

# 2003-04 CATALOG

## ELECTRICAL ENGINEERING

B.S. Degree Requirements  
134 Credits

### GENERAL REQUIREMENTS

#### COMMUNICATIONS:- (9)

Engl 111X (3)\_\_\_\_  
Engl 211X or 213X (3)\_\_\_\_  
Comm 131X or 141X (3)\_\_\_\_

#### PERSPECTIVES ON THE HUMAN CONDITION:- (18-22)

Complete 6 courses listed **OR** 4 of those listed plus 2 semester length courses in a single AK Native or other non-English language or 3 semester length courses (9 credits) in American Sign Language.

Anth 100X/Soc 100X (3)\_\_\_\_  
Econ/PS 100X (3)\_\_\_\_  
Hist 100X (3)\_\_\_\_  
Art/Mus/Thr 200X or Hum 201X (3)  
or Ans 202X (3)\_\_\_\_  
Engl/FI 200X (3)\_\_\_\_  
Comm 300X or Just 300X or Nrm 303X or  
Phil 322X or PS 300X (3)\_\_\_\_  
Language option as listed above:  
\_\_\_\_\_( ) \_\_\_\_\_( ) \_\_\_\_\_( )

#### MATHEMATICS:- (18)

Math 200X (4)\_\_\_\_ Math 201X (4)\_\_\_\_  
Math 202X (4)\_\_\_\_ Math 302 (3)\_\_\_\_  
1 course from:  
Math 310 (3)\_\_\_\_ Math 314 (3)\_\_\_\_  
Math 371 (3)\_\_\_\_ Math 401 (3)\_\_\_\_(W)  
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:- (1)

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) \_\_\_\_\_(W)  
\_\_\_\_\_(O) OR \_\_\_\_\_(O/2)  
\_\_\_\_\_(O/2)

#### UPPER DIVISION CREDITS:- (39)

Transfer Credits \_\_\_\_\_  
UAF Credits (24)\* \_\_\_\_\_  
TOTAL TO DATE: \_\_\_\_\_  
\*a minimum of 24 UAF credits

(elee)

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

### MAJOR REQUIREMENTS:

#### 1. Complete the following:- (41)

E.E. 102 (3)\_\_\_\_ E.E. 333 (4)\_\_\_\_(W)  
E.E. 203 (4)\_\_\_\_ E.E. 334 (4)\_\_\_\_  
E.E. 204 (4)\_\_\_\_ E.E. 343 (4)\_\_\_\_  
E.E. 303 (4)\_\_\_\_ E.E. 353 (3)\_\_\_\_  
E.E. 311 (3)\_\_\_\_ E.E. 354 (3)\_\_\_\_  
E.E. 331 (1)\_\_\_\_ E.E. 471 (4)\_\_\_\_

#### 2. Complete at least 6 credits of Technical elective.

At least 1 course must come from the following:

E.E. 434 (4)\_\_\_\_(W,O)  
E.E. 464 (4)\_\_\_\_(W,O)  
E.E. \_\_\_\_\_( )\_\_\_\_(elective)  
(Any upper division EE course EXCEPT 341 or 342.)

#### 3. Complete the following:- (15-16)

E.S. 101 (2)\_\_\_\_  
E.S. 201 or CS 201 (3)\_\_\_\_  
E.S. 208 (4)\_\_\_\_  
E.S. 331,341,346 OR  
ES/ME 334 (3/4)\_\_\_\_  
ESM 450 (3)\_\_\_\_(W)

#### D. Complete 1 concentration:- (12-13)

##### Communications:

E.E. 312 (3)\_\_\_\_  
E.E. 332 (1)\_\_\_\_  
E.E. 461 (4)\_\_\_\_  
E.S. 331,341,346 OR  
ES/ME 334 (3/4)\_\_\_\_+

##### Power & Control:

E.E. 404 (4)\_\_\_\_  
E.E. 406 (4)\_\_\_\_  
E.S. 331,341,346 OR  
ES/ME 334 (3/4)\_\_\_\_+  
+Course may not satisfy the .  
same requirement under "C"

##### Computer Engineering:

E.E. 443 (4)\_\_\_\_  
E.E. 451 (4)\_\_\_\_  
E.E. 461 (4)\_\_\_\_

E. Complete the Fundamentals of  
Engineering Exam: \_\_\_\_\_

Credits required for core:  
Credits required for major:  
Total credits required for degree

62  
73-75  
134

# Electrical Engineering Degree Plan

## First Year: Fall

Engl	111X	Intro to Academic Writing	3
Math	200X	Calculus I	4
ES	101	Intro to Engineering	2
Chem	105	General Chemistry I	4
Perspectives Core (1 of 6)			3
			16

## First Year: Spring

Comm	131X or 141X	Oral Communication	3
Math	201X	Calculus II	4
EE	102	Intro to Electrical Engineering	3
Chem	106	General Chemistry II	4
Perspectives Core (2 of 6)			3
			17

## Second Year: Fall

Math	202X	Calculus III	4
Phys	211X	General Physics I	4
ES 201 or CS 201			3
EE	203	Fund of Elec Engineering I	4
Engl 211X or 213X			3
			18

## Second Year: Spring

Math	302	Differential Equations	3
Phys	212X	General Physics II	4
ES	208	Mechanics	4
EE	204	Fund of Elec Engineer II	4
LS	101X	Library Info and Research	1
			16

## Third Year: Fall

EE	333	Physical Electronics	4
EE	353	Circuit Theory I	3
Approved Math elective**			3
Perspectives Core (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	4
			17

## Third Year: Spring

EE	334	Electronic Circuit Design	4
EE	354	Engineering Signal Analysis	3
Perspectives Core (4 of 6)			3
EE	471	Fund of Automatic Controls	3

### Option 1: Communications

EE	312	Electromagnetic Waves & Devices	3
EE	332	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	4
			17

## Fourth Year: Fall

Perspectives Core (5 of 6)			3
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### Option 1: Communications

Approved Engineering Science elective***			3
EE	303	Electrical Machinery	3
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	3
EE	311	Applied Eng. Electromagnetics	3
EE	331	High Frequency Lab	1
EE	451	Digital Signal Processing	4
EE	461	Communications Systems	4
			17-18

## Fourth Year: Spring

ESM	450	Economic Analysis and Operations	3
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Perspectives Core (6 of 6)			3
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Approved Engineering Science Elective***			3
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Approved EE Elective			3-4
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Approved EE Design Elective			3-4
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Take State of Alaska Engineer-in-Training Exam			15-17
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\* Perspectives on the Human Condition and ES 201 may be interchanged if student's mathematics preparation allows.

\*\* Mathematics elective to be chosen 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.