B.S. Computer Engineering[1]

Students Entering Academic Year 2012-2013 (Class of 2016)

1st YEAR

Fall

ECE 100	ELE & CEN Eng Seminar	1
ECE 101	Intro to ELE & CEN Eng	3
MAT 126	Calculus I	4
PHY 121	Physics for Engineers 1	4
CMJ 103	Fund of Public Communication	3
		15

Spring

ECE 177	Intro to Prog for Engineers	4
MAT 127	Calculus II	4
PHY 122	Physics for Engineers II	4
ENG 101	College Composition	3
Elective	HV & SC (1)	3
		18

2nd YEAR

ECE 210	Electrical Networks I	3
ECE 275	Sequential Logic Systems	3
MAT 228	Calculus III	4
COS 221	Data Structures in C++	3
Elective[2]	Basic Science	4
		17

ECE 211	Electrical Networks II	3
ECE 214	Electrical Networks Lab	2
ECP 214	Engineering Writing I	1
ECE 271	Micro Arch & Applications	3
MAT 258	Diff Eqn. & Linear Algebra	4
ECE 316[3]	Random Variable Analysis	3
		16

3rd YEAR

ECE 342	Electronics I	4
ECP 342	Engineering Writing II	1
ECE 471[5] / Elective	Embedded Systems *or* Computer Focus (1)	3
ECE 473	Computer Architecture & Org	4
Elective	Computer Focus (2)	3
		15

ECE 331[4]	Operating System Engineering	3
ECE 401	Design Project	1
ECE 477[5] / Elective	Hardware Applications in C *or* Computer Focus (1)	3
ECE 486	Digital Signal Processing	4
Elective	Computer Focus (3)	3
Elective	HV & SC (2)	3
		17

4th YEAR

ECE 402	Design Project II	4
MAT 481[6]	Discrete Mathematics	3
Elective	ECE Technical Elective (1)	3
Elective	HV & SC (3)	3
Elective	HV & SC (4)	3
		16

ECE 300	Seminar	1
ECE 403	Design Project III	2
ECP 403	Engineering Writing III	1
Elective	ECE Technical Elective (2)	3
Elective	Generic Technical Elective (1)	3
Elective	Generic Technical Elective (2)	3
Elective	HV & SC (5)	3
		16

MINIMUM CREDIT HOURS TO GRADUATE: 130[2]

1. This is only a sample curriculum. Adjustments, such as interchanging HV & SC and technical electives, and switching ECE 471, ECE 477, and ECE 473 between junior and senior years, can be made to suit individual preferences. Check with your academic advisor for assistance. Be sure all degree requirements listed on the check-off sheet are met.

2. **ERS 102** can be used to satisfy both the Basic Science Elective and an HV & SC Elective under the Population and Environment category. If ERS 102 is taken, three credit hours are freed up and may be taken elsewhere in the curriculum. The total number of credit hours required for graduation remains unchanged.

3. ECE 316 can be replaced with either CHB 350 or MAT 332.

4. ECE 331 can be replaced by COS 431 Operating Systems.

5. Either ECE 471 (Fall) or ECE 477 (Spring) is required. If both courses are taken, then the second can be counted as a computer focus elective.   If only one is taken, then it cannot be counted as a computer focus elective.

6. MAT 481 can be replaced with COS 250 Discrete Structures.

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Check List
COMPUTER ENGINEERING Graduation Requirements
Students Entering Academic Year 2012–2013 (Class of 2016)

STUDENT _____   ADVISOR _____

1. Total hours (at least 130) _____   3. Overall GPA 2.0_____
2. Passing grade in all required courses _____   4. Department GPA 2.0 _____
                                                          5. Computer courses 2.0 _____

Required Course Grades

PHY 121 _____	MAT 126 _____	ECE 100 _____	ECE 300 _____
PHY 122 _____	MAT 127 _____	ECE 101 _____	ECE 316 _____
	MAT 228 _____	ECE 177 _____	ECE 331 _____
COS 221 _____	MAT 258 _____	ECE 210 _____	ECE 342 _____
	MAT 481 _____	ECE 211 _____	ECE 401 _____
		ECE 214 _____	ECE 402 _____
ECP 214 _____	ENG 101 _____	ECE 271 _____	ECE 403 _____
ECP 342 _____		ECE 275 _____	ECE 473 _____
ECP 403 _____		ECE 471 or ECE 477 _____	ECE 486 _____

HV&SC + Ethics Course Requirements (minimum of 18 hrs in the first 5 of the 6 areas)

Each of the 6 areas below must be represented. A course may represent multiple areas.

Course	Hours	Grade	18 Credit Hours Required					Ethics
			West	Soc	Cult	Pop	Art	
CMJ 103	3			X				

West - Western cultural tradition; Soc - Social context and institutions; Cult - Cultural diversity and international perspectives; Pop - Population and the environment; Art - Artistic and creative expression.

Grade
Basic Science Course/Grade (4 hrs) _____

Technical Electives/Grades (at least 21 hrs)

Grade
Computer Focus #1: _____ ____   Generic Tech Elective #1:_____ ____
Computer Focus #2: _____ ____   Generic Tech Elective #2: _____ ____
Computer Focus #3: _____ ____
ECE Tech Elective #1: _____ ____
ECE Tech Elective #2: _____ ____

Advisor Reviews

Date	Initials	Comments
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Graduation Requirements - Computer Engineering

1. To obtain a BS in Computer Engineering, a student must:
    a. meet all University academic requirements;
    b. meet all Computer Engineering curriculum requirements;
    c. have a GPA of 2.0 or better in all ECE courses; and
    d. have a GPA of 2.0 or better in all computer courses.
2. Repeating any ECE course for which a grade of F, L, or WF has been recorded requires a grade of C- or better in all prerequisites for the course.
3. Dismissal from the program will be recommended if any required course in the program is taken twice without achieving a passing grade. This includes courses where a grade of AU, L, or WF is received.
4. Any exceptions to the program specifics listed above require approval of the ECE faculty.

Information about Elective Courses

Technical Electives: The curriculum requires **seven** technical elective courses used to broaden a student's knowledge. Of these seven elective courses, at least **three electives** must be Computer focus courses chosen from the list below; two must be 300-level or higher ECE courses excluding ECE 394, and two must be Generic Technical Elective courses described below.

1. Courses that satisfy the Computer Focus requirement are:

ECE 417	Introduction to Robotics	ECE 471	Microprocessor Applications Engineering
ECE 435	Network Engineering	ECE 478	Industrial Computer Control
ECE 477	Hardware Applications Using C	ECE 498	Select topics (Computer focus)
COS 3xx	Computer Science 300 level courses	COS 4xx	Computer Science 400 level courses

2. Generic technical electives include 300–level or higher ECE courses including ECE 394, or with approval of the student's advisor, selected from various advanced Math, Physics, Biology, Chemistry, Engineering, or Computer Science courses. For a minor in Business Administration or 5-year BS/MBA program, up to two technical electives can be satisfied by taking BUA 325 or BUA 350 with the provision that upon graduation, the student also satisfied all requirements for the Business minor or BS/MBA program. The following 100- and 200-level courses have been approved to satisfy the Generic Technical Elective requirement. Other courses may be permitted but require written approval from the ECE Department Chair.

CHB 200	Fundamentals of Process Engineering	MEE 270	Applied Mechanics: Dynamics
CIE 231	Fundamentals of Environmental Engineering	INV 180	Create: Innovation Engineering I
GEE 298	Intro to Nanoscale Science and Technology	INV 182	Communicate: Innovation Engineering II
MEE 150	Applied Mechanics: Statics	INV 392	Commercialize: Innovation Engineering III
MEE 230	Thermodynamics I	EET 276	Programmable Logic Controllers
MEE 252	Statics and Strength of Materials		

Areas of Concentration: Student may choose to concentrate electives in various sub-disciplines of Computer Engineering. The recommended electives for various specialties are listed below.

Embedded Control		**Robotics**	
ECE 478	Industrial Computer Control	ECE 417	Introduction to Robotics
ECE 477	Hardware Applications Using C	ECE 477	Hardware Applications Using C
ECE 471	Microprocessor App. Engineering	ECE 471	Microprocessor App. Engineering
ECE 414	Feedback Control Systems	ECE 487	Digital Image Processing

High-performance Computing

ECE 331   Operating System Engineering

ECE 477   Hardware Applications Using C

ECE 435   Network Engineering

Basic Science Elective: Courses satisfying the Basic Science Elective include:

AST 109/110	Introduction to Astronomy	PHY 236/223	Quantum Physics/Special Relativity
AST 215/110	General Astronomy I	BIO 100	Basic Biology
AST 216/110	General Astronomy II	ERS 101	Introduction to Geology
CHY 131/133	Chemistry for Engineers	ERS 102	Environmental Geology of Maine

Human Values and Social Context and Ethics: In addition to CMJ 103, the curriculum requires five courses to complete the General Education Requirements in Ethics and Human Values and Social Context (HV&SC). In addition to the Ethics requirement, the five areas under HV&SC are: Western Cultural Tradition, Social Contexts and Institutions, Cultural Diversity and International Perspective, Population and the Environment, and Artistic and Creative Expression. Note that CMJ 103 satisfies the Social Contexts and Institutions requirement. A list of HV&SC courses with the categories that they satisfy is available on the Office of Student Records web page (http://studentrecords.umaine.edu/academics/genedreq.htm). The structure of the ECE curriculum guarantees that all other General Education Requirements are met. You may elect to take ERS 102 to satisfy your Basic Science requirement and the "Population and the Environment" area of the 18 credit hour HV&SC requirement.

Additional Information

Check the web page of Frequently Asked Questions (FAQ) for additional information about the ECE program: http://www.eece.maine.edu/programs/undergrad/ece_faq. Contact your academic advisor for assistance.