College of Science, Engineering and Technology

Technology Programs

FIND YOUR PURPOSE

GRAND CANYON UNIVERSITY®

PRIVATE. CHRISTIAN. AFFORDABLE.

VIRTUAL EXPERIENCE

BRING LOPES *to Life*

Download the GCU Virtual Tour application on your smartphone by either searching your phone's app store or scanning the QR code below:

While the application is running, point your phone at designated GCU virtual triggers.

Try it out!

Scan the trigger icon below and throughout the brochure to watch Lopes leap off the page!

AUGMENTED REALITY

This brochure contains augmented reality, an interactive experience in which real-world objects are enhanced by technology. Look for the trigger symbol on the images, as this symbol identifies where augmented reality is used. Follow the instructions and prepare to be amazed as these sections come to life on your phone!

ABOUT GRAND CANYON UNIVERSITY

Grand Canyon University is Arizona's premier, private Christian university. We help students find their purpose by offering next generation education with over 225 academic programs, including 175 online programs, across nine distinct colleges. Approximately 20,500 ground students learn on our vibrant campus in the heart of Phoenix and over 81,000 online students join our innovative and collaborative virtual learning community. Spanning 250+ acres, GCU's campus continues to grow with new residence halls, academic buildings, popular eateries, student support resources and amenities, as well as state-of-the-art athletic facilities like GCU Stadium, the Canyon Activity Complex and more. GCU offers generous scholarship opportunities to make a private education affordable and invests in revitalizing the community with a commitment to making a difference.*

*Fall 2019

#19 BEST COLLEGE CAMPUS IN AMERICA

Niche.com - 2020 Best Colleges

OUR CHRISTIAN WORLDVIEW

Built upon a biblically rooted mission, GCU believes quality education and faith can coexist in the 21st century. We integrate aspects of our distinctive Christian worldview into everything we do, and we incorporate Christian principles in the classroom to encourage students to shape their own perspectives. A values-based curriculum further helps students cultivate morality, ethics and compassion within their careers and lives.

GCU students are not required to be Christians. Our approach is missional in nature, characterized by a welcoming spirit and loving service to all from different walks of life. Our students experience the Christian faith, the mission of God and the idea of living for the good of others in a safe and supportive space. We encourage everyone to grow spiritually and live with intention while responding to their call to purpose.

GCU'S 6 COMMITMENTS FOR REWARDING EXPERIENCES

1. Start Strong, Finish Strong: Student success and well-being are top priorities at GCU. We go above and beyond to help our students prepare for their career, as well as have a happy and healthy GCU experience. A wide range of complimentary resources are available around campus to support our Lopes, from academic assistance to student wellness.

2. Early Graduation: As part of our commitment to affordability, we offer fast-track options for students to accelerate their educational path toward graduation and enter their career sooner. Early graduation means students pay less tuition and overall college expenses.

3. Low Student Debt: Finances deter many students from pursuing a college degree. In response, GCU helps make a college education accessible by offering generous scholarships. After GCU-funded scholarships, students pay an average of approximately $8,600* for the academic year, which reduces tuition by about half.

4. Home Away From Home: We go to great measures to provide students with a safe and comfortable environment to live, learn and enjoy. The various clubs, organizations and ways to get involved as well as supportive resources at the Academic and Career Excellence Centers (ACE Centers) help turn our campus into a second home.

5. Real-World Experience: GCU also serves as the parent organization of multiple enterprises—Canyon 49 Grill, the GCU Hotel, the GCU Golf Course, Grand Canyon Beverage Company, Lope Shops, the GCU Ad Agency, Canyon Promotions, Canyon Pizza Company, The Lope House Restaurant and the GCU Pro Shop. These enterprises allow students to get involved in these enterprises, participating in the transformative impact that an effective relationship between business and community creates. These enterprises provide students with hands-on learning environments, create real workplace experiences and inspire students to use business as a means for good in their communities.

6. One Application: The various clubs, organizations and ways to get involved as well as supportive resources at the Academic and Career Excellence Centers (ACE Centers) help turn our campus into a second home. At GCU, most incoming students are accepted into their program of study without a secondary review, with the exception of our nursing and athletic training programs, which require secondary acceptance due to clinical restrictions.

#6 BEST COLLEGE DORMS IN AMERICA

Niche.com - 2020 Best Colleges

*Average tuition after scholarships is approximately $8,600. Scholarships may be awarded based on 6th semester transcripts. At the time in which final, official transcripts are received, GCU reserves the right to rescind or modify the scholarship if it is determined that eligibility was not achieved. GCU reserves the right to decline scholarship awards for any reason. If a student does not meet the minimum renewal criteria, their scholarship will be forfeited. GCU reserves the right to change scholarship awards at any time without notice. If a student does not meet the minimum renewal criteria, their scholarship will be forfeited. Prices based on 2019 rate and are subject to change.

WHAT MAKES GCU'S TECHNOLOGY PROGRAMS DIFFERENT?

GCU's technology programs are set apart from other universities because of our unique ability to provide students opportunities to work with cutting edge technology and push their knowledge beyond the curriculum. Students will have opportunities to develop important skills required for their careers through many unique real-world opportunities.

Additional benefits include:

- Industry-driven curriculum aligned with GCU's STEM guiding principles to ensure students grow in soft skills
- Current technology platforms
- Information x Technology Club (IxT)
- Hands-on and project-based learning environments
- Faculty dedicated to teaching and learning
- Christian worldview integrated into core technology courses
- Research and design programs

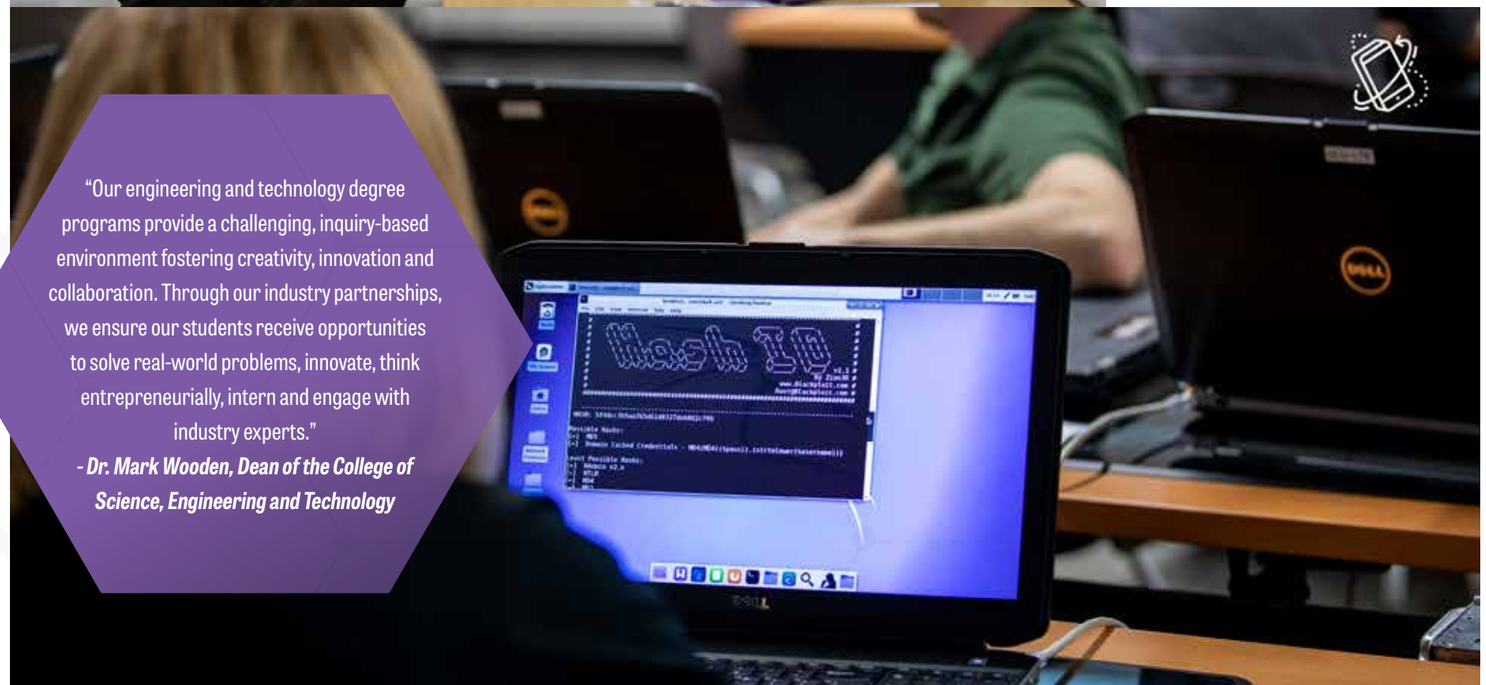
HANDS-ON EXPERIENCE

Canyon Ventures

This facility houses entrepreneurs, mentors, and financial resources and is designed to help students put what they learn to work. This advances their skills and gives them job experiences in an exclusive business environment.

Cyber Center of Excellence

This cybersecurity lab gives students access to real-world, industry-grade digital spaces where they can develop skills in cybersecurity that they will need once they enter their career.



"Our engineering and technology degree programs provide a challenging, inquiry-based environment fostering creativity, innovation and collaboration. Through our industry partnerships, we ensure our students receive opportunities to solve real-world problems, innovate, think entrepreneurially, intern and engage with industry experts."

- Dr. Mark Wooden, Dean of the College of Science, Engineering and Technology

REAL-WORLD PREPARATION FOR CAREER SUCCESS

Our passionate instructors specialize in more than just lecturing — they engage students in active learning and career training. In combined lectures and labs, hands-on learning begins during a freshman's first semester where students apply theory and concepts immediately. Unlike many universities, our undergraduate students have access through Lopes Cloud to state-of-the-art virtual environments used in the industry to heighten their learning experiences. Within this collaborative space, activities include conducting experiments, analyzing data and solving problems.

Our industry-focused program incorporates:

- Training to ensure graduates are well-equipped to enter directly into a career
- Industry-led curriculum adaptive to the ever-changing field
- Access to industry-standard virtual equipment through LopesCloud
- Business mindset and entrepreneurial approach
- Instructors who act as a project or worksite managers
- Collaborative teamwork while applying project-management principles
- Expanded teaching beyond just lectures with emphasis on demonstrations
- Open classroom dialogue to practice articulating different viewpoints on faith-science relationships

WHY MAJOR IN TECHNOLOGY AT GCU?

As a transformative higher learning institution, GCU rapidly provides solutions and responds to local and global needs in the workforce, economy and community. Our College of Science, Engineering and Technology is a school for leading-edge, STEM-centered education that houses our fast-growing, industry-oriented technology programs. We challenge our students to apply their passion for science and technology by bringing their ideas to reality with hands-on experience from day one. We equip and challenge students to make technological breakthroughs and advance the technological sphere in order to improve both the world and humanity. Our comprehensive technology programs include computer science, computer programming, information technology and cybersecurity.

GCU recently received ABET accreditation for our computer science programs. ABET accreditation provides assurance that a college or university program meets the quality standards of the profession for which that program prepares graduates.

New Programs and No Legacy Curriculum

GCU's newly established technology programs feature classrooms that combine lecture and lab courses. Our industry-driven curriculum co-designed with industry professionals puts our students at the forefront of the technology sphere. Coding theory and practice are embedded in each major, as is ethical practice. We also have established partnerships with industry professionals to ensure our graduates are prepared for today's careers.

GCU-Funded Campus Scholarship: CSET Award

GCU funds the Computer Science, Information Technology, Computer Programming and Engineering (CSET) Award*, which awards $500 per academic year for four years. Additionally, there is no secondary application required for acceptance sophomore year, which allows students to focus on their studies.

Student Intellectual Property

We believe in providing students with the opportunity to create intellectual property and have project ownership over their designs. Intellectual property means creations belong to the student, not the university, and can showcase a graduate's innovative and creative skills to a future employer.

Exposure to Software and Technology Development

Our program goes in-depth on how software works so students can not only use the software that's already in the industry, but can also create new and original software themselves. Additionally, coding is embedded into every program to create a functional skill set that will be applied later in industry. GCU uses current industry professionals and a quarterly advisory board to determine current areas of knowledge that parallel career opportunities. Students learn a variety of high-level programming languages including Python, Java, C#, PHP/MySQL, OstgreSQL and T-SQL.

The software development major covers the fundamentals of software development, including object-oriented design, problem solving and algorithm analysis. Students are introduced to current dynamic web application frameworks, including the Spring Framework, Enterprise Java, PHP Laravel and .NET platform in a three-semester sequence of courses focused on enterprise application development. These courses focus on program design and development, debugging techniques, GUI design and the application of object-oriented techniques. As students progress, they deploy their dynamic web applications onto a number of the current cloud platforms. Students employ test-driven programming methodologies to develop secure, high-performance, database-driven applications.

The computer science major studies a variety of foundational topics including digital logic and design, data structures, algorithm analysis, big data and graphical design. In this program, students use a variety of languages, both high and low level, to master the foundations of computation. The computer science program encourages participation in research activities and professional organizations, as well as prepares students for a variety of unique career paths. Computer science majors may work with faculty on a variety of projects, often culminating with publication. Students have opportunities to build compilers, learn AI by programming robots, develop virtual and augmented reality on Virtual Reality gear, and build data science products. Current development tools include Unity, R, Python, CUDA and IoT devices.

The software engineering major covers a variety of software engineering foundational topics including the software development life cycle (SDLC), problem solving, communication techniques, object-oriented design, algorithmic analysis and database concepts. Throughout this program, students learn various current and dynamic programming languages including web application frameworks such as Spring Framework. These courses focus on fully understanding the SDLC, various methodologies to employ the SDLC and allow students to develop fundamental skills in embedded systems and AI by utilizing the development tools of robots and IoT devices. The software engineering program encourages students to network with professional organizations and participate in research and prepares them to employ sound project management methodologies to develop secure, dynamic and successful projects.

*This award is renewable for fall and spring semesters, as long as the student maintains continuous full-time enrollment in a Computer Science, Computer Programming, Information Technology, Software Engineering or Engineering program, as well as maintain admissibility with GCU. There are a limited number of awards available. These awards are available on a first-come, first-served basis. Award and award amount are based on the 2019-20 award year, continuous full-time enrollment in a Computer Science, Computer Programming, Information Technology or Engineering program, as well as maintain admissibility with GCU. There are a limited number of awards available. These awards are available on a first-come, first-served basis. Award and award amount are based on the 2019-20 award year.

IS TECHNOLOGY FOR ME?

Students can start exploring their vocation by simply identifying what they enjoy doing. Ask questions like, “What motivates me?” or “How can I turn my faith into action?” Among various resources and helpful instructors, the Academic and Career Excellence (ACE) Center can further help students discover which technology program to pursue. Students will weigh in on personality traits, skills and interests. Students will consider factors like attention to detail, strong work ethic, in-depth problem-solving skills, the ability to be proactive and entrepreneurial skills.

Students enrolled in CSET programs learn by:

- Working with code
- Creating apps
- Developing software
- Working with networks, servers and databases
- Solving problems
- Working with a team
- Thinking outside the box
- Programming IoT devices
- Designing capstone projects with industry mentorships
- Completing coursework in mathematics and the physical sciences
- Participating in programming competitions

Students are interested in:

- Solving societal problems
- Economical environments
- Improving quality of living
- Building sustainable products

TECHNOLOGY PROGRAMS

COMPUTER SCIENCE

Computer science is the study of computers and computational systems such as software, operating systems and databases. Our project-based approach encourages exploration and provides students with a solid blend of theory and practice. Students practice problem-solving throughout the program and are encouraged to engage in undergraduate research as early as their freshman year. The computer science program offers emphases in business entrepreneurship, game and simulation development and big data analytics.

CYBERSECURITY

This program focuses on defending digital spaces, computer environments, networks and sensitive information from malicious software developers and hackers. It teaches and assesses competency in all aspects of defensive and offensive cybersecurity, cyber law and cyber ethics. Areas of study include: information assurance foundations, digital forensic investigations, malware reverse engineering, wireless security, security architecture design, security frameworks and secure system administration.

INFORMATION TECHNOLOGY

IT teaches students to use computers and technology tools (hardware, software, operating systems, databases, etc.) to meet business requirements and solve both human and business problems. Using hands-on practical skills, students learn how to use and work with technology infrastructures such as networks, servers, databases, etc., as well as access to a virtual platform for hardware and software simulation. This program offers an emphasis in cybersecurity.

SOFTWARE DEVELOPMENT

Computer programming focuses on software development using a variety of programming languages such as Java and C# so evolving ones can be learned. Students learn to work with full web stacks including Enterprise Java, Spring Framework, .NET MVC and Larvel, as well as practice the various software development stages in all projects. Along with rounding out their skills with operating system concepts, cloud computing and design patterns, algorithms and data structures, students will also learn how to: solve problems and program applications using state-of-the-art, open-source technologies; manage their projects with the popular Agile Scrum methodology; and deploy their applications to various cloud platforms.

SOFTWARE ENGINEERING

Software engineering describes the application of engineering principles and concepts to develop software programs. The Bachelor of Science in Software Engineering spans software engineering principles, processes and practices with application to a series of complex systems and challenges faced by enterprises in a variety of private and public sectors. This program focuses on embedded systems, the software development life cycle (SDLC), software analysis, design, architecture and project management. Students learn to critically think through problems and troubleshoot on a macro and micro scale. Courses allow students to gain skills in web development including Spring Framework and develop and understanding of using and deploying algorithms and data structures in their designs. The program additionally offers opportunities for hands-on experience through our project-based learning approach.

Career Compass is a free tool available to provide individualized career and personality assessments.

VISIT **gcu.edu/compass**

WHICH TECHNOLOGY PROGRAM IS RIGHT FOR YOU?

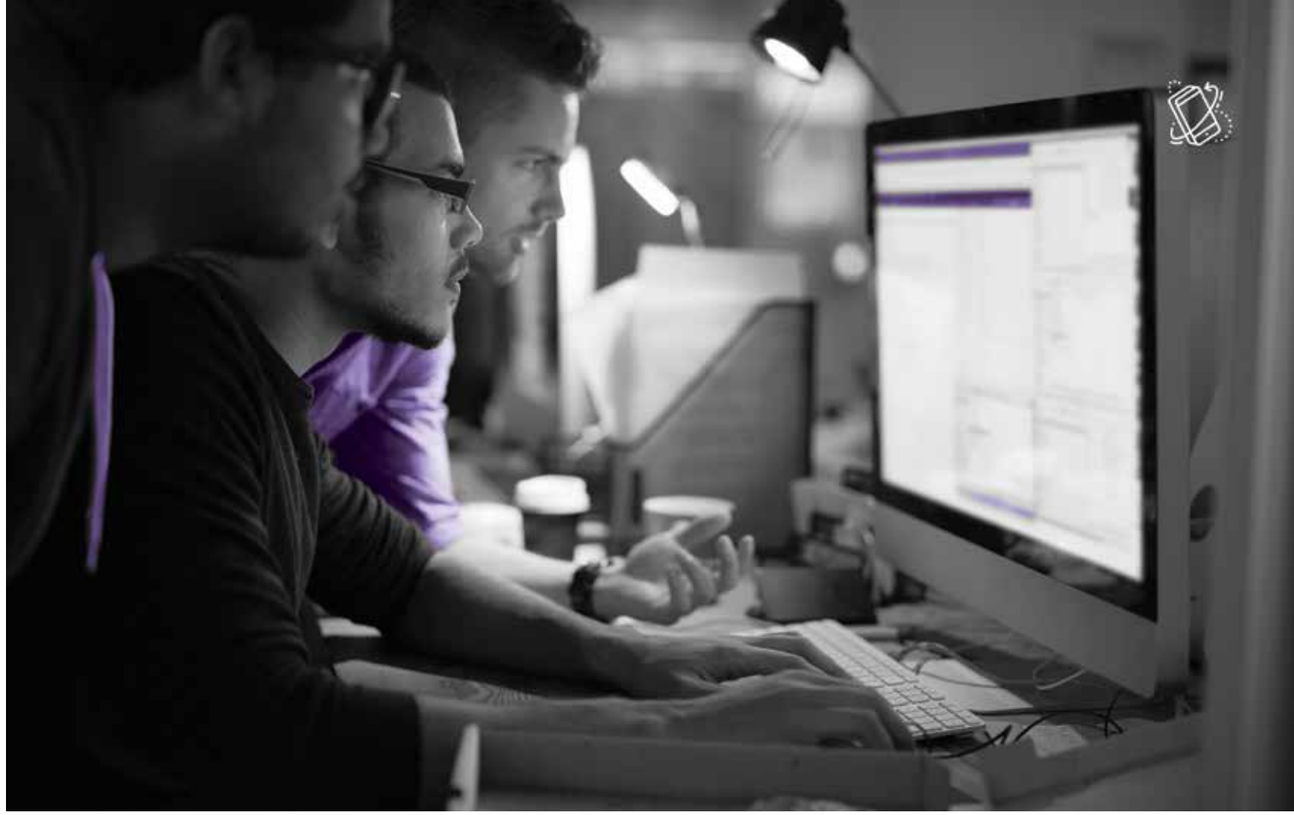
CYBERSECURITY ▶ *INNOVATIVE, PROBLEM-SOLVING MINDSET*
Do you have strong analytical skills, adaptability and self-confidence? Are you interested in helping others and protecting sensitive data?

SOFTWARE DEVELOPMENT ▶ *IMPLEMENT, HANDS-ON MINDSET*
Are you good at following technical guidelines, engaging in lengthy trial-and-error processes with unpredictable outcomes? Do you have good quantitative reasoning skills?

SOFTWARE ENGINEERING ▶ *INVENTIVE, SYSTEMIC MINDSET*
Do you like to find innovative solutions to complex problems? Do you like having your ideas impact people in a positive way?

COMPUTER SCIENCE ▶ *INVENTIVE, RESEARCH-AND-DEVELOPMENT MINDSET*
Do you enjoy solving math problems, learning theoretical principles behind technology and designing solutions that integrate scientific concepts?

INFORMATION TECHNOLOGY ▶ *INTEGRATE, MAKING-THINGS-WORK MINDSET*
Do you like working behind the scenes? Are you inspired by continuously evolving technologies and interested in applying new innovations toward the greater good?



In the rapidly developing and competitive field of STEM, the College of Science, Engineering and Technology creates a challenging and engaging inquiry-based learning environment. Through robust collaboration and partnership with STEM-related industries, our faculty concentrates exclusively on student success within a deeply nurturing Christian setting.

At GCU, students are encouraged to not only find their purpose, but to discover their passions and future profession. This purpose is nurtured within a faith-integrated, interactive learning environment where students are active participants in their training. In addition, our Christian perspective prepares students for careers marked by service, integrity, ethical decision making and concern for the common good.

GCU invites students to embark on an educational journey that extends beyond textbook and classroom learning. Joining our ambitious technology community is an opportunity to truly design, create and apply. Our STEM program encourages 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**

TECHNOLOGY DEGREES

BS in Software Development

This program teaches students cloud computing, database-driven enterprise applications, the structure and variations among different programming languages, application design, software project management, design patterns and open-source computing. Graduates are prepared for a career as a software developer, systems analyst, full web stack developer, mobile application developer or web application developer.

BS in Software Engineering

This program teaches students to analyze user needs, provide consultation services to discuss design elements, and to lead and coordinate project activities at every stage in the software development life cycle. Students learn coding in current programming languages such as Python, C++ and Java. Courses also build a foundation of knowledge and experience in design patterns, open-source computing, web development, databases and large-scale data processing. Graduates are prepared for careers as a software engineer, IT project manager, computer systems engineer or architect, systems analyst or embedded software engineer.

BS in Computer Science with an Emphasis in Big Data Analytics

Students in this program explore and experience some of the major problems and trends associated with the storage of huge volumes of data, its analysis and the extraction of information relevant to a specific context. Students gain fundamental knowledge and experience in large-scale data processing, data mining and interpretation, pattern analysis and data-based decision making.

Accredited by the Accreditation Commission of ABET. Visit abet.org to learn more.

BS in Computer Science with an Emphasis in Game and Simulation Development

Students apply theoretical concepts of computing and simulation to create applications for entertainment, education or scientific visualization. Students acquire a foundational skill set necessary for the creative application of software development, digital media, human-computer interactions, 2D and 3D graphics, simulation, modeling, data structures and algorithms. This skill set is augmented with solid fundamental knowledge of visual simulations, the process of design and development of tools such as operating systems, databases, etc., for end users in science, engineering, business and other professions.

Accredited by the Accreditation Commission of ABET. Visit abet.org to learn more.

BS in Computer Science with an Emphasis in Business Entrepreneurship

Students explore the foundation for innovational business leaders of new technologies and business processes. Students learn IT project management, strategies and implementation to grow business opportunities, identify market opportunities and commercialize original products and services. They will learn the best practices for creating innovative work environments and the importance of societal wealth ventures, social responsibility and community outreach.

Accredited by the Accreditation Commission of ABET. Visit abet.org to learn more.

BS in Information Technology

This program provides students with the knowledge and practical expertise needed to care for both an organization's IT infrastructure and the people who use it. Students learn how to use computers to solve human and business problems and how to work with tech tools such as hardware, software, operating systems, databases, etc.

BS in Information Technology with an Emphasis in Cybersecurity

Students gain an in-depth understanding of the value of IT, including how it can improve business performance, boost organizational efficiency and reduce costs of enterprise systems. The program focuses on core competencies about IT-driven business, software technology and tools, enterprise information systems and cybersecurity. Students benefit from the on-campus Cyber Center of Excellence. They learn valuable skills such as ethical hacking (the understanding of penetration testing to find security vulnerabilities, gain a working knowledge of the processes and goals of cyber forensics and plans and strategies for security architectures. They are also taught coding and relevant programming languages that current industry professionals are using.

BS in Cybersecurity

BS in Cybersecurity was developed with industry guidance to produce highly skilled cybersecurity professionals. As an increasing number of cyberattacks and information security threats hit our nation, expert cybersecurity professionals are in significant demand. This degree focuses on the offensive side of information security at the corporate and national levels. Students in this program learn to detect, defend and mitigate cyber threats across the enterprise. Through Canyon Ventures and the Cyber Center of Excellence, students are able to gain hands-on experience in vulnerability and penetration testing, hear from industry experts and attend workshops designed to give them experience in current technologies. They are additionally able to participate in cybersecurity capture-the-flag and hack-a-thon competitions against other students and schools.

WHAT IS STUDYING ***TECHNOLOGY*** *LIKE AT A* ***CHRISTIAN UNIVERSITY?***

Our students embark on their educational journey with a divine purpose. Our Christian worldview serves as the starting point for learning. Our strong devotion to our faith allows us to unite the knowledge of God and the universe, as well as deepen understanding to advance inquiry. We seek to cultivate career-ready graduates who possess a servant's heart and industry-identified skills such as collaboration, ethical character, moral truth, social awareness and Christian convictions. Within these skills, students are taught to use technology for the betterment of others, to create software to solve environmental problems, ethical hacking and other means to bring about good.

Coexistence of Faith and Scientific Exploration

Our learning environment encourages science-faith inquiry that's open to the analysis of scientific and theological interpretations. Our Christian beliefs provide a moral and ethical guide in our search, leading us to celebrate scientific discoveries. Our faith is not to stifle research, suppress dialogue or inhibit scientific exploration. We respect and welcome different perspectives and believe in intellectual discourse. In a spirit of humility and service, we will better understand our world.

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

The Love of Christ Compels Us

Our teachings humble students who possess a heart for others. In addition to acquiring technical skills, students learn in the mind, body and spirit. The pursuit of holistic ministry through third-world applications also helps strengthen servant leadership. At GCU, to become career-ready means to carry one's unique mission under heaven, while serving the advancement of the world and economy.

SACRED VOCATION

John 14:12 states: "Very truly I tell you, whoever believes in me will do the works I have been doing, and they will do even greater things than these, because I am going to the Father." Many of our students are answering the call to aspire to do even greater things.

Some took upon themselves to re-tell the stories of the Bible and demonstrate that while the lambskin of the scribes has been replaced with virtual reality technology and computer code, the message of truth and love for fellow humans withstands the test of time and is more relevant today than ever.

Other students head the call to "do the works I have been doing" and lend their skills to help those who cannot help themselves: missing and abducted children. They pursue technology and knowledge beyond intellectual curiosity but pursue it with a simple yet profound purpose: to create a tool to help us all love our neighbor.

TEACHING & 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.

- Virtual labs are available for lower and upperclassmen to use for their creations and are not exclusive to just researchers. Students take ownership of their designs and can present them to employers showcasing their readiness to dive into their career.
- Faculty is available on campus and accessible to students directly. On average, instructors teach four courses each. 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 underscore our strong role as a teaching university. The ACE Centers as well as 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 the latest trends, 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 the development of curriculum to ensure GCU students gain the most relevant exposure and experience prior to entering the workforce.
- Faculty embrace virtual meetings and utilize technologies to meet with students, even when not on campus, to provide individual mentoring and assistance.

Industry-Oriented Curriculum

GCU's program is unique in that curriculum is developed by experts and representatives from major corporations and small consulting companies.

GCU assembled a group of science, technology and engineering leaders, along with GCU executives and STEM experts in the Phoenix area. These advisory board members were selected for their expertise and genuine excitement for student success. They meet with experts in the industry so our STEM programs are aligned with trends and evolving market needs to ensure graduates are workforce-ready. Our internships and capstone mentorships are also generated from this setting.

Research Project Opportunities

GCU aims to continually increase the amount of research, publishing and presenting conducted by faculty and students despite being a teaching university. Students have opportunities to participate in research projects/initiatives, such as a Research and Design Program (RDP), alongside faculty. 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.

These projects give students a unique edge, as participating in research makes them more competitive and elevates them to what is expected in computer science professions. Students are able to gain knowledge, experience and skills they wouldn't otherwise be exposed to in the classroom.

S.M.U.R.F.

Students at the College of Science, Engineering and Technology are working on a project called S.M.U.R.F. (Smart Urban Fabrics), which researches factors that affect the quality of life and environment at GCU. Information is collected via sensors, organized in a database, statistically analyzed and visualized in simulations. Researchers plan to experiment with electromagnetic propulsion and more advanced virtual reality using Microsoft Hololens.

The Virtual Reality Bible Project

Dr. Isac Artzi, the College of Science, Engineering and Technology's Computer Science lead, created the Virtual Reality Bible Project to bring our stories to life in a new way. Seven groups of students are now programming Biblical stories, such as the parting of the Red Sea and Noah's Ark, and integrating GCU's Christian worldview with computer science concepts in a unique way.

NCMEC *DATA ANALYTICS*

"As a computer science major, I was introduced to R, a programming language, and data analytics software, which allowed me to form the knowledge basis I needed to create my app—the National Council of Missing and Exploited Children Data Analysis Tool (NCMEC - DAT). The app takes two sets of data from the National Center for Missing and Exploited Children—a missing persons set and an attempted kidnapping set—and displays data inside a filterable map based on characteristics such as child gender, age, race and location. This way, law enforcement doesn't have to sift through thousands of rows of data. Instead, they use filters to narrow down the data and clearly display it on a map and download the data set."

— ***Connor Segneri, Alumni 2018, Bachelor of Science in Computer Science with an Emphasis in Big Data Analytics***

Private Cloud Computing Project

Professor Reha challenged his software development students to design and build a fully functioning, low-cost, private cloud platform using a cluster of Raspberry PIs. The students developed the platform on a cluster of four Raspberry PIs, which was then expanded to a cluster of 25. The cloud platform supports and runs a wide range of current web application stacks and databases, all being managed by a web-based administration application written in a JAVA framework the students learned as a part of their degree program.

CYBERSECURITY AT GCU

The Bachelor of Science in Information Technology with an Emphasis in Cybersecurity is designed to provide students a foundational skill set in Information Technology, along with a defensive cybersecurity mindset. This is commonly referred to in the industry as "Blue Team Security", because you are reactive or defensive in technique. GCU's Bachelor of Science in Cybersecurity provides students with skills to be proactive in their cyber techniques. This is an offensive cybersecurity program preparing students for "Red Team Security" activities. Students can also minor in cybersecurity, which provides foundational information with technology skills in programming, system administration and computer networks.

The term "hacking" is viewed as an illegal, non-Christian activity. At GCU, we teach students white-hat hacking practices, or "ethical hacking." This is the term used in the industry for cybersecurity professionals who use their God-given abilities and implement Christian practices through hacking to help individuals and businesses solve cyber technology issues and catch cyber criminals from causing harm. We refer to these students as "Hackers with Halos."

A class in our cybersecurity programs, "Cybersecurity and Ethical Hacking," allows students to understand how a Christian heritage and ethical hacking practices are highly coveted in the industry of cybersecurity.

Job Title Examples:

BS in IT with Emphasis in Cybersecurity
Network Administrator
BS in Cybersecurity
Security Analyst

The National Security Agency and the Department of Homeland Security have designated Grand Canyon University's BS in IT with an Emphasis in Cybersecurity as a National Center of Academic Excellence in Cyber Defense Education (CAE-CDE).

DID YOU KNOW?

Many of our labs are completely devoted to technology and are all 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 as freshmen to develop their skills and expand their ideas.

DID YOU KNOW?

More than 30 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 as freshmen.

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

GCU now has two buildings dedicated to STEM learning to accommodate the growing number of students studying these trades. Technology students have access to a virtual environment where students learn hands-on by logging into a server and working via real-world scenarios. By using these virtual classrooms, students are able to reset scenarios as necessary to better their learning experience through repetition and trial and error.

INNOVATIVE LABS, ON-GOING PROJECT-BASED LEARNING AND INTEGRATED LECTURE LAB

Our technology program offers students a rare opportunity to dive right in and get industry-relevant experience doing things technologists are doing in the field every day.

- Project-based learning is the process in which students are able to take their ideas and build them in to real-world solutions. It is a long-term commitment among faculty and students where guided narrow research, collaboration and oversight turn into finished products.
- Technology students also benefit from the integration of lecture and lab, giving teachers more control over the breakout of the class.

VIRTUAL CLASSROOM

Virtual classrooms offer students several advantages. Because GCU utilizes a cloud environment, undergrad and graduate students have access to the best-of-the-best technology. Another benefit is the lab can be used simultaneously by all students, which means there is no waiting or scheduling necessary and there's less maintenance time. Moreover, when students need a refresh, the virtual classroom is the perfect place—it is designed to allow students to not only develop new projects, but simply refresh their work environment.

LOPESCLOUD

LopesCloud is a web application that connects students to cloud-based virtual machine environments, which allow students to interact with whichever virtual environment their assignment requires. These environments include Windows, Linux and a variety of other platforms. This tool ensures our students are properly prepared with a wide skillset and equipped for their future careers.

CYBERSECURITY TRAINING

The Cybersecurity Center of Excellence is a hands-on training environment set in place to develop a well-trained workforce versed in the continuous improvement process for cybersecurity using self-paced training, organic mentoring and a real-world experience. It hosts hands on exercises for everyone— from beginners to tenured professionals.

*https://www.bls.gov/ooh/computer-and-information-technology/information-security-analysts.htm

GCU ESPORTS

Esports is one of the fastest growing industries in the world, and GCU is taking notice! Our Esports program is the premier gaming organization on campus. We have nearly 100 collegiate players participating across 19 varsity and junior varsity teams. GCU Esports supports a community that fosters competitive spirit while encouraging social entertainment. Our program has recently been recognized with media coverage, including ESPN!

"I was afraid of making new friends when I first came to college. But Esports club people were really friendly and very nice. I became friends with a lot of people. Leadership and teamwork was achieved with the teams and stronger relationship with my teammates after tournament matches."

— ***Daesik 'David' Cho, Class of 2022, Computer Programming***

BEYOND THE CLASSROOM: DESIGN, CREATE, BUILD

Information X Technology Club

Information X Technology Club (IXT) provides an environment for like-minded people to pursue their interests and share their passions by engaging with other students in projects. Out of the diverse world of engineers, programmers, hackers, data scientists and other pursuits, the club unites students in a common endeavor: to be creative with technology. It meets twice a week and hosts instructors onsite to provide support to students. Groups work on personal projects, hacking, coding, web design and more.

"During my freshman year, I frequently heard about IXT Club's projects and was greatly impressed, but I wasn't an IT or computer science student. I changed my major several times, but I couldn't identify my passion. My sophomore year I tried out IT; later in the school year I picked up the cybersecurity emphasis. I attended my first IXT Club meeting at the beginning of my second semester and I haven't missed a meeting since. It's become a place I can grow connections with others that have similar interests and a place I can talk to students actively pursuing things in technology I hadn't yet considered. Both are conducive to finding my purpose."

— ***Christian Taillon, Cybersecurity Analyst President of the Information X Technology Club***

ENJOY THE COLLEGE EXPERIENCE!

We also want our technology students to have fun! Although challenging, technology is an open canvas for creativity and innovation. It's a career for exploration and discovery. Getting involved outside of the classroom with others provides healthy school-life balance and helps students grow in pursuit of their dreams.

The student experience is one of the most important facets of college. At GCU, we call this Lope Life. Students make lifelong friendships, stay active and build a professional future surrounded by peers and campus support. There are numerous student groups, intramural and club sports, clubs and organizations students can get involved in. There are also multiple modern fitness facilities. Thunderground gives students a place to lounge after class, grab a snack or catch up with friends. It houses a bowling alley (ThunderAlley), games and a lounge area with large screen TVs.

Every year students also look forward to Midnight Madness, GCU's biggest party of the year and annual kickoff to the men's and women's basketball season. Spirited students bring tons of energy and pack the GCU Arena.

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. Across all colleges, students learn under the close attention of expert faculty and in classroom environments that cultivate higher ethics based on our Christian worldview.

FOR A FULL LIST OF MINORS, VISIT **GCU.EDU/MINORS**

OTHER PROGRAMS OF INTEREST AT GCU:

Bachelor of Science in Nutritional Science for pre-health career preparation

Bachelor of Science in Business Information Systems

Bachelor of Science in Health Information Management

Bachelor of Arts in Digital Design with an Emphasis in Animation

MINOR	# OF CREDITS
Accounting	20
Advertising and Graphic Design	16
Athletic Coaching	24
Behavioral Health Sciences	20
Biblical Studies	20
Business Management	20
Christian Studies	16
Communication	16
Counseling	16
Cybersecurity	24
Dance	19
DB-Driven Web-based Applications Development	16
Digital Design	24
Digital Film	20
E-Business Applications Development	16
Enterprise Applications Development	16
Entrepreneurial Studies	16
Finance and Economics	28
General Business	20
Hospitality Management	16
Literature	16
Marketing	20
Military (ROTC- Army)	27
Military (ROTC-Air Force)	36
Music-Instrumental	24
Music-Piano	24
Music-Vocal	24
Philosophy	16
Pre-Law	16
Pre-Medicine	36
Professional Writing	16
Psychology	20
Social Work	16
Spanish	24
Sports Management	24
Theatre	24
Worship Arts	20

TECHNOLOGY ▶ *Top 5's*

- **Real-World Curriculum** *pg. 7*
- **Cybersecurity Center of Excellence** *pg. 14, 20*
- **Undergraduate Research Projects** *pg. 18*
- **Lopes Cloud** *pg. 23*
- **Information X Technology Club** *pg. 24*

NEXT *steps:*

STEP 1 ▶ Apply for free at **gcu.edu/ApplyNow**

STEP 2 ▶ Set up your student portal, submit your transcripts and monitor your progress toward acceptance

STEP 3 ▶ Once transcripts are evaluated, sign up for Discover GCU, our all-expenses paid* on-campus experience, to learn more about Lope life

STEP 4 ▶ Register early to lock in your scholarships, class schedule and housing preferences

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

*Restrictions for travel reimbursement may apply.