Graduation Check–Off Sheet, Computer Engineering, Year 2024-2025 (Class of 2028)

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 _____	ECE 314 _____	ECE 342 _____
PHY 121 _____	ECE 101 _____		ECE 471 _____
PHY 122 _____	ECE 177 _____	Statistics (Select one)	ECE 473 _____
MAT 126 _____	ECE 210 _____	ECE 316 _____	ECE 486 _____
MAT 127 _____	ECE 214 _____	STS 332 _____	
MAT 228 _____	ECE 271 _____	CHE 350 _____	ECE 405 _____
MAT 258 _____	ECE 275 _____		ECE 406 _____
			ECE 403 _____

Discrete Math Elective (Select one)	OOP Elective (Select one)	OS Elective (Select one)
MAT 481 _____	ECE 198* _____	ECE 331 _____
COS 250 _____	COS 221 _____	COS 331 _____

* ECE 198 Object Oriented Programming

Technical Electives (At Least 19 Credit Hours Total) (Partial List of Courses)

ECE Technical Electives (At least 16 Credits)

Computer Focus Technical Electives (At Least 10 Credits)

_____ ECE 417	Introduction to Robotics	_____ COS 3xx	_____
_____ ECE 435	Network Engineering	_____ COS 3xx	_____
_____ ECE 491	Deep Learning	_____ COS 4xx	_____
_____ ECE 498	Sel. Topics (CEN "focus" subject to approval)	_____ COS 4xx	_____
_____ ECE 498	Sel. Topics (CEN "focus" subject to approval)	_____ COS 4xx	_____

Other ECE Technical Electives

_____ ECE 316	Random Signal Analysis	_____ ECE 455	Electric Drives
_____ ECE 323	Electric Power Conversion	_____ ECE 457	Nanoscience
_____ ECE 343	Electronics II	_____ ECE 462	Intro Basic Semiconductor Devices
_____ ECE 351	Fields and Waves	_____ ECE 464	Microelectronics Science and Engineering
_____ ECE 414	Feedback Control Systems	_____ ECE 465	Introduction to Sensors
_____ ECE 427	Electric Power Systems	_____ ECE 466	Sensor Technology and Instrumentation
_____ ECE 444	Analog Integrated Circuits	_____ ECE 467	Solar Cells and Their Applications
_____ ECE 445	Analysis and Design of Digital Integrated Circuits	_____ ECE 484	Communications Engineering
_____ ECE 450	Power Electronics	_____ ECE 498	Selected Topics
_____ ECE 453	Microwave Engineering	_____ ECE 498	Selected Topics

Generic Technical Electives

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				

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Computer 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:

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https://ece.umaine.edu/undergraduate/computer-engineering-curriculum/

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Technical Electives

The program requires 19 credits of technical electives to allow technical specialization within the field. Technical electives are divided into three increasingly broad categories: "Computer Focus"; "ECE Technical Electives"; and "Generic Technical Electives". Courses used as "Technical Electives" may not be used to satisfy any other degree requirements.

> "**Computer Focus**" electives (10 credits minimum) are specific ECE upper level courses (300, 400, or 500 level) which have been approved as having an Computer Engineering (as opposed to Electrical Engineering) focus. Most COS courses at the 300, 400, or 500 level may also be used as "Computer Focus" electives.

> "**ECE Technical Electives**" include all "Computer Focus" electives, and other approved ECE courses at the 300, 400, or 500 level. At least 16 credits of the selected technical electives (including the "Computer Focus" electives) must be "ECE Technical Electives".
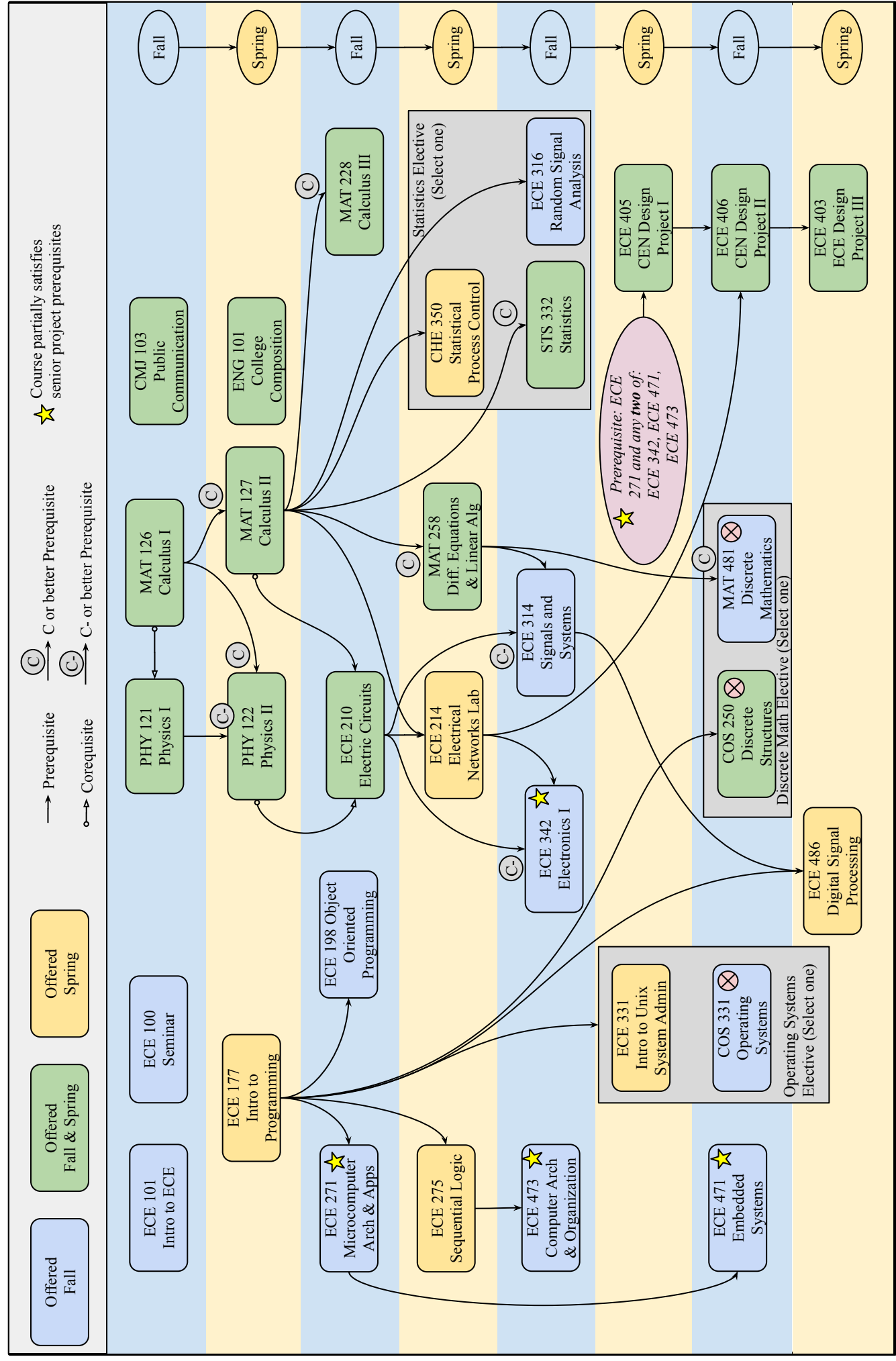
> "**Generic Technical Electives**" include all "ECE Technical Electives", a few additional ECE courses that have not have been approved in the above categories, and many courses that are offered by other departments. These courses (up to 3 credits) may be used to complete the 19 credit Technical Elective 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.)

Computer Engineering Curriculum Flowchart

6/14/2024

Legend:
- → Prerequisite
- ⇢ Corequisite
- Ⓒ C or better Prerequisite
- Ⓒ⁻ C- or better Prerequisite
- ★ Course partially satisfies senior project prerequisites

Offered:
- Offered Fall
- Offered Fall & Spring
- Offered Spring

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

- HV&SC Elective (stacked, multiple)
- 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 (19 credits)

- ECE Technical Electives (16 credits)
  - Computer Focus Technical Electives (10 credits)
    - Computer Focus
    - Computer Focus
    - Computer Focus
    - Computer Focus Electives
  - Computer Focus
  - Computer Focus or other ECE Electives
- Computer Focus or other ECE or Generic Elective

Course Flow

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

- ECE 101 Intro to ECE
- ECE 100 Seminar
- ECE 177 Intro to Programming
- ECE 198 Object Oriented Programming
- CMJ 103 Public Communication
- ENG 101 College Composition
- MAT 126 Calculus I
- MAT 127 Calculus II
- MAT 228 Calculus III
- MAT 258 Diff. Equations & Linear Alg
- MAT 481 Discrete Mathematics ⊗
- PHY 121 Physics I
- PHY 122 Physics II
- ECE 210 Electric Circuits
- ECE 214 Electrical Networks Lab
- ECE 314 Signals and Systems
- ECE 316 Random Signal Analysis
- ECE 342 Electronics I ★
- ECE 271 Microcomputer Arch & Apps ★
- ECE 275 Sequential Logic
- ECE 473 Computer Arch & Organization ★
- ECE 471 Embedded Systems ★
- ECE 486 Digital Signal Processing
- ECE 405 CEN Design Project I
- ECE 406 CEN Design Project II
- ECE 403 ECE Design Project III

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

Discrete Math Elective (Select one):
- COS 250 Discrete Structures ⊗
- MAT 481 Discrete Mathematics ⊗

Operating Systems Elective (Select one):
- ECE 331 Intro to Unix System Admin
- COS 331 Operating Systems ⊗

Prerequisite: ECE 271 and any two of: ECE 342, ECE 471, ECE 473 ★

⊗ Enrollment in these courses requires permission of the department offering the course

Computer Engineering 2024-2025 (Class of 2028)

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		
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
PHY 121	Physics for Engineers 1	4
		15

Spring First Year		
ECE 177	Intro to Prog for Engineers	4
ENG 101	College Composition	3
MAT 127	Calculus II	4
PHY 122	Physics for Engineers II	4
		15

Fall Sophomore		
ECE 198	Object Oriented Programming	3
ECE 210	Electric Circuits I	3
ECE 271	Micro Arch & Applications	4
MAT 228	Calculus III	4
Elective	HV & SC (1) Cultural Diversity & International Perspectives	3
		17

Spring Sophomore		
ECE 214	Electric Circuits II	4
ECE 275	Sequential Logic Systems	3
Elective	Generic Focus (1)	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 473	Computer Architecture & Org	4
ECE 314	Signals and Systems	3
		14

Spring Junior		
ECE 331 | COS 331	Introduction to UNIX Systems Administration | Operating Systems	3
ECE 405	Design Project	2
Elective	Computer Focus (1)	3
Elective	Computer Focus (2)	3
Elective	HV & SC (3) Population and the Environment	3
Elective	HV & SC (4) Artistic & Creative Expression	3
		17

Fall Senior		
ECE 406	Design Project II	4
ECE 471	Embedded Systems	3
MAT 481| COS 250	Discrete Mathematics | Discrete Structures	3
Elective	Computer Focus (3)	3
Elective	ECE Technical Elective (1)	3
		16

Spring Senior		
ECE 403	Design Project III	2
ECE 486	Digital Signal Processing	4
Elective	Computer Focus (4)	1
Elective	ECE Technical Elective (2)	3
Elective	HV & SC (5) Ethics	3
		13

Total Credit Hours	**124**

Legend
ECE
Math & Science
English
Gen Ed