

***Department of Electrical and Computer Engineering
Checklist for MSEE Degree***

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

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

I certify that the information contained on this form is correct.

Student : _____ ; **Date:** _____

We certify that this student has met the minimum requirements for the MSEE degree.

Signatures:

**Academic Associate, Date
ECE Department**

ECE Assoc. Chair for Students, Date

Program Officer, Date

ECE Department Chair, Date

1. BSEE Degree/Equivalence requirement satisfied by (fill in one):

- BSEE degree from: _____ Month/year: _____
- BSEE equivalence from NPS. Date: _____

2. Thesis:

- Number of thesis credits (16 minimum): _____
- Advisor: _____
- Presentation date: _____ Where? (ECE Seminar?) _____

The remaining requirements must be met exclusive of thesis requirements.

3. Program of Study: (Select one option only, and check all courses taken):

- Option selected: _____

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)

At least one of:

EC 4500	Advanced Topics in Communications	(3-0)
EC 4570	Signal Detection and Estimation	(4-0)
EC 4590	Communications Satellite Systems Engineering	(3-0)

At least one of:

EC 4510	Cellular Communications	(3-0)
EC 4560	Communications ECCM	(3-2)

Computer Systems:

At least three of:

EC 3800	Microprocessor Based System Design	(3-2)
EC 3820	Computer Systems	(3-1)
EC 3830	Digital Computer Design Methodology	(3-2)
EC 3840	Introduction to Computer Architecture	(3-2)

At least two of:

EC 4800	Advanced Topics in Computer Engineering	(3-0)
EC 4810	Fault Tolerant Computing	(3-2)
EC 4820	Advanced Computer Architecture	(3-1)
EC 4830	Digital Computer Design	(3-1)
EC 4840	Advanced Microprocessors	(3-1)
EC 4850	High Speed Networking	(3-2)
EC 4870	VLSI Systems Design	(3-2)

Electromagnetic Systems Option:

Required Course:

	EC 3600	Electromagnetic Radiation, Scattering, & Propagation	(3-2)
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At least one of:

	EC 3210	Introduction to Electro-Optical Engineering	(3-1)
	EC 3610	Microwave Engineering	(3-2)
	EC 3630	Radiowave Propagation	(3-0)
	EC 3650	Computational Electromagnetic Modeling Techniques	(4-1)

At least two of:

	EC 4210	Electro-Optic Systems Engineering	(3-0)
	EC 4600	Advanced Topics in Electromagnetics	(3-0)
	EC 4610	Radar Systems	(3-2)
	EC 4630	Radar Cross Section Prediction and Reduction	(3-0)
	EC 4650	Advanced Electromagnetics	(3-0)
	EC 4660	Electromagnetic Environmental Effects on Communication System Performance	(3-2)
	EC 4680/4690	Radar Electronic Warfare Techniques and Systems	(3-3)

Guidance, Control, and Navigation Systems Option:

Required Courses:

	EC 3310	Optimal Estimation: Sensor and Data Association	(3-1)
	EC 3320	Optimal Control Systems	(3-2)
	EC 4350	Nonlinear Control Systems	(3-2)

At least two of:

	EC 4300	Advanced Topics in Modern Control Systems	(3-0)
	EC 4320	Design of Robust Control Systems	(3-2)
	EC 4330/4340	Navigation, Missile, and Avionics Systems	(2-2)
	EC 4360	Adaptive Control Systems	(3-1)

Solid State Microelectronics and Power Systems Option:

At least three of:

	EC 3130	Electrical Machinery Theory	(4-2)
	EC 3150	Solid State Power Conversion	(3-2)
	EC 3200	Advanced Electronics Engineering	(3-2)
	EC 3220	Semiconductor Device Technology	(3-2)

At least two of:

	EC 4130	Advanced Electrical Machinery Systems	(4-2)
	EC 4150	Advanced Solid State Power Conversion	(4-1)
	EC 4220	Introduction to Analog VLSI	(3-1)
	EC 4230	Reliability Issues for Military Electronics	(3-1)

Joint Services Electronic Warfare Option:

Required Course:

	EC 3700	Introduction to Joint Services Electronic Warfare	(3-2)
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At least four of:

	EC 3310	Optimal Estimation: Sensor and Data Association	(3-1)
	EC 4210	Electro-Optic Systems Engineering	(3-0)
	EC4330/4340	Navigation, Missile, and Avionics Systems	(2-2)
	EC 4560	Communications ECCM	(3-2)
	EC 4610	Radar Systems	(3-2)
	EC 4630	Radar Cross Section Prediction and Reduction	(3-0)
	EC 4640	Airborne Radar Systems	(3-0)
	EC4680/4690	Radar Electronic Warfare Techniques and Systems	(3-3)
	EC 4700	Advanced Topics in Electronic 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	(3-1)
	EC 4440	Statistical Digital Signal Processing	(3-1)

At least two of:

	EC 4400	Advanced Topics in Signal Processing	(3-0)
	EC 4410	Speech Signal Processing	(3-1)
	EC 4420	Modern Spectral Analysis	(3-1)
	EC 4450	Sonar Systems Engineering	(4-1)
	EC 4460	Artificial Neural Networks	(3-1)
	EC 4480	Image Processing and Recognition	(3-2)

Signals Intelligence Option:

Required Courses:

	EC 3850	Computer Communications 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	(3-1)
	EC 4570	Signal Detection and Estimation	(4-0)

3. *Joint Services Electronic Warfare:*

	EC 3600	Electromagnetic Radiation, Scattering, and Propagation	(3-2)
	EC 4610	Radar Systems	(3-2)
	EC 4680	Radar Electronic Warfare Techniques and Systems	(3-3)

Three courses from either of the sub-options not picked or from the following list:

(This satisfies the requirement for two out-of-option courses)

	EC 3210	Introduction to Electro-Optical Engineering	(3-1)
	EC 3310	Optimal Estimation: Sensor and Data Association	(3-1)
	EC 3550	Fiber Optic Systems	(3-1)
	EC 3610	Microwave Engineering	(3-2)
	EC 3630	Radiowave Propagation	(3-0)
	EC 3800	Microprocessor Based System Design	(3-2)
	EC 3840	Introduction to Computer Architecture	(3-2)
	EC 4420	Modern Spectral Analysis	(3-1)
	EC 4440	Statistical Digital Signal Processing	(3-1)
	EC 4560	Communications ECCM	(3-2)
	EC 4580	Coding Information Theory	(4-0)
	EC 4590	Communications Satellite Systems Engineering	(3-0)
	EC 4700	Advanced Topics in Information Warfare	(3-0)
	EC 4750	SIGINT Systems II	(3-4)

One of the following graduate courses in Mathematics:

	MA 3046	Matrix Analysis	(4-1)
	MA 4362	Astrodynamics	(3-0)
	MA 4570	Cryptography	(4-0)

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4. **At least two graded EC courses outside of the selected option** (not required for the Signals Intelligence option, courses already used for the BSEE equivalence cannot be selected):
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5. Course credit requirements

List all graduate courses taken in approved engineering, mathematics, physical science, and/or computer science. Do not include EC3900. Lab credits count as half credits. Do not include any graduate courses already counted for the BSEE equivalence in the Table below:

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

Graduate courses counted towards the BSEE equivalence:			
1)	2)	3)	4)

- (a) Total graduate credits in approved engineering, mathematics, physical science, and/or computer science (36 minimum at 3xxx and 4xxx-level): _____
- (b) Total credits from (a) in ECE 3xxx and 4xxx courses: (24 graded credits minimum) _____
- (c) Total credits from (a) at 4000 level : (12 minimum, 4 courses minimum, which must be graded) _____

6. At least 3 graded credits in a graduate course in mathematics:

MA _____ Number of credits: _____

Elective Courses (courses not appearing in any option)

EC 3230	Space Power and Radiation Effects	(3-1)
EC 3450	Fundamentals of Ocean Acoustics	(4-0)
EC 3850	Computer Communications Methods	(3-1)
EC 4010	Principles of Systems Engineering	(3-2)

Selected Mathematics Courses (all others require approval of the Academic Associate)

MA 3030	Introduction to Combinatorics and its Applications	(4-1)
MA 3046	Matrix Analysis	(4-1)
MA 3132	Partial Differential Equations and Integral Transforms	(4-0)
MA 3232	Numerical Analysis	(4-1)
MA 3400	Mathematical Modeling Processes	(4-0)

	MA 3675/ 3676	Theory of Functions of a Complex Variable I & II	(3-0)
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