

# COMPUTER ENGINEERING-Catalog Year 2023

Total Credits = **121 -124**

## Freshman Year *Fall* Semester

Course Code	Description	Cr	
CHM 101	General Chemistry Lec I (A1)	3	
CHM 102	General Chemistry I Lab	1	
ECN 201	Principles of Microeconomics (A2)	3	
EGR 105	Foundations of Engineering I (A4)	1	
MTH 141 +	Calculus I (A1, B3)	4	
	General Education Outcome(s)*	3	

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## Freshman Year *Spring* Semester

Course Code	Description	Cr	
EGR 106	Foundations of Engineering II (A4)	2	
MTH 142 +	Calculus II (A1, B3)	4	
PHY 203	Elementary Physics I (A1)	3	
PHY 273	Elementary Physics Lab I (A1)	1	
	General Education Outcome(s)*	3	
	General Education Outcome(s)*	3	

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## Sophomore Year *Fall* Semester

Course Code	Description	Cr	
ELE 201	Digital Circuits Design	3	
ELE 202	Digital Circuits Design Lab	1	
ELE 208	Intro to Computer Systems	3	
ELE 209	Intro to Computer Systems Lab	1	
MTH 244	Differential Equations	3	
PHY 204	Elementary Physics II (A1)	3	
PHY 274	Elementary Physics Lab II (A1)	1	

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## Sophomore Year *Spring* Semester

Course Code	Description	Cr	
CSC 211	Computer Programming	4	
ELE 212 +	Linear Circuit Theory	4	
ELE 215	Linear Circuits Lab	1	
MTH 243 +	Calculus for Functions of Several Vars (A1, B3)	3	
	General Education Outcome(s)*	3	

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Admission to the COE required for enrollment in "300" level and higher COE courses. Admission requires at least a 2.0 cumulative GPA and a C- or higher in each of the following; EGR 105 & 106, CHM 101/102, MTH 141 & 142, PHY 203/273, and either PHY 204/274 or CHM 112/114

## Junior Year *Fall* Semester

Course Code	Description	Cr	
CSC 212 +	Data Structures and Abstractions	4	
ELE 313 +	Linear Systems	3	
ELE 338 +	Electronics I	3	
ELE 339	Electronics I Lab	1	
MTH 215 +	Linear Algebra	3	
MTH/CSC 447	Discrete Mathematical Structures	3	

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## Junior Year *Spring* Semester

Course Code	Description	Cr	
ELE 301	Digital Design with FPGAs	3	
ELE 302	Digital Design with FPGAs Lab	1	
ELE 305	Intro to Computer Architecture	3	
MTH 451	Intro to Probability and Statistics	3	
	General Education Outcome(s)*	3	
	General Education Outcome(s)*	3	

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## Senior Year *Fall* Semester

Course Code	Description	Cr	
ELE 400	Intro to Professional Practice	1	
ELE 405	Digital Computer Design	3	
ELE 406	Digital Computer Design Lab	1	
ELE 437	Introduction to Computer Networks	3	
ELE 480 +	Capstone Design I (D1)	3	
	Professional Elective**	3-4	

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## Senior Year *Spring* Semester

Course Code	Description	Cr	
ELE 408	Embedded System Design	3	
ELE 409	Embedded System Design Lab	1	
ELE 481 +	Capstone Design II	3	
	Professional Elective**	3-4	
	Professional Elective**	3-4	

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\***General Education Outcomes:** if all Outcomes are satisfied in fewer spaces than provided, you must complete additional coursework of your choice (Free Elective) to ensure you have earned at least 120 credits as required to earn a BS degree. See the "General Education Outcomes" section at the bottom of page two for more information on satisfying these requirements.

\*\***Professional Electives:** *Three (3)* courses from the following: BME/ELE 461, BME 464/465; CSC 301, 305, 402, 406, 412, 415, 436, 481; CSF 410, 412; any ELE 300-, or 400-level course not required by the CPE major; *with prior approval* of the Electrical, Computer, and Biomedical Engineering (ECBE) department chairperson, any ELE 500-level course.

+ Course prerequisites include grade requirements in previous coursework, see catalog or eCampus course description for details

SPECIFIED MATH, SCIENCE, AND ENGINEERING COURSES											
INTRODUCTORY ENGINEERING						ENGINEERING SCIENCE AND DESIGN					
Sem	Course	Cr	Grade	QP	Note	Sem	Course	Cr	Grade	QP	Note
	EGR 105 (A4)	1					ELE 201	3			
	EGR 106 (A4)	2					ELE 202	1			
		3					ELE 208	3			
MATHEMATICS							ELE 209	1			
	MTH 141 (A1 & B3)	4					ELE 212	4			
	MTH 142 (A1 & B3)	4					ELE 215	1			
	MTH 215	3					ELE 301	3			
	MTH 243 (A1 & B3)	3					ELE 302	1			
	MTH 244	3					ELE 305	3			
	MTH/CSC 447	3					ELE 313	3			
	MTH 451	3					ELE 338	3			
		23					ELE 339	1			
NATURAL SCIENCES							ELE 400	1			
	CHM 101 (A1)	3					ELE 405	3			
	CHM 102	1					ELE 406	1			
	PHY 203 (A1)	3					ELE 408	3			
	PHY 273 (A1)	1					ELE 409	1			
	PHY 204 (A1)	3					ELE 437	3			
	PHY 274 (A1)	1					ELE 480 [capstone] (D1)	3			
							ELE 481 [capstone]	3			
		12						45			
COMPUTER SCIENCE						**PROFESSIONAL ELECTIVE					
	CSC 211	4						3-4			
	CSC 212	4						3-4			
								3-4			
		8						9-12			
*GENERAL EDUCATION OUTCOMES											
Sem	Course	Cr	Grade	QP	Note	Sem	Course	Cr	Grade	QP	Note
Science, Technology, Engineering, and Math (STEM) (A1)						Civic Knowledge & Responsibilities (C1)					
---	CHM & PHY (see above)	11	---	---	---						
Social and Behavioral Sciences (A2)						Global Responsibilities (C2)					
	ECN 201	3									
Humanities (A3)						Diversity & Inclusion (C3)					
Arts & Design (A4)						Ability to Synthesize (D1)					
---	EGR 105 & 106 (see above)	3	---	---	---	---	ELE 480 (see above)	3	---	---	---
Write Effectively (B1)						Grand Challenge (at least one course must be coded with a "G")					
Communicate Effectively (B2)						Free Elective					
Mathematical, Statistical, or Computational Strategies (B3)						<i>If you fulfill all Outcomes in fewer spaces than indicated on page one, you can use those additional spaces to take a course(s) of your choice to ensure you reach at least 120 earned credits</i>					
---	MTH (see above)	11	---	---	---						
Information Literacy (B4)											

\* **General Education Outcomes:** at least 40 credits must be completed. (A1-D1) must be met by at least three credits. A single course may satisfy one or two outcomes, and at least one course must be a "Grand Challenge". No more than twelve credits can be from the same course code except HPR. General education courses may also be used to meet requirements of your major(s) or minor(s) when appropriate.

\*\* **Professional Elective:** *Three (3)* courses from the following: BME/ELE 461, BME 464/465; CSC 301, 305, 402, 406, 412, 415, 436, 481; CSF 410, 412; any ELE 300- or 400-level course not required by the CPE major; *with prior approval* of the ECBE Department chairperson, any ELE 500-level course.