

***Department of Electrical and Computer Engineering
Checklist for MSES(EE) Degree***

Student name: _____; **email:** _____

Month/year enrolled: _____; **Graduation date:** _____

I certify that 1) the information contained on this form is correct; and 2) courses included in this checklist are not included in the requirements towards another Master degree.

Student : _____; **Date:** _____

We certify that this student has met the minimum requirements for the MSES (Electrical Engineering) degree.

Signatures:

**Academic Associate, Date
ECE Department**

ECE Assoc. Chair for Students, Date

Program Officer, Date

ECE Department Chair, Date

Undergraduate institution(s), degree(s) and dates: _____

Option Selected: _____

1. Option Area Requirements: (check the courses taken in your option area)

Communications Systems:

Required Courses:

EC 3500	Analysis of Random Signals	(4-0)
EC 3510	Communications Engineering	(3-1)
EC 4550	Digital Communications	(4-0)
EC 4580	Coding and Information Theory	(4-0)

Any one of:

EC 4510	Cellular Communications	(3-0)
EC 4560	Spread Spectrum Communications	(3-2)
EC 4570	Signal Detection and Estimation	(4-0)

Computer Systems:

Any three of:

EC 3800	Microp. Based Syst. Des.	(3-2)
EC 3820	Computer Systems	(3-1)
EC 3830	Digital Comp. Design Method.	(3-2)
EC 3840	Intro. to Computer Architecture	(3-2)

Any one of:

EC 4800	Advanced Topics in Computer Engineering	(3-0)
EC 4810	Fault Tolerant Computing	(3-2)
EC 4820	Adv. Computer Architectures	(3-1)
EC 4830	Digital Computer Design	(3-1)
EC 4840	Advanced Microprocessors	(3-1)
EC 4870	VLSI Systems Design	(3-2)

Electromagnetic Systems Option:

Required Course:

EC 3600	Antennas & Propagation	(3-2)
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Any one of:

EC 3210	Intro. to Electro-Optical Eng.	(4-1)
EC 3610	Microwave Engineering	(3-2)
EC 3630	Radiowave Propagation	(3-2)

and any one of:

EC 4210	Electro-Optic Syst. Eng.	(3-0)
EC 4600	Adv. Topics in Electromagnetics	(3-0)
EC 4610	Radar Systems	(3-2)

EC 4630	Radar Cross Section Pred. & Red.	(3-2)
EC4680/4690	Joint Network-enabled Electronic Warfare II	(3-2)

Guidance, Control & Navigation Systems Option:

Required Courses:

EC 3410 or EC 3500	Discrete-Time Random Signals	(3-2)
EC 3310	Analysis of Random Signals	(4-0)
EC 3310	Opt. Est.: Sensor & Data Assoc	(3-2)
EC 4320	Design of Robust Control Syst.	(3-2)

Any one of:

EC 4310	Fundamentals of Robotics	(3-2)
EC 4330/4340	Navigation, Missile, and Avionics Systems	(3-2)
EC 4350	Nonlinear Control Systems	(3-2)
EC 4360	Adaptive Control Systems	(3-1)

Solid State Microelectronics and Power Systems Option:

At least two of:

EC 3130	Electrical Machinery Theory	(4-2)
EC 3150	Solid State Power Conversion	(3-2)
EC 3200	Advanced Electronics Eng.	(3-2)

Any two of:

EC 4130	Adv. Elect. Machinery Syst.	(4-2)
EC 4150	Adv. Solid State Power Conv.	(4-1)
EC 4220	Introduction to Analog VLSI	(3-1)

Joint Services Electronic Warfare Option:

Required Course:

EC 3700	Joint Network-enabled Electronic Warfare I	(3-2)
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At least two of:

EC 3310	Opt. Est.: Sensor & Data Assoc	(3-2)
EC 4210	Electro-Optic Syst. Engineering	(3-0)
EC4330/4340	Navigation, Missile, and Avionics Systems	(3-2)
EC 4560	Communications ECCM	(3-2)
EC 4610	Radar Systems	(3-2)

EC 4630	Radar Cross Section Prediction and Reduction	(3-2)
EC 4640	Airborne Radar Systems	(3-2)
EC4680/4690	Joint Network-enabled Electronic Warfare I	(3-2)
EC 4700	Adv. Topics in Elect. Warfare	(3-0)
SS 3001	Military Applications of Space	(3-2)

Signal Processing Systems Option:

Required Courses:

EC 3400	Digital Signal Processing	(3-1)
EC 3410	Discrete-Time Random Signals	(3-2)
EC 4440	Stat. Digital Signal Processing	(3-2)

Any one of:

EC 4400	Advanced Topics in Signal Proc.	(V-V)
EC 4410	Speech Signal Processing	(3-1)
EC 4420	Spectral Analysis	(3-1)
EC 4430	Multimedia Information	(3-1)
EC 4450	Sonar Systems Engineering	(4-1)
EC 4460	Artificial Neural Networks	(3-1)
EC 4480	Image Proc. and Recognition	(3-2)

Signals Intelligence Option:

Required Courses:

EC 3710	Computer Com. Methods	(3-1)
EC 3750	SIGINT Systems I	(3-2)

Three required courses in ONE of the following sub-options:

1. Communications Engineering:

EC 3500	Analysis of Random Signals	(4-0)
EC 3510	Communications Engineering	(3-1)
EC 4550	Digital Communications	(4-0)

2. Signal Processing Systems:

EC 3400	Digital Signal Processing	(3-1)
EC 3410	Discrete-Time random Signals	(3-2)
EC 4570	Signal Det. and Estimation	(4-0)

3. Joint Services Electronic Warfare:

EC 3600	Antennas & Propagation	(3-2)
EC 4610	Radar Systems	(3-2)
EC 4680	Joint Network-enabled Electronic Warfare I	(3-2)

One course from either of the sub-options not picked or from the following list:

EC 3210	Introduction to Electro-Optical Engineering	(4-1)
EC 3310	Opt. Est. Sensor & Data Assoc	(3-2)

EC 3550	Fiber Optic Systems	(3-1)
EC 3610	Microwave Engineering	(3-2)
EC 3630	Radiowave Propagation	(3-2)
EC 3800	Micro. Based System Design	(3-2)
EC 3840	Intro to Computer Architectures	(3-2)
EC 4420	Modern Spectral Analysis	(3-1)
EC 4560	Communications ECCM	(3-2)
EC 4580	Coding and Information Theory	(4-0)
EC 4590	Coms Satellite Systems Eng	(3-0)
EC 4700	Adv Topics in Info Warfare	(3-0)
EC 4750	SIGINT Systems II	(3-4)

Network Engineering Option:

Required Courses:

EC 3710	Computer Communications Methods	(3-2)
EC 4710	High-Speed Networking	(3-2)
EC 4745	Mobile Ad Hoc Wireless Networking	(3-2)

At least one of:

EC 4785	Internet Engineering	(3-1)
EC 4430	Multimedia Information and Communications	(3-1)
EC 4700	Advanced Topics in Network Eng	(3-2)
EC 3760	Information Operations Systems	(3-2)

2. Course credit requirements (list all graduate courses taken):

List all graduate courses taken in approved engineering, mathematics, physical science, and/or computer science. EC3000 must be part of the program matrix. However, do not include EC3000 in the list below. Lab credits count as half credits. **Note:** course credit numbers are periodically re-evaluated and may have changed since you took a course. *Only the credits shown on your student transcripts will be counted to satisfy minimum requirements.*

3000-level courses	Credits (X-X)	4000-level courses	Credits (X-X)

(a) Total ECE graduate credits (20 ECE credits minimum from EC3XXX and EC4XXX): _____

(b) Total additional engineering and science (sum of credits of (a) _____
 (b) must be a minimum of 32):

(c) Total credits from (a) and (b) at 4000 level (minimum 12) : _____

(d) Total graduate course quarter credit hours (minimum 36): _____

3. Thesis Requirement

- Number of thesis credits (16 minimum): _____
- Title: _____
- Advisor: _____
- Presentation date: _____ Where? (ECE Seminar?) _____
- Completed EC3000 during (specify quarter) _____