Electrical Engineering – Power and Renewable Energy
(Old course sequences)

Electrical Engineering program old course sequences for
year 2, year 3 and year 4 students

1. Students in the 2nd year, 3rd year and 4th year of 120-credit Electrical Engineering program should follow the old sequences presented in the next pages.
2. The 1st year courses indicated in the following course sequences were offered in academic year 2018-19 and will not be offered anymore.
3. The 2nd year courses indicated in the following course sequences will be offered only in academic year 2019-20 for the last time.
4. The 3rd year courses indicated in the following course sequences will be offered only in academic years 2019-20 and 2020-21.
5. The 4th year courses indicated in the following course sequences will be offered only in academic years 2019-20, 2020-2021 and 2021-22.

Electrical Engineering - Power and Renewable Energy
September Entry (Admitted in Fall 2018 or earlier)

Year	Term	Course	Title	Credit	Prerequisite	Co-requisite
Year 1	Fall	COEN 212	Digital Systems Design I	3.50	MATH 204	
		COEN 243	Programming Methodology I	3.00	MATH 204	
		ELEC 273	Basic Circuit Analysis	3.50	PHYS 205	ENGR 213
		ENGR 201	Professional Practice and Responsibility	1.50		
		ENGR 213	Applied Ordinary Differential Equations	3.00	MATH 205	MATH 204
	Winter	COEN 244	Programming Methodology II	3.00	COEN 243	
		ELEC 242	Continuous-Time Signals and Systems	3.00	ELEC 273; ENGR 213	
		ELEC 311	Electronics I	3.50	ELEC 273	
		ENCS 282	Technical Writing and Communication	3.00	Students must pass the Engineering Writing Test (EWT), or pass ENCS 272 with a grade of C- or higher	
		ENGR 233	Applied Advanced Calculus	3.00	MATH 204, 205	
Year 2	Fall	COEN 231	Introduction to Discrete Mathematics	3.00	MATH 204	
		COEN 311	Computer Organization and Software	3.50	COEN 212, 243	
		ELEC 251	Fundamentals of Applied Electromagnetics	3.00	ELEC 273 or ENGR 273	ENGR 233
		ELEC 342	Discrete-Time Signals and Systems	3.50	ELEC 242 or 264	
		ENGR 290	Introductory Engineering Team Design Project	3.00	ENCS 282; ENGR 213, 233	
	Winter	ELEC 321	Introduction to Semiconductor Materials and Devices	3.50	CHEM 205; ENGR 213	
		ELEC 331	Fundamentals of Electrical Power Engineering	3.50	ELEC 251, 273	
		ELEC 365	Complex Variables and Partial Differential Equations	3.00	ENGR 213, 233	
		ENGR 202	Sustainable Development and Environmental Stewardship	1.50		
		ENGR 371	Probability and Statistics in Engineering	3.00	ENGR 213, 233	
Year 3	Fall	ELEC 312	Electronics II	3.50	ELEC 311; ELEC 242 or 364	
		ELEC 351	Electromagnetic Waves and Guiding Structures	3.00	ELEC 251, 365	
		ELEC 367	Introduction to Digital Communications	3.50	ELEC 342 or 364; ENGR 371	
		ELEC 433	Power Electronics	3.50	ELEC 311, 331	
		ENGR 301	Engineering Management Principles and Economics	3.00		
	Winter	ELEC 372	Fundamentals of Control Systems	3.50	ELEC 242 or 364	
		ELEC 390	Electrical Engineering Product Design Project	3.00	Minimum of 45 credits in BEng (Electrical); COEN 244; ELEC 311 ; ENGR 290, 301	
		ENGR 392	Impact of Technology on Society	3.00	ENCS 282; ENGR 201, 202	
			Elective*			
Year 4	Fall	ELEC 440	Controlled Electric Drives	3.50	ELEC 331, 372	
		ELEC 481	Linear Systems	3.50	AERO 371 or ELEC 372 or MECH 371	
		ELEC 490	Capstone Electrical Engineering Design Project	4.00	Minimum of 75 credits in BEng (Electrical) or permission of the Department; ENGR 371; COEN 311 ; ELEC342 or 364; ELEC 390	
		ENGR 391	Numerical Methods in Engineering	3.00	ENGR 213, 233; COMP 248 or COEN 243 or MECH 215 or BCEE 231	
			Elective*			
	Winter	ELEC 437	Renewable Energy Systems	3.00	COEN or ELEC 390 or equivalent	
		ELEC 490	Capstone Electrical Engineering Design Project		Minimum of 75 credits in BEng (Electrical) or permission of the Department; ENGR 371; COEN 311 ; ELEC342 or 364; ELEC 390	
			General Education elective	3.00		
			Elective*			

**** At least 3 of these 13.5 credits must be taken from the Power and Renewable Energy Option Electives list. The rest may be chosen from the Electrical Engineering Electives list. For more information, please consult section 71.30.1 of the 2017-2018 Undergraduate Calendar.***

Electrical Engineering - Power and Renewable Energy
January Entry (Admitted in Winter 2019 or earlier)

Year	Term	Course	Title	Credit	Prerequisite	Co-requisite
Year 1	Winter	COEN 212	Digital Systems Design I	3.50	MATH 204	
		COEN 243	Programming Methodology I	3.00	MATH 204	
		ELEC 273	Basic Circuit Analysis	3.50	PHYS 205	ENGR 213
		ENGR 201	Professional Practice and Responsibility	1.50		
		ENGR 213	Applied Ordinary Differential Equations	3.00	MATH 205	MATH 204
	Summer	COEN 244	Programming Methodology II	3.00	COEN 243	
		ELEC 242	Continuous-Time Signals and Systems	3.00	ELEC 273; ENGR 213	
		ELEC 251	Fundamentals of Applied Electromagnetics	3.00	ELEC 273 or ENGR 273	ENGR 233
		ENGR 202	Sustainable Development and Environmental Stewardship	1.50		
		ENGR 233	Applied Advanced Calculus	3.00	MATH 204, 205	
Year 2	Fall	COEN 231	Introduction to Discrete Mathematics	3.00	MATH 204	
		COEN 311	Computer Organization and Software	3.50	COEN 212, 243	
		ELEC 342	Discrete-Time Signals and Systems	3.50	ELEC 242 or 264	
		ENCS 282	Technical Writing and Communication	3.00	Students must pass the Engineering Writing Test (EWT), or pass ENCS 272 with a grade of C- or higher	
		ENGR 371	Probability and Statistics in Engineering	3.00	ENGR 213, 233	
	Winter	COEN 311	Computer Organization and Software	3.50	COEN 212, 243	
		ELEC 321	Introduction to Semiconductor Materials and Devices	3.50	CHEM 205; ENGR 213	
		ELEC 331	Fundamentals of Electrical Power Engineering	3.50	ELEC 251, 273	
		ELEC 365	Complex Variables and Partial Differential Equations	3.00	ENGR 213, 233	
		ENGR 290	Introductory Engineering Team Design Project	3.00	ENCS 282; ENGR 213, 233	
Year 3	Fall	ELEC 312	Electronics II	3.50	ELEC 311; ELEC 242 or 364	
		ELEC 351	Electromagnetic Waves and Guiding Structures	3.00	ELEC 251, 365	
		ELEC 367	Introduction to Digital Communications	3.50	ELEC 342 or 264; ENGR 371	
		ELEC 372	Fundamentals of Control Systems	3.50	ELEC 342 or 364	
		ENGR 301	Engineering Management Principles and Economics	3.00		
	Winter	ELEC 390	Electrical Engineering Product Design Project	3.00	Minimum of 45 credits in BEng (Electrical); COEN 244; ELEC 311 ; ENGR 290, 301	
		ENGR 392	Impact of Technology on Society	3.00	ENCS 282; ENGR 201, 202	
			Elective*			
Year 4	Fall	ELEC 433	Power Electronics	3.50	ELEC 311 , 331	
		ELEC 440	Controlled Electric Drives	3.50	ELEC 331, 372	
		ELEC 481	Linear Systems	3.50	AERO 371 or ELEC 372 or MECH 371	
		ELEC 490	Capstone Electrical Engineering Design Project	4.00	Minimum of 75 credits in BEng (Electrical) or permission of the Department; ENGR 371; COEN 311 ; ELEC342 or 364; ELEC 390	
		ENGR 391	Numerical Methods in Engineering	3.00	ENGR 213, 233; COMP 248 or COEN 243 or MECH 215 or BCEE 231	
	Winter	ELEC 437	Renewable Energy Systems	3.00	COEN or ELEC 390 or equivalent	
		ELEC 490	Capstone Electrical Engineering Design Project		Minimum of 75 credits in BEng (Electrical) or permission of the Department; ENGR 371; COEN 311 ; ELEC342 or 364; ELEC 390	
			General Education elective	3.00		
			Elective*			

**** At least 3 of these 13.5 credits must be taken from the Power and Renewable Energy Option Electives list. The rest may be chosen from the Electrical Engineering Electives list. For more information, please consult section 71.30.1 of the 2017-2018 Undergraduate Calendar.***

Electrical Engineering - Power and Renewable Energy
Co-op Entry (Admitted in Fall 2018 or earlier)

Year	Term	Course	Title	Credit	Prerequisite	Co-requisite
Year 1	Fall	COEN 212	Digital Systems Design I	3.50	MATH 204	
		COEN 243	Programming Methodology I	3.00	MATH 204	
		ELEC 273	Basic Circuit Analysis	3.50	PHYS 205	ENGR 213
		ENGR 201	Professional Practice and Responsibility	1.50		
		ENGR 213	Applied Ordinary Differential Equations	3.00	MATH 205	MATH 204
	Winter	COEN 244	Programming Methodology II	3.00	COEN 243	
		COEN 311	Computer Organization and Software	3.50	COEN 212, 243	
		ELEC 242	Continuous-Time Signals and Systems	3.00	ELEC 273; ENGR 213	
		ELEC 311	Electronics I	3.50	ELEC 273	
		ENGR 233	Applied Advanced Calculus	3.00	MATH 204, 205	
	Summer	ELEC 251	Fundamentals of Applied Electromagnetics	3.00	ELEC 273 or ENGR 273	ENGR 233
		ELEC 342	Discrete-Time Signals and Systems	3.50	ELEC 242 or 264	
		ENCS 282	Technical Writing and Communication	3.00	Students must pass the Engineering Writing Test (EWT), or pass ENCS 272 with a grade of C- or higher	
		ENGR 202	Sustainable Development and Environmental Stewardship	1.50		
		ENGR 371	Probability and Statistics in Engineering	3.00	ENGR 213, 233	
Year 2	Fall	Work Term 1				
	Winter	COEN 231	Introduction to Discrete Mathematics	3.00	MATH 204	
		ELEC 321	Introduction to Semiconductor Materials and Devices	3.50	CHEM 205; ENGR 213	
		ELEC 331	Fundamentals of Electrical Power Engineering	3.50	ELEC 251, 273	
		ELEC 365	Complex Variables and Partial Differential Equations	3.00	ENGR 213, 233	
		ENGR 290	Introductory Engineering Team Design Project	3.00	ENCS 282; ENGR 213, 233	
	Summer	ENGR 301	Engineering Management Principles and Economics	3.00		
		ENGR 391	Numerical Methods in Engineering	3.00	ENGR 213, 233; COMP 248 or COEN 243 or MECH 215 or BCEE 231	
		ENGR 392	Impact of Technology on Society	3.00	ENCS 282; ENGR 201, 202	
			General Education elective	3.00		
Year 3	Fall	ELEC 312	Electronics II	3.50	ELEC 311; ELEC 242 or 364	
		ELEC 367	Introduction to Digital Communications	3.50	ELEC 342 or 364; ENGR 371	
		ELEC 372	Fundamentals of Control Systems	3.50	ELEC 242 or 364	
		ELEC 390	Electrical Engineering Product Design Project	3.00	Minimum of 45 credits in BEng (Electrical); COEN 244; ELEC 311 ; ENGR 290, 301	
		ELEC 433	Power Electronics	3.50	ELEC 311 , 331	
	Winter	Work Term 2				
	Summer	Work Term 3				
Year 4	Fall	ELEC 351	Electromagnetic Waves and Guiding Structures	3.00	ELEC 251, 365	
		ELEC 440	Controlled Electric Drives	3.50	ELEC 331, 372	
		ELEC 481	Linear Systems	3.50	AERO 371 or ELEC 372 or MECH 371	
		ELEC 490	Capstone Electrical Engineering Design Project	4.00	Minimum of 75 credits in BEng (Electrical) or permission of the Department; ENGR 371; COEN 311 ; ELEC342 or 364; ELEC 390	
			Elective*			
	Winter	ELEC 437	Renewable Energy Systems	3.00	COEN or ELEC 390 or equivalent	
		ELEC 490	Capstone Electrical Engineering Design Project		Minimum of 75 credits in BEng (Electrical) or permission of the Department; ENGR 371; COEN 311 ; ELEC342 or 364; ELEC 390	
			Elective*			

**** At least 3 of these 13.5 credits must be taken from the Power and Renewable Energy Option Electives list. The rest may be chosen from the Electrical Engineering Electives list. For more information, please consult section 71.30.1 of the 2017-2018 Undergraduate Calendar.***