

Academic Catalog Addendum 2016-2017

Master of Science in Computer
Information Systems (MSCIS)



MASTER OF SCIENCE IN COMPUTER INFORMATION SYSTEMS (MSCIS)

Policies listed in this addendum supercede the original printing of the 2016-2017 Catalog. Any policies not listed in this addendum can be found on pages 217-221 of the 2016-2017 Catalog.

MISSION

MSCIS will prepare students for professional success in modern and emerging areas of computer information technology/systems.

MSCIS ADMISSIONS & REGISTRATION

(See pages 217-221 in the 2016-17 Catalog for additional information)

An applicant must have obtained a technical Bachelor's Degree or its equivalent from an accredited U.S. college or university. If international, the student must have obtained the same from a foreign institution of acceptable standing.

ADMISSIONS PROCEDURES

- Complete online application and application fee
- Official transcripts from ALL college/universities
- Statement of Purpose
- Two letters of Recommendation
- Current Resume

International Students must submit the following, in addition to the above items:

- Score from TOEFL, IELTS or PTE
- World Education Services (WES) course by course report or Educational Perspectives detailed evaluation
- Current bank statement and CBU Certificate of Finance
- Copy of Passport

MSCIS EXPENSES & FEES

(See page 221 in the 2016-17 Catalog for additional information)

TUITION & FEES

MSCIS tuition and fees below apply to the 2016-2017 school year. Please note that all tuition and fees are subject to change at any time when circumstances so warrant.

| | |
|--|----------|
| Tuition, per semester hour..... | \$725.00 |
| Technology Fee, per semester | \$100.00 |
| Parking & Grounds Fee, per semester..... | \$30.00 |

COURSE REQUIREMENTS

There are two degree options for the Master of Science in Computer Information Systems: the Thesis option and the Non-Thesis option, each requiring a total of 33 credit hours for graduation. Below is the curriculum for each option

THESIS OPTION**Core Courses** (21 credits)

- ECIS 607. Operations Research
- ECIS 612. Technical Project Management
- ECIS 635. Management of Information Systems
- ECIS 636. Computer Networks & Cyber Security
- ECIS 637. Database and Big Data Management
- ECIS 638. Data Science
- ECIS 639. Software Programming for Engineers

Thesis (6 credits)

- ECIS 696. Thesis I
- ECIS 697. Thesis II

Elective Courses (6 credits; choose 2 courses)

- ECIS 691-695. Special Topics
- ECIS 694. Internship
- ECIS 698. Professional Seminar & Technical Communications
- ENGM 600. Theory and Applications in Engineering Management
- ENGM 603. Engineering Finance and Accounting
- ENGM 605. Quality Assurance
- ENGM 610. Advanced Engineering Economy
- ENGM 616. Strategic Management
- ENGM 621. Engineering Law

NON-THESIS OPTION**Core Courses** (21 credits)

- ECIS 607 Operations Research
- ECIS 612 Technical Project Management
- ECIS 635 Management of Information Systems
- ECIS 636 Computer Networks & Cyber Security
- ECIS 637 Database and Big Data Management
- ECIS 638 Data Science
- ECIS 639 Software Programming for Engineers

Project or Research (3 credits)

- ECIS 690 Capstone Project

OR

- ECIS 699 Research

Elective Courses (9 credits; choose 3 courses)

- ECIS 691-695 Special Topics
- ECIS 694 Internship
- ECIS 698 Professional Seminar & Technical Communications
- ENGM 600 Theory and Applications in Engineering Management
- ENGM 603 Engineering Finance and Accounting
- ENGM 605 Quality Assurance
- ENGM 610 Advanced Engineering Economy
- ENGM 616 Strategic Management
- ENGM 621 Engineering Law

ACADEMIC COURSES

■ MSCIS MASTER OF SCIENCE IN COMPUTER INFORMATION SYSTEMS

ECIS 607. OPERATIONS RESEARCH

Models and methods of operations research in solving engineering and management problems. Includes linear models, linear programming, duality, post optimality and network analysis and simulation. *Three credits*

ECIS 612. TECHNICAL PROJECT MANAGEMENT

Development and management of engineering and technology projects. Project proposal preparation; resource and cost estimating; and project planning, organizing, and controlling; network diagrams and other techniques. Role of project manager: team building, conflict resolution, and contract negotiations. *Three credits*

ECIS 635. MANAGEMENT OF INFORMATION SYSTEMS

Basic principles of Management Information Systems. Topics in current networking and communication technologies and their impacts on performance and productivity in an organization. Software and hardware components of a network and database technology. *Three credits*

ECIS 636. COMPUTER NETWORKS & CYBER SECURITY

Relationship between computer systems, network services and cybersecurity. HTTP, HTTPS, SMTP, DNS, SSH and other network services. Security, privacy and usability issues in a network environment. *Three credits*

ECIS 637. DATA BASE AND BIG DATA MANAGEMENT

Survey of current database approaches and systems. Topics include DBMS types; architecture; introduction to SQL; query optimization. DB management project required. *Three credits*

ECIS 638. DATA SCIENCE

Practical tools used to analyze and interpret data. A review of probability, statistics and software programming. Data pre-processing techniques, supervised learning techniques in classification and regression, unsupervised learning techniques in clustering and visualization techniques. *Three credits*

ECIS 639. SOFTWARE PROGRAMMING FOR ENGINEERS

The course introduces concepts of python programming for engineering and IT applications. Topics include variables, conditionals and loops, functions, files and input/output, and object oriented techniques. *Three credits*

ECIS 690. COMPUTER INFORMATION SYSTEMS CAPSTONE PROJECT

Technical project complete with written report or thesis. This will be a significant report on an investigation into a computer information systems topic which has been approved by the School of Engineering. *Three credits*

ECIS 691-695. SPECIAL TOPICS

Selected topics of interest. *One to three credits*

ECIS 696 - 697. COMPUTER INFORMATION SYSTEMS THESIS I & II

Thesis and oral presentation prepared demonstrating proficiency in analyzing, solving, and implementing a solution to a computer information systems problem. *Three credits*

ECIS 698. PROFESSIONAL SEMINAR & TECHNICAL COMMUNICATIONS

The course is designed to help graduate students in engineering with their academic and professional writing, oral presentation skills and data visualization techniques. *Three credits*

ECIS 699. RESEARCH

Methods used in computer information systems. Emphasis on problem solving, and implementing a solution to a computer information systems problem. *Three credits*

ENGM 600. ENGINEERING MANAGEMENT THEORY AND APPLICATIONS

Management theories, concepts, and applications in an engineering or other technical environment; roles and responsibilities of the engineering manager as integral part of an organization's overall performance; motivation and leadership theories and methodologies. *Three credits*

ENGM 603. ENGINEERING FINANCIAL MANAGEMENT AND ACCOUNTING

Understanding of financial decisions by corporations. Uses and limitations of accounting information. Topics include return on investment; return on assets; asset management; capital planning; budgets, controls, taxes, profit centers; financial and risk analysis. *Three credits*

ENGM 605. QUALITY ASSURANCE

Statistical quality control methods for products and services; design of quality control systems; control of quality control inputs. Lecture and problem solving. *Three credits*

ENGM 607. OPERATIONS RESEARCH Models and methods of operations research in solving engineering and management problems. Includes linear models, linear programming, duality, post optimality and network analysis and simulation. *Three credits*

ENGM 610. ADVANCED ENGINEERING ECONOMY

Application of engineering economic analysis in complex decision situations. Inflation and price changes; uncertainty evaluation using non-probabilistic techniques; capital financing and project allocation; evaluations involving equipment replacement, investor-owned utilities, and public works projects; probabilistic risk analysis. *Three credits*

ENGM 616. STRATEGIC MANAGEMENT IN A TECHNICAL ENVIRONMENT

Strategic planning process and strategic management in practice; corporate vision and mission; product, market, organizational, and financial strategies; external factors; commercialization of new technologies; and competition and beyond. *Three credits*

ENGM 621. ENGINEERING LAW

Legal principles and procedures; contracts and patents; liability, product liability, computer and environmental law; government regulation. *Three credits*

COURSE REQUIREMENTS FOR MASTER OF SCIENCE IN COMPUTER INFORMATION SYSTEMS**MSCIS**

MSCIS will prepare students for professional success in modern and emerging areas of computer information technology/systems. The Master of Science in Computer Information Systems degree consist of two options: Thesis and Non Thesis.

The Non-Thesis option is recommended for students who do not plan to pursue a Ph.D. and prefer not to perform an extensive research effort. The Non-Thesis option consists of eight core and three elective courses. All classes utilize on-line and distance education technologies and are scheduled for those taking classes on a part-time basis.

The Thesis option is recommended for those who either plan to continue on to Doctorial work or are employed at a research intensive organization. The Thesis option consist of nine core and two elective courses. Though most classes utilize on-line and distance education technologies, the program is designed for full time students.

| MSCIS COURSE REQUIREMENTS | | | |
|--------------------------------------|----------------------|----------------|---|
| COURSE | COURSE NUMBER | CREDITS | NOTES |
| Operations Research | ECIS 607 | 3 | May substitute ENGM 607 |
| Technical Project Management | ECIS 612 | 3 | May substitute ENGM 612 |
| Management of Information Systems | ECIS 635 | 3 | |
| Computer Netwroks and Cyber Security | ECIS 636 | 3 | |
| Database and Big Data Management | ECIS 637 | 3 | |
| Data Science | ECIS 638 | 3 | |
| Software Programming for Engineers | ECIS 639 | 3 | |
| Capstone Project or Research | ECIS 690/699 | 3-6 | Non-Thesis Option: ECIS 690 or 699 Thesis Option: ECIS 696 or 697 |
| Electives | | 6-9 | |
| TOTAL HOURS FOR MSCIS | | 33 | |

| MSCIS ELECTIVES | | | |
|--|----------------------|----------------|--------------|
| COURSE | COURSE NUMBER | CREDITS | NOTES |
| Special Topics | ECIS 691-695 | | |
| Internship | ECIS 694 | | |
| Professional Seminar & Technical Communications | ECIS 698 | | |
| Theory and Applications in Engineering Management | ENGM 600 | | |
| Engineering Finance and Accounting | ENGM 603 | | |
| Quality Assurance | ENGM 605 | | |
| Advanced Engineering Economy | ENGM 610 | | |
| Strategic Management | ENGM 616 | | |
| Engineering Law | ENGM 621 | | |

* International students with 5.5 IELTS score or TOEFL iBT internet-based test score between 68 and 76 will need to take ENGM 698 Professional Seminar as one of the required courses instead ENGM/ECIS 612 Technical Project Management.