

ELECTRICAL ENGINEERING PROGRAM REQUIREMENTS

M.S.E. in Electrical Engineering Requirements (for students starting Fall 2014 and later)

Students must complete 10 course units, following the requirements below. If a Master's thesis is done, it will count for 2 course units (2 C.U. of ESE 597).

The four-part requirements are as follows:

A. Five (5) courses in any combination from the three areas below.

Physical Devices and Nano Systems	Circuits and Computer Engineering	Information and Decision Systems
ESE 509: Waves, Fibers and Antennas for Telecommunications	ESE 519: Real Embedded Systems	ESE 500: Linear Systems Theory
ESE 510: Electromagnetic & Optical Theory	ESE 529: Introduction to MEMS and NEMS	ESE 504: Introduction to Optimization Theory
ESE 511: Modern Optics and Image Understanding	ESE 534: Computer Organization	ESE 505: Controls of Systems
ESE 514: Physics of Materials I	ESE 535: Electronic Design Automation	ESE 507: Introduction to Networks and Protocols
ESE 515: Physics of Materials II	ESE 570: Digital Integrated Circuits & VLSI Fundamentals	ESE 530: Elements of Probability Theory
ESE 518: Electrical Energy Storage Systems: Battery and Super-Capacitive Systems	ESE 572: Analog Integrated Circuits	ESE 531: Digital Signal Processing
ESE 521: The Physics of Solid State Energy Devices	ESE 574: Principles & Practice of Microfabrication Technology	ESE 575: Introduction to Wireless Systems
ESE 525: Nanoscale Science and Engineering	ESE 578: RF Integrated Circuits	ESE 576: Digital Communication Systems

B. Two (2) courses from any ESE graduate offerings.

C. One (1) course from any SEAS graduate offering.

D. Two (2) other approved electives from any of the graduate courses offered at Penn

- Thesis Option-** Students who would like to complete a thesis may take two (2) units of Thesis Research (ESE 597)
- A maximum of one course unit of Independent Study (ESE 599) is allowed
- A maximum of two graduate-level course units may be transferred from another school to apply toward the MSE degree. These two courses should not have been used in fulfillment of an undergraduate degree.
- Lockheed-Martin Transfer credit:** Lockheed Martin students must petition for transfer credit in person, and bring a letter from the Company (your supervisor), clearly stating which Advanced Courses you completed and the final grade(s) awarded. All documents should be given to Betty Gentner, located in 111 Towne Building.
- Full time Master's degree students normally register for three courses per semester. Full-time status requires at least three courses per semester.
- Students are required to maintain a 2.7 GPA to remain in good academic standing. A minimum GPA of 2.7 is required for graduation.
- Disallowed courses for any graduate degree in SEAS:** A reminder that no undergraduate level courses, including those in SEAS, may be taken for a graduate degree requirement. There are courses that appear at the graduate level that are being offered by other parts of the University that will **not** be approved for SEAS graduate degree requirements. These include courses being offered in specialized and professional training programs, such as the Organizational Dynamics Program, the Wharton Certificate Programs for Working Professionals, and the Wharton Evening School.

For further regulations, see the ESE Graduate Student Handbook: <http://www.ese.upenn.edu/grad/mse.html>

COURSE PLANNING WORKSHEET

**UNIVERSITY OF PENNSYLVANIA
ELECTRICAL & SYSTEMS ENGINEERING DEPARTMENT
SCHOOL OF ENGINEERING & APPLIED SCIENCE
M.S.E AND FIRST YEAR (OR 10 C.U.'S) COURSE PLANNING GUIDE**

(For Electrical Engineering Majors)

PLEASE FILL OUT IN BALLPOINT PEN

Name _____

E-Mail Address _____ Telephone Number _____

Graduate Status (Circle One): Full-time Part-time

Your expected graduation date (MO./YR.): _____, _____

Note: For a Masters Degree in ESE, 10 course units are required (No more than 1 independent study). Always check with your academic advisor if you have questions or changes in your curriculum. For a list of available courses in ESE, check the current course timetable).

Please list your courses (PRINT)

Five (5) Courses from Core List

Semester/Year

Two (2) additional courses from approved ESE course list

One (1) SEAS course

Two (2) Electives (SEAS, SAS or Wharton)

