

***Department of Electrical and Computer Engineering
Checklist for PH.D. Minor in ECE***

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 a Ph.D. Minor in ECE.

Signatures:

ECE Ph.D. Committee Chair, Date

ECE Department Chair, Date

Program of Study: (Select a specialty, each specialty has 4 required courses)
List of Specialties

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)

Computer Systems:

Required Courses:

EC 3830	Digital Computer Design Methodology	(3-2)
EC 3840	Introduction to Computer Architecture	(3-2)
EC 4810	Fault Tolerant Computing	(3-2)
EC 4820	Advanced Computer Architecture	(3-2)

Cyber Systems:

Required Courses:

EC3730	Cyber Network & Physical Infrastructures	(3-2)
EC3740	Reverse Engineering in Electronic Syst.	(3-2)

AND select *either* the Classified or Unclassified set:

Classified: (US only, with appropriate security clearance)

EC 3760	Information Operations Systems	(3-2)
EC 4765	Cyber Warfare	(3-2)

OR

Unclassified:

EC 4730	Covert Communications	(3-2)
EC 4770	Wireless Communications Network Security	(3-2)

Guidance, Control & Navigation Systems:

Required Courses:

EC 3310	Optimal Estimation: Sensor & Data Association	(3-2)
EC 3320	Optimal Control Systems	(3-2)
EC 4330	Navigation, Missile, & Avionics Systems	(3-2)
EC 4350	Nonlinear Control Systems	(3-2)

Network Engineering:

Required Courses:

EC 3710	Computer Communications Methods	(3-2)
EC 4725	Adv. Telecommunication Systems Eng.	(3-2)
EC 4745	Mobile Ad Hoc Wireless Networking	(3-2)
EC 4785	Internet Engineering	(3-2)

Power Systems:

Required courses:

EC 3130	Electrical Machinery Theory	(4-2)
EC 3150	Solid State Power Conversion	(3-2)
EC 4130	Advanced Electrical Machinery Systems	(4-2)
EC 4150	Advanced Solid State Power Conversion	(4-1)

Electronics:

Required courses:

EC 3200	Advanced Electronics Engineering	(3-2)
EC 3220	Semiconductor Device Technology	(3-2)
EC 4220	Introduction to Analog VLSI	(3-1)
EC 4230	Reliability Issues for Military Electronics	(3-1)

Signal Processing Systems:

Required Courses:

EC 3400	Digital Signal Processing	(3-1)
EC 3410	Discrete-Time Random Signals	(3-2)
EC 4440	Statistical Digital Signal Processing	(3-2)
EC 4480	Image Processing and Recognition	(3-2)

Sensor Systems Engineering:

Required Courses:

EC 3600	Antennas & Propagation	(3-2)
EC 3630	Radiowave Propagation	(3-2)

And select *either* the RADAR or EW set:

RADAR:

EC 4610	Radar Systems	(3-2)
EC 4630	RCS Prediction & Reduction	(3-2)

OR

EW:

EC 3700	Joint Network-Enabled Electronic Warfare I	(3-2)
EC 4680/90	Joint Network-enabled Electronic Warfare II	(3-2)