who become advisors and mentors. Students become active participants in their training by utilizing equipment recommended by our industry partners right away. Students do not have to compete with researchers for access to equipment.

Christian Integration: Our Christian perspective prepares students for careers marked by service, integrity, ethical decision making and concern for the common good. From serving with Habitat for Humanity to rehabbing computers for an underprivileged population, our students have applied their skills to help solve real-world problems.

Collaboration Across Disciplines: Successful startups and products have grown out of the creative ideas and collaboration among students in different majors. Students majoring in engineering, marketing, entrepreneurial studies and business have worked together to bring unique ideas to life in the Lopes Lab. Canyon Ventures – a startup business accelerator located on the GCU campus – connects companies with students to provide opportunities for collaboration, hands-on experience and employment. Students have already created a wheelchair for a young girl with cerebral palsy, the Storage Together app where people can offer personal space for storage and LUX Longboards which are built as an affordable and fun way to commute.

GCU invites students to embark on an educational journey that extends beyond textbook and classroom learning. Our engineering programs encourage our students to experience the purposeful and lifelong task of leading the scientific and technological revolution, while also serving humanity.

LEARN MORE AT ➤ GCU.EDU/CSET

WHAT MAKES THE ENGINEERING PROGRAMS AT GCU DIFFERENT?

INTERDISCIPLINARY APPROACH TO ENGINEERING

At GCU, we take an interdisciplinary approach to engineering by collaborating with students in other majors in an effort to solve problems across disciplines and industries. Students may team up with business majors to work toward a new product while refining their teamwork, problem solving and communication skills. Scholars also learn project management principles and professionalism in subsequent courses. Engineering students also help students in other majors by assisting them with projects in the GCU Lopes Labs.

INDUSTRY-DRIVEN CURRICULUM

Our engineering programs were created in response to industry demand for resourceful, well-prepared graduates. We incorporate key perspectives of industry leaders into curriculum development to ensure our graduates are ready to excel.

HANDS-ON LEARNING

Most engineering lectures and labs are combined into four-credit courses. Instructors lecture for a short amount of time, followed by students directly applying the lesson during that same class period.

INFRASTRUCTURE

The GCU engineering building is 172,764 sq. ft and has a total of 30 labs[1] to accommodate our expanding student population and anticipated growth in our engineering programs.

WORK EXPERIENCE

Our goal is for students to start a career when they graduate from GCU. During their senior capstone project, students solve real-world problems. This ensures all students have the opportunity to take ownership of an original project and gain relevant work experience that can be immediately applied in the workplace.

CHRISTIAN-ORIENTED LEARNING

We believe science and Christian faith coexist and we celebrate scientific discoveries as new understandings of God's glorious creations. Our programs emphasize professional and ethical practices essential for engineering through the lens of our Christian worldview.

ENTREPRENEURIAL SPIRIT

GCU's vibrant, innovative culture supports students' entrepreneurial dreams by offering opportunities such as our on-campus First Tuesday Marketplace, IDEA Club and various business competitions. GCU waives its intellectual property rights for students, providing the opportunity for students to keep their designs – either from class or personally created – to sell or start a company.

[1]Fall 2021

IS ENGINEERING FOR ME?

Students can start exploring their future vocation by asking themselves questions like:

“What problems do I like to solve?” or **“Do I enjoy applying the sciences toward a real-world application?”**

The Academic and Career Excellence (ACE) Center can help students respond to these questions in relation to their future career path and discover what engineering program to pursue.

BECOMING A SUCCESSFUL ENGINEER AT GCU

GCU focuses on developing future innovators, creators, inventors and agents of change with a heart for Christ and their fellow neighbors. We prepare our engineering graduates to be professionals who can dig deep, analyze issues and solve problems. Students develop more than just technical abilities – they cultivate and sharpen industry skills that incorporate values, altruism, business acumen and entrepreneurism.

SECONDARY ACCREDITATION FOR GCU’S ENGINEERING PROGRAM

GCU is regionally accredited by the Higher Learning Commission (HLC) and authorized by the Arizona State Board for Private Postsecondary Education (AZPPSE). We designed our program and facilities to be in alignment with accreditation guidelines, including assignments, assessments and learning benchmarks. Three of our engineering programs have received additional accreditation through ABET to signify the program’s effectiveness and ability to graduate equipped engineering professionals. These high-quality accredited programs include biomedical, mechanical and electrical engineering.[1]

[1]Retrieved from ABET, Accredited Programs, Grand Canyon University in October 2021

WHAT IS STUDYING ENGINEERING LIKE AT A CHRISTIAN UNIVERSITY?

Our students embark on their educational journey with a divine purpose. Our strong devotion to our faith allows us to unite the knowledge of God and the universe, as well as deepen understanding to advance faith-science inquiry. Students are guided by their conscience in shaping complex thoughts, ideas and practices throughout scientific exploration and discovery.

Integration of Faith and Scientific Exploration

We believe that God reveals Himself to us through His written word, the Holy Bible, His creation and the natural world. Thus, we consider biblical revelation and scientific inquiry as complementary means of understanding our world. Our Christian beliefs provide a moral and ethical guide in our search, leading us to celebrate scientific discoveries as new revelations of God's glorious handiwork.

WHAT MAKES STUDYING ENGINEERING FROM A FAITH PERSPECTIVE AT GCU UNIQUE?

GCU's Place in the Science Fields

Our university is proactive about establishing a strong presence in the sciences. Many Christian universities choose to disconnect from exploring scientific principles and applications of the 21st century. GCU intentionally sets ourselves apart in our belief that a faith perspective drives scientific discoveries and breakthroughs. Our culture centers around an understanding that church and faith have relevance in the natural world and scientific era. With a focus on human understanding, students have the opportunity to explore biblical and scientific connections.

Praising God—the Ultimate Designer

We believe we are created in the image of God, the supreme creator. The delivery of our Christian education is based on our distinctive philosophy: to cultivate Christian creators and develop the next generation of engineers to make the world a better place. We don't educate and develop engineers, we educate and develop Christians who become engineers.

The Love of Christ Compels Us

The pursuit of holistic ministry helps strengthen servant leadership throughout a career. To become career-ready means to carry out one's unique mission under heaven, while serving the advancement of the world and economy. There are two ways that our ethics-focused curriculum enhances learning:

- ***Service-oriented projects and learning:*** Students participate in project-based learning that encourages them to explore ways to make an impact locally and globally. Teams can design a project to not only make a difference in Science, Technology, Engineering and Math (STEM) but to help others, as well. As part of the electrical engineering project, "Powering the World," students select a third-world country and a medical device. Students develop ways to power that device (based on the location and climate of the chosen country) in order to make a difference socially, culturally and spiritually.
- ***Dialogue:*** Students engage in conversations in response to complex questions of ethical decision making in engineering and science. These discussions may center around designing robotic hands, artificial hearts and other synthetic body parts. We may have the power, knowledge and capability to make great advancements, but how far should we go?

ACADEMIC MINOR DEGREE PROGRAMS

Our various minor degree programs help traditional students maximize their education and give them a competitive advantage for today's workforce. A minor is earned in conjunction with a major degree and provides specialization within an academic area. Students can use their elective credits toward a minor degree and use it as a graduate school application differentiator.

For a full list of minors, visit gcu.edu/minors

ENGINEERING
TECHNOLOGY PROGRAMS

Our engineering technology programs focus on the real-world application of engineering principles. Graduates will emerge with hands-on experience and foundational knowledge that enables them to become immediate contributors in the field. Our programs have been designed in direct response to the manufacturing community's need for qualified engineering technology professionals. Manufacturing is typically the biggest sector where engineering technology graduates work; however, careers are not necessarily tied to this industry.

Engineering Technology vs. Engineering
What's the difference?

Engineering Technology: More hands-on, applied engineering, do-ers, test designs, review plans, math appropriate to level of responsibility, science, execute ideas into action, creation, learn context of what's being solved, interact with and run technology.

ENGINEERING TECHNOLOGY DEGREES

BS in Electrical Engineering Technology
Electrical engineering technology professionals engage in process control, electrical power distribution or instrumentation design. Students learn to use diagnostic devices to adjust, test and repair equipment. Other responsibilities include diagnosing, testing or analyzing electrical systems, reviewing engineering plans, calculating specifications and estimates, managing records and overseeing operation testing equipment.

BS in Mechanical Engineering Technology
Mechanical engineering technology professionals work with generation, transmission or use of mechanical or fluid energy. Students learn to plan, produce and assemble new or changed mechanical parts for products, such as industrial machinery or equipment. Other responsibilities include interpreting sketches, designing machines, preparing specifications, providing technical support and inspecting mechanical equipment.

ENGINEERING DEGREES

BS in Engineering
Students learn to apply strong business acumen, problem-solving, management skills and an engineering mindset to diverse settings, from startups to corporations. Graduates are highly sought after for managerial and strategic roles across both engineering and non-engineering environments.

Engineers have a median annual wage of $103,380 as of May 2020.[1]

BS in Engineering with an Emphasis in Robotics
Technologically-minded students gain the broad foundational skills necessary for various engineering careers and learn to understand the fast-evolving world of robotics. This unique degree in engineering can translate into career opportunities in nuclear engineering, manufacturing, industrial engineering and biotechnology. Graduates will be prepared to design robotic systems, such as automatic and autonomous vehicle control or environmental cleanup.

BS in Biomedical Engineering
This program supports students in learning to develop devices and procedures that solve medical and health-related problems (e.g., ultrasound, MRI, pacemakers, prosthetics, diagnostic equipment, etc.). Graduates may pursue a job in professional settings such as therapeutic and diagnostic device companies, lab equipment companies, government regulation agencies, hospitals and universities for research. This degree has received secondary accreditation through ABET through its ability to prepare students with advanced skills and prepare them for their careers.

Bioengineers and biomedical engineers have a median annual wage of $92,620.[1]

BS in Mechanical Engineering
Students learn to research, design, develop, build and test mechanical and thermal sensors and devices, including tools, engines and machines. Areas of study include generation and transmission of heat and mechanical power, as well as analysis of the environment for the product. Mechanical engineers may work in architectural and engineering services, manufacturing industries and research and development. This degree has received secondary accreditation through ABET through its ability to prepare students with advanced skills and prepare them for their careers.

Mechanical engineers have a median annual wage of $90,160.[1]

BS in Electrical Engineering
Students learn to design, develop, test and supervise manufacturing of electrical equipment (e.g., electric motors, radar/navigation systems, communications systems and power generation equipment). This program focuses on developments from microelectronic devices and supercomputers to software and control devices. Engineers may work in aerospace, power and semiconductor industries. This degree has received secondary accreditation through ABET through its ability to prepare students with advanced skills and prepare them for their careers.

Electrical and electronics engineers have a median annual wage of $103,390.[1]

[1]The earnings referenced were reported by the U.S. Bureau of Labor Statistics ("BLS"), Engineers as of May 2020. Due to COVID-19, data from 2020 may be atypical compared to prior years. The pandemic may also impact the predicted future workforce outcomes indicated by the BLS. BLS calculates the median using salaries of workers from across the country with varying levels of education and experience and does not reflect the earnings of GCU graduates as Engineers. It does not reflect earnings of workers in one city or region of the country. It also does not reflect a typical entry-level salary. Median income is the statistical midpoint for the range of salaries in a specific occupation. It represents what you would earn if you were paid more money than half the workers in an occupation, and less than half the workers in an occupation. It may give you a basis to estimate what you might earn at some point if you enter this career. You may also wish to compare median salaries if you are considering more than one career path.

TEACHING AND RESEARCH PHILOSOPHY

Our institution is a Doctoral/Professional University (Carnegie Classification) that supports and promotes a wide array of student and faculty research. Aligned with the Boyer model of scholarship, GCU embraces innovative discovery research, the scholarship of teaching and learning, applied scholarly initiatives and integrative community-based endeavors.

Our thriving research community includes independent faculty scholars, emerging doctoral student researchers and a wide-range of collaborative faculty-student research teams. We balance our support of faculty scholarship with an emphasis on teaching and mentoring student endeavors. This integrated approach to teaching and research reflects our commitment to both student learning and our growing scholarly community.

GCU hosts state-of-the-art laboratory and simulation equipment, provides dedicated support for grant-funded and industry-sponsored research and promotes innovation through a collaborative research environment and industry-friendly intellectual property policies.

3DERMA

H III STAR SHOT

RESEARCH AND DESIGN

PROGRAM PROJECTS

Students interested in research can join and/or propose a Research and Design Program (RDP) project. These projects help give students the opportunity to pursue research of real-world problems they're passionate about fixing and get the guidance they need from a faculty member. Here are a couple examples of what our students are developing in their Research and Design Programs:

3DERMA PROJECTS

A group of students have begun working on multiple projects in relation to the biotechnology field. For example, research has been completed on the effects of hydrocolloids and essential oils' effects on Staphylococcus Carouses and Streptococcus Mutants. This research was completed in order to show the significant effects this bandage would have on an infected wound. The correct percentages for the gel mixture and essential oils have been discovered too through various testing methods. The design of the bandage has been optimized to become a cost-effective and helpful product. Future testing will involve testing of the bandage's effectiveness on rats through the IACUC process as well as refining the prototype for an aesthetically pleasing product.

H III STAR SHOT

This student group is researching the design of hybrid motors to produce cost-effective, reusable and easily manufacturable motors to compete with solid motors. They recently completed manufacturing of a rocket body and will next test the motor. After this, they will launch test vehicles to develop a high-power rocket capable of reaching 75 miles, which will set a new record for amateur rockets. This will enable the launch and recovery of a scientific payload to and from space.

Students involved: Daniel Hoven, Brenden Foster and Sean Fuller

PROJECT SPOTLIGHT

JOHN VARKEY

"I feel that my education did a good job of preparing me and giving me what was needed to obtain a job. I had a professor who made sure we covered more than just what was required for the class. My education was helpful, but it more importantly taught me lessons on how to work with people of different backgrounds, which will lead me to better success. I found that it was important to learn from other students and to learn about other fields so I can create technology with a purpose."

Currently pursuing a PhD in Electrical Engineering at University of Notre Dame

GRANT GOODMAN

In the summer of 2018, alum Grant Goodman dedicated his time to serving the people of Honduras by interning with an inspirational organization, Sonlight Solar. Sonlight Solar is a Christian-based company that works to provide electricity to countries in need. During his time at Sonlight, Grant had the opportunity to lead the installation of three solar panel array systems for three schools in the remote village of Juticalpa.

"It was fun to oversee the people that came from the US, but also the local Hondurans that joined in our efforts," Grant recounted. "Dozens of the people from the local area wanted to help in whatever way they could. They helped us mix concrete or held the poles that would sustain the solar panels. We were not just there to serve the people of Juticalpa, but also to work alongside them to improve their community."

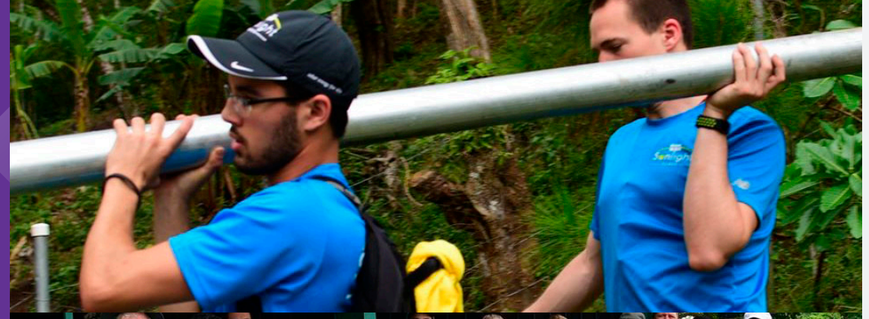
During his internship, Grant was excited to see how the engineering concepts he learned in his courses at GCU aided him in solving real-world problems. "GCU challenged me in my abilities, physics, basic circuit knowledge and schematics, but also in my critical-thinking skills in addressing a practical situation. It was fulfilling to see how God had equipped me in my program to meet the needs of a community."

"Overall, I will never forget what one of my Honduran teammates told me while we were installing the solar panels: 'The people of Honduras do not need you to feel sorry for them, but to share the love of Christ to them.' At the end of the day, I realized that I was a servant to God trying to build in both my heart and Juticalpa. I was there to meet some of the people's physical needs, but also their spiritual needs by sharing the Gospel. And to this day, that is the goal of my career."

Grant graduated with a Bachelor of Science in Mechanical Engineering in 2020. He currently works as a field technician at Advanced GPR.

QUYEN PHAN

While in GCU's Mechanical Engineering program, Quyen developed a passion for aerospace...and a dream to work for SpaceX. Learn how this Honors graduate's vision came true here!



INTERNSHIPS AND POST-GRADUATION JOBS

In-classroom learning and hands-on experiences outside of the classroom prepare students for internship and job opportunities with top companies.

ERIK YOST

"I would like to glorify the Lord in everything I do. I would like to innovate society forward for the better but take no credit for it. Instead, I hope what I create is a contribution to the Kingdom of God."

Erik is a freshman in GCU's mechanical engineering program from San Jose, California, with a dynamic resume and big dreams. In 2018, Erik and a couple of his high school classmates were working on a project focused on fuel cells and using renewable energy both in space and on earth. After flying their project on the International Space Station, they presented their project at a national STEM conference where NASA representatives asked if they wanted to continue their research in their facilities. For the next couple of years, Erik was able to gain the knowledge and network he will use to start his non-profit.

While interning with NASA, Erik plans to start a non-profit called FactoArms with the mission to "show God's love while benefiting impoverished areas around the world using engineering advancements." Erik was still able to find time to travel on mission trips to countries like Mexico and Liberia to serve the Lord, connect with the community and test his experiment on a small scale.

Now as a student at GCU, Erik is excited to continue the efforts in his non-profit with the support of faculty and peers who challenge him to grow in his faith. As he looks towards completing his bachelor's degree, Erik aspires to pursue higher education in order to become a missionary contributing to global engineering projects. For Erik, his work and his faith are not separate, and he hopes that he will be able to display the love of Christ in every aspect of his life.

LUX LONGBOARDS

LUX Longboards was founded by GCU student Weston Smith, who used use the engineering and entrepreneurial skills developed in his program to produce his own line of electric longboards.

"Being at GCU was phenomenal in my professional growth along with my personal growth. As a very active student, there were a plethora of resources that I took advantage of. When I first started my company LUX Longboards, I highly utilized the Lopes Labs. But more recently I utilized the bottom floor of the engineering building to continue developing my longboards. In the machine shops I made rapid prototypes through the use of 3D printing, welding, soldering and milling. My business thrived because of the unique ecosystem including faculty, staff and leadership here at GCU."

— Weston Smith, *Mechanical Engineering Technology, Founder of LUX Longboards*

While in the engineering program, Weston utilized the many engineering facilities available to all students in order to develop his longboard designs. Today he and his company operate out of Canyon Ventures, GCU's entrepreneurial space. The company employs five other GCU students who work with Weston to design, produce, market and sell the longboards.

GCU waives intellectual property rights, meaning that students can use the shops and labs to create anything and they'll maintain their ownership over it.

DISTINCT *PROGRAM FEATURES*

GCU's engineering technology program features the following differentiators that many other colleges do not offer:

GCU engineering laboratories and shops are available exclusively for students to use for their creations, unlike many other universities where equipment is reserved solely for researchers. Students take ownership of their designs and can present them to employers showcasing their readiness to dive right into their career.

We support students and introduce them to resources and industry contacts who help bring student ideas and creations to market more quickly. Unlike GCU, many other universities utilized grants to purchase their engineering equipment, which means the products created with that equipment belong to either the grant-funders or the universities. GCU has waived all rights to student intellectual property. Students actually own their own ideas, creations and products. This inspires industry leaders to work with GCU students because they know students have come up with university-supported ideas that are not owned by GCU.

Faculty[1] are available on campus and accessible to students directly. On average, instructors typically teach four courses each and maintain a minimum of 15 office hours weekly. Faculty members are able to commit to individual student development because they are responsible for ensuring that students learn.

One-on-one interaction with faculty, small classes, project-based learning opportunities and personalized support from the entire GCU community underscores our strong role as a teaching university. In addition to the faculty office hours, the Learning Lounge and Explore More sessions provide one-on-one and group academic assistance services for students who need extra help to tackle challenging coursework and improve their classroom performance.

GCU leadership remains engaged in current industry needs, observes issues in high-demand fields and stays connected to industry experts. GCU has a number of advisory boards whose sole purpose is to steer curriculum development to ensure GCU students gain the most relevant exposure and experience prior to entering the workforce.

[1]Ground full-time faculty only

INDUSTRY-ORIENTED CURRICULUM

Our engineering programs foster advanced level learning through curriculum designed via industry input. Course content and real-life projects are developed in collaboration with subject matter experts and representatives from major corporations and small consulting companies. Brand-new machinery and modern equipment supplement our curriculum as well.

GCU also assembled a group of Phoenix-area STEM leaders, along with GCU executives and STEM experts. These advisory board members are selected for their expertise and genuine excitement for student success. Their goal is to align STEM programs with trends and evolving market needs to ensure graduates are workforce-ready.

RESEARCH PROJECT OPPORTUNITIES

We aim to continually increase the amount of research, publishing and presenting conducted by faculty and students. Students have opportunities to participate in research initiatives, such as the Research and Design Program (RDP) in which students work with faculty on research projects. Our Center for Innovation in Research and Teaching (CIRT) provides guidance on research topics, methodologies and avenues for publication and presentation. CIRT also secures and provides grants for priority research projects. Faculty and students contribute to the scholarly community through publications and presentations.

RESEARCH PROJECT SPOTLIGHT: *Dr. Jeffrey La Belle*

The Biomedical Device Design Prototyping (BD2P) lab, led by principal investigator Dr. La Belle, concentrates on empowering undergraduate students to work on innovative research. The La Belle Lab focuses on the development of point of care sensors, wearable devices and innovating biomedical manufacturing. They are also working to develop cost-effective, lightweight prosthetic arms that meet the needs of each individual patient. The lab also develops robotic technology for search and rescue to minimize the risk of life to our military personnel and first responders. BD2P provides mentorship to students in programs such as the Western Alliance to Expand Student Opportunities, which targets minority involvement in higher education. Dr. La Belle strives to create diverse, multidisciplinary teams from across the programs within the College of Science, Engineering and Technology in order to provide students with strong research experience.

DID YOU KNOW?

Thirty labs are available for students to experience hands-on learning using advanced technologies and tools for real-world projects. Unlike many other universities, students can access these labs from day one of their freshman year.

ON-CAMPUS STATE-OF-THE-ART ENGINEERING FACILITIES

GCU built two new buildings dedicated to STEM learning to accommodate quickly evolving STEM fields and the growing number of students studying these disciplines. Ample space features innovative labs and centers where students bring ideas to life.

THE LOPES LABS

During summer 2019, GCU expanded its makerspace to allow students more space to innovate. The Lopes Labs now includes the GCU workshops, which house a metal machining shop, a manufacturing center and a woodworking shop. Equipment such as CNC plasma cutter, CNC metal lathe, 4-axis machining center (mill), coordinate measurement machine (CMM) and plastic injection molder all serve as hands-on learning tools. These Lopes Labs also feature many small hand tools that can be used to assemble their projects or disassemble other products to learn more about how they operate. The Lopes Labs are available for any GCU student to use and our shop staff works full-time to train students on how to effectively utilize the machinery and abide by OSHA standards.

DYNAMICS LAB

Used for statics and dynamics, this lab and equipment helps students apply physical concepts to complex real-world situations. Dynamics is a branch of mechanics concerned with the motion of bodies or any objects under the action of forces. Students use static boards, pulley systems and other tools to visualize these forces. Lab activities enhance a student's ability to mathematically analyze components and systems for mechanical performance.

TRANSPORT PHENOMENA LAB

Students learn about fluid flow, heat transfer and mass transfer. This may include utilizing a piping system, for example. Students learn how water flows through it, what type of pressure is needed to ensure water flows throughout and how much resistance is in the pipes.

BIOMATERIALS AND ELECTRICAL MATERIALS LAB

This lab contains significant graduate-level equipment in an effort to give our students hands-on experience in preparation for industry or graduate school. Our Biomedical Engineering program focuses on medical devices because it is a high job growth area. This lab is where students can test different materials to see if they could be used in a biomedical device. Our Scanning Electron Microscope (SEM) is also utilized by our electrical engineering students to chart the purity of a given silicon wafer. Learners use this lab to explore electrical materials using scanning electron and atomic force microscopes, as well as determining how these molecular properties impact the material and subsequent product.

COMPUTER-AIDED ENGINEERING LAB

Students learn how to design in 3D, lay out drawings and simulate conditions in order to arrive at a potential engineering solution. These active learning tasks include modeling ideas and designs using industry-standard software SOLIDWORKS. After creating a design, students can convert their 3D design to G-Code, upload the code to the CNC machine in the Machining and Fabrication Center and automatically create their product.

MECHANICAL MATERIALS LAB

Students learn how to test, analyze and evaluate different materials under loadbearing, compressing, pulling apart, twisting or bending conditions. This process helps determine material properties for appropriate design selections.

POWER & ENERGY LAB

The power lab gives students hands-on learning experiences for power generation and distribution. The lab contains training stations for wind turbines, generators, motors, transformers, transmission lines and SCADA controlled bus-bar technologies, which allow the students to experiment and demonstrate the concepts learned in the Power Systems course.

BIOINSTRUMENTATION LAB

GCU's bioinstrumentation lab includes many clinical devices such as an EKG, EEG, EOG, and a bio-printer. Additionally, students work to develop such devices and compare their work to clinical counterparts. Students engage with imaging devices such as CT & ultrasound scanners in order to gain practical clinical and pre-clinical knowledge and experience.

REAL-WORLD PREPARATION FOR CAREER SUCCESS

Our industry-based programs are characterized by:

- Hands-on training to ensure graduates are well-equipped to contribute as an engineer from day one on the job
- Industry-led curriculum adaptive to the ever-changing field
- Business mindset and entrepreneurial approach: students not only create their own products, but can actually market and sell these products or launch a business
- Collaborative teamwork: the field of engineering is centered on working in teams, so we utilize teamwork in the classroom to prepare students for that level of cooperation
- Teaching that expands beyond lectures with emphasis on demonstrations and immediate, hands-on application of concepts
- Open classroom dialogue to practice articulating different viewpoints regarding faith-science relationships

Career Services

The Academic and Career Excellence (ACE) Center serves as a resource for students to refine their resume and cover letter, practice interviewing, network and explore career opportunities. Students learn best practices for career planning and transitioning from academics into purposeful employment. Students also have great connections to internships that help them determine what they want to do with their future. The ACE Center works directly with the College of Science, Engineering and Technology to prepare students for networking, meet-and-greet and interview opportunities with engineering employers. Students go through a series of workshop preparation activities before connecting with industry professionals.

Exposure to Software and Technology Development

In addition to learning math critical to engineering, students also develop expertise in using industry software for solving calculations quickly and effectively. Students learn to use and apply SOLIDWORKS, Labview and programming language C, which is the most common language and is widely used across different levels of programming and engineering.

SENIOR CAPSTONE PROJECTS

All senior engineering students participate in a year-long course where students are put into multidisciplinary teams to tackle real world problems. During their junior year, students take an engineering project management course where they learn to develop and write out the scope of a project. Students are then able to submit their proposals for the college leadership to review. In their senior year, they are put into teams to implement their projects by managing an assigned budget, deliverables and resources. A faculty member is assigned to each team in order to provide feedback and guidance on their work and hold them accountable to meet deadlines. At the end of this course, the senior class showcases their work to GCU's college leadership and its industry partners.

POWERED LITTER TR

Emergency recovery of injured personnel in geographically challenging regions is a very complicated and dangerous process for both the patient and the rescuers. When a patient cannot walk and needs to be carried, it puts a large amount of physical strain on the rescue workers and increases the danger of dropping and further injuring the patient. Students in this project had the opportunity to work on designing, testing and verifying a battery-operated device that attaches to a rescue litter's wheel to make it self-propelled, assisting in emergency rescue and recovery.

Team members: Erica Bender, Lain Geisler, Jayden Key and Scott Martin

DEVICES FOR STUDENTS WITH DISABILITIES

In conjunction with nonprofit organization ACCEL

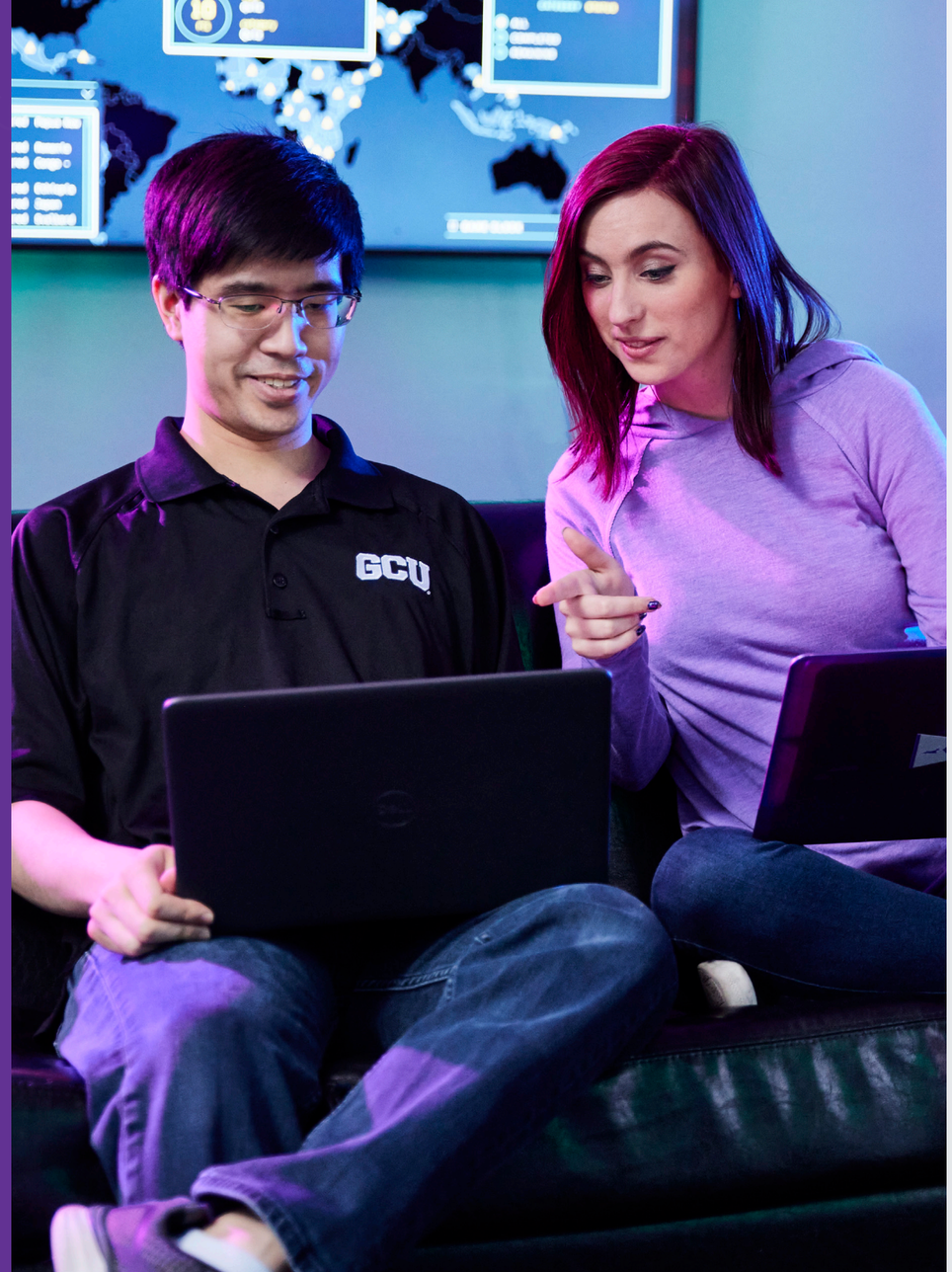
This project allowed students to work with a school for disabled children, teens and young adults to develop innovative seating solutions for students with specific disabilities. The project involved the production and delivery of seats that could be easily adapted to fit the needs of a variety of students.

Team members: Peyton Fridlund, Logan Hall, Kylee Laprise and Anna Stair

SETTING STUDENTS UP *FOR SUCCESS*

GCU goes to great lengths to provide students with extensive resources to support their academic and career success and spiritual growth. Our engineering students have access to these resources and opportunities:

- Engineering-designated career coach and career assessments
- Instructional Assistants (IA) and Explore More sessions for additional support
- Faculty office hours for walk-in academic assistance or scheduled one-on-one appointments
- Living and Learning Communities
- Engineering-specific student services counselors
- Purpose plans outlining individual student academic pathways
- Fellow Lopes!
- Chapel, The Gathering and Life Groups (Bible studies)
- Team of CSET student success specialists



BEYOND THE CLASSROOM

Design, Create, Build GCU Engineering Clubs:

- American Society of Mechanical Engineering
- Biomedical Engineering Society
- Institute of Electrical and Electronics Engineers
- GCU Robotics
- Engineering Servant Leaders
- Society of Women Engineers
- Society of Automotive Engineering (SAE) Collegiate Chapter with Canyon Motorsports and Aero Design Teams

STEM Living and Learning Community

Incoming freshman may choose to live as part of a Living and Learning Community (LLC) on campus to get the unique benefit of living in close proximity with like-minded STEM students. Technology students can build friendships with classmates and peers in similar majors who share the same interests. This is a great opportunity for freshmen to support one another and experience their first year in college together.

Benefits of joining this close, tight-knit STEM community include:

- Student connection, networking and collaboration
- Communication about program
- Access to additional programming
- Upperclassmen mentors
- Field trip opportunities
- Exclusive events

ENGINEERING ▶ *Top 5's*

NEXT *steps:*

1. Apply for free at **gcu.edu/ApplyNow**
2. Upload your transcripts and submit your test scores
3. Upon acceptance, visit campus (all-expenses paid[1] programs available)
4. Register for courses and pay the registration deposit

To learn more about Grand Canyon University, undergraduate programs offered on campus, available scholarships and more, contact an admissions counselor.

855-428-7884
gcu.edu/CampusAdmissions

[1]Restrictions for travel reimbursement may apply.