ELECTRICAL AND COMPUTER ENGINEERING MASTER OF SCIENCE

Leading to a Master of Science Degree in Electrical and Computer Engineering

The Master of Science in Electrical and Computer Engineering (MSECE) program is designed to provide advanced experience with post-graduate electrical and computer engineering principles and skills. The program has both thesis and non-thesis options with 30 required credit hours. The thesis option has students complete eight graduate-level courses and undertake an individualized engineering development experience as a two-course Thesis. In the non-thesis option, the students complete ten courses, including the option of taking a one-course Master Project.

Students may be either full-time or part-time. All graduate classes in the School of Engineering are offered full-time in person as well as synchronous online. The expected background of the students is a bachelor's degree in electrical engineering, computer engineering, or a closely related field. Part-time students may complete the program in two to four years. Full-time students may complete the program in two or four semesters.

Program Educational Objectives

- Work toward alleviating problems, challenges or risks in application fields related to electrical and/or computer engineering.
- Apply engineering methodology with confidence and humility to develop innovative and effective solutions in a professional and ethical manner.
- Pursue professional development to meet and adapt to emerging and evolving engineering challenges.

Student Outcomes

- Core Knowledge: Advanced knowledge in a specialized area consistent with the focus of their graduate program, including critical thinking and problem-solving.
- Scholarly Communication: Advanced proficiency in written and oral communication, appropriate to purpose and audience.
- Professionalism: Advanced intellectual and organizational skills of professional practice, including ethical conduct.
- Research Methods and Analysis: Quantitative and qualitative skills in the use of data gathering methods and analytical techniques used in research that is consistent with the focus of their graduate programs.

The program has both thesis and non-thesis options with 30 required credit hours. The thesis option has students undertake an individualized engineering development experience as a two-course Thesis (ENGR7100 and ENGR 7200). In the non-thesis option, the students may choose to take a one-course Master Project (ENGR7000).
A non-thesis student willing to switch and complete their degree with the thesis option may use their Master Project course (ENGR7000) as a substitute for the Thesis I course (ENGR7100). They will have to take the Thesis II course (ENGR7200) to complete their thesis and be awarded their master's degree with the thesis option.
The course requirements to complete the MSECE degree are shown in the curriculum tables below. Students must complete the course requirements with a cumulative GPA of at least 3.0, following Wentworth graduate school policies.

Required Thesis
Thesis Option - Select 6 credits of graduate thesis courses
Non-Thesis Option - not applicable

Course	Title	Credits
ENGR7100	THESIS I	3
ENGR7200	THESIS II	3

Core Courses
Thesis Option - Select a minimum of 18 credits of ELEC graduate courses
Non-Thesis Option - Select a minimum of 21 credits of ELEC graduate courses

Course	Title	Credits
ENGR7000	MASTER PROJECT (Optional master's project for non-thesis students only)	3
ELEC5550	DIGITAL SIGNAL PROCESSING	3
ELEC5560	POWER SYSTEMS ANALYSIS I	3
ELEC5650	EMBEDDED SYSTEMS	3
ELEC5660	POWER SYSTEMS ANALYSIS II	3
ELEC5675	VLSI	3
ELEC5700	ROBOTICS & AUTOMATION SYSTEMS	3
ELEC5725	MACHINE PERCEPTION & COGNITION	3
ELEC5750	INDUSTRIAL CONTROLS	3
ELEC5825	ELECTRICAL BUILDING SYSTEMS	3
ELEC5850	ENGINEERING NUMERICAL METHODS	3
ELEC5900	INTRODUCTION TO RADAR SYSTEMS	3
ELEC5925	INTRODUCTION TO MICROWAVE IMAGING	3
ELEC5950	ANTENNA THEORY	3
ELEC5975	PARALLEL COMPUTER ARCHITECTURE	3
ELEC6125	RENEWABLE ENERGY INTEGRATION	3
ELEC6200	CYBER-PHYSICAL SYSTEMS	3
ELEC6300	MICROWAVE ENGINEERING	3
ELEC7800	GRADUTE SPECIAL TOPICS IN ELECTRICAL ENGINEERING	1-4

Elective Courses
Thesis Option - Can select up to 6 credits from non-ELEC graduate courses
Non-Thesis Option - Can select up to 9 credits from non-ELEC graduate courses
These can be graduate-level courses in CIVE, COMP, DATA, MATH, MECH, or MGMT. The students may take the non-ELEC courses in consultation with their advisor and with the approval of the School of Engineering Dean's Office. Students may also choose the elective courses from the list of the ELEC core courses.

Optional Graduate Internship

Course	Title	Credits
INTN6000	GRADUATE INTERNSHIP	1

In addition to the 30 required credit hours, students may undertake a graduate internship and not take any formal courses over a semester. This internship is to allow students to experience the application of

engineering within the context of an external company or organization. The internship is recommended to be taken after the completion of the equivalent of at least 18 credits. During the internship semester, students register for the graduate internship course only at no tuition cost.