

# Master of Science in Information Systems

The Master of Science in Information Systems (MSIS) program is a 36 semester-hour applied graduate program. Building upon a core of six foundation courses and a capstone policy course, the MSIS program offers three specialty concentrations: e-Business Systems, Data Communications, and Systems Administration. Each of these concentrations prepares graduates for employment within niches of the IT profession experiencing critical shortages of employees.

## General Requirements for Admissions to the MSIS Program

MSIS program admissions requires:

1. Admission to the graduate program in Information Systems is limited to holders of the baccalaureate degree from institutions accredited in a manner acceptable by Kennesaw State University. Admission will only be granted to students showing high promise of success in the program.
2. Minimum cumulative undergraduate adjusted grade-point average of 2.75 on a 4.0 scale.
3. Successful completion of required undergraduate course work (or fulfillment of preparatory knowledge clusters through professional work experience).
4. Minimum total score of 500 on the Graduate Management Admission Test (GMAT) or 1425 (verbal, quantitative and analytical) on the General Test of the Graduate Record Examination (GRE).
5. Other criteria will be considered by the MSIS Admissions Committee for applicants, including:
  - performance on previous computer science, information systems, and management course work;
  - GPA attained in other junior/senior level course work;
  - certificates of attainment in computing-related training/self-study programs;
  - accomplishment in professional activities;
  - and relevant work experience.

6. International students must submit a TOEFL score to be considered for admission. A score of 550 or above is required.
7. Valid Immunization Certificate for measles, mumps, and rubella.

### Non-Degree Admission

An individual who is interested in earning graduate credit, but who is not an applicant for a graduate degree at Kennesaw State University, may be admitted as a non-degree student. Students who have earned a baccalaureate degree (or higher) from a recognized institution may enroll in applicable courses if all prerequisites have been taken.

Applicants for non-degree programs must submit a graduate application for admission and an official undergraduate transcript showing the baccalaureate degree as well as the Immunization Certificate for measles, mumps, and rubella.

### Admission Criteria for Non-Degree Students

- 1) Bachelor's degree from an institution accredited in a manner accepted by KSU;
  - 2) Minimum undergraduate grade-point average of 2.5 on a 4.0 scale;
  - 3) Valid Immunization Certificate;
- Application form and procedure is the same as degree-seeking applicants.

### Non-Degree to Degree Status

Degree-seeking students will be given priority in scheduling and admission to classes. If a non-degree student is subsequently accepted into the MSIS degree program, no more than 12 semester hours completed as a non-degree/post baccalaureate student may be applied toward the MSIS degree.

### Transfer Credit

A student may transfer up to six (6) semester hours of graduate courses taken at an accredited institution, providing the transfer hours are made prior to the last 30 hours of course work. Special hardship cases, such as job transfers, will be decided on an individual basis by the program director.

The transfer of credit for course work completed at another institution will be approved only under the following conditions:

- The course work was completed at a regionally accredited institution;
- A minimum grade of 'B' was received in the course;
- The course was restricted to graduate students only;
- The content of the course corresponds to that of a course required or permitted in the student's program at KSU; and
- The credit to be considered for transfer will not be more than five years old at the time the student enters.

### Grades in Graduate Courses

Expectations for satisfactory graduate level student performance are detailed in Academic Policies section of this catalog.

### Petition to Graduate

Each MSIS candidate must petition to graduate at least one semester prior to completion of program requirements. The student must contact the MSIS program office and request a petition. Applicants should meet with their advisor or the MSIS director and complete a graduation checklist prior to submitting their petition to the KSU's registrar's office.

### MSIS Program of Study Preparatory Courses

The MSIS program coursework is developed on the assumption that students will be sufficiently prepared to enter the 8000-level courses. For those students who do not have sufficient preparatory knowledge, several alternatives exist:

- The student may take undergraduate courses in the fundamental technologies and functional areas of information systems;
- The student may take an Advanced Standing Exam to exempt the course. Arrangements for these tests must be made through the program director's office;
- The student may submit a portfolio of work for evaluation for exempting one or more preparatory courses.

## Preparatory Knowledge Clusters

Successful admission to the MSIS program requires:

- Basic knowledge of computer information systems, including proficiency in the use of common PC-based software environments
- Quantitative skills including algebra, calculus, and statistics
- Object-oriented programming skills
- Familiarity with systems analysis and design methodologies, including object-oriented
- Experience using relational or object-based database management systems
- Knowledge of the principles and common applications of data communications
- Familiarity with modern computer organization architecture
- Operating systems

All MSIS graduates will complete the Core Requirements (21 hours), a Collaborative Studies Component (3 hours), and a Concentration (12 hours). The Core Requirements include a capstone IS policy course, IS 8950, which includes a substantial IS project that enables students to summarize and apply their coursework to a real-world system. All coursework will focus on the integration of IS theory into practice.

## Master of Science in Information Systems

*Credit Hours*

### CORE REQUIREMENTS

**21**

IS 8020	Object-Oriented Software Dev. Methods & Technologies	3
IS 8040	Data Communication Theory and Practice	3
IS 8050	Information Systems Project Management Methods	3
IS 8060	Information Systems Dev. Methods and Technologies	3
IS 8070	Legal and Ethical Issues in Information Systems	3
IS 8080	Database Application Design and Implementation	3
IS 8950	Information Systems Policy and Strategy (Capstone Experience)	3

### COLLABORATIVE STUDIES ELECTIVE

The interdisciplinary focus of information systems requires that graduates possess an organization-spanning perspective on the processes and tasks that are supported by the Information Systems infrastructure. Students may choose from approved course work outside of the College of Science and Mathematics, or a cooperative education or internship experience to fulfill this requirement.

**Choose three (3) hours from the following:**

**3**

PRWR 6550	Document Design and Desktop Publishing	3
PRWR 6700	Computer Technology in Professional Writing	3
IS 8916	Cooperative Education	1-3
IS 8918	Internship	1-3

Other graduate courses as approved by the MSIS program director\*

\*Students may choose from any graduate business courses for which they are eligible to enroll.

### SPECIALTY CONCENTRATION

**12**

Candidates for the Master of Science in Information Systems must complete 12 hours of coursework in a specialty concentration.

#### Specialty Concentrations

##### I. Data Communications (Choose 12 hours from the following)

The graduate with a concentration in Data Communications will complete coursework and projects emphasizing those systems environments required to effectively support large and small networking; voice, video, graphics and data integration; application of cellular, wireless, and ISDN technologies, as well as client-server computing. Inter- and Intranet policies and practices will be addressed.

IS 8622	Computer Network Design and Implementation	3
IS 8625	Networking Protocols	3
IS 81xx	Any IS Common Elective	3
<u>or</u>		
IS 8900	Special Topics in Information Systems	1-3
<u>or</u>		

IS 8910	Special Projects in Information Systems	1-3
<u>or</u>		
Elective(s) approved by advisor/program director		

**II. Systems Administration (Choose 12 hours from the following)**

The graduate with a concentration in Systems Administration will complete coursework and projects in selection and implementation of information systems; effective negotiation and marketing of information technology including human resources; information technology organizations and relationships, database application development methods, documentation practices, interoperability issues, and training of end-users.

IS 8822	Information Systems Integration	3
IS 8825	Current Issues in Systems Administration	3
IS 8826	Information Systems Services	3
IS 81xx	Any IS Common Elective	3
<u>or</u>		
IS 8900	Special Topics in Information Systems	1-3
<u>or</u>		
IS 8910	Special Projects in Information Systems	1-3
<u>or</u>		
Elective(s) approved by advisor/program director		

**III. e-Business Systems (Choose 12 hours from the following)**

The e-Business specialty concentration in the Master of Science in Information Systems program will meet the expanding demand for designers, developers, and managers of electronic business solutions. The new e-Business concentration consists of three courses: e-Business Systems Strategy, e-Business Technologies, and e-Business Systems Solutions. Each course focuses on specific aspects of how organizations are moving from traditional processes and physical products to electronic processes and digitized products. As a whole, the courses flow from analysis of business processes to core e-business technologies to implementation and management of e-business solutions. Into each course will also be woven an overview of the issues organizations encounter as they undertake e-business initiatives. As such, while the concentration is designed as a sequence, each course could be successfully undertaken piecemeal or out of order.

IS 8722	e-Business Systems Strategy	3
IS 8724	e-Business Technologies	3
IS 8726	e-Business Systems Solutions	3
IS 81xx	Any IS Common Elective	3
IS 8900	Special Topics in Information Systems	1-3
<u>or</u>		
IS 8910	Special Projects in Information Systems	1-3
<u>or</u>		
Elective(s) approved by advisor/program director		

**Common Electives**

These courses may be selected as an elective in any of the listed track concentrations. They may also be substituted for the collaboration elective with permission of the program director.

IS 8110	Information Security (3)
IS 8120	Human-Computer Interface and Design (3)

**PROGRAM TOTAL: 36**

## MSIS Course Descriptions

### **IS 8020. Object-Oriented Software Development Methods and Technologies. 3-0-3.**

*Prerequisite: Admission to the MSIS program or permission of the graduate program director.*

Current technologies and practices of object-oriented software engineering. Topics include data structures, design optimization, file and stream processing, templates, inheritance and reusability.

### **IS 8040. Data Communication Theory and Practice. 3-0-3.**

*Prerequisite: Admission to the MSIS program or permission of the graduate program director.*

Overview of the principles of data communication including protocols, communication software, switching, networks design and management practices, and network implementation projects.

### **IS 8050. Project Management Methods. 3-0-3.**

*Prerequisite: Admission to the MSIS program or permission of the graduate program director.*

Application of project management principles to Information Systems projects. Topics include project planning and estimation techniques, management of JAD projects, budgeting, concurrent project management strategies, managing project relationship with IT customers, and controlling project risks. Project Management software will be used to facilitate team projects and project reporting.

### **IS 8060. Information Systems Development Methods and Technologies. 3-0-3.**

*Prerequisite: Admission to MSIS program or permission of the graduate program director.*

This course examines the Systems Development Life Cycle and the technologies used to implement high-quality information systems. A variety of modeling techniques will be used by students to articulate client requirements and convert them into implementable specifications. Prototyping and methodology engineering will be covered.

### **IS 8070. Legal and Ethical Issues in Information Systems. 3-0-3.**

*Prerequisite: Admission to the MSIS program or permission of the graduate program director.*

This course is a case-based survey of contemporary legal and ethical issues faced by IS professionals. Topics include a review of applicable statutes and regulations that impact the IS organization. Students will conduct on-line research and explore ethical issues at the leading edge of the organization's technology frontiers.

### **IS 8080. Database Application Design and Implementation. 3-0-3.**

*Prerequisite: Admission to the MSIS program or permission of the graduate program director.*

This course examines contemporary strategies for the design and implementation of applications supported by back-end database systems. Topics include data administration, data mining, user-interface design, reporting, data integrity issues, and distributed databases. Relational and object-oriented technologies are covered.

### **IS 8110. Information Security. 3-0-3.**

*Prerequisite: Admission to the MSIS program or permission of the graduate program director.*

Examination of current Standards of Due Care and Best Business Practices in Information Security. Includes examination of security technologies, methodologies and practices. Focus is on evaluation and selection of optimal security posture. Topics include evaluation of security models, risk assessment, threat analysis, organizational technology evaluation, security implementation, disaster recovery planning and security policy formulation and implementation.

### **IS 8120. Human Computer Interface Design. 3-0-3.**

*Prerequisite: Admission to the MSIS program or permission of the graduate director.*

The human-computer interface models the ways in which humans use and react to computer systems. Topics: help systems, interaction styles, visual design principles, user interface prototyping, and human factor analysis.

**IS 8422. Systems Re-engineering and Change Management. 3-0-3.**

*Prerequisite: Admission to the MSIS program or permission of the graduate program director.*

This course examines the nature of the organization's cross-functional business processes and the impact of information systems on maintenance of these processes. Principles and practices are introduced to evaluate and enhance the contribution of the functional information system to the goals and objectives of the organization. Current practices in managing re-engineering of legacy systems are explored.

**IS 8622. Computer Network Design and Implementation. 3-0-3.**

*Prerequisite: IS 8040.*

Design and implementation of small-scale computer networks that support the organization's applications. Contemporary commercial systems will be evaluated, installed, and customized. Maintenance and service issues are explored.

**IS 8625. Networking Protocols. 3-0-3.**

*Prerequisite: Admission to the MSIS program, or consent of the program director.*

This course provides a detailed examination of networking protocols using TCP/IP protocol stack as the primary instructional tool. It also addresses the OSI reference model. Topics include the basic functions of the seven layers of the OSI model, Application layer functions, TCP and UDP data transfer, IP addressing and subnetting, and associated support functions (DNS, DHCP, ICMP etc). Additional protocols: IPXSPX, NetBUI will be examined.

**IS 8722 e-Business Systems Strategy. 3-0-3.**

*Prerequisite: Admission to the MSIS program, or consent of the program director .*

This course focuses on business process redesign and change management in the context of e-business. Topics include impact of e-business on business models, channel relationships and the value chain, integration of emerging technologies with legacy systems, functional and inter-organizational integration, and transaction cost issues. Applications include supply and selling chain management, customer relation management, enterprise resource planning, e-procurement, and knowledge tone applications.

**IS 8724 e-Business Technologies. 3-0-3.**

*Prerequisite: IS 8040*

This course focuses on core e-business technologies. Topics include risk management, Internet protocols and security standards, cryptography and authentication, firewalls, electronic payment systems and intelligent agents. Students will conduct an analysis of infrastructure components from functional and management perspectives.

**IS 8726 e-Business Systems Solution. 3-0-3.**

*Prerequisite: IS 8020.*

This course focuses on analysis, design, development, and deployment of e-business solutions. Topics include World Wide Web site design, application development structures such as Java, ColdFusion, and CGI, Web database integration, hypermedia development tools, and implementation strategies.

**IS 8822. Information Systems Integration. 3-0-3.**

*Prerequisite: Admission to the MSIS program or permission of the graduate program director.*

Modern information systems contain many purchased components, which must be selected, integrated, tested, and installed. This course addresses the skills required to develop system RFPs, evaluate and manage contracts and contractors, testing methodologies, installation planning, and outsourcing.

**IS 8825. Current Issues in Systems Administration. 3-0-3.**

*Prerequisite: Admission to the MSIS program or permission of the graduate program director.*

The topics covered in this subject vary to maintain currency with current thinking and discussion in the information systems profession. Students will choose or be given topics to be investigated either individually or in groups, and will perform library, on-line, and field research, prepare and deliver reports and presentations, and analyze and critically evaluate the reports and presentations of other students.

**IS 8826. Information Technology Services. 3-0-3.**

*Prerequisite: Admission to the MSIS program or permission of the graduate program director.*

Design and management of the service functions performed by the Information Systems organization. Topics include: Managing help desks, customer support, training end users, developing professional development programs for IS employees, documentation management, and marketing IT products. Internal and external clients are considered.

**IS 8900. Special Topics in Information Systems. 1 to 3.**

*Prerequisite: Must be approved by advisor and graduate program director.*

Exploration of selected contemporary topics of interest to the student and sponsoring faculty. Can be repeated for credit.

**IS 8910. Special Projects in Information Systems. 1 to 3.**

*Prerequisite: Must be approved by advisor and graduate program director.*

Special projects and/or thesis option for students who wish to pursue advanced work on a particular subject in a specialized area. Can be repeated for credit.

**IS 8916. Cooperative Education. 1 to 3.**

*Prerequisite: Must be approved by graduate program director.*

**IS 8918. Internship. 1 to 3.**

*Prerequisite: Must be approved by graduate program director.*

**IS 8950. Information Systems Policy and Strategy. 3-0-3.**

*Prerequisite: IS 8060 or permission of graduate program director. Should be taken in the student's last semester.*

A capstone course, which integrates the program's coursework into comprehensive, IS policies and procedures, which support the organization's mission. Students will review and evaluate actual corporate IS strategies in a case-study format.