UNIVERSITY OF SOUTHERN MAINE

Department of Engineering

Unified Engineering Curricula 2023/2024 – updated 7/6/2023

Programs: EE-BS, COMP-EGN, ELEC-EGN, EE-MIN, MEE-BS, IDE-BS, MEE-MIN, NGR-PR
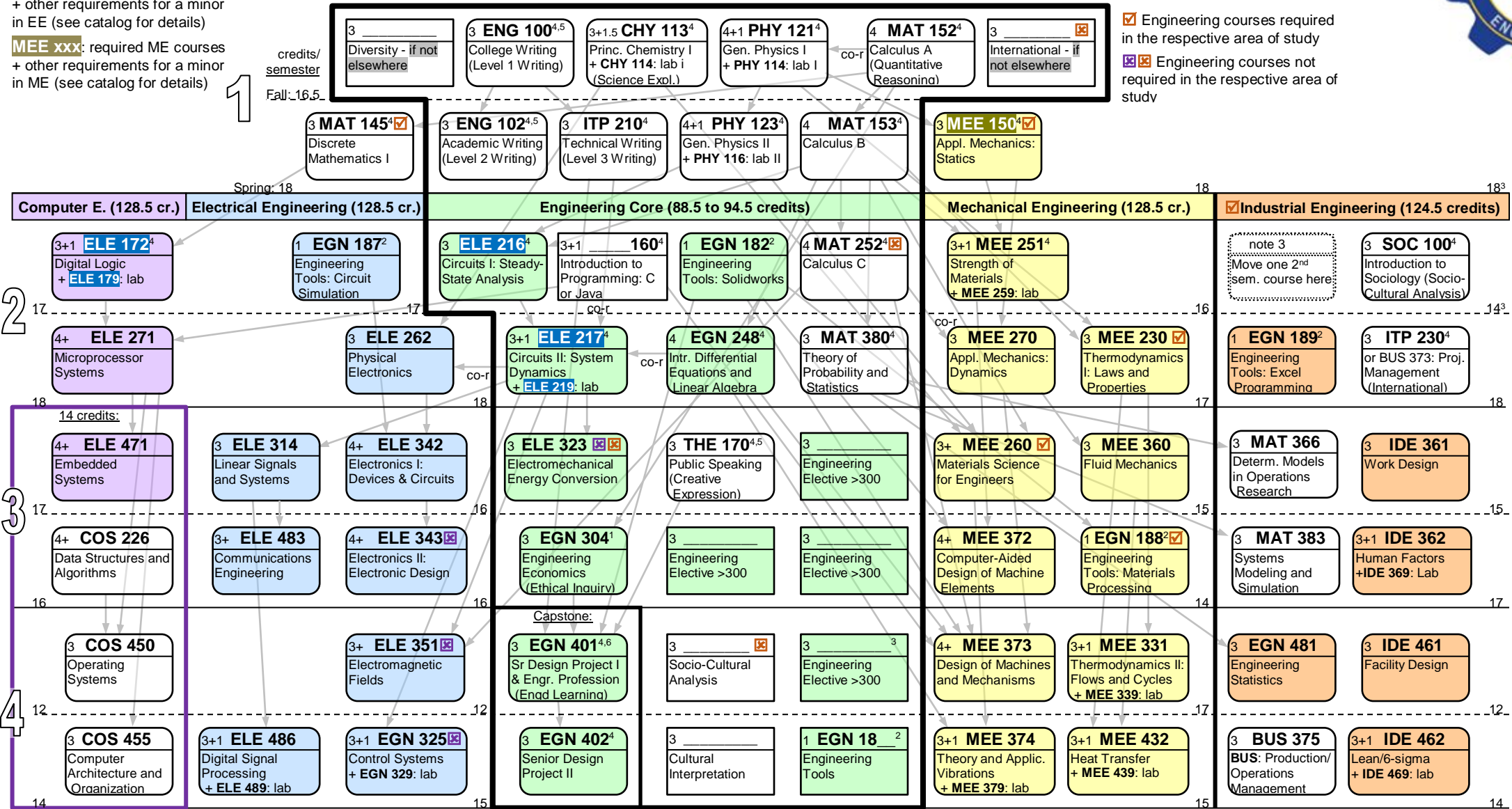
ELE xxx: required EE courses + other requirements for a minor in EE (see catalog for details)

MEE xxx: required ME courses + other requirements for a minor in ME (see catalog for details)

☑ Engineering courses required in the respective area of study

☒ Engineering courses not required in the respective area of study

credits/semester

1 Fall: 16.5

3 _____ Diversity - if not elsewhere	3 **ENG 100**[4,5] College Writing (Level 1 Writing)	3+1.5 **CHY 113**[4] Princ. Chemistry I + **CHY 114**: lab i (Science Expl.)	4+1 **PHY 121**[4] Gen. Physics I + **PHY 114**: lab I	4 **MAT 152**[4] Calculus A (Quantitative Reasoning)	3 _____ ☒ International - if not elsewhere	

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Spring: 18

3 **MAT 145**[4] ☑ Discrete Mathematics I	3 **ENG 102**[4,5] Academic Writing (Level 2 Writing)	3 **ITP 210**[4] Technical Writing (Level 3 Writing)	4+1 **PHY 123**[4] Gen. Physics II + **PHY 116**: lab II	4 **MAT 153**[4] Calculus B	3 **MEE 150**[4] ☑ Appl. Mechanics: Statics

18 / 18[3]

| Computer E. (128.5 cr.) | Electrical Engineering (128.5 cr.) | Engineering Core (88.5 to 94.5 credits) | | | Mechanical Engineering (128.5 cr.) | | ☑ Industrial Engineering (124.5 credits) |

2 17 / 17 / 16 / 14[3]

| 3+1 **ELE 172**[4] Digital Logic + **ELE 179**: lab | 1 **EGN 187**[2] Engineering Tools: Circuit Simulation | 3 **ELE 216**[4] Circuits I: Steady-State Analysis | 3+1 _____ **160**[4] Introduction to Programming: C or Java | 1 **EGN 182**[2] Engineering Tools: Solidworks | 4 **MAT 252**[4] Calculus C | 3+1 **MEE 251**[4] Strength of Materials + **MEE 259**: lab | note 3 Move one 2nd sem. course here | 3 **SOC 100**[4] Introduction to Sociology (Socio-Cultural Analysis) |

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| 4+ **ELE 271** Microprocessor Systems | 3 **ELE 262** Physical Electronics | 3+1 **ELE 217**[4] Circuits II: System Dynamics + **ELE 219**: lab | 4 **EGN 248**[4] Intr. Differential Equations and Linear Algebra | 3 **MAT 380**[4] Theory of Probability and Statistics | 3 **MEE 270** Appl. Mechanics: Dynamics | 3 **MEE 230** ☑ Thermodynamics I: Laws and Properties | 1 **EGN 189**[2] Engineering Tools: Excel Programming | 3 **ITP 230**[4] or BUS 373: Proj. Management (International) |

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3 18 / 16 / 17 / 18

14 credits:

| 4+ **ELE 471** Embedded Systems | 3 **ELE 314** Linear Signals and Systems | 4+ **ELE 342** Electronics I: Devices & Circuits | 3 **ELE 323** ☒☒ Electromechanical Energy Conversion | 3 **THE 170**[4,5] Public Speaking (Creative Expression) | 3 _____ Engineering Elective >300 | 3+ **MEE 260** ☑ Materials Science for Engineers | 3 **MEE 360** Fluid Mechanics | 3 **MAT 366** Determ. Models in Operations Research | 3 **IDE 361** Work Design |

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| 4+ **COS 226** Data Structures and Algorithms | 3+ **ELE 483** Communications Engineering | 4+ **ELE 343** ☒ Electronics II: Electronic Design | 3 **EGN 304**[1] Engineering Economics (Ethical Inquiry) | 3 _____ Engineering Elective >300 | 3 _____ Engineering Elective >300 | 4+ **MEE 372** Computer-Aided Design of Machine Elements | 1 **EGN 188**[2] ☑ Engineering Tools: Materials Processing | 3 **MAT 383** Systems Modeling and Simulation | 3+1 **IDE 362** Human Factors +**IDE 369**: Lab |

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Capstone:

| 3 **COS 450** Operating Systems | | 3+ **ELE 351** ☒ Electromagnetic Fields | 3 **EGN 401**[4,6] Sr Design Project I & Engr. Profession (Engd Learning) | 3 _____ ☒ Socio-Cultural Analysis | 3 _____ [3] Engineering Elective >300 | 4+ **MEE 373** Design of Machines and Mechanisms | 3+1 **MEE 331** Thermodynamics II: Flows and Cycles + **MEE 339**: lab | 3 **EGN 481** Engineering Statistics | 3 **IDE 461** Facility Design |

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| 3 **COS 455** Computer Architecture and Organization | 3+1 **ELE 486** Digital Signal Processing + **ELE 489**: lab | 3+1 **EGN 325** ☒ Control Systems + **EGN 329**: lab | 3 **EGN 402**[4] Senior Design Project II | 3 _____ Cultural Interpretation | 1 **EGN 18__**[2] Engineering Tools | 3+1 **MEE 374** Theory and Applic. Vibrations + **MEE 379**: lab | 3+1 **MEE 432** Heat Transfer + **MEE 439**: lab | 3 **BUS 375** BUS: Production/ Operations Management | 3+1 **IDE 462** Lean/6-sigma + **IDE 469**: lab |

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+ Course containing an integral laboratory component (+1: co-registration with a 1-credit lab course). Lab pre-reqs are in the Catalog.

1 Requires completion of 3 among *Science Explorations*, *Socio-Cultural Analysis*, *Cultural Interpretation*, and *Creative Expression*.

2 Three EGN 18x Engineering Tools required: ECE: 182, 187, 1 elective; ME: 182, 188, 1 elective; IE: 182, 188, 189, 1 elective.

3 IE majors should take MAT 145, ITP 210 or MEE 150 in the fall of the sophomore year (3rd semester) to distribute the load.

4 May be offered more than once/year, based on demand.

5 May be substituted by the HON equivalent from the Honors Program.

6 Requires advisor permission, with the expectation of graduation in 2 semesters.

if May be satisfied in conjunction with another requirement (aka double-dipping)