

Bachelor of Science in Electrical Engineering

Concentration in Electric Power Engineering

The Michigan Tech Department of Electrical and Computer Engineering is pleased to announce the launch of a **Concentration in Electric Power Engineering**, within the degree Bachelor of Science in Electrical Engineering.

This concentration is intended for those students whose primary interest is in electrical engineering, and who seek to apply their skills in electric power. Examples of such applications include control, communications, electromagnetics, electronics, power and energy systems, and signal processing.

Students enrolled in the concentration will take a number of required and elective courses in electric energy, power, and control systems. Opportunities for capstone design projects in the electric power field are anticipated and students enrolled in the concentration will be encouraged to participate in those projects.

The BSEE Concentration in Electric Power Engineering gives graduates a competitive advantage with potential employers in high-demand industry sectors including electrical utilities, electrical equipment, and industry control.



To complete the BSEE with a concentration in Electric Power Engineering a student must include the following coursework:

EE 3120 Electric Energy Systems	3
EE 4221 Power System Analysis I	3
EE 4222 Power Systems Analysis II	3
EE 4226 Power Engineering Lab	1

And 6 credits or more from:

EE 4219 Intro to Electric Machinery and Drives	6
EE 4220 Intro to Electric Machinery and Drives Lab	
EE 4227 Power Electronics	
EE 4228 Power Electronics Lab	
EE 4262 Digital and Non-linear Control	
EE 5200 Advanced Methods in Power Systems	
EE 5230 Power System Operations	
EE 5223 Power System Protection	
EE 5224 Power System Protection Lab	
EE 5240 Computer Modeling of Power Systems	
EE 5250 Distribution Engineering	
EE 5260 Wind Power	
EE 5275 Energy Storage Systems	
EE 5290 Special Topics in Power Systems	

Total credits 16



Michigan Tech

Michigan Technological University

**Department of
Electrical and Computer Engineering**

121 EERC Bldg., 1400 Townsend Drive

Houghton, Michigan 49931-1295

906-487-2550

mtu.edu/ece

Bachelor of Science in Electrical Engineering plan Electric Power Engineering concentration (16 cr.)

This suggested plan applies to students entering in Academic Year 2019-2020 who are ready for calculus.

Semester 1			Semester 2		
CH1150&1151	Univ. Chemistry I & Lab I	4	PH2100&1100	Univ. Physics I - Mechanics	4
CH1153 ³	Prob. Solv. Chem. I (optional)	1	ENG1102	Engineering Modeling & Design	3
ENG1101	Engineering Analysis	3	MA2160	Calculus with Technology 2	4
MA1160 ¹	Calculus with Technology 1	4	EE1110	Essential Math for EE's	1
UN1015	Composition	3	EE1111	Intro. to Elec. & Comp. Engg.	1
			UN1025	Global Issues	3
Total		14/15	Total		16
Semester 3			Semester 4		
MA2321 ²	Linear Algebra	2	EE2112	Electric Circuits II w/lab	4
MA3521 ²	Differential Equations	2	EE3120	Electric Energy Systems	3
EE 2111	Electric Circuits I	3	EE2174	Digital Logic w/ Lab	4
PH2200&1200	Univ. Physics II Elec&Magnetism	4	MA3160	Multi-variable Calculus	4
CS1111	Intro to Programming in C/C++	3		Soc Resp/Ethical Reasoning course ⁶	3
	Critical/Creative.Thinking course ⁶	3	Total		18
Total		17	Total		18
Semester 5			Semester 6		
EE3131	Electronics	4	EE3901	Design Fundamentals	2
EE3140	Electromagnetics	3	EE3180	Probability – Signal Analysis	3
EE3160	Signals and Systems	3	EE3261	Control Systems	3
	SELECT Approved Elective ^{3a}	3	EE3171	Microcontroller Applications	4
	HASS Comp/Comm. ⁶	3		HASS HU/FA elective ⁶	3
Total		16	Total		15
Semester 7			Semester 8		
EE4901 ⁴	EE Design Project 1 (part 1)	2	EE4910 ⁴	EE Design Project 2 (part 2)	2
EE4221	Power Analysis I ⁷	3	EE4222	Power Analysis II ⁷	3
	Power Concentration Elective ^{7,8}	3	EE4226	Power Engineering Laboratory	1
	EE Elective ⁷	3		Power Concentration Elective ^{7,8}	3
	Approved electives ^{3b}	3	EE4250	Modern Communication Systems	3
	HASS EC/SS/PSY elective ⁶	3		HASS elective ⁶	3
Total		17	Total		15
Total			128 Credits		

Students must add 3 units of co-curricular activities (such as Physical Education, Pep Band and music lessons).

Follow pre-requisites and semester offerings. This is a 'suggested' plan which can vary by individual student; shows best route through system to avoid conflicts. Students who begin in a pre-calculus course will take ENG1001 and ENG1100 in place of ENG1101 in first year.

1. MA1160 may be replaced by MA1161. 2. MA2320 and MA3520 may replace MA2321 and MA3521.
3. SELECT Approved Elective(3a): 3 credits from a "select approved list", topics recommended by industry professionals, plus 2 credits from Approved electives(3b) list: CH1153 may apply. Reduce 3b by 2 cr. with enterprise design option.
4. Approved Engineering Design courses or Enterprise courses may replace EE4901, & EE4910. See department advisor for details.
5. EE Electives: 3 credits of EE courses not listed here and not EE3010, EE3805, EE4000, EE4805, EE4901, EE4910.
6. HASS = Humanities, Arts and Social Sciences. Follow university requirements for general education courses.
7. Up to 6 credits "EE" level 4000+ may be double-counted toward the ECE accelerated master's program.
8. Concentration Electives:
EE4219,EE4220,EE4227,EE4228,EE4262,EE5200,EE5223,EE5224,EE5230,EE5240,EE5250,EE5260,EE5275,EE5290.