

# ELECTRICAL ENGINEERING - MASTER OF ENGINEERING IN ELECTRICAL ENGINEERING

## Requirements and Options for M.E.E.E. Degree

The Program Educational Objectives for the Master of Engineering Program in Electrical Engineering are:

1. That graduates successfully apply advanced skills and techniques in one or more areas of emphasis.
2. That graduates obtain relevant, productive employment with the private sector or in government and/or pursue additional advanced degrees.

The M.E.E.E. is a coursework-only option for obtaining a master's degree. The requirement is a total of 30 credits of graduate course work, including passing with a grade of B or better six Graduate Expanded Core Courses from at least three different areas of emphasis. No oral exam is required for the MEEE.

Credits of E E 590 Selected Topics are limited to a total of 6. Other limitations and requirements that apply to all master's degrees are described elsewhere in this catalog.

### Graduate Expanded Core Courses

The MEEE program requires students to take six courses from at least three different areas of emphasis from the list of Graduate Expanded Core Courses. Students who may wish to pursue a Ph.D. in the future are encouraged to include three courses from the MSEE Graduate Core Courses as part of their Graduate Expanded Core; the three MSEE Graduate Core Courses will satisfy one of the requirements for the Ph.D. qualifying exam. The areas of emphasis and credits are listed below for the Graduate Expanded Core Courses with additional specification as to which of those are the MSEE Graduate Core Courses.

### Graduate Expanded Core Courses

Prefix	Title	Credits
<b>Graduate Expanded Core Courses: choose 6 from at least 3 different areas</b>		
<i>Electromagnetics</i>		
E E 515	Electromagnetic Theory I <sup>1</sup>	
E E 516	Electromagnetic Theory II	
E E 521	Microwave Engineering	
E E 541	Antennas and Radiation	
E E 548	Introduction to Radar	
E E 549	Smart Antennas	
E E 615	Computational Electromagnetics	
<i>Microelectronics/VLSI</i>		
E E 510	Introduction to Analog and Digital VLSI	
E E 512	ASIC Design	
E E 523	Analog VLSI Design <sup>1</sup>	
E E 567	ARM SOC Design	
E E 590	Selected Topics (Hardware for Machine Learning)	
<i>Photonics</i>		
E E 528	Fundamentals of Photonics <sup>1</sup>	

E E 529	Lasers and Applications <sup>1</sup>
E E 577	Fourier Methods in Electro-Optics
E E 578	Optical System Design
<i>Electric Energy Systems</i>	
E E 534	Power System Relaying
E E 537	Power Electronics
E E 540	Photovoltaic Devices and Systems
E E 542	Power Systems II
E E 543	Power Systems III <sup>1</sup>
E E 544	Distribution Systems
E E 590	Selected Topics (Power System Modeling and Numerical Computational Methods)

### *Digital Signal Processing*

E E 545	Digital Signal Processing II <sup>1</sup>
E E 565	Machine Learning I <sup>2</sup>
E E 576	Geometric Algebra <sup>2</sup>
E E 585	Telemetry Systems <sup>2</sup>
E E 588	Advanced Image Processing
E E 596	Digital Image Processing <sup>2</sup>
E E 597	Neural Signal Processing

### *Computer Engineering*

E E 558	Hardware Security and Trust
E E 562	Computer Systems Architecture
E E 563	Computer Performance Analysis I
E E 564	Architectural Concepts II <sup>1</sup>
E E 590	Selected Topics (Introduction to Quantum Computing)
E E 590	Selected Topics (Applications of Parallel Computing XSEDE Collaborative Course)
E E 593	Mobile Application Development

### *Communications*

E E 571	Random Signal Analysis <sup>1</sup>
E E 572	Modern Coding Theory
E E 573	Signal Compression
E E 581	Digital Communication Systems I
E E 583	Wireless Communications
E E 585	Telemetry Systems <sup>2</sup>
E E 586	Information Theory

### *Controls & Robotics*

E E 551	Control System Synthesis I <sup>1</sup>
E E 565	Machine Learning I <sup>2</sup>
E E 576	Geometric Algebra <sup>2</sup>
E E 596	Digital Image Processing <sup>2</sup>

**Graduate Electives: choose 3 to 4 courses** **12-9**

**Total Credits** **30**

1

This course is one of the MSEE Graduate Core Courses. Students pursuing the MEEE who wish to pursue the Ph.D. in the future are encouraged to select three courses from this subset of courses to satisfy one of the requirements for the Ph.D. Qualifying Exam (<https://ece.nmsu.edu/grad-study/phd-qualifying.html>).

2

This course is included in multiple areas of emphasis. Students may use this course to satisfy **one** area of emphasis.

### Included Prefixes

Graduate course work credits from the following prefixes are permitted for the MEEE degree. If a graduate course outside this list of prefixes logically fits into the MEEE program, see your graduate advisor about requesting an exception.

Prefix	Title	Credits
<i>College of Agriculture/Consumer/Environmental Sciences</i>		
AEEC		
ENVS		
GENE		
<i>College of Arts and Sciences</i>		
ASTR		
BCHE		
BIOL		
C S		
CHEM		
GEOL		
GPHY		
LING		
MATH		
MOLB		
PHYS		
STAT		
<i>College of Business</i>		
ECON		
MGMT		
<i>College of Engineering</i>		
A E		
A EN		
CHME		
E E		
ENVE		
I E		
M E		
SUR		

### Excluded Courses

Credits from the following courses do not count toward an MEEE degree:

Prefix	Title	Credits
C S 451	C++ Programming	3
C S 452	Java Programming	3
C S 453	Python Programming I	3
C S 458	R Programming I	3
C S 460	Computer Science I Transition	3
C S 462	Object Oriented Programming Transition	3
C S 463	Introduction to Data Structures Transition	3
C S 464	Machine Programming and Organization Transition	3
C S 465	Discrete Math for Computer Science Transition	3
C S 466	Compilers and Automata Transition	3
C S 468	Software Development Transition	3
C S 469	Data Structure and Algorithms Transition	3
E E 490	Selected Topics	1-3