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Concentration in Power Engineering
for students receiving the B.S. degree in Electrical Engineering

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The Power Concentration for Electrical Engineering majors reflects an increased background in the generation, transmission, distribution, and use of electric energy. Students complete a collection of core and elective courses with emphasis in the design, control, and operation of power systems using conventional and renewable energy sources, and related technologies. This concentration prepares students for working with the power industry, electric vehicles, smart homes, and/or attending graduate school for research and development in smart grid, microgrids, renewable energy, cybersecurity, and other electric energy related technologies.

To complete a Concentration in Power Engineering, students receiving the B.S. degree in Electrical Engineering must complete the required power concentration core courses, and at least nine credits of approved power elective courses.

Power Concentration Core Courses (required):
- ECE 427 - Electric Power Systems
- ECE 450 - Power Electronics

Approved Power Elective Courses (9 credits):
- EET-321 - Electro-Mechanical Energy Conversion
- EET-423 - Protective Relay Applications
- ECE 455 - Electric Drives
- ECE 498 or ECE 598 - Smart Grid and Enabling Technologies
- ECE 498 or ECE 598 - Foundations of Cyber Security
- ECE 498 or ECE 590 - Neural Networks
- ECE 498 or ECE 598 - Selected Topics in Electrical and Computer Engineering*

* Other "ECE 498/598 Selected Topics" courses must be related to the power engineering area, and are accepted at the discretion of the ECE chair. "Smart Grid and Enabling Technologies," "Foundations of Cyber Security" and "Neural Networks" topics are pre-approved.

Contact:

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Electrical Engineering 2023-2024: Power Engineering (Class of 2027)

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) - Western Cultural Tradition	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
EET 321	Electro-Mechanical Energy Conversion	4
MAT 258	Diff Eqn. & Linear Algebra	4
		15

Fall Junior		
ECE 316 | STS 332	Random Signal Analysis |Statistics	3
ECE 342	Electronics I	4
ECE 314	Signals and Systems	3
ECE 427	Electric Power Systems	4
EET 460	Renewable Energy and Electricity Production	3
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Spring Junior		
ECE 343	Electronics II	4
ECE 401	Design Project	2
ECE 414	Feedback Control Systems	3
ECE 351	Fields and Waves	3
ECE 498	Smart Grid and Enabling Technologies	3
		15

Fall Senior		
ECE 402	Design Project II	4
ECE 450	Power Electronics	3
ECE xxx	Suggest: Adv Controls, Cybersecurity, ...	3
Elective	HV & SC (4) Artistic & Creative Expression	3
Elective	HV & SC (3) Cultural Diversity & International Perspectives	3
		16

Spring Senior		
ECE 403	Design Project III	2
ECE 486	Digital Signal Processing	4
ECE 455	Electric Drives	3
Elective	HV & SC (5) Ethics	3
EET 423	Protective Relay Applications	3
		15

Total Credit Hours	126

ECE
Math & Science
English
Gen Ed

	Electrical Focus Tech Elective
	Electrical Focus Tech Elective
	Electrical Focus Tech Elective
	ECE Tech Elective
	ECE Tech Elective
	Generic Focus Tech Elective
	Generic Focus Tech Elective
	HV & SC (2) Population and Environment Elective

Suggested Electives for Power Engineering		
ECE 427	Electric Power Systems	4
ECE 498	Smart Grid and Enabling Technologies	3
ECE 450	Power Electronics	3
ECE 455	Electric Drives	3
ECE xxx	Suggest: Adv Controls, Cybersecurity, Neural Networks ...	3
EET 321	Electro-Mechanical Energy Conversion	4
EET 423	Protective Relay Applications	3
EET 460	Renewable Energy and Electricity Production	

8/29/2023