

Electrical Engineering Curriculum Notes

1. **ECE Technical Electives:** At least 15 credit hours of ECE technical elective courses are required. Of these, 9 must be EE focus courses chosen from the following list. The remaining credit hours can be any 300, 400, or 500 level ECE courses, excluding ECE 394.

EE Focus Courses

ECE 323 Electric Power Conversion	ECE 462 Intro to Semiconductor Devices
ECE 427 Electric Power Systems	ECE 464 Microelectronics Science
ECE 444 Analog Integrated Circuits	ECE 465 Intro to Sensors
ECE 445 Digital Integrated Circuits	ECE 467 Solar Cells and Their Applications
ECE 453 Microwave Engineering	ECE 498 Selected Topics (EE focus)
ECE 484 Communications Engineering	ECE 498 Selected Topics (EE focus)

2. **Generic Technical Electives:** 6 credit hours of generic technical electives are required. These courses include 300 and 400 level ECE courses, as well as other engineering, science, computer science, mathematics, and business courses that are approved by your advisor or the department Chair. The courses listed below are approved exceptions to the above guidelines.

Generic Technical Electives Exceptions

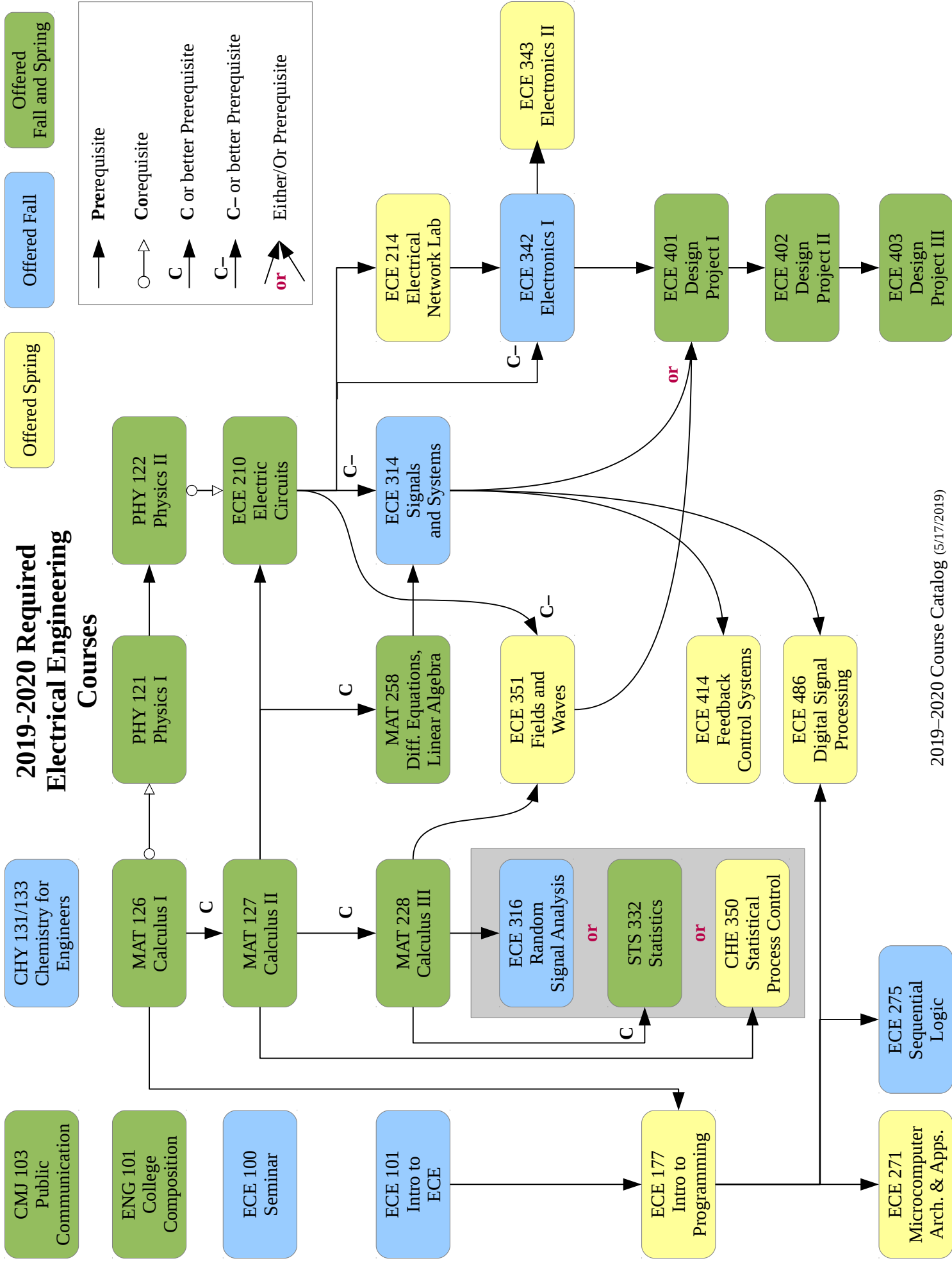
CHE 200 Fundamentals of Process Engineering	MEE 252 Statics and Strength of Materials
CIE 231 Fundamentals of Environmental Eng.	MEE 270 Applied Mechanics: Dynamics
COS 221 Data Structures in C++	INV 180 Create: Innovation Engineering I
PHY 236 Introductory Quantum Physics	INV 282 Communicate: Innovation Engineering II
MEE 150 Applied Mechanics: Statics	INV 392 Commercialize: Innovation Engineering III
MEE 230 Thermodynamics I	ECE 198 Selected Topics in ECE
EET 276 Programmable Logic Controllers	EET 321 Electro-Mechanical Energy Conversion
EET 386 Project Management	EET 414 Introduction to Printed Circuit Boards
GEE 230 Intro to Leadership and Management	EET 460 Renewable Energy & Electricity Production
PPA 264 Intro to Pulp and Paper Industry	

3. **General Education Requirements:** The University requires that all students successfully complete at least 18 credit hours of designated general education courses associated with Human Values and Social Context (HV&SC). These 18 credit hours must encompass the five content areas (i) western cultural tradition, (ii) social contexts and institutions, (iii) cultural diversity and international perspectives, (iv) population and the environment, and (v) artistic and creative expression. The required CMJ 103 course meets the social contexts and institutions content area requirement. Each of the five content areas must be covered. Within these general education courses, students must also take one course that satisfies the ECE ethics requirement. Information regarding general education requirements can be found on the Office of Student Records web page. (Note that all other general education requirements beyond HV&SC and Ethics are met by the required ECE curriculum.)

4. With advisor approval, you may petition the ECE faculty for an exception to any ECE requirement.

5. For more complete information regarding the ECE curriculum, see the Electrical Engineering section of UMaine online undergraduate catalog.

2019-2020 Required Electrical Engineering Courses



2019-2020 Electrical Engineering Technical Electives

Offered Spring
(prerequisites)

Offered Fall
(prerequisites)

Offered
Fall and Spring
(prerequisites)

EE Focus Technical Electives: You must take at least *three* of these

ECE 323
Electric
Power Conversion
(ECE 214 & C- in ECE210)

ECE 498
Selected Topics
with EE focus
(varies)

ECE 427
Electric Power
Systems
(C- in ECE210)

ECE 484
Communications
Engineering
(ECE314 & ECE 316)

ECE 444
Analog IC
Design
(ECE314 & ECE343)

ECE 462
Semiconductor
Devices
(Chy131,PHY122,MAT258)

ECE 465
Introduction to
Sensors
(junior standing)

ECE 453
Microwave
Engineering
(ECE351)

ECE 445
Digital IC
Design
(ECE342)

ECE 464
Microelectronics
Engineering
(Chy131,PHY122,MAT258)

ECE 466
Sensor Technology
and Instrumentation
(ECE 465)

ECE 331
Intro to Unix
Sys. Admin.
(ECE177)

ECE 435
Network
Engineering
(ECE331 or ECE471)

ECE 471
Embedded
Systems
(ECE271)

ECE 477
Hardware
Applications in C
(ECE271)

ECE 417
Introduction to
Robotics
(ECE177 & MAT228)

ECE 473
Computer
Arch. & Org.
(ECE275)

ECE 478
Industrial
Computer Control
(ECE271)

Other Courses
with
Adviser Approval
(varies)

ECE 498
Selected Topics
(varies)

If you wish to specialize in an area,
some possibilities are:

Power and Alternative Energy
ECE 323, ECE427

Communications and Wireless
ECE484, ECE453

Microelectronics and Circuits
ECE444, ECE445, ECE462,
ECE464, PHY236

Solid State and Sensors
ECE453, ECE465,
ECE462, ECE464, PHY236

Electrical Engineering 2019-2020 (Class of 2023)

Fall First Year		
CHY 131	Chemistry for Engineers	3
CHY 133	Chemistry for Engineers Lab	1
CMJ 103	Fund of Public Communication Human Values/Social Context	3
ECE 100	ELE & CEN Eng Seminar	1
ECE 101	Intro to ELE & CEN Eng	3
MAT 126	Calculus I	4
		15

Spring First Year		
ECE 177	Intro to Prog for Engineers	4
ENG 101	College Composition	3
MAT 127	Calculus II	4
PHY 121	Physics for Engineers I	4
		15

Fall Sophomore		
ECE 210	Electrical Networks I	4
ECE 275	Sequential Logic Systems	3
Elective	HV & SC (1) Cultural Diversity & International Perspectives	3
MAT 228	Calculus III	4
PHY 122	Physics for Engineers II	4
		18

Spring Sophomore		
ECE 214	Electrical Networks Lab	3
ECE 271	Micro Arch & Applications	4
ECE 351	Fields and Waves	3
MAT 258	Diff Eqn. & Linear Algebra	4
Elective	HV & SC (2) - Western Cultural Tradition	3
		17

Fall Junior		
ECE 316 STS 332	Random Signal Analysis Statistics	3
ECE 342	Electronics I	4
ECE 314	Signals and Systems	3
Elective	ECE Technical Elective (1)	3
		13

Spring Junior		
ECE 343	Electronics II	4
ECE 401	Design Project	2
ECE 486	Digital Signal Processing	4
Elective	Electrical Focus (1)	3
Elective	ECE Technical Elective (2)	3
		16

Fall Senior		
ECE 402	Design Project II	4
Elective	Electrical Focus (2)	3
Elective	Generic Focus (2)	3
Elective	Generic Focus (1)	3
Elective	HV & SC (3) Population and the Environment	3
		16

Spring Senior		
ECE 403	Design Project III	2
ECE 414	Feedback Control Systems	3
Elective	Electrical Focus (3)	3
Elective	HV & SC (4) Artistic & Creative Expression	3
Elective	HV & SC (5) Ethics	3
		14

Total Credit Hours	124
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ECE
Math & Science
English
Gen Ed