

New Degree Program in Information Technology

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The Department of Computing Sciences is excited to announce a new baccalaureate degree in Information Technology. Since its inception in Fall 2014, the Information Technology (IT) degree program has been offered simultaneously as a traditional 4-year program, as an accelerated 3-year program and as a 2+2 degree completion program with Horry Georgetown Technical College (HGTC). An HGTC student can complete an associate in applied science degree in computer technology, with either a programming emphasis or a networking emphasis, and then transfer to Coastal Carolina University to complete a bachelor of science degree in information technology in only four regular semesters. Due to similarities in curriculum, students with earned associate in applied science degrees in computer technology from other South Carolina technical colleges may also participate in the 2+2 degree completion program.

The IT degree complements the Department's existing degree programs in computer science (CS) and information systems (IS), and offers students student access to curriculum that is tailored to fit the career objectives associated with the growing subfield of computing. The IT program is similar to both the CS and IS degrees in that it initially exposes students to introductory programming skills; however, this new program quickly diverges into its own unique degree centered on such areas of interest as systems administration, security, networking and human-computer interaction.

Career Opportunities

According to the United States Bureau of Labor Statistics (BLS), information technology career opportunities are abundant and are projected grow faster than the national average. As illustrated in table 1, the median pay for career professionals in information technology fields is quite competitive, with a 2012 salary range of \$59,090 to \$91,000, depending upon the specific occupation. By comparison, the 2012 United States median *household* income was \$51,915, according to the United States Census Bureau.

Table 1. Median pay (2012) and projected growth rates (2012-2022) for selected information technology career paths. Source: United States Bureau of Labor Statistics (BLS) *Occupational Outlook Handbook* (January 8, 2014).

Career Path	Median Pay	Projected Growth
Computer Network Architects	\$91,000	15%
Information Security Analysts	\$86,170	37%
Computer Systems Analysts	\$79,680	25%
Database Administrators	\$77,080	15%
Network and Computer Systems Administrators	\$72,560	12%
Computer Network Support Specialists	\$59,090	17%

The information technology degree program is designed to prepare graduates for rewarding careers in the selection, implementation and administration of hardware, software and networking systems. In terms of BLS occupations, the highest areas of anticipated growth are for information security analysts and computer systems analysts. BLS defines information security analysts as those technology professionals responsible for securing an organization's networks and systems against cyberattacks. Computer systems analysts are professionals who plan, design and acquire technological solutions to solve problems within an organization. Both occupations require understanding the business needs of the organization as well as the available hardware and software that could be used to improve operations.

System administrators are generally responsible for installing, upgrading, troubleshooting, maintaining and supporting an organization's existing technological infrastructure. Depending on the needs of an individual organization, system administrators might manage servers, workstations, networks, databases or some combination of those systems. Network administrators can gain enough experience with network technologies to plan new networks based upon organizational needs, moving into computer network architect roles.

Although many information technology professionals with baccalaureate-level degrees are likely to pursue careers as analysts and administrators, there is still a sizeable and growing need for support specialists to work with other technology professionals, as well as with end users, to resolve system issues. These support specialists serve a critical role in an organization by ensuring that employees are able to utilize available technology effectively. Contrary to popular belief, these positions are not easily outsourced, as illustrated by the domestic growth projected by BLS.

The Curriculum

In addition to the Coastal Carolina University Core Curriculum and First-Year Experience requirements, students majoring in Information Technology take foundation and major courses to develop their technical and communications skills. IT majors are also required to select a minor from the “Undergraduate Catalog,” so that they have some exposure to a field of application. While IT students are able to select almost any minor (except Computer Science and Web Application Development), several minors are popular among current majors, including Business Administration, Geographic Information Systems, and Intelligence and Security Studies.

Foundation requirements for the information technology degree include college algebra, a choice of communications courses, a choice of calculus courses and a choice of statistics courses. Within the Department of Computing Sciences, IT majors can choose between two different courses that provide overviews of parts of the field: Introduction to the Internet and World Wide Web (CSCI 101) or Introduction to Computer Science (CSCI 130). IT students also take courses in Enterprise Business Applications (CSCI 110), Introduction to Web Page Applications (CSCI 120), Ethics (CSCI 170), Computer Infrastructure (CSCI 211), and Introduction to Databases and SQL (CSCI 225). The computer infrastructure course introduces computer hardware and components, enabling a student to build or repair a computer system.

Students majoring in information technology learn to program in the Python language in a two-semester course sequence (CSCI 135 and CSCI 145). Alternatively, information technology students have the option to learn to program in Java alongside students majoring in Computer Science and Information Systems (CSCI 140/140L and CSCI 150/150L). Although IT students will learn some programming as a means to automate system tasks and workflows, the degree program is not focused on software development.

IT majors take courses in software project management and networking along with information systems majors. However, instead of coursework focusing on software development, IT majors take courses in Information Systems Security (CSCI 385), System Administration (CSCI 415 and CSCI 416), Systems Integration (CSCI 427) and Human Computer Interaction (CSCI 444). Students majoring in Information Technology are exposed to both Linux and Windows operating systems, preparing them to work in modern server environments.

IT majors have a choice of two elective courses – one at the sophomore (200) level or higher, and one at the upper level (300-level and above). Available electives include Introduction to Web Application Development (CSCI 203), Advanced Topics in Web Development (CSCI 365), Introduction to Multimedia Applications (CSCI 375), Advanced Web Application

Development (CSCI 409), Database Systems Design (CSCI 425) and Digital Forensics (CSCI 434).

Motivated students may elect to complete all requirements for the bachelor of science degree in Information Technology in three years through the Coastal Carolina University “Degree in Three” program. Entering Coastal Carolina University as freshmen, these students can enter the workforce as IT professionals one year earlier by taking full course loads (18 credit hours) in regular semesters and summer sessions. Students who transfer to Coastal Carolina University after earning an associate of applied science degree in computer technology from a South Carolina technical college can complete all degree requirements in just two years while taking standard course loads. Thus, the IT degree program is available in three formats: a traditional four-year degree, a three-year accelerated degree and a baccalaureate-level degree completion program.

A Third Technology Degree Program

The information technology degree program is the third baccalaureate degree program offered by the Department of Computing Sciences, complementing the computer science and information systems degree programs. Although all three programs are offered by the same department, each program emphasizes different knowledge and skills applicable in the broader technology sector.

Since 1985, Coastal Carolina University has offered a bachelor’s degree in computer science, which emphasizes the theoretical understanding of algorithms and computational systems. Graduates of this degree program have a solid mathematical understanding of how algorithms and programming languages work in conjunction with hardware to provide optimal general-purpose computation. Computer science students take coursework in mathematics, science, algorithmic design, computer organization, data structures, computer architecture, software engineering, the structure and design of programming languages, operating systems, algorithm analysis, theory of computation and compiler design. Majors in computer science also choose additional coursework from areas such as graphics, image processing and parallel systems.

A separate baccalaureate degree program in information systems is a more recent addition to the programs offered by the Department of Computing Sciences. The information systems degree emphasizes applications of technology, especially software development, to solve problems in business and other fields. Graduates of the information systems program have applied experience in software development, especially for Web-centric applications. Information systems students take coursework in algorithm design, Web application development, database systems, software engineering, project management and networking. Students majoring in information systems also choose five elective courses from a broad

selection offered by the Department of Computing Sciences, along with a required minor in an area to which their software development skills may be applied.

Like the information systems program, the information technology program also emphasizes applications of computing technology to solve problems in other areas, such as business. However, the information technology program emphasizes the selection, implementation and management of computer hardware and software instead of the development of new software applications. In this role, the information technology degree program complements, but does not replace, the computer science and information systems degree programs.

Conclusion

The new Bachelor of Science in Information Technology degree program at Coastal Carolina University is an exciting addition to the Department of Computing Sciences. Students from Horry County and the surrounding areas now have a local option for a baccalaureate degree emphasizing systems administration, security, networking and human-computer interaction, which can lead to careers in rapidly growing, lucrative occupations.

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