B.S. Electrical Engineering Curriculum[1]

Students Entering Academic Year 2011-2012 (Class of 2015)

1st YEAR

ECE 100	ECE 1st Year Seminar	1
ECE 101	Intro to ELE and CEN Engin	3
MAT 126	Calculus I	4
CHY 131	Chemistry for Engineers	3
CHY 133	Chemistry for Engineers Lab	1
CMJ 103	Public Communication	3
		15

ECE 177	Intro to Progr for Engineers	4
MAT 127	Calculus II	4
PHY 121	Physics for Engineers I	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
PHY 122	Physics for Engineers II	4
Elective[2]	Basic Science	4
		18

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

3rd YEAR

ECE 314	Signals & Systems	3
ECE 342	Electronics I	4
ECP 342	Engineering Writing II	1
ECE 351	Fields and Waves	3
Elective	ECE Technical (1)	3
Elective	HV & SC (2)	3
		17

ECE 401	Design Project I	1
ECE 343	Electronics II	4
ECE 486	Digital Signal Processing	4
Elective	Technical (2)	3
Elective	ECE EE Focus (1)	3
		15

4th YEAR

ECE 402	Design Project II	4
Elective	Generic Technical (1)	3
Elective	ECE EE Focus (2)	3
Elective	ECE EE Focus (3)	3
Elective	HV & SC (3)	3
		16

ECE 300	Seminar	1
ECE 403	Design Project II	2
ECP 403	Engineering Writing III	1
ECE 414	Feedback Control System	3
Elective	Generic Technical (2)	3
Elective	HV & SC (4)	3
Elective	HV & SC (5)	3
		16

MINIMUM CREDIT HOURS TO GRADUATE: 131

Notes:

1. This is only a sample curriculum. Adjustments, such as interchanging HV & SC and technical electives, and switching ECE 343, ECE 351, ECE 414, and ECE 486 between 3rd and 4th 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.

June 6, 2012

Graduation Requirements Check–Off Sheet

ELECTRICAL ENGINEERING

Students Entering Academic Year 2011-2012 (Class of 2015)

Student _____

1. Total credit hours $\geq$ 131 _____
2. Passing grade in all courses listed below _____

Advisor _____

3. Overall GPA $\geq$ 2.0 _____
4. Department GPA $\geq$ 2.0 _____

Required Courses

PHY 121	_____	MAT 126	_____	ECE 100	_____	ECE 314	_____
PHY 122	_____	MAT 127	_____	ECE 101	_____	ECE 316	_____
		MAT 228	_____	ECE 177	_____	ECE 342	_____
CHY 131	_____	MAT 258	_____	ECE 210	_____	ECE 343	_____
CHY 133	_____			ECE 211	_____	ECE 351	_____
		ENG 101	_____	ECE 214	_____	ECE 401	_____
ECP 214	_____			ECE 271	_____	ECE 402	_____
ECP 342	_____			ECE 275	_____	ECE 403	_____
ECP 403	_____			ECE 300	_____	ECE 414	_____
						ECE 486	_____

Science Elective (4 hours) _____ _____

ECE and Technical Electives (21 hours minimum)

ECE (1)	_____	EE Focus (1)	_____
ECE (2)	_____	EE Focus (2)	_____
Generic (1)	_____	EE Focus (3)	_____
Generic (2)	_____		

HV&SC + Ethics General Education Requirements (minimum of 18 hours in the first 5 of the 6 areas)
Each of the 6 areas below must be represented; A course may cover 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.

Advisor Reviews

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

June 6, 2012

Graduation Requirements – B.S. Electrical Engineering

1. To obtain a B.S. degree in Electrical Engineering, a student must:
   (a) meet all University academic requirements;
   (b) meet all Electrical Engineering curriculum requirements;
   (c) have a GPA of 2.0 or better in all ECE 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 herein require approval of the ECE faculty.

Information About Elective Courses

Technical Electives: The curriculum requires **seven** technical elective courses to broaden a student's knowledge in engineering. Of these seven elective courses, at least **three** must be Electrical Engineering (EE) 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. The curriculum requires, in addition to CHY 131/133, PHY 121 and PHY 122, at least 4-credit hours in physical or biological sciences to broaden a students knowledge in science.

Courses that satisfy the Electrical Engineering (EE) Focus requirement are:

ECE 323	Electric Power Conversion	ECE 462	Introduction to Basic Semiconductor Devices
ECE 383	Communications Engineering	ECE 464	Microelectronics Science and Engineering
ECE 427	Electric Power Systems	ECE 465	Introduction to Sensors
ECE 444	Analog Integrated Circuit Design	ECE 466	Sensor Technology and Instrumentation
ECE 445	Analysis and Design of Digital Integ. Cir.	ECE 484	Communications Engineering II
ECE 453	Microwave Engineering	ECE 498	Selected Topics in ECE with EE Focus

Courses that satisfy the Generic Technical Elective requirement include 300–level or higher ECE courses including ECE 394, and with approval of the students advisor, 300–level or higher courses in Math, Physics, Biology, Chemistry, Engineering or Computer Science. For students obtaining either a minor in Business Administration or participating in the 5–year BS/MBA program, the Generic 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. In addition, the following 100– and 200–level courses have been approved to satisfy the Generic Technical Elective requirement.

CHB 200	Fundamentals of Process Engineering	INV 282	Innovation Engineering II
CIE 231	Fundamentals of Environmental Eng.	INV 392	Commercialize: Innovation Engineering III
COS 221	Data Structures in C++	MEE 150	Applied Mechanics: Statics
ECE 198	Selected Topics in ECE	MEE 230	Thermodynamics I
EET 276	Programmable Logic Controllers	MEE 252	Statics and Strength of Materials
INV 180	Create: Innovation Engineering I	MEE 270	Applied Mechanics: Dynamics

Courses that satisfy the Science Elective are:

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

Other elective courses may be permitted but require **written approval** from the ECE Department Chair.

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

Communications and Wireless

ECE 383	Communications Engineering I
ECE 484	Communications Engineering II
ECE 453	Microwave Engineering

Power and Alternative Energy

ECE 323	Electric Power Conversion
ECE 427	Electric Power Systems

Microelectronics and Circuits

ECE 444	Analog Integrated Circuit Design
ECE 445	Digital Integrated Circuit Design
ECE 462	Intro. to Basic Semiconductor Devices
ECE 464	Microelectronics Science and Engineering
PHY 236	Introduction to Quantum Physics

Solid-State and Sensors

ECE 465	Introduction to Sensors
ECE 466	Sensor Technology and Instrumentation
ECE 453	Microwave Engineering
ECE 462	Introduction to Basic Semiconductor Devices
ECE 464	Microelectronics Science and Engineering

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 are 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. This option frees up 3 credit hours which can be used to take an additional Technical Elective.

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.

June 6, 2012