

# M.S. in Electrical and Computer Engineering

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## Program Director

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The Master of Science in Electrical and Computer Engineering is an interdisciplinary graduate program that combines the strengths of both electrical and computer engineering. The program will be replacing our graduate programs in Electrical Engineering and Computer Engineering. The new program will give students the flexibility to take courses in the areas of both electrical and computer engineering, such as machine learning, data sciences, computer security, parallel computing, computer networks, digital signal processing, communications theory, wireless communication, automatic control, neural networks, and wireless security etc. It will help students build a solid foundation and prepare them for highly sought-after jobs in the areas of electrical and computer engineering.

## Admission Requirements

The admission requirements of the program are the following:

- Have a Bachelor of Science (B.S.) degree in engineering, physical science, mathematics, or a closely related discipline. The Graduate Program Director will evaluate applicants from other disciplines on an individual basis.
- Have a minimum Grade Point Average (GPA) of 3.00 (A = 4.00) for their bachelor's degree.
- All students are required to submit proof of English proficiency for admission into St. Mary's University. If you have studied in the US, this may fulfill the English proficiency requirement. Proof of English proficiency can be submitted directly to St. Mary's from one of the following ways:
- Test of English as a Foreign Language (TOEFL). A minimum score of 80 on the Internet-based (IB) test is required for full admission.
- International English Language Testing System (IELTS). A minimum band score of 6.0 is required for full admission.
- Duolingo English Test (DET): A minimum score of 105 is required for full admission.
- Submit a completed application form, a written statement of purpose indicating the applicant's interests and objectives, two recommendation letters, official transcripts of all college level work and resume.
- Applicants who fail to meet any of the above requirements may be admitted on a conditional status. The Graduate Program Director will evaluate these cases on an individual basis.

*Click on the course number to view course title and description.*

Code	Title	Semester Hours
<b>Students in the MS ECE graduate program will take ten 3-credit courses (in a total of 30 credits) from, but not limited to, the following courses:</b>		
<b>DSP, Control, and Communication</b>		
EG 6350	Digital Signal Processing I	
EG 6360	Digital Signal Processing II	
EG 6365	Automatic Control Systems	
EG 6345	Digital Control Systems	
EG 6367	Communication Systems	
EG 6311	Wireless Communications	
EG 6308	Random Variables and Stochastic Processes	
<b>Parallel Processing, Networking, Architecture, and Software Engineering</b>		
EG 6370	Parallel Processing	
EG 6356	Computer Networking	
EG 6374	Computer Architecture	
EG 6328	Software Engineering	
<b>Security</b>		
EG 6369	Cryptography Principles and Practices	
EG 6335	Wireless Security	
<b>Data Sciences and Machine Learning</b>		
EG 6338	Special Topics (Data Sciences Using Python and Julia)	
EG 6312	Data Mining	
EG 6376	Neural Networks	
EG 6362	Computer Vision and Pattern Recognition	

**Non-Thesis/Capstone Project Option**

EG 8396	Capstone Project
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**Thesis Option**

EG 8390	Thesis I
EG 8391	Thesis II

**Master of Science in Electrical & Computer Engineering degree options**

The MS ECE is a 30-credit hour program. The graduate degree may be earned by one of the following three options. Students can elect to choose from capstone project, thesis, and all course options. Students will take six credits from out of their major area, in consultation with their program director.

Code	Title	Semester Hours
<b>Plan I - Capstone</b>		
	In Major	21
	Out of Major (Other EG, CS, GSB, Law and CAHSS selected with program director's permission)	6
	Project/Thesis	3
<b>Total Semester Hours</b>		<b>30</b>

Code	Title	Semester Hours
<b>Plan II - Thesis</b>		
	In Major	18
	Out of Major (Other EG, CS, GSB, Law and CAHSS selected with program director's permission)	6
	Project/Thesis	6
<b>Total Semester Hours</b>		<b>30</b>

Code	Title	Semester Hours
<b>Plan III - All Course</b>		
	In Major	24
	Out of Major (Other EG, CS, GSB, Law and CAHSS selected with program director's permission)	6
	Project/Thesis	0
<b>Total Semester Hours</b>		<b>30</b>