

The KU School of Engineering

Masters of Science in Information Technology

# Student Handbook

2016-2018

*Updated with information about the new certificate programs*



[it.eecs.ku.edu/MSIT](http://it.eecs.ku.edu/MSIT)

**KU**  
THE UNIVERSITY OF  
**KANSAS**

Edwards Campus



# MS in Information Technology (MSIT)

## School of Engineering

### The University of Kansas

According to the U.S. Department of Labor, employment opportunities in information technology (IT) will be among the fastest growing in the U.S. for many years to come. KU's Department of Electrical Engineering & Computer Science (EECS) is offers a Master's of Science in Information Technology (MSIT). The MSIT program is motivated a direct response to the opportunities and challenges presented by the ever expanding information technologies as it relates to economic growth of the Kansas City metropolitan area. The MSIT program includes graduate courses that provide individuals with the essential knowledge in making important IT decisions and contributions. To achieve this goal, the program offers technical as well administrative and managerial contents.

The educational opportunities offered by the MSIT degree will help recent graduates and existing high-tech practitioners gain advanced knowledge, hence improved productivity and enhanced competitiveness. The MSIT degree reflects the KU mission statement and its commitment to offer the highest quality professional and graduate programs to serve the workforce, economic and community development needs of the region.

Individuals completing the MSIT program are expected to:

- Understand fundamental principles and underlying technologies of IT.
- Understand how to realize an IT infrastructure, from defining requirements, design, implementation, deployment, integration and on through its lifecycle.
- Understand how to apply IT within an organizational context to increase productivity, competitiveness, and meet business goals
- Understand the policy, security, privacy, ethical, and legal aspects of IT and its evolution and future trends

For example, the MSIT program lays a foundation for individuals with long-term goals of pursuing positions as: CIO, Director of IT, IT Security Managers, and senior software engineers and project managers.

## Location and Scheduling Convenience

The MSIT program is specifically designed for the professionals in the Kansas City metropolitan area to address their needs while accommodating their scheduling constraints and thus it is primarily offered at the KU Edwards Campus in Overland Park.

By locating the program at the Edwards Campus, the EECS department is able to better address the KU's mission statement in offering high quality professional and graduate programs to serve the workforce, economic, and community development needs of the Kansas City metropolitan area, and is able to offer a program in which practitioners in information intensive industries can earn a degree during the evenings without interrupting their professional careers.

To accommodate the IT professionals' busy day-time schedules, all MSIT courses are offered during the evening hours and each course meets once a week. MSIT courses can be taught in Lawrence one day/week in the evening with a distance learning link to Edwards. MSIT courses taught at Edwards may have a distance learning link to Lawrence.

The program includes 30 credit hours and can be completed in two years. All courses are taught by highly qualified faculty who have earned Ph.D. degrees from well-known U.S. institutions of higher education and who are known nationally and internationally for their research contributions.

# MSIT Focus Areas

The KU MSIT program offers three highly popular and important focus areas:

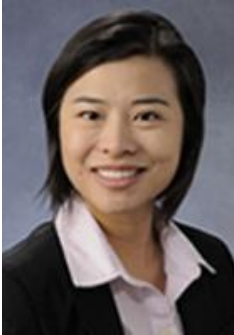
**Information Security.** Focuses on technical knowledge and practical skills in the science and methodologies for identifying important information assets, securing and protecting such assets, and assuring their availability for authorized users. Advanced courses in network security, privacy, and cyberlaws provide more in depth and up-to-date coverage of skills required to engineer, implement, and manage security solutions.

**Software Engineering.** Focuses on industrial-strength practices and modern concepts and methodologies in software development, management and maintenance; advance courses on software architecture, software quality assurance, and requirements engineering provide advanced education on more complex and emerging topics and practices in software development.

**IT Project Management.** Focuses on managing IT projects: planning, scheduling, integration, risk management, cost and effort estimation, personnel management, stakeholder management, procurement management, and communication management. Advanced courses study finances and strategic management of IT projects. PMBOK concepts are thoroughly covered.

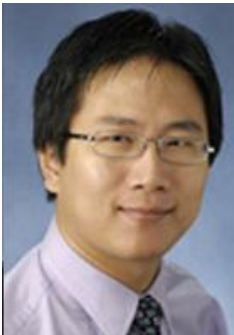
# MSIT Faculty

The MSIT faculty are all highly qualified tenure-track KU faculty and all are nationally and internationally recognized in their fields of study.



**Fengjun Li, Ph.D.**, Assistant Professor  
Ph.D., Info Science and Technology, Penn State University (2010)

**Areas of Expertise:** Social network security and privacy, Smart grid security, CPS security, Health informatics, secure data sharing and data publishing, Network security



**Bo Luo, Ph.D.**, Associate Professor  
Ph.D., Info Science and Technology, Penn State University (2008)

**Areas of Expertise:** Information security and privacy, database security, XML and conventional database systems, data management, Information retrieval, Web and online social networks



**Hossein Saiedian, Ph.D.**,  
Professor, Associate Chair, and Director, IT Programs  
Ph.D., Computing and Information Science, Kansas State (1989)

**Areas of Expertise:** Software engineering, Formal methods, software project and process management, software architecture, database management system, information security and assurance



**James Sterbenz, D. Sc.**, Professor  
D. Sc., Washington University (1991)

**Areas of Expertise:** Resilient, survivable, and disruption-tolerant networks; mobile and wireless communication; programmable, active, and autonomic networking; high-performance systems and networks; Internet and PSTN protocols and architecture; design, modeling, and simulation of protocols and networks

# Admission Requirements

The admission requirements to the Master's of Science in Information Technology (MSIT) include the following:

**Undergraduate Degree Requirement.** The MSIT program is intended for students who have a bachelor's degree in:

- Information technology, computer science, computer information systems, computer engineering or a related field who will enter the program for advanced studies;
- A field not listed above who are already employed in the IT field and are seeking additional academic studies for professional growth or career advancement.
- A baccalaureate degree from an accredited college or university
- A minimum undergraduate GPA of 3.00

**GRE Requirement:** The GRE requirements will be waived when applicants have practical work experience in IT.

**Industrial Background Requirement:** The applicants are expected to have a minimal two years of practical experience in computer science, computer engineering, or information technology (e.g., software developers, computer network engineers, system administrators, security engineers, software architects, or similar positions).

**Programming Requirement:** Applicants must also be able to demonstrate knowledge of programming via experience or equivalent coursework in data structures in a modern programming language. This can be demonstrated by completion of a course, such as CS 250 Basic Data Structures using C++ from Johnson County Community College. Equivalent courses in Java or C# or Python or a similar language would be acceptable.

# Program Completion Requirements

**Course Requirements.** The MSIT program now includes a course-only completion option. The program completion requirements are as follows:

- Ten courses (3 credit hours each). A number of these courses are required focus area courses; the rest are electives within the MSIT program.
- EECS Colloquium (EECS802, 1 credit hour). All EECS graduate students are required to take EECS802. They will be expected to attend 10 talks during the semester. These talks can be on IT, computing, leadership, or strategic business IT planning.
- An exit oral exam to be conducted by the Graduate Director or his designee.

**Focus Area Requirement.** A student should choose an "area of focus" for his or her graduate studies. The selection of an area of focus implies taking a number of courses in that particular area. See MSIT Focus Areas for more details.



# Focus Area Courses and Electives

## Focus area: Information Security

### Required (core) courses

EECS710: Information Security and Assurance  
EECS711: Security Management and Audit  
EECS712: Network Security  
EECS780: Communication Networks  
EECS811: IT Project Management

### Electives course: five of the following courses

EECS746: Database Management Systems  
EECS714: Information Security and Cyber Laws  
EECS810: Principles of Software Engineering  
EECS814: Software Quality Assurance  
EECS818: Software Architecture  
EMGT806: Finance for Engineers  
EMGT821: Strategic Analysis of Technology Projects

## Focus area: Software Engineering

### Required (core) courses

EECS810: Principles of Software Engineering  
EECS814: Software Quality Assurance  
EECS818: Software Architecture  
EECS780: Computer Networks  
EECS811: IT Project Management

### Electives course: five of the following courses

EECS746: Database Management Systems  
EECS710: Information Security and Assurance  
EECS714: Information Security and Cyber Laws  
EECS711: Security Management and Audit  
EECS712: Network Security  
EMGT806: Finance for Engineers  
EMGT821: Strategic Analysis of Technology Projects

## Focus Area Courses and Electives (continued)

### Focus area: IT Project Management.

#### Required (core) courses

EECS811: IT Project Management

EECS711: Security Management and Audit

EMGT806: Finance for Engineers

EMGT821: Strategic Analysis of Technology Projects

EECS810: Principles of Software Engineering

#### Electives course: five of the following courses

EECS746: Database Management Systems

EECS710: Information Security and Assurance

EECS712: Network Security

EECS714: Information Security and Cyber Laws

EECS780: Communication Networks

EECS814: Software Quality Assurance

EECS818: Software Architecture

## Preparing a Plan of Study

Early in the program a student must choose a faculty adviser (upon admission, a student is assigned an initial graduate adviser). The student, together with the help of the adviser, must develop a Plan of Study that includes the courses that the student wishes to take to complete the program in a timely basis. The student along with their faculty advisor also forms the student's graduate committee. Developing a plan of study has three important considerations:

1. Deciding on the thesis/project and/or course-only option; the graduate adviser will discuss the merits and challenges of each option
2. Deciding on the focus area
3. Deciding on what EECS electives should be taken; this decision is based primarily on the "focus area" chosen by the student
4. Deciding how many classes to take each semester and work out a schedule based on class prerequisites and when EECS graduate classes are offered

Once the Plan of Study has been completed, it should be submitted online at: [gradplan.engr.ku.edu](http://gradplan.engr.ku.edu). The plan of study must be approved by the student's graduate committee and the EECS Associate Chair for Graduate Studies.

**Enrollment Planning Form Each Semester.** During each semester, a student is required to complete an "enrollment planning form" (or do the equivalent via email) that indicates what courses he or she plans to take the following semester. The student's adviser must approve and sign the enrollment planning form to allow student's registration.

**Hold Removal.** If a student does not have a Plan of Study on file, or if he/she has not prepared an enrollment planning form for a particular semester, he/she will not be able to enroll (his/her records will be "on hold"). An exception is made for the first semester of enrollment.

# How to Apply for the MSIT Program

Prospective applicants are encouraged to apply online at: [graduate.ku.edu](http://graduate.ku.edu). The online application should be accompanied by the following documents:

- One official copy of all university transcripts
- Statement of objective and work experience summary
- TOEFL score (international students only)
- Three letters of reference

**Application Due Dates.** For consideration in the normal review cycle application are due are October 1st (for spring admissions) and March 1st (for fall admissions); applications can be submitted anytime and when ample time is available for a thorough review, an application will be reviewed.

# Graduate Certificate in Software Engineering

The Software Engineering and Management certificate program is designed primarily for industry practitioners who are involved in software engineering activities and who would like to enhance their formal education in software engineering and acquire the most modern development practices without completing a full Masters' degree. The program is also for individuals who have formal education in computing and who would like to acquire software engineering education to apply for software engineering positions.

**Admission Requirements.** The admission requirements for the software engineering certificate program are as follows:

- An undergraduate degree in computing or a related discipline with the GPA of 3.0 or better or substantial experience in information technology (IT)
- Two or more years of practical experience in IT
- Three letters of recommendation

**To Apply.** Applicants must complete an application to Graduate Studies for admission into the one of the certificate degrees and submit an application fee along with the following items: (1) Copy of official transcripts, (2) Statement of purpose, (3) Resume, (4) Three letters of recommendation, (international applicants must also submit TOEFL scores).

**Completion Requirements.** To complete the program and obtain the certificate, students must complete the following courses and maintain a GPA of 3.0. No credits may be transferred from another institution for this certificate:

EECS810: Principles of Software Engineering (required)

EECS814: Software Quality Assurance

EECS818: Software Architecture

EECS811: IT Project Management

To see a brief description of each course, please visit the MSIT website.

# Graduate Certificate in Information Security

The graduate Certificate in Information Security and Assurance (ISA) is a 12-credit graduate-level certificate designed to provide advanced knowledge of information security concepts, governance, fundamental and emerging technologies in network security and computer systems security, as well as proficiency in security policies, procedures, risk management and audit. The purpose of this graduate certificate is to offer a practitioner-oriented credential in the information security area to students who are seeking an opportunity for more focused study.

**Admission Requirements.** The admission requirements for the information security certificate program are as the same as the Software Engineering certificate program (see the previous page)

**To Apply.** The application process for the Information Security certificate program is the same the Software Engineering certificate program (see the previous page).

**Completion Requirements.** To complete the program and obtain the certificate, students must complete the following courses and maintain a GPA of 3.0. No credits may be transferred from another institution for this certificate:

## Core Courses (3 courses, 9 credit hours)

EECS 710: Information Security and Assurance  
EECS 711: Security Management and Audit  
EECS 712: Network Security and its Application

## Elective Courses (one of the following courses)

EECS714: Information Security and Cyber Laws  
EECS 780: Communication Networks  
EECS 811: IT Project Management

To see a brief description of each course, please visit the MSIT website.

## Additional and Contact Information

**EECS Graduate website.** This information booklet is an abridged version of the EECS graduate catalog and includes the most essential information for the individuals interested in the MSIT program. Visit the MSIT and EECS websites for updated information:

MSIT website: [it.eecs.ku.edu/MSIT](http://it.eecs.ku.edu/MSIT)

EECS website: [eecs.ku.edu](http://eecs.ku.edu)

**Contact Information.** You may direct all your questions and inquiries to the program director or the following:

Technical questions about the program: Professor Hossein Saiedian  
([saiedian@ku.edu](mailto:saiedian@ku.edu))

Application status: Ms. Pam Shadoin ([pshadoin@ku.edu](mailto:pshadoin@ku.edu))

KUEC information and orientation sessions: Ms. Parveen Mozaffar  
([parveen@ku.edu](mailto:parveen@ku.edu))

**KU** ELECTRICAL ENGINEERING  
& COMPUTER SCIENCE  

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**SCHOOL OF ENGINEERING**