

ELECTRICAL ENGINEERING

B.S. Degree Requirements
134 Credits

GENERAL REQUIREMENTS

COMMUNICATIONS: - (9)

WRTG 111X (3) _____
WRTG 211X, 212X, 213X, OR 214X (3) one required
COJO 131X OR 141X (3) _____

ARTS, HUMANITIES, SOCIAL SCIENCES, ETHICS: - (18 – 22)

Complete 6 courses from the list given in the catalog under Summary of Bachelor's Degree Requirements, in the following categories: (to access, go to:

<https://goo.gl/8W1S1u> or
<http://catalog.uaf.edu/bachelors/summary-of-bachelors-degree-reqs/>
and click on Bachelor of Science)

Arts (3) _____
Humanities (3-5) _____
Social Sciences (3) _____
Social Sciences (3) _____
Arts, Humanities or Social Sciences (3-5) _____
Ethics (3) _____

MATHEMATICS: - (18)

MATH 251X (4) _____ MATH 253X (4) _____
MATH 252X (4) _____ MATH 302 (3) _____

1 course from:

EE 393/301 (3) _____
MATH 310 (3) _____ MATH 314 (3) _____
MATH 371 (3) _____ MATH 401(W) (3) _____
MATH 421 (4) _____ MATH 422 (4) _____

NATURAL SCIENCE: - (16)

CHEM 105X (4) _____
PHYS 211X (4) _____
PHYS 212X (4) _____
CHEM 106X OR PHYS 213X (4) _____

LIBRARY INFORMATION & RESEARCH: - (0 – 1)

LS competency test _____ OR
LS 101X (1) _____

COMPLETE 2 DESIGNATED (W) COURSES AND
1 DESIGNATED (O) COURSE OR 2 COURSES
DESIGNATED (O/2) AT THE UPPER DIVISION LEVEL:

_____ (W) AND _____ (W)
_____ (O) OR
_____ (O/2) AND _____ (O/2)

UPPER DIVISION CREDITS: - (39)

Transfer Credits _____
UAF Credits (24)* _____
TOTAL TO DATE: _____
TO BE COMPLETED: _____

*a minimum of 24 UAF credits

(ELEE)

Updated: 3/26/2020, RWW

PLEASE NOTE: Grades of 'C-' or better are required for all courses.

MAJOR REQUIREMENTS:

A. Complete the following: - (40)

EE 102 (3) _____ EE 333 (W) (4) _____
EE 203 (4) _____ EE 334 (4) _____
EE 204 (4) _____ EE 343 (4) _____
EE 303 (4) _____ EE 353 (3) _____
EE 311 (3) _____ EE 354 (3) _____
EE 331 (1) _____ EE 471 (3) _____

B. Complete at least 6 credits of Design and Tech. electives. Design electives (complete one):

EE 408 (4) (W,O) _____
EE 444 (4) (W,O) _____
EE 464 (4) (W,O) _____

Tech. Elective (any upper division EE course):
EE _____ () _____ (elective)

C. Complete the following: - (16-18)

ES 101 (3) _____
ES 201 (3) _____
ES 208 (4) _____ OR
ES 209 (3) _____ AND ES 210 (3) _____
ES 331,341,346 OR
ME 334 (3) _____
ESM 450 (3) (W) _____

D. Complete 1 concentration: - (11-12)

Communications:

EE 412 (3) _____
EE 432 (1) _____
EE 461 (4) _____
ES 331,341,346 OR
ME 334 (3)* _____

Power & Control:

EE 404 (4) _____
EE 406 (4) _____
ES 331,341,346 OR
ME 334 (3)* _____

*Course may not satisfy the same requirement under "C"

Computer Engineering:

EE 443 (4) _____
EE 451 (4) _____
EE 461 (4) _____

E. Complete the Fundamentals of Engineering Exam: _____

Credits for core/general requirements:	61 – 62
Credits required for major:	73 – 77
Total credits required for degree	134

Electrical Engineering Degree Plan

FIRST YEAR: FALL

WRTG 111X	Writing Across Contexts	3
MATH 251X	Calculus I	4
ES 101	Intro to Engineering	3
CHEM 105	General Chemistry I	4
	Arts, Hum, Soc Sci, Ethics* (1 of 6)	<u>3</u>
		17

FIRST YEAR: SPRING

COJO 131X or 141X	Oral Communication	3
MATH 252X	Calculus II	4
EE 102	Intro to Electrical & Computer Engr.	3
CHEM 106	General Chemistry II	4
	Arts, Hum, Soc Sci, Ethics (2 of 6)	<u>3</u>
		17

SECOND YEAR: FALL

MATH 253X	Calculus III	4
PHYS 211X	General Physics I	4
ES 201	Computer Techniques	3
EE 203	Fund. of Elec. Engineering I	4
	WRTG 211X/212X/213X/214X (one required)	<u>3</u>
		18

SECOND YEAR: SPRING

MATH 302	Differential Equations	3
PHYS 212X	General Physics II	4
ES 208	Mechanics	4
EE 204	Fund. of Elec. Engineering II	4
LS 101X	Library Info and Research	<u>1</u>
		16

THIRD YEAR: FALL

EE 333	Physical Electronics	4
EE 353	Circuit Theory I	3
	EE 393 or Approved Math elective**	3
	Arts, Hum, Soc Sci, Ethics (3 of 6)	3

Option 1: Communications

EE 311	Applied Eng. Electromagnetics	3
EE 331	High Frequency Lab	1

Option 2: Power and Control

EE 303	Electrical Machinery	4
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Option 3: Computer Engineering

EE 343	Digital Syst. Analysis & Design I	<u>4</u>
		17

THIRD YEAR: SPRING

EE 334	Electronic Circuit Design	4
EE 354	Engineering Signal Analysis	3
	Arts, Hum, Soc Sci, Ethics (4 of 6)	3
EE 471	Fund of Automatic Controls	3

Option 1: Communications

EE 412	Electromagnetic Waves & Devices	3
EE 432	Electromagnetics Lab	1

Option 2: Power and Control

EE 404	Electrical Power Systems	4
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Option 3: Computer Engineering

EE 443	Digital Syst. Analysis & Design II	<u>4</u>
		17

FOURTH YEAR: FALL

	Arts, Hum, Soc Sci, Ethics (5 of 6)	3
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Option 1: Communications

	Approved Engineering Science elective***	3
EE 303	Electrical Machinery	4
EE 343	Digital Syst. Analysis & Design I	4
EE 461	Communications Systems	4

Option 2: Power and Control

	Approved Engineering Science elective***	3
EE 311	Applied Eng. Electromagnetics	3
EE 331	High Frequency Lab	1
EE 406	Electrical Power Engineering	4
EE 343	Digital Syst. Analysis & Design I	4

Option 3: Computer Engineering

EE 303	Electrical Machinery	4
EE 311	Applied Eng. Electromagnetics	3
EE 331	High Frequency Lab	1
EE 451	Digital Signal Processing	4
EE 461	Communications Systems	<u>4</u>
		18-19

FOURTH YEAR: SPRING

ESM 450	Economic Analysis and Operations	3
	Arts, Hum, Soc Sci, Ethics (6 of 6)	3
	Approved ES Elective***	3
	Approved EE Elective (below)	3-4
	Approved EE Design Elective****	3-4
	Take the Fundamentals of Engr. Exam	<u> </u>
		15-17

Option 1: Communications EE Technical Electives

EE 404	4	Spring
EE 443	4	Spring
EE 451	4	Fall

Option 2: Power and Control EE Technical Electives

EE 412	3	Spring
EE 443	4	Spring
EE 451	4	Fall
EE 461	4	Fall
EE 463	3	Spring

Option 3: Computer Engineering EE Technical Electives

EE 404	4	Spring
EE 412	3	Spring
EE 463	3	Spring

* May be interchanged with ES 201 if student's mathematics preparation allows.

** Substitute EE 393 analytical methods course or choose mathematics elective from the following advanced topics: linear algebra and matrices, probability and statistics, partial differential equations, numerical analysis, advanced calculus or complex variables.

*** Engineering science elective to be chosen from ES 331, ME 334, ES 341 and ES 346.

**** EE design elective to be chosen from EE 408: Power Electronics Design, EE 444: Embedded Systems Design, and EE 464: Communication Networks Design.