Information Technology

Dong Xu, Director
College of Engineering
201 Naka Building
(573) 882-2299
https://engineering.missouri.edu/departments/information-technology/
bachelor-science-information-technology/

The information technology (IT) degree program was launched in 2005 with a gift from AT&T/SBC. IT students collaborate with students from other disciplines to create software applications, produce videos and films and use technology to solve a wide range of complex information technology, systems integration, social network and societal problems. The program is attractive to students because of its distinguished faculty and state-of-the-art facilities many of which are shared with the Computer Science Program (CSP) in the Electrical Engineering & Computer Science Department that greatly exceeds what is available at competing institutions. Application areas in IT include mobile computing, game design, information systems, software engineering, cybersecurity, systems administration, and audio/video multimedia technology.

Faculty

Assistant Professor of Practice C. Gubera, B. Maurer, N. Wergeles
Associate Teaching Professor D. Musser*
Assistant Teaching Professor F. Wang

* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.
** Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

Undergraduate

• BS in Information Technology (http://catalog.missouri.edu/undergraduate/collegeofengineering/informationtechnology/bs-information-technology)
• Minor in Information Technology (http://catalog.missouri.edu/undergraduate/collegeofengineering/informationtechnology/minor-information-technology)

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This degree program is offered by the College of Engineering. Career opportunities include database administration, web design, cybersecurity, game development, film production, and more.

Graduate

While the College of Engineering does not offer a graduate degree specifically in Information Technology, it does offer a number of graduate degrees in closely related areas such as Computer Science (http://catalog.missouri.edu/undergraduate/collegeofengineering/computerscience/#graduatetext), and Computer Engineering (http://catalog.missouri.edu/undergraduate/collegeofengineering/computerengineering/#graduatetext), There is a Master of Engineering degree through the department. The University also offers a number of information technology degrees in its other Colleges, and through interdisciplinary programs such as Health Informatics (http://catalog.missouri.edu/undergraduate/interdisciplinaryacademicprograms/healthinformatics/#graduatetext), Health Administration (http://catalog.missouri.edu/undergraduate/interdisciplinaryacademicprograms/healthadministration/mha-health-administration), Informatics (http://catalog.missouri.edu/undergraduate/interdisciplinaryacademicprograms/informatics/#graduatetext), or Information Science and Learning Technology (http://catalog.missouri.edu/undergraduate/collegeofeducation/informationscienceandlearningtechnologies/#graduatetext).

A joint degree program administered through the School of Engineering and the Crosby MBA Program is available for students who wish to earn a Bachelor of Science in Information Technology (BS IT) and a Master of Business Administration (MBA) (http://catalog.missouri.edu/undergraduate/collegeofbusiness/businessadministration/#graduatetext). Individuals interested in pursuing engineering and business will find that this program provides them with a valuable set of skills to excel in this rapidly growing field. If earned separately, the BS IT degree would take four years and the MBA degree would take two years. The dual degrees may be completed in five years assuming normal progress toward each degree.

Or you may browse a complete list of degree options (http://catalog.missouri.edu/degreesanddegreeprograms) at the University of Missouri.

INFOFC 1001: Topics in Information Technology
Topics may vary from semester to semester. May be repeated upon consent of department.

Credit Hours: 3

Prerequisites: May be restricted to Information Technology majors during early registration

INFOFC 1040: Introduction to Problem Solving and Programming
An introduction to problem solving methods and programming concepts, providing experience in designing, developing, implementing, and testing programs. Cannot be taken for credit after CMP_SC 1050.

Credit Hours: 3

INFOFC 1610: Introduction to Entertainment Media
This course is an introduction to the basic fundamentals of entertainment products such as postproduction technology, camera and lighting technology, audio creation and mixing technology, and broadcast technology. Computer programs designed for visual special effects are used.

Credit Hours: 3
Prerequisites: May be restricted to Information Technology majors during early registration

INFOTC 2001: Topics in Information Technology
Topics may vary from semester to semester. May be repeated upon consent of department. Graded on A-F basis only.
Credit Hours: 3
Prerequisites: May be restricted to Information Technology majors during early registration

INFOTC 2040: Programming Languages and Paradigms
This course presents programming principles and their syntactical representation and implementation across languages including those that are compiled and interpreted. The course shows how to implement algorithms and data structures to solve problems while utilizing paradigms offered by the programming languages such as procedural, object-oriented, protocol-oriented, functional, and declarative. Language support for strong and weak typing and type safety are covered along with support for optional values. Provides experience in developing algorithms and determining their efficiency, designing application architecture, and developing applications. Building and using libraries/ application programming interfaces is covered. Git and GitHub are used for code versioning and collaboration. Integrated development environments (IDEs) are used for managing, building, debugging, and testing applications.
Credit Hours: 3
Prerequisites: INFOTC 1040 or CMP_SC 1050, or prior experience with programming and consent of instructor

INFOTC 2600: Digital Multimedia
This course introduces broad views of concepts, software, hardware, and solutions in entertainment media applications. It will examine career options in fields such as information technology, news, film production and postproduction, website design, advertising, or communication.
Credit Hours: 3
Prerequisites: May be restricted to Information Technology majors during early registration

INFOTC 2610: Audio/Video I
This is an introductory course on digital audio and video editing. Background presented in the course will include an overview of the techniques used in modern Non-Linear video editing, and understanding of block editing, and why it is essential when using modern digital technology. The course is hands-on with students at workstations, learning the software directly at the keyboard, and working on assignments in a lab context.
Credit Hours: 3
Prerequisites: May be restricted to Information Technology majors during early registration

INFOTC 2620: Computer Modeling and Animation I
Introduction to the field of computer modeling and animation with an emphasis on tools. Learn programming methods for developing customized modeling and animation algorithms. Graded on A-F basis only.
Credit Hours: 3
Prerequisites: May be restricted to Information Technology majors during early registration

INFOTC 2830: Introduction to the Internet, WWW and Multimedia Systems
(same as CMP_SC 2830). This course will attempt to provide a comprehensive understanding of the evolution, the technologies, and the tools of the Internet. In particular, issues pertaining to the World Wide Web and Multimedia (HTML, CGI, Web based applications) will be discussed in detail.
Credit Hours: 3
Prerequisites: CMP_SC 2050 with a C- or higher

INFOTC 2910: Cyber Security
This course covers numerous platform-independent security topics including threats, problem ports and services, theory and practice of defense in security, intrusion detection, data security, securing remote access, user education and support, designing a secure network and security management. Graded on A-F basis only.
Credit Hours: 3
Prerequisites: CMP_SC 1050, INFOTC 2810. May be restricted to Information Technology majors during early registration

INFOTC 3001: Topics in Information Technology
Topics may vary from semester to semester. May be repeated upon consent of department. Graded on A-F basis only.
Credit Hours: 3
Prerequisites: May be restricted to Information Technology majors during early registration

INFOTC 3600: Computer Modeling and Animation II
This course covers advanced methods for modeling and animation with an emphasis on computer science theory and virtual reality. Graded on A-F basis only.
Credit Hours: 3
Prerequisites: C- or higher in INFOTC 2620. May be restricted to Information Technology majors during early registration
INFOTC 3630: Introduction to Virtual Reality
The course will provide students with a good understanding of the fundamentals of virtual reality and practical hands on VR experience development skills. It will introduce students to the software, hardware, and concepts involved with the current state of the art in virtual reality. This course will focus on using the recent consumer-grade equipment to design and construct virtual environment and experience.

Credit Hours: 3
Prerequisites: CMP_SC 1050 with C- or higher. May be restricted to Information Technology majors during early registration

INFOTC 3640: Digital Effects
This course is an introduction to the fundamentals of digital motion picture effects technology. This course is designed for a student interested in pursuing a career in information technology, news, film production and film postproduction, website design, or communication.

Credit Hours: 3
Prerequisites: C- or higher in INFOTC 1610 or C- or higher in INFOTC 2610. May be restricted to Information Technology majors during early registration

INFOTC 3850: Computer System Administration
This course will cover network management tools, network maintenance, data management, remote access management, management tasks, responsibilities and ethics, required plans and policies, design of a well-managed network. Some work will be done in both Windows and Linux environments. Graded on A-F basis only.

Credit Hours: 3
Prerequisites: CMP_SC 2050, junior standing. May be restricted to Information Technology majors during early registration

INFOTC 3940: Internship in Information Technology
Information Technology-related experience in business or industry jointly supervised by faculty and IT professionals. Students should apply one semester in advance for consent of the supervising professor. Graded on an S/U basis only.

Credit Hour: 1-6
Prerequisites: Instructor Consent

INFOTC 4001: Topics in Information Technology
Topics may vary from semester to semester. May be repeated upon consent of department. Graded on A-F basis only.

Credit Hours: 3
Prerequisites: May be restricted to Information Technology majors during early registration

INFOTC 4001W: Topics in Information Technology - Writing Intensive
Topics may vary from semester to semester. May be repeated upon consent of department. Graded on A-F basis only.

Credit Hours: 3
Prerequisites: May be restricted to Information Technology majors during early registration

INFOTC 4085: Independent Projects
A student interested in doing an independent study project should first choose an area and instructor to work with. The student and instructor decide on a suitable Information Technology topic. The student writes up a detailed description of the project, including references, deadlines and deliverables. The instructor and student decide on details for completing the project during the semester for a grade.

Credit Hour: 1-6
Prerequisites: Consent of instructor

INFOTC 4400: C#.NET Development
Learn how to develop and debug multi-threaded Windows desktop applications based on the object-oriented (OO), Model-View-Controller (MVC), and Model View ViewModel (MVVM) paradigms using C#.NET, Windows Presentation Foundations (WPF), and Visual Studio. Graded on A-F basis only.

Credit Hours: 3
Prerequisites: CMP_SC 2050. May be restricted to Information Technology majors during early registration

INFOTC 4500: Team-Based Mobile Device Application Development
(same as JOURN 4444). This is a multi-disciplinary, team-based course on developing applications for mobile devices. Teams will be comprised of students who are software developers and students who are designers. Graded on A-F basis only.

Credit Hours: 3
Prerequisites: for Journalism majors (Designers), instructor's consent; for Computer Science or Information Technology majors (Developers), CMP_SC 2050 or permission of instructor. May be restricted to Information Technology majors during early registration

INFOTC 4630: Game Development
This class will focus on the theory, design, and implementation of games using the industry standard game development tools. Students will learn about the workflow for designing, creating and implementing vital components for modern games, with respect to data structures, algorithms, content, development tools and practice of game development. The final project is a fully functional, your own custom game.

Credit Hours: 3
Prerequisites: INFOTC 3640 or CMP_SC 2050 with C- or higher. May be restricted to Information Technology majors during early registration

INFOTC 4640: Digital Effects II
This course builds on fundamentals of digital motion picture effects technology learned in Digital Effects I. Computer programs designed for digital visual special effects in film and broadcast are integrated throughout the course.

Credit Hours: 3
Prerequisites: C- or higher in INFOTC 3640. May be restricted to Information Technology majors during early registration

INFOTC 4650: Shader Programming
The focus of this course is modern computer graphics algorithms and programming, with an emphasis on games, shader languages, (GLSL and Cg) and Graphical Processor Units (GPUs).
INFOTC 4830: Science and Engineering of the World Wide Web
(same as CMP_SC 4830; cross-leveled with CMP_SC 7830). This course will study the science and engineering of the World Wide Web. We will study the languages, protocols, services and tools that enable the web. Emphasis will be placed on basics and technologies.

Credit Hours: 3
Prerequisites: CMP_SC 2050, INFOTC 2620. May be restricted to Information Technology majors during early registration

INFOTC 4970W: Senior Capstone Design - Writing Intensive
This course is an opportunity for you to demonstrate that you have achieved the goals established by the Information Technology (IT) program. You will do this through a series of writing exercises, class activities, and a team-based project. You will demonstrate your ability to synthesize various methods and skills, apply them to new, novel, complex, and integrated project requirements in real-world IT problems. Graded on A-F basis only.

Credit Hours: 3
Prerequisites: CMP_SC 2830 with a C- or higher

INFOTC 4990: Undergraduate Research in Information Technology
A student interested in doing undergraduate research should first choose an area and professor. The student will work with the professor on a specific area of research. The professor and student decide on details for completing research during the semester for a grade.

Credit Hour: 1-6
Prerequisites: Instructor's consent

INFOTC 4995: Undergraduate Research in Information Technology - Honors
A student interested in doing undergraduate research should first choose an area and professor. The student will work with the professor on an independent investigation to be presented as an undergraduate honors thesis.

Credit Hour: 1-6
Prerequisites: Instructor's consent