BE A PART OF INFORMATION TECHNOLOGY

South Carolina Needs More Software Developers

$12.7 Billion
OUR TECH SECTOR

8,600+ Tech Companies
CALL SC HOME

6%
OF SC'S ECONOMY

29,000+ jobs
POSTED IN 2021

Employment as a software engineer in South Carolina expanded by more than 3,600 jobs in 2020 and the technology industry as a whole contributed $12.7 billion to the state's economy.

According to Cyberstates™ 2021, the definitive annual analysis of the nation's tech industry.

Our state's economy depends on technology.

Our tech sector is responsible for an estimated 6 percent ($12.7 billion) of the overall state economy. As our tech sector grows, our ability to compete will depend on the availability of an educated tech workforce.

However, the pipeline of tech talent in our state – particularly in software development – is not large enough or diverse enough to meet the current demand, much less enough to support future growth in the sector. Providing free access to technology education has the potential to expose residents to the vast amount of opportunity available – *right here in South Carolina.*

SC///CODES

Learn more and begin your coding journey for free at www.sccodes.org

The Information Technology career cluster

The information technology career cluster is divided into the following five majors:

» Networking Systems

» Information Support & Services

» Software Engineering & Development

» Web & Digital Communications

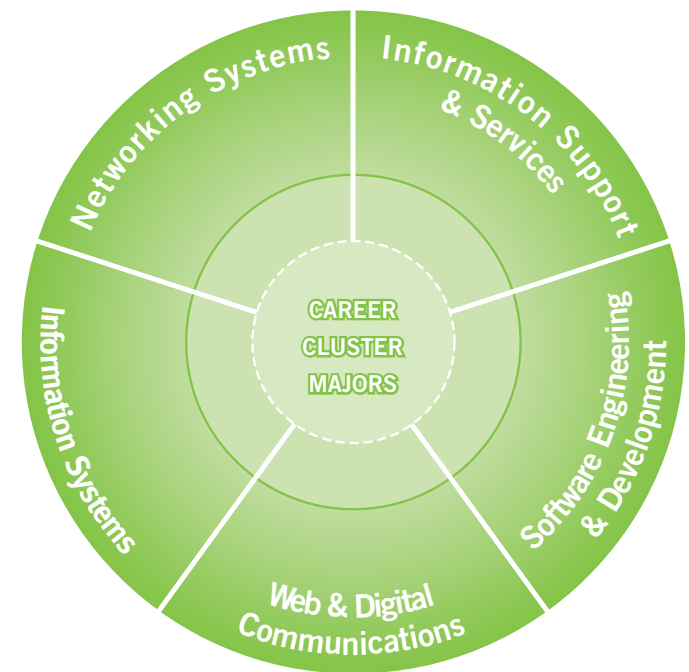» Information Systems

To learn more about it

Information Technology (IT) can be found in all 16 career clusters. Below are some hands-on simulation modules for you to explore.

HEALTH SCIENCE—Blood Typing Games

» http://www.nobelprize.org/educational/medicine/bloodtypinggame/gamev2/index.html

» http://www.nobelprize.org/educational/medicine/landsteiner/landsteiner.html

ADVANCED MANUFACTURING—Electrical Circuitry Simulations

» http://interactivesites.weebly.com/electricity-and-energy.html

» http://thefusebox.northernpowergrid.com/page/circuitbuilder.cfm

The Networking Systems major involves the mechanical and electrical (non-software) aspects of IT. Professionals in this career design, evaluate and administer systems such as local access networks (LANs), wide area networks (WANs), the Internet, intranets and other data communications systems.

If you choose Networking Systems as your career major, you may be a part of:

» Developing and managing network and data communication projects
» Maintaining system documentation
» Troubleshooting and resolving system performance problems
» Accessing control systems and maintaining security systems

Sample Careers

Associate's Degree or Less
Annual Salary Range $30,000-$50,000

» Network Administrator
» PC Support Technician
» Network Technician
» Computer Technician
» Cabling Technician
» Computer Operator

Bachelor's Degree
Annual Salary Range $50,000-$100,000

» Product Support Engineer
» Cyber Security Analyst
» Technical Writer/Editor
» Computer Designer
» Circuit Designer
» Operations Support Analyst
» Capacity Planner

Bachelor's Degree + Graduate Degrees and/or Certifications
Annual Salary Range $80,000-$150,000+

» Chief Technical Officer
» Chief Security Officer
» Network Engineer
» Operations Manager
» Mechanical Engineer

Career	Entry-Level Education	Annual Median Salary & Hourly Pay (2020)	Job Outlook (2019-29)	Responsibilities	Skills
Computer User Support Specialists	Associate's Degree	**$55,510/year** **$26.69/hour**	**9%** (Fast as average)	» Oversee the daily performance of computer systems » Answer user inquiries regarding computer software or hardware operation to resolve problems » Enter commands and observe system functioning to verify correct operations and detect errors » Set up equipment for employee use, performing or ensuring proper installation of cables, operating systems or appropriate software » Install and perform minor repairs to hardware, software or peripheral equipment while following design or installation specifications	» Active Listening » Critical Thinking » Reading Comprehension » Speaking » Writing
Network and Computer Systems Administrators	Bachelor's Degree	**$84,810/year** **$40.77/hour**	**5%** (Average)	» Maintain and administer computer networks and related computing environments including computer hardware, systems software, applications software and all configurations » Perform data backups and disaster recovery operations » Diagnose, troubleshoot and resolve hardware, software or other network and system problems, and replace defective components when necessary » Plan, coordinate and implement network security measures to protect data, software and hardware	» Complex Problem Solving » Critical Thinking » Judgment and Decision Making » Reading Comprehension » Systems Analysis
Information Security Analysts	Bachelor's Degree	**$103,590/year** **$49.80/hour**	**33%** (Much faster than average)	» Encrypt data transmissions and erect firewalls to conceal confidential information as it is being transmitted and to keep out tainted digital transfers » Develop plans to safeguard computer files against accidental or unauthorized modification, destruction or disclosure and to meet emergency data processing needs » Review violations of computer security procedures and discuss procedures with violators to ensure violations are not repeated » Monitor use of data files and regulate access to safeguard information in computer files	» Active Listening » Comprehensive Problem Solving » Critical Thinking » Reading Comprehension » Speaking
Network Architects	Bachelor's Degree	**$116,780/year** **$56.14/hour**	**5%** (Average)	» Adjust network sizes to meet volume or capacity demands » Communicate with customers, sales staff or marketing staff to determine customer needs » Communicate with system users to ensure accounts are set up properly or to diagnose and solve operational problems » Coordinate installation of new equipment » Coordinate network operations, maintenance, repairs or upgrades	» Active Learning » Active Listening » Complex Problem Solving » Operations Analysis » Systems Analysis

Information Support & Services: This major covers a broad area – everything from setting up a desktop PC to supporting critical databases for thousands of users. Professionals typically deploy hardware and software, provide technical assistance and manage information systems.

If you choose Information Support & Services as your career major, you may be a part of:

» Training end-users on software and hardware
» Providing PC support (help desk) to end-users
» Testing and installing new software systems
» Integrating multiple databases and maintaining database security

Sample Careers

Associate's Degree or Less
Annual Salary Range $30,000-$50,000

» Call Center Specialist
» Desktop Support Technician
» Application Maintenance Technician
» Technical Trainer

Bachelor's Degree
Annual Salary Range $50,000-$100,000

» Technical Support Engineer
» Process Analyst
» Application Program Support Analyst
» Systems Technician Support Specialist

Bachelor's Degree + Graduate Degrees and/or Certifications
Annual Salary Range $80,000-$150,000+

» Vendor/Contracts Manager
» Call Center Manager
» Solutions Specialist

Career	Entry-Level Education	Annual Median Salary & Hourly Pay (2020)	Job Outlook (2019-29)	Responsibilities	Skills
Customer Service Representatives	High School Diploma or Equivalent	**$35,830/year $17.23/hour**	**-1%** (Decline)	» Confer with customers by telephone or in person to provide information about products or services, take or enter orders, cancel accounts, or obtain details of complaints » Check to ensure that appropriate changes were made to resolve customers' problems » Keep records of customer interactions or transactions, recording details of inquiries, complaints or comments, as well as actions taken » Resolve customers' service or billing complaints by performing activities such as exchanging merchandise, refunding money or adjusting bills	» Active Listening » Critical Thinking » Reading Comprehension » Service Orientation » Speaking
Training and Development Specialists	Bachelor's Degree	**$62,700/year $30.14/hour**	**11%** (Fast as average)	» Assess training needs through surveys, interviews with employees, focus groups, or consultation with managers, instructors or customer representatives » Design, plan, organize or direct orientation and training programs for employees or customers » Offer specific training programs to help workers maintain or improve job skills » Present information using a variety of instructional techniques or formats, such as role playing, simulations, team exercises, group discussions, videos or lectures	» Active Listening » Instructing » Learning Strategies » Monitoring » Speaking
Document Management Specialists	Bachelor's Degree	**$98,870/year $44.65/hour**	**7%** (Average)	» Conduct needs assessments to identify document management requirements of departments or end users » Consult with end users regarding problems in accessing electronic content » Monitor regulatory activity to maintain compliance with records and document management laws » Assist in determining document management policies to facilitate efficient, legal and secure access to electronic content	» Active Listening » Critical Thinking » Monitoring » Reading Comprehension » Writing
Computer and Information Systems Manager	Bachelor's Degree	**$151,150/year $72.67/hour**	**11%** (Fast as average)	» Review project plans to plan and coordinate project activity » Manage backup, security and user help systems » Develop and interpret organizational goals, policies and procedures » Develop computer information resources, providing for data security and control, strategic computing and disaster recovery » Consult with users, management, vendors and technicians to assess computing needs and system requirements	» Active Listening » Complex Problem Solving » Critical Thinking » Monitoring » Reading Comprehension

Software Engineering & Development: Professionals in this dynamic major work with cutting-edge technology, new computer languages and develop tomorrow's new products and services.

If you choose Software Engineering & Development as your career major, you may be a part of:

» Managing software development projects
» Designing and deploying new computer systems
» Integrating Internet and intranet services
» Developing new security systems to meet emerging threats

Sample Careers

Associate's Degree or Less
Annual Salary Range $30,000-$50,000

» Database Tester
» Data Analyst
» Documentation Specialist
» Software Applications Specialist
» System Tester
» Entry-Level Developer

Bachelor's Degree
Annual Salary Range $50,000-$100,000

» Applications Developer
» Information Systems Architect
» Solutions Designer
» Software Architect
» Database Developer
» Lead Programmer

Bachelor's Degree + Graduate Degrees and/or Certifications
Annual Salary Range $80,000-$150,000+

» Chief Architect
» Research Director
» Senior Systems Engineer
» Business Analyst
» Software Architect

Career	Entry-Level Education	Annual Median Salary & Hourly Pay (2020)	Job Outlook (2019-29)	Responsibilities	Skills
Web Developers	Bachelor's Degree	**$77,200/year $37.12/hour**	**13%** (Faster than average)	» Design, build or maintain web sites, using authoring or scripting languages, content creation tools, management tools and digital media » Perform or direct web site updates » Write, design or edit web page content or direct others producing content » Confer with management or development teams to prioritize needs, resolve conflicts, develop content criteria or choose solutions » Back up files from web sites to local directories for instant recovery in case of problems	» Active Listening » Complex Problem Solving » Critical Thinking » Operations Analysis » Programming
Software Quality Assurance Engineers and Testers	Bachelor's Degree	**$110,140/year $52.95/hour**	**22%** (Much faster than average)	» Design test plans, scenarios, scripts or procedures » Test system modifications to prepare for implementation » Develop testing programs that address areas such as database impacts, software scenarios, regression testing, negative testing, error or bug retests or usability » Document software defects using a bug tracking system and report defects to software developers » Identify, analyze and document problems with program function, output, online screen or content	» Active Listening » Critical Thinking » Reading Comprehension » Speaking » Writing
IT Project Managers	Bachelor's Degree	**$92,870/year $44.65/hour**	**7%** (Average)	» Manage project execution to ensure adherence to budget, schedule and scope » Develop or update project plans for information technology projects including information such as project objectives, technologies, systems, information specifications, schedules, funding and staffing » Monitor or track project milestones and deliverables » Confer with project personnel to identify and resolve problems » Develop and manage work breakdown structure (WBS) of information technology projects	» Coordination » Critical Thinking » Monitoring » Reading Comprehension » Speaking
Software Developers, Applications	Bachelor's Degree	**$110,140/year $52.95/hour**	**22%** (Much faster than average)	» Modify existing software to correct errors, allow it to adapt to new hardware, or to improve its performance » Develop and direct software system testing and validation procedures, programming and documentation » Confer with systems analysts, engineers, programmers and others to design system and to obtain information on project limitations and capabilities, performance requirements and interfaces » Analyze user needs and software requirements to determine feasibility of design within time and cost constraints	» Complex Problem Solving » Judgment and Decision Making » Programming » Systems Analysis » Systems Evaluation

Web & Digital Communications: Careers in the web and digital communications major include working with the World Wide Web, Cloud computing, and future information delivery and storage innovations.

If you choose Web & Digital Communications as your career major, you may be a part of:

» Designing and producing interactive training presentations
» Producing digital sales materials
» Managing e-commerce sales and auction websites
» Designing and producing online graphics

Sample Careers

Associate's Degree or Less
Annual Salary Range $30,000-$50,000

» Information Center Technician
» IT Administrative Support
» Business Process Clerk
» IT End-User Support

Bachelor's Degree
Annual Salary Range $50,000-$100,000

» Web Designer
» IT Client Analyst
» Usability Analyst
» IT E-Learning Manager
» Information Center Consultant

Bachelor's Degree + Graduate Degrees and/or Certifications
Annual Salary Range $80,000-$150,000+

» Client Manager
» Business Architect
» Program Director

Career	Entry-Level Education	Annual Median Salary & Hourly Pay (2020)	Job Outlook (2019-29)	Responsibilities	Skills
Graphic Designers	Bachelor's Degree	**$53,380/year $25.66/hour**	**3%** (Slower than average)	» Create designs, concepts and sample layouts, based on knowledge of layout principles and esthetic design concepts » Determine size and arrangement of illustrative material and copy, and select style and size of type » Confer with clients to discuss and determine layout design » Develop graphics and layouts for product illustrations, company logos and web sites » Review final layouts and suggest improvements as needed	» Active Listening » Critical Thinking » Operations Analysis » Speaking » Writing
Instructional Designers and Technologists	Bachelor's Degree	**$66,970/year $32.20/hour**	**7%** (Average)	» Present and make recommendations regarding course design, technology and instruction delivery options » Define instructional, learning or performance objectives » Develop instructional materials and products for technology-based redesign of courses » Design learning products, including web-based aids or electronic performance support systems » Provide analytical support for the design and development of training curricula, learning strategies, educational policies or courseware standards	» Critical Thinking » Instructing » Learning Strategies » Reading Comprehension » Writing
Computer Systems Analyst	Bachelor's Degree	**$93,730/year $45.06/hour**	**7%** (Average)	» Test, maintain and monitor computer programs and systems, including coordinating the installation of computer programs and systems » Develop, document and revise system design procedures, test procedures and quality standards » Provide staff and users with assistance solving computer related problems, such as malfunctions and program problems » Review and analyze computer printouts and performance indicators to locate code problems, and correct errors by correcting codes	» Active Listening » Critical Thinking » Reading Comprehension » Speaking » Systems Analysis
Video Game Designers	Bachelor's Degree	**$77,200/year $37.12/hour**	**8%** (Average)	» Balance and adjust gameplay experiences to ensure the critical and commercial success of the product » Provide feedback to designers and other colleagues regarding game design features » Create core game features including storylines, role-play mechanics and character biographies for a new video game or game franchise » Devise missions, challenges or puzzles to be encountered in game play	» Active Listening » Complex Problem Solving » Critical Thinking » Programming » Reading Comprehension

Information Systems: Professionals in the information systems major integrate their business skills with their technical skills, as they focus on the management of IT within a wide variety of industries including healthcare, insurance, banking and retail.

If you choose Information Systems as your career major, you may be a part of:

» Planning and oversight of security systems
» Technical and behavioral competency training
» Coordinating and managing technical projects
» Quality assurance, product cataloging and tracking inventory

Sample Careers

Associate's Degree or Less
Annual Salary Range $30,000-$50,000

» Applications Support Analyst
» Database Support Analyst
» Web Developer
» Information System Administrator
» Software Applications Trainer
» Applications Support Specialist

Bachelor's Degree
Annual Salary Range $50,000-$100,000

» Quality Assurance Manager
» Security Analyst
» Project Manager
» Application Integrator
» Product Support Engineer
» Network Engineer

Bachelor's Degree + Graduate Degrees and/or Certifications
Annual Salary Range $80,000-$150,000+

» IT Director
» Chief Security Director
» Operations System Engineer
» Systems Analyst

Career	Entry-Level Education	Annual Median Salary & Hourly Pay (2020)	Job Outlook (2019-29)	Responsibilities	Skills
Technical Directors/ Managers	Bachelor's Degree	**$76,400/year $36.73/hour**	**8%** (Average)	» Supervise and assign duties to workers engaged in technical control and production of radio and television programs » Monitor broadcasts to ensure that programs conform to station or network policies and regulations » Observe pictures through monitors, and direct camera and video staff concerning shading and composition » Act as liaisons between engineering and production departments » Test equipment to ensure proper operation	» Active Listening » Coordination » Monitoring » Reading Comprehension » Speaking
Database Administrators	Associate's Degree	**$98,860/year $47.53/hour**	**8%** (Average)	» Test programs or databases, correct errors, and make necessary modifications » Modify existing databases and database management systems or direct programmers and analysts to make changes » Plan, coordinate and implement security measures to safeguard information in computer files against accidental or unauthorized damage, modification or disclosure » Work as part of a project team to coordinate database development and determine project scope and limitations » Write and code logical and physical database descriptions and specify identifiers of database to management system or direct others in coding descriptions	» Active Learning » Active Listening » Complex Problem Solving » Critical Thinking » Monitoring
Computer Systems Engineers/ Architects	Bachelor's Degree	**$116,780/year $56.14/hour**	**5%** (Average)	» Communicate with staff or clients to understand specific system requirements » Provide advice on project costs, design concepts or design changes » Document design specifications, installation instructions and other system-related information » Verify stability, interoperability, portability, security or scalability of system architecture	» Active Listening » Complex Problem Solving » Critical Thinking » Operations Analysis » Reading Comprehension
Chief Information/ Technology Officers	Master's Degree	**$185,950/year $89.40/hour**	**-1%** (Decline)	» Direct or coordinate an organization's financial or budget activities to fund operations, maximize investments or increase efficiency » Appoint department heads or managers and assign or delegate responsibilities to them » Analyze operations to evaluate performance of a company or its staff in meeting objectives or to determine areas of potential cost reduction, program improvement or policy change » Direct, plan or implement policies, objectives or activities of organizations or businesses to ensure continuing operations, to maximize returns on investments, or to increase productivity	» Complex Problem Solving » Coordination » Critical Thinking » Judgment and Decision Making » Speaking

PROFILE OF THE
South Carolina Graduate

WORLD-CLASS KNOWLEDGE

Rigorous standards in language arts and math for career and college readiness

Multiple languages, science, technology, engineering, mathematics (STEM), arts and social sciences

WORLD-CLASS SKILLS

Creativity and innovation

Critical thinking and problem solving

Collaboration and teamwork

Communication, information, media and technology

Knowing how to learn

LIFE AND CAREER CHARACTERISTICS

Integrity • Self-direction • Global perspective • Perseverance • Work ethic • Interpersonal skills

transformSC
tomorrow won't wait for our students

AN INITIATIVE OF
SOUTH CAROLINA COUNCIL ON COMPETITIVENESS

MEBA

Midlands Education & Business Alliance

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