COMPUTER ENGINEERING, MS

Program Director

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Master of Science Programs

The requirements for the M.S. emphasize mastery of a field of knowledge and some familiarity with allied areas. Programs are tailored to meet the needs of the individual with certain general restrictions set by the department. All degree candidates are required to take work of a basic nature in several fields to provide the necessary breadth of knowledge.

The M.S. programs consist of at least 30 credits beyond the B.S. degree. A thesis is optional. Students who do not have B.S. degrees in electrical engineering or computer engineering are required to take specified additional courses at the undergraduate or graduate level to make up for deficiencies in their preparation.

In addition to the requirements outlined in the "Requirements for Graduate Degrees" section of this catalog, several departmental requirements apply to the M.S. in both electrical engineering and computer engineering. Not more than 6 credits of 500-level courses may be included in an M.S. program. A maximum of 9 credits of transfer credit may be included in M.S. programs. For further information, students may obtain a copy of the Transfer Credit Policy from the department. Early in the student's final semester, an official Program of Study form must be submitted to the department. A diploma request card must also be included.

Admission Requirements

Each of these master's programs has its own admission committee that evaluates the overall academic record of an applicant. Each of these committees uses the following guidelines during the evaluation process:

- GRE Verbal score of 150 or better (using New GRE Score System);
- GRE Quantitative score of 155 or better (using New GRE Score System);
- GRE Analytical (multiple choice) score of 650 or better, or a score of 3.5 or better in the new Analytical Writing; *The GRE (Graduate Record Examination) is currently optional for our programs.
- for international students: TOEFL computer-based score of 223 (Internet-based score 85; paper-based score 563) or better;
- grade point average (GPA) of 3.0/4.0 or better.
- Students with unique credentials might be considered with exceptions.

Student Learning Outcomes

1. Demonstrate the ability to specify system functionality, map the functionality into layers of design abstraction, and translate the functionality at each layer into component level design
2. Demonstrate the ability to design and conduct experiments, simulations, and verification, as well as analyze and interpret the results
3. Demonstrate proficiency in the use of advanced mathematical and analytical techniques and modern engineering tools necessary for engineering practice
4. Demonstrate the proficiency in system modeling, architecture, design and implementation using hardware description languages or diagramming and analysis tools
5. Demonstrate the ability to analyze hardware/software application requirement and apply the knowledge of system, architecture, and design methodology to perform application development

Course Requirements

1. Graduate Work Beyond the B.S. Degree
   A minimum of 30 credits of graduate work beyond the B.S. degree is required.
2. Cumulative Total GPA
   The student must maintain a cumulative total GPA of at least a 3.0 in those courses to be credited towards the M.S. degree, and a minimum cumulative total GPA of 2.8 in all graduate courses taken at Syracuse University.
3. A Maximum of 9 Credits of Transfer Credit of Graduate Coursework
   A maximum of 9 credits of transfer credit of graduate coursework taken at another university with a grade of B or better may be included in an M.S. program.
4. A maximum of 12 Credits Taken at Syracuse University
   A maximum of 12 credits taken at Syracuse University before the semester of admission may be included in an M.S. program provided they are relevant to a program in computer engineering and have a grade of B or better.
5. To Maintain Full-Time Status in the EECS Department
   To maintain full-time status in the EECS Department, students must register for at least 9 credits per semester. During the last semester of course work, student can take less than 9 credits be considered as full-time student. Part-time students must complete at least 6 credits per academic year.
6. Core Course Requirement
   Each student's program must include CSE 661 Advanced Computer Architecture, CSE 664 Introduction to System-on-Chip Design, CSE 674 Advanced Data Structures and Algorithms, and CSE 687 Object Oriented Design.
7. Final Examinations
   Candidates are required to complete the final examinations in all core courses with an average grade of B- or better.
8. Programs must include a minimum of 18 credits of CSE courses
9. No more than 6 credits of 500-level courses may be included in an M.S. program
10. Taking Courses Offered by Other Departments
    Taking courses offered by other departments is generally not allowed. In some cases it will be permitted with prior approval by the CE program committee.
11. Students may select a thesis option up to 6 credits
    The Master's Thesis must be prepared in accordance with the Graduate School's instructions for the Preparation of Theses and Dissertations and must receive prior approval from the thesis advisor. Theses must be presented orally and defended before a faculty panel. Students electing the thesis option must include CSE 997 Masters Thesis (normally 6 credits) in their programs of study.
12. Student may take up to 3 independent study credits
    Anything above that will require prior approval from faculty advisor.

Computer Engineer Degree

Admission Requirements

An M.S. in computer engineering, electrical engineering, or a related field from an accredited institution is required, with an average of 3.3 or better on a scale of 4.0. Applicants are informed of any additional requirements when their applications are processed.

Guidance

Each student is assigned a guidance committee to help plan a program of study.

Program Summary

The program consists of coursework, qualifying examinations, and a project. The minimum program consists of 60 credits beyond the B.S. degree, at least 4 ELE/CSE courses exclusive of independent study must be at or above the 700 level beyond M.S. degree. The student must maintain an average of 3.0 or better on a scale of 4.0.

Qualifying Examination

Written qualifying examinations are administered at the end of the student's formal coursework. Each student is examined in specific topic areas.

The current list of topics and descriptions of the nature and scope of these examinations may be obtained from the department office. All examination topics must have the approval of the student's guidance committee and one topic must be in the student's major field.

Examination periods are scheduled twice a year. The student must take all examinations during the same examination period. Credit granted at other approved institutions does not exempt a student from any part of the qualifying examination.

The Computer Engineer Degree Project

CSE 995 Engineer Degree Project This project allows the student to undertake an investigation which may be original research, an application of the state-of-the-art, a solution of a set of related minor problems, or a critical survey of a special topic. The topic may be suggested by a faculty member or, preferably, by the student. The student is assigned a project advisor, who must approve the topic and agree to direct the work. Students with engineering employment may make arrangements to carry out the project work on the employer's premises or laboratory, provided the advisor has unrestricted access to the work. A formal project report and a final examination on this report are required after the completion of all graduate work.

Time Limit

Degree requirements must be completed within a period of three years after the student passes the qualifying examinations.