Master of Science in Electrical and Computer Engineering

Student Learning Outcomes

Students graduating from this program will have the ability to:

- Identify, formulate, and solve novel engineering problems by applying principles of engineering, science, and mathematics.
- Communicate experimental results to professional audiences both verbally and orally.
- Work in a collaborative environment that may contain engineers from other disciplines. This will enable them to quickly become contributors in the industry.
- Students completing the degree with the thesis option will perform original research.

Admission Requirements

All applicants for the M.S. in ECE program must have a Bachelor of Science degree in engineering, physical sciences, mathematics or a closely related field. All applicants must meet Idaho State University Graduate School M.S. admission requirements.

General Requirements

Electrical Engineering Track

Thesis or Project Option (30 credits): A total of 30 credits is required for the Thesis or Project Option. All 30 credits must be at the 5000 level or higher and 50% of the credits must be at the 6000 level or higher. Students may only register for ECE 6650 Thesis or ECE 6650 Project after they have set up a supervisory committee. The project option is primarily intended for students who are working professionals.

Of the 30 required semester hours, 6 semester hours of ECE 6650 Thesis or ECE 6660 Project are required. The student must take 24 semester hours consisting of courses aimed at any specialization they choose with approval of the advisor and supervisory committee.

A total of 15 semester hours must come from the ECE curriculum. 6 ECE semester hours will come from ECE 6650 Thesis/ECE 6660 Project. 3 ECE semester hours will be electives from the ECE department. 9 semester hours will come from focus courses primarily offered from the ECE department. The focus courses are selected from the EE and CpE focus tracks. The EE student will take 6 semester hours of EE focus courses and 3 semester hours of CpE focus courses. The EE and CpE focus courses may be replaced with an ECE >6000 level course with approval from supervisory committee.

The remaining 12 semester hours can be from the ECE curriculum, from allied science, engineering, and mathematics areas, or from other areas as approved by the advisory committee. For any course that is cross-listed, the ECE version should be taken. ECE 6650 Thesis/ECE 6660 Project may be taken repeatedly; however no more than 6 credits can be applied toward the MS ECE degree.

Computer Engineering Track

Thesis or Project Option (30 credits): A total of 30 credits is required for the Thesis or Project Option. All 30 credits must be at the 5000 level or higher and 50% of the credits must be at the 6000 level or higher. Students may only register for ECE 6650 Thesis or ECE 6650 Project after they have set up a supervisory committee. The project option is primarily intended for students who are working professionals.

Of the 30 required semester hours, 6 semester hours of ECE 6650 Thesis or ECE 6660 Project are required. The student must take 24 semester hours consisting of courses aimed at any specialization they choose, with approval of the advisor and supervisory committee.

A total of 9 semester hours must come from the ECE curriculum. 6 ECE semester hours will come from ECE 6650 Thesis/ECE 6660 Project. 3 ECE semester hours will be electives from the ECE department. 9 semester hours will come from focus courses primarily offered from the ECE department. The focus courses are selected from the EE and CpE tracks. The CpE student will take 3 semester hours of EE focus courses and 6 semester hours of CpE focus courses. The EE and CpE focus courses may be replaced with an ECE >6000 level course with approval from supervisory committee.

The remaining 12 semester hours can be from the ECE curriculum, from allied science, engineering, and mathematics areas, or from other areas as approved by the advisory committee. For any course that is cross-listed, the ECE version should be taken. ECE 6650 Thesis/ECE 6660 Project may be taken repeatedly; however no more than 6 credits can be applied toward the MS ECE degree.

Focus Courses: 9 Semester Hours

EE Track

- 6 semester hours from EE focus courses
- 3 semester hours from CpE focus courses

CpE Track

- 6 semester hours from CpE focus courses
- 3 semester hours from EE focus courses

Code	Title	Credits
EE Focus		
ECE 5518	Communication Systems	3
ECE 5573	Automatic Control Systems	3
ECE 5575	Digital Signal Processing	3
CpE Focus		
ECE 5508	Advanced Digital Logic Design	3
ECE 5527	Embedded Systems Engineering	2
CS 5531	Scientific Computing	3
CS 5521	Software Architecture	3

ECE Electives: 3 Semester Hours

EE Track

3 semester hours from ECE department

CpE Track

3 semester hours from ECE or CS department

Electives: 12 Semester Hours

EE Track

12 semester hours from the ECE curriculum, from allied science, engineering, and mathematics areas, or from other areas as approved by the advisory committee.

CpE Track

12 semester hours from the ECE curriculum, from allied science, engineering, and mathematics areas, or from other areas as approved by the advisory committee.

Project or Thesis Courses: 6 Semester Hours

Same for EE track and CpE track

Code	Title	Credits
Thesis Option		
ECE 6650	Thesis	6
Or		
Project Option		
ECE 6660	Special Project	6