

Department of Electrical and Computer Engineering Checklist for the MEng(EE) Degree

This checklist is provided to document the completion of the degree requirements for the program leading to the Master of Engineering with Major in Electrical Engineering at NPS.

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.

Exact Name to show on Degree (Please PRINT CLEARLY):

Student : _____; **Date:** _____

We certify that this student has met the minimum requirements for the MEng(EE) degree.

Signatures:

**Academic Associate, Date
ECE Department**

ECE Assoc. Chair for Students, Date

Program Officer/Manager, Date

ECE Department Chair, Date

List of available ECE courses

Communications Systems

EC 3500	Analysis of Random Signals	(4-0)
EC 3510	Communications Engineering	(3-2)

EC 4500	Advanced Topics in Communications	(3-0)
EC 4510	Cellular Communications	(3-0)
EC 4530	Soft Radios	(3-2)
EC 4550	Digital Communications	(4-0)
EC 4560	Spread Spectrum Communications	(3-2)
EC 4570	Signal Detection and Estimation	(4-0)
EC 4580	Error Correction Coding	(4-0)
EC 4590	Communications Satellite Systems Engineering	(3-0)

Computer Systems

EC 3800	Microprocessor Based System Design	(3-2)
EC 3820	Computer Systems	(3-2)
EC 3830	Digital Computer Design Methodology	(3-2)
EC 3840	Introduction to Computer Architecture	(3-2)

EC 4800	Advanced Topics in Computer Engineering	(3-0)
EC 4810	Fault Tolerant Computing	(3-2)
EC 4820	Advanced Computer Architecture	(3-2)
EC 4830	Digital Computer Design	(3-2)
EC 4870	VLSI Systems Design	(3-2)

Cyber Systems

EC 3730	Cyber Network & Physical Infrastructures	(3-2)
EC 3740	Reverse Engineering in Electronic Syst.	(3-2)
EC 3750	SIGINT Systems I ^(C)	(3-2)
EC 3760	Information Operations Systems ^(C)	

EC 4715	Cyber System Vulnerabilities & Risk Assessment	(3-2)
EC 4730	Covert Communications	(3-2)
EC 4735	Telecommunications Systems Security	(3-2)
EC 4747	Data Mining in Cyber Applications	(3-2)
EC 4755	Network Traffic, Activity Detection, & Tracking	(3-2)
EC 4765	Cyber Warfare ^(C)	(3-2)
EC 4770	Wireless Communications Network Security	(3-2)
EC 4790	Cyber Architectures & Eng.	(3-2)
EC 4795	Wireless Device Security	(3-2)

^(C): Classified Course

Guidance, Control, & Navigation Systems

EC 3310	Optimal Estimation: Sensor and Data Association	(3-2)
EC 3320	Optimal Control Systems	(3-2)

EC 4310	Robotics Systems	(3-1)
EC 4320	Design of Robust Control Systems	(3-2)
EC 4330	Navigation, Missile, and Avionics Systems	(3-2)
EC 4350	Nonlinear Control Systems	(3-2)

Machine Power Systems

EC 3110	Electrical Energy	(3-2)
EC 3130	Electrical Machinery Theory	(4-2)
EC 3150	Power Electronics	(3-2)

EC 4130	Advanced Electrical Machinery Systems	(4-2)
EC 4150	Advanced Power Electronics	(3-2)

Network Engineering

EC 3710	Computer Communications Methods	(3-2)
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EC 4700	Advanced Topics in Network Eng.	(3-2)
EC 4710	High-Speed Networking	(3-2)
EC 4725	Advanced Telecom. Systems Eng.	(3-2)
EC 4745	Mobile Ad Hoc Wireless Networking	(3-2)
EC 4785	Internet Engineering	(3-2)
EC 4745	Mobile Ad Hoc Wireless Networking	(3-2)
EC 4785	Internet Engineering	(3-2)

Sensor Systems Engineering

EC 3210	Introduction to Electro-Optical Eng.	(4-1)
EC 3600	Antennas & Propagation	(3-2)
EC 3610	Microwave Engineering	(3-2)
EC 3630	Radiowave Propagation	(3-2)

EC 4600	Advanced Topics in Sensor Systems	(3-0)
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Radio Frequency Sensors

EC 4610	Radar Systems	(3-2)
EC 4630	RCS Prediction	(3-2)
EC 4640	Airborne Radar Mode Processing	(3-2)

Sensor Attack and Protection

EC 3700	Joint Network-enabled El. Warfare I	(3-2)
EC 4690	Joint Network-enabled El. Warfare II /80(US)	(3-2)
EC 4900	Digital Receivers and Sensor Techn.	(3-2)

Underwater Sensors

EC 3450	Fundamentals of Ocean Acoustics	(4-0)
EC 4450	Sonar Systems Engineering	(4-1)

Signal Processing Systems

EC 3400	Digital Signal Processing	(3-2)
EC 3410	Discrete-Time Random Signals	(3-2)
EC 3460	Machine Learning for Signal Analytics	(3-2)

EC 4400	Advanced Topics in Signal Proc.	(3-0)
EC 4430	Multimedia Info & Communications	(3-1)
EC 4440	Statistical Digital Signal Processing	(3-2)
EC 4450	Sonar Systems Engineering	(4-1)
EC 4480	Image Processing and Recognition	(3-2)

EC 4910	DSP for Wireless Communications	(3-2)
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Solid State Microelectronics

EC 3200	Advanced Electronics Engineering	(3-2)
EC 3220	Semiconductor Device Technologies	(3-2)
EC 3230	Space Power and Radiation Effects	(3-1)
EC 3240	Renewable Energy at Military Bases	(3-2)

EC 4220	Introduction to Analog VLSI	(3-1)
EC 4230	Reliability Issues for Military Electronics	(3-1)

Non-NPS based transferred courses

List **non-NPS** based transferred course(s) - include school name, credits (sem/quarter), Academic Council dates of approval for transfer. A maximum of 25% (8 quarter credits) are transferrable, per AC policy 6.6.3.

Course No.	Credit Information (School Name, credits, AC approval date)

Course credit requirements

List all graduate courses taken in approved engineering disciplines (including transferred courses). 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 student transcripts will be counted to satisfy minimum requirements.*

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

- (a) Total graduate credits in approved¹ engineering, mathematics, physical science, and/or computer science (32 minimum at 3xxx and 4xxx-level, which must be graded, & include a minimum of 5 graduate-level graded ECE courses): _____
- (b) Total credits from (a) at 4000 level: _____
(10 minimum, 3 ECE courses minimum, which must be graded)

¹Note: Courses taken in other engineering disciplines require the **advanced approval** of the ECE Academic Associate & Chair.

ECE Dept Graduate Academic Certificate Enrollment Form

Name:		Contact Phone:	E-mail:		
A. Curriculum no. <input type="checkbox"/> 590, <input type="checkbox"/> 591, <input type="checkbox"/> 525, <input type="checkbox"/> 533, <input type="checkbox"/> 592 <input type="checkbox"/> (other, specify) _____		B. NPS Degree enrolled:	C. Quarter enrolled: _____ Graduation date: _____		
I wish to enroll in: Academic Certificate (check all that apply, see entrance requirements below)		Specific courses required:	Quarter planned or taken	For administrative use only	
				Enrollment Approval & Date	Completion - Completion Date
<input type="checkbox"/> [284]	Guidance, Navigation & Control Systems	<input type="checkbox"/> EC3310		<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N
		<input type="checkbox"/> EC3320		_____	_____
		<input type="checkbox"/> EC4350		AA: _____	AA: _____
		<input type="checkbox"/> EC4330			
<input type="checkbox"/> [286]	High Performance Computer Architecture	<input type="checkbox"/> EC3800		<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N
		<input type="checkbox"/> EC3840		_____	_____
		Select One out of (check): <input type="checkbox"/> EC4820; <input type="checkbox"/> EC4830		AA: _____	AA: _____
<input type="checkbox"/> [287]	Digital Communications	<input type="checkbox"/> EC3500		<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N
		<input type="checkbox"/> EC3510		_____	_____
		<input type="checkbox"/> EC4550		AA: _____	AA: _____
		<input type="checkbox"/> EC4580			
<input type="checkbox"/> [288]	Cyber Warfare	<input type="checkbox"/> EC3760		<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N
		<input type="checkbox"/> EC4765		_____	_____
		Select One out of AND satisfy 12 credit hours (check): <input type="checkbox"/> DA3105 <input type="checkbox"/> EC3730; <input type="checkbox"/> EC3750 <input type="checkbox"/> EC4730; <input type="checkbox"/> EC4755 <input type="checkbox"/> CS4558; <input type="checkbox"/> EC3970		AA: _____	AA: _____
<input type="checkbox"/> [290]	Signal Processing	<input type="checkbox"/> EC3400		<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N
		<input type="checkbox"/> EC3410		_____	_____
		<input type="checkbox"/> EC4440		AA: _____	AA: _____
		Select One out of (check): <input type="checkbox"/> EC3460; <input type="checkbox"/> EC4430 <input type="checkbox"/> EC3940; <input type="checkbox"/> EC4450 <input type="checkbox"/> EC4400; <input type="checkbox"/> EC4480 <input type="checkbox"/> EC4910			
<input type="checkbox"/> [291]	Electric Ship Power Systems	<input type="checkbox"/> EC3130		<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N
		<input type="checkbox"/> EC3150		_____	_____
		<input type="checkbox"/> EC4130		AA: _____	AA: _____
		<input type="checkbox"/> EC4150			
<input type="checkbox"/> [292]	Electronic Warfare (EW) Engineer	<input type="checkbox"/> EC3600		<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N
		<input type="checkbox"/> EC3630		_____	_____
		<input type="checkbox"/> EC3700		AA: _____	AA: _____
<input type="checkbox"/> [293]	Journeyman EW Engineer	<input type="checkbox"/> EC3210		<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N
		<input type="checkbox"/> EC3610		_____	_____
		<input type="checkbox"/> EC4610		AA: _____	AA: _____

<input type="checkbox"/> [294]	Senior EW Engineer	<input type="checkbox"/> EC4630 <input type="checkbox"/> EC4640 <input type="checkbox"/> EC4680	<input type="checkbox"/> Y <input type="checkbox"/> N AA: _____	<input type="checkbox"/> Y <input type="checkbox"/> N AA: _____
<input type="checkbox"/> [295]	Network Engineering	<input type="checkbox"/> EC3710 <input type="checkbox"/> EC4745 Select at least One out of AND satisfy 12 credit hours (check): <input type="checkbox"/> EC4430; <input type="checkbox"/> EC4710 <input type="checkbox"/> EC4725; <input type="checkbox"/> EC4785	<input type="checkbox"/> Y <input type="checkbox"/> N AA: _____	<input type="checkbox"/> Y <input type="checkbox"/> N AA: _____
<input type="checkbox"/> [296]	Cyber Systems	<input type="checkbox"/> EC3730 <input type="checkbox"/> EC3740 Select at least One out of (check): <input type="checkbox"/> EC4715; <input type="checkbox"/> EC4730 <input type="checkbox"/> EC4755; <input type="checkbox"/> EC4770 <input type="checkbox"/> EC4790	<input type="checkbox"/> Y <input type="checkbox"/> N AA: _____	<input type="checkbox"/> Y <input type="checkbox"/> N AA: _____
<input type="checkbox"/> [297]	Wireless Network Security	<input type="checkbox"/> EC4745 <input type="checkbox"/> EC4770 Select at least One out of (check): <input type="checkbox"/> EC3860; <input type="checkbox"/> EC4735 <input type="checkbox"/> EC4755; <input type="checkbox"/> EC4795	<input type="checkbox"/> Y <input type="checkbox"/> N AA: _____	<input type="checkbox"/> Y <input type="checkbox"/> N AA: _____

Application Process:

For NPS Resident Students only: Students must turn in the completed enrollment form to the ECE Department Education Technician NLT the end of the second week of their graduating quarter. They must include a copy of their Python transcripts showing scheduled certificate courses and associated grades to insure they are awarded the certificate. Further information is available at <http://www.nps.edu/ece/Academics/Certificates.html>.

For DL Students only: Individuals must apply to NPS online at www.nps.edu.

Certificate Award Entrance Requirements for NPS Students: students must be already enrolled in one of the degree programs already offered by the ECE Department, or be accepted by the ECE Department if not currently enrolled in any of the degree programs currently offered by the ECE Department.

Certificate Award Requirements: The academic certificate program must be completed within 3 years of taking the first certificate course. Minimum CQPR is 3.0.

Double Counting Courses: Courses taken as part of an academic certificate may be applied to a degree at NPS; there is no bar on 'double counting' certificate courses for degree purposes. Courses may not be double counted for multiple certificates. Only NPS courses will be counted towards meeting certificate requirements. Transferred courses are NOT eligible to meet certificate requirements.