Graduation Check–Off Sheet, Electrical Engineering, Year 2023-2024 (Class of 2027)

Student: _____   Advisor: _____

General Requirements:	124 Credits minimum Passing grades in all courses	Overall GPA 2.0 or above Departmental GPA 2.0 or above

Required Courses

ENG 101 _____	ECE 100 _____	Statistics (Select one)	ECE 414 _____
CHY 131 _____	ECE 101 _____	ECE 316 _____	ECE 486 _____
CHY 133 _____	ECE 177 _____	STS 332 _____	ECE 401 _____
PHY 121 _____	ECE 210 _____	CHE 350 _____	ECE 402 _____
PHY 122 _____	ECE 214 _____		ECE 403 _____
MAT 126 _____	ECE 271 _____		
MAT 127 _____	ECE 275 _____	ECE 342 _____	
MAT 228 _____	ECE 314 _____	ECE 343 _____	
MAT 258 _____		ECE 351 _____	

Technical Electives (At Least 21 Credit Hours Total) (Partial List of Courses)

ECE Technical Electives (At least 15 Credits)

Electrical Focus Technical Electives (At Least 9 Credits)

_____	ECE 427	Electric Power Systems	_____	ECE 462	Intro to Basic Semi. Devices/Models
_____	ECE 444	Analog Integrated Circuits	_____	ECE 464	Microelectronics Science and Engineering
_____	ECE 445	Analysis and Design of Digital Int. Circuits	_____	ECE 465	Introduction to Sensors
_____	ECE 450	Power Electronics	_____	ECE 466	Sensor Technology and Instrumentation
_____	ECE 453	Microwave Engineering	_____	ECE 467	Solar Cells and Their Applications
_____	ECE 455	Electric Drives	_____	ECE 484	Communications Engineering
_____	ECE 456	Electric Drives Lab	_____	ECE 498	Sel. Topics (ELE "focus" subject to approval)
_____	ECE 457	Nanoscience	_____	ECE 498	Sel. Topics (ELE "focus" subject to approval)

Other ECE Technical Electives

_____	ECE 316	Random Signal Analysis	_____	ECE 473	Computer Architecture and Organization
_____	ECE 331	Introduction to Unix Systems Administration	_____	ECE 491	Deep Learning
_____	ECE 417	Introduction to Robotics	_____	ECE 498	Selected Topics
_____	ECE 435	Network Engineering	_____	ECE 498	Selected Topics
_____	ECE 471	Embedded Systems			

Generic Technical Electives

Grade _____	Credits _____	Course # _____	Title: _____
Grade _____	Credits _____	Course # _____	Title: _____

General Education Requirements (At least 18 credits of HV&SC;
All HV&SC categories covered at least once; At least one course satisfying Ethics)

Course #	Credits	Grade	Human Values and Social Context (HV&SC)					Ethics
			Western Culture	Social Context	Cultural Div.	Pop & Env.	Artistic Exp.	
CMJ 103	3			x				

5/31/2023

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Electrical Engineering Curriculum Notes

This check sheet is meant to serve as a convenience. The actual graduation requirements for any student are governed by the Undergraduate Catalog published in the year in which the student enrolls as an Electrical/Computer Engineering student. Every effort is made to ensure that the sheet is consistent with the corresponding catalog. When in doubt, the catalog is the authoritative source of information.

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The complete list of approved technical electives (all categories), program flow-charts, and four-year suggested plans is available on the ECE website: https://ece.umaine.edu/undergraduate/electrical-engineering-curriculum/

Technical Electives

The program requires 21 credits of technical electives to allow technical specialization within the field. Technical electives are divided into three increasingly broad categories: "Electrical Focus"; "ECE Technical Electives"; and "Generic Technical Electives". Courses used as "Technical Electives" may not be used to satisfy any other degree requirements.

"**Electrical Focus**" electives (9 credits minimum) are specific ECE upper level courses (300, 400, or 500 level) which have been approved as having an Electrical Engineering (as opposed to Computer Engineering) focus.

"**ECE Technical Electives**" include all "Electrical Focus" electives, and other approved ECE courses at the 300, 400, or 500 level. At least 15 credits of the selected technical electives (including the "Electrical Focus" electives) must be "ECE Technical Electives".
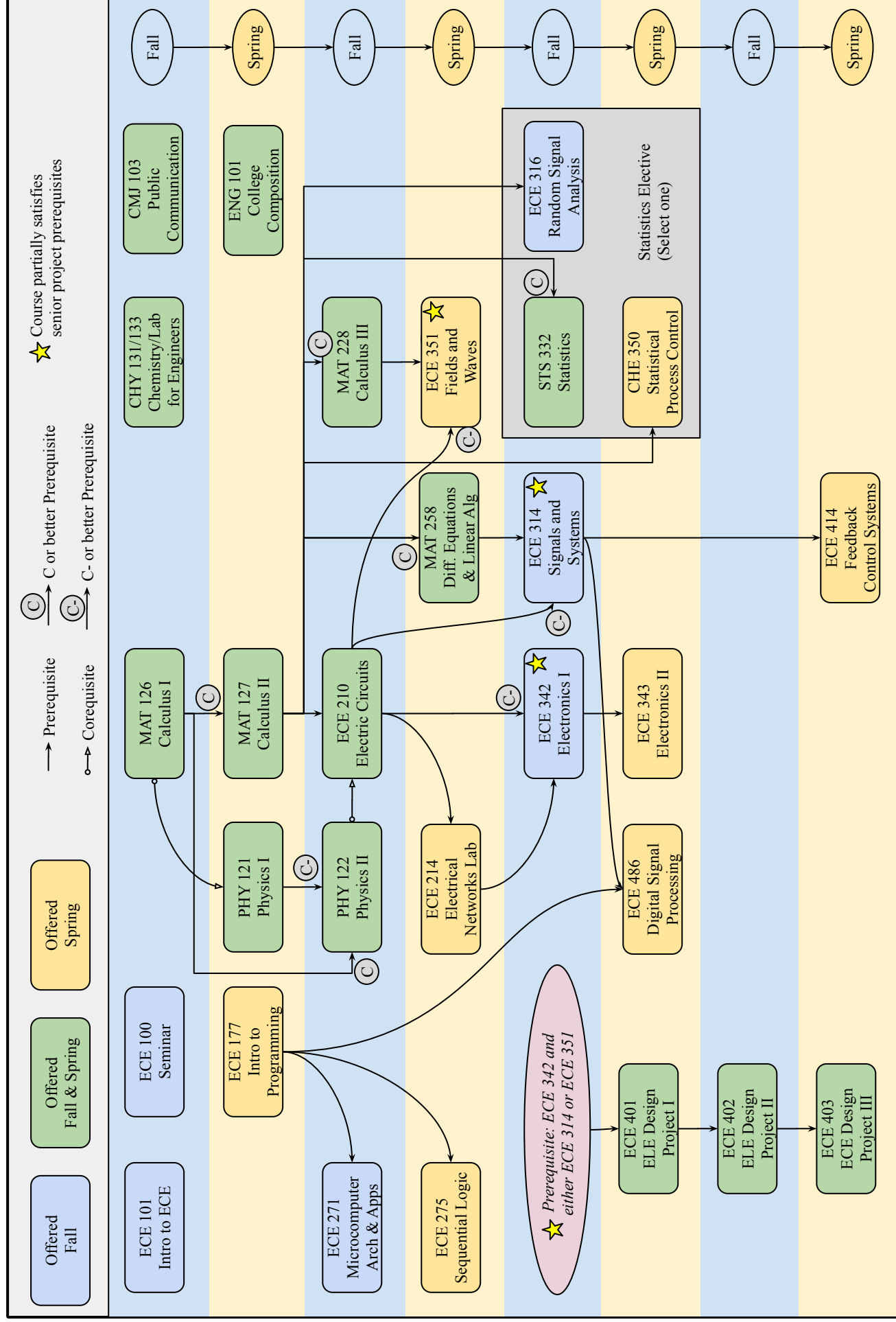
"**Generic Technical Electives**" include all "ECE Technical Electives", a few additional ECE courses that have not have been approved in the above categories, and many courses that are offered by other departments. These courses (up to 6 credits) may be used to complete the 21 credit Technical Elective requirement. "Generic Technical Electives" include:
- Any ECE Technical Elective (regardless of focus)
- Any 300, 400, or 500-level course with the designation ECE, COS, CHY, PHY, BIO, BMB, BEN, CHE, CIE GEE, MAT, STS, or BUA.
- Some additional courses that have been pre-approved (including some lower-level courses and selected EET courses). See the ECE website for the list of approved courses.

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 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.)

Electrical Engineering Curriculum Flowchart

8/292023

Legend

- Offered Fall
- Offered Fall & Spring
- Offered Spring

→ Prerequisite
→○ Corequisite

$\overset{C}{\rightarrow}$ C or better Prerequisite
$\overset{C-}{\rightarrow}$ C- or better Prerequisite

★ Course partially satisfies senior project prerequisites

Human Values and Social Context Electives (15 credits in addition to CMJ 103).

- HV&SC
- HV&SC
- HV&SC
- HV&SC Elective

- Each course satisfies at least one of five sub-categories.
- Each sub-category must be satisfied at least once.
- Include "Ethics" in at least one course if not elsewhere in course selections.

Technical Electives (21 credits)

ECE Technical Electives (15 credits)

- Electrical Focus Technical Electives (9 credits)
  - Electrical Focus
  - Electrical Focus
  - Electrical Focus Electives
- Electrical Focus or Electrical Focus or other ECE Electives
- Electrical Focus or Electrical Focus or other ECE or Generic Elective

Course Flow by Semester

Fall → Spring → Fall → Spring → Fall → Spring → Fall → Spring

- ECE 101 Intro to ECE
- ECE 100 Seminar
- ECE 177 Intro to Programming
- ECE 271 Microcomputer Arch & Apps
- ECE 275 Sequential Logic

- MAT 126 Calculus I
- MAT 127 Calculus II
- PHY 121 Physics I
- PHY 122 Physics II

- CHY 131/133 Chemistry/Lab for Engineers
- MAT 228 Calculus III
- MAT 258 Diff. Equations & Linear Alg

- ECE 210 Electric Circuits
- ECE 214 Electrical Networks Lab
- ECE 342 Electronics I ★
- ECE 343 Electronics II

- ECE 351 Fields and Waves ★
- ECE 314 Signals and Systems ★
- ECE 316 Random Signal Analysis
- ECE 486 Digital Signal Processing

- CMJ 103 Public Communication
- ENG 101 College Composition

- ECE 401 ELE Design Project I
- ECE 402 ELE Design Project II
- ECE 403 ECE Design Project III

- ECE 414 Feedback Control Systems

Statistics Elective (Select one)
- STS 332 Statistics
- CHE 350 Statistical Process Control

Prerequisite: ECE 342 and either ECE 314 or ECE 351 ★

Electrical Engineering 2023-2024 (Class of 2027)

Alternate 4-year plans for Honors, CEN/ELE double majors, and for students taking Pre-Calculus in their first semester are available on the ECE Web site: https://ece.umaine.edu/undergraduate/computer-engineering-curriculum/

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	3
ECE 271	Micro Arch & Applications	4
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	4
ECE 275	Sequential Logic Systems	3
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

ECE
Math & Science
English
Gen Ed