Bachelor of Information Technology Degree Courses

The Information Technology courses and their catalog descriptions are listed in numerical order below. We provide this online copy of the course descriptions as a service to our students and prospective students. For the official listing of courses, please consult the current Armstrong catalog. You can also take a peek at a typical student’s four year schedule. Refer to Curriculum for Computer Science for descriptions of the CSCI courses required for the IT major.

In the course listings that follow, there appear three numbers in parenthesis after each course title. The first number indicates the number of hours of lecture; the second number indicates the number of hours of laboratory; the third number indicates the number of semester hours of credit carried by the course. The letter V represents a variable number of hours.

**ITEC- Information Technology**

**ITEC 1050 INTRODUCTION TO COMPUTER CONCEPTS AND APPLICATIONS**
Prerequisite: MATH 1001 or MATH 1111
Study of hardware and software components of computers and the impact of computers on society. Discussion of the capabilities and the limitations of computers and the kinds of problems that are best solved by computers. Experience with using personal computer productivity tolls to solve problems. Emphasis on the major uses of computers. Not designed for the computer science major.

**ITEC 1310 PROGRAMMING FOR INFORMATION TECHNOLOGY**
Prerequisite: MATH 1111
Introduction to basic concepts and techniques of a contemporary programming language. Topics include language syntax, variables, decision structures, loop structures, and IDE. Development of modular programs for event-driven applications.

**ITEC 2000 INTRODUCTION TO APP DEVELOPMENT**
Prerequisite: CSCI 1301 or ITEC 1310
Introduction to mobile computing and mobile application software development. Topics include mobile computing devices, mobile operating systems, app programming languages and APIs, app development environments, app programming and development cycles.

**ITEC 2530 OPERATING SYSTEMS**
Prerequisite: ITEC 1300
Examples of specific operating systems. Management of memory, processors, processes, devices, files and systems.

**ITEC 2990 SPECIAL TOPICS IN INFORMATION TECHNOLOGY**
Prerequisite: Announced with the topic
Special topics at freshman and sophomore level of current interest in information technology.

**ITEC 3500 DATABASE ADMINISTRATION**
Prerequisite: ITEC 1310

**ITEC 3600 SYSTEMS ANALYSIS AND DESIGN**
Prerequisite or Corequisite: ITEC 3500
Emphasis on development of business application systems, include methods for investigating systems, project planning and control, system integration, and techniques for describing process flows, data flows, data structures, system objects, file designs, input and output designs and program specifications.
ITEC 3710 E-COMMERCE 3-0-3
Prerequisite: CSCI 1150 and ITEC 1310

ITEC 3800 DATA COMMUNICATIONS AND NETWORKS 3-0-3
Prerequisite: ITEC 2530
Fundamentals of practical aspects of computer networks and data communications; standards, protocols, topologies, architecture, routers, wireless technologies, monitoring and management. Credit granted only one of ITEC 4720 or ITEC 3800.

ITEC 3961 INTERNSHIP IN INFORMATION TECHNOLOGY V-V- (1-4)
Prerequisite: Permission of instructor or program coordinator
Practical study experience in a variety of environments utilizing information technology. Supervised by faculty and appropriate off-campus personnel. Faculty coordinator will establish criteria for performance and evaluation in the semester before the internship begins. Students may use a maximum of 6 hours internship credit to fulfill degree elective requirements.

ITEC 3972 INTERNSHIP IN INFORMATION TECHNOLOGY V-V- (1-4)
Prerequisite: Permission of instructor or program coordinator
Practical study experience in a variety of environments utilizing information technology. Supervised by faculty and appropriate off-campus personnel. Faculty will establish criteria for performance and evaluation in the semester before the internship begins. Students may use a maximum of 6 hours internship credit to fulfill degree elective requirements.

ITEC 4390 SENIOR PROJECT V-V- (1-6)
Prerequisite: Permission of instructor or department
Development, study or research of a topic in Information Technology under the supervision of a member of the IT faculty. A formal written report is required and any system developed must be well-documented. Both the credit and proposed work must be approved in writing by the faculty member who will supervise the work. Repeatable to a total credit of 6 hours.

ITEC 4770 CLIENT/SERVER SYSTEMS 3-0-3
Prerequisite: ITEC 3500
Architectures and concepts of n-tier client/server models. Client/server interfaces and communications protocols. Open Database Connectivity (ODBC) and Java Database Connectivity (JDBC). Design and development of web-based applications involving front clients, middle-tier application servers, and background databases.

ITEC 4800 NETWORK DESIGN AND ADMINISTRATION 3-0-3
Prerequisite: ITEC 3800
Builds on topics introduced in ITEC 3800. Fundamentals of network design and network operating system administration. Topics include installation, configuration, access control, network security, web servers, and firewalls. Credit granted for only one of ITEC 3610 or ITEC 4800.

ITEC 4830 GRAPHICS DESIGN 3-0-3
Prerequisite: ITEC 3600
Creation of two and three-dimensional computer graphics and animations using both professional programming libraries and standard CGI tools. Survey of hardware and software used in the computer graphics industry, classic algorithms and data structures for raster graphics, representation and processing of three dimensional objects, and an introduction to procedural animation and image processing for special effects.

ITEC 4990 SPECIAL TOPICS IN INFORMATION TECHNOLOGY V-V- (1-4)
Prerequisite: Announced with topic
Special topics at junior and senior level of current interest in information technology.

ITEC 4999 INDEPENDENT STUDY V-V- (1-3)
Prerequisite: Permission of the instructor

ITEC 5001U CYBER SECURITY I 3-0-3
Prerequisite: CSCI 2070
Current standards and best practice in information assurance and security. Topics include evaluation of security models, risk assessment, threat analysis, security implementation, disaster recovery planning, and security policy formulation and implementation.

ITEC 5002U CYBER SECURITY II 3-0-3
Prerequisite: CRJU/ITEC 5001U
Concepts of countermeasures and safeguards such as remote access controls, firewalls, intrusion detection systems, virtual private networks, and data encryption.