

ELECTRICAL ENGINEERING

Curriculum Guide effective Fall 2013 ~ North Dakota State University

STUDENT _____

ID # _____

ADVISOR _____

	Fall					Spring				
	Course		Crs	Grade	Gen Ed	Course		Crs	Grade	Gen Ed
Freshman (<27 crs)	CHEM 121	General Chemistry I	3		S	ECE 173	Intro to Computing	3		
	ECE 111	Intro to ECE	3			ENGL 120	College Composition II	3		C
	ECE 275	Digital Systems I	3			MATH 129	Basic Linear Algebra	2		
	ENGL 110	College Composition I	3		C	MATH 166	Calculus II	4		
	MATH 165	Calculus I	4		R	PHYS 251	Univ Physics I	4		
	UNIV 189	Skills for Success	1		F					
			17					16		
Sophomore (27-59 crs)	EE 206	Circuit Analysis I	4			COMM 110	Fund Public Speaking	3		C
	MATH 265	Calculus III (w/vectors)	4			ECE 311	Circuit Analysis II/lab	4		
	PHYS 252	Univ Physics II	4		S	MATH 266	Intro Differential Equations	3		
	Engr Sci Elect		3			Engr Sci Elect		3		
	Gen Ed Elective		1		L	Wellness Elec		2		W
			16					15		
Junior (60 - 89 crs)	ECE 321	Electronics I/lab	5			ECE 341	Random Processes	3		
	ECE 343	Signals & Systems	4			ECE 401	Design I (capstone)	1		
	ECE 351	Applied EM/lab	4			EE Core w/Lab		4		
	Gen Ed Elective		3		A or B	EE Electr Elec		3		
						Math/Science		3		
						ENGL	Upper Level Writing*	3		C
			16					17		
Senior (90 + crs)	ECE 403	Design II (capstone)	2			ECE 405	Design III (capstone)	3		
	ENGR 402	Engr Ethics/Social Resp	1			EE Core w/Lab		4		
	EE Core w/Lab		4			EE Elective		3		
	EE Elective		3			Gen Ed Elective		3		A or B
	EE/Engr Sci Elec		3			Gen Ed Elective		3		A or B
	Gen Ed Elective		3		A or B					
			16					16		
TOTAL CREDITS								129		

General Education Electives			
Gen Ed	Course	Crs	Grade
A		3	
A		3	
B		3	
B		3	
D ■	(double-count with A or B above)		
G ●	(double-count with A or B above)		
L		1	
W		2	

General Education Categories:

A - Humanities/Fine Arts
 B - Social/Behavioral Sciences
 C - Communication
 D - Cultural Diversity ■
 F - First-Year Experience
 G - Global Perspectives ●
 L - Co-requisite Lab
 R - Quantitative Reasoning
 S - Science & Technology
 W - Wellness

*Select from ENGL 320, 321, 324 or 459 to satisfy the Upper Level Writing for General Education.

A grade of "C" is required in ECE 173, ECE 275, EE 206 & all required Math

Transfer students: Grades less than "C" in Biology, Chemistry, Computer Science, any engineering discipline class, Math, and Physics are not accepted for credit.

ECE Core Classes: ECE 331, ECE 376, ECE 443, ECE 461

Electronics Electives: ECE 421, ECE 423, ECE 425, ECE 429, ECE 437

Electrical Engineering w/Sequences

PROGRAM ELECTIVES *

Curriculum updated 3/2007

NOTES:

* Electives may not be "double-counted" to satisfy more than one requirement.

S Indicates course meets General Education category for Science/Technology.

[] Brackets indicate a cross-listed course.

EE Core Electives w/ Lab		Credits
ECE 331	Energy Conversion	4
ECE 376	Embedded Systems	4
ECE 443	Communications I	4
ECE 461	Control Systems	4

ECE Electronics Electives		Credits
ECE 421	Communication Circuits	3
ECE 423	Digital Electronics	3
ECE 425	Semi Conductor Devices	3
ECE 437	Power Electronics	3

ECE Electives		Credits
ECE 331	Energy Conversion	4
ECE 373 [csci]	Assembly Programming	4
ECE 374 [csci]	Computer Organization and Architecture	3
ECE 375	Digital System Design & Implementation	3
ECE 376	Embedded Systems	4
ECE 421	Communications Circuits	3
ECE 423	Digital Electronics	3
ECE 425	Semiconductor Devices	3
ECE 431	Power Systems	3
ECE 433	Power Systems Design	3
ECE 437	Power Electronics	3
ECE 443	Communications I	4
ECE 444	Applied Dig Signal Proc & Filtering	3
ECE 445	Communications II	3
ECE 453	Signal Integrity	3
ECE 455	Electromagnetic Compatibility	3
ECE 417	Optical Signal Transmission	3
ECE 461	Control Systems	4
ECE 463	Digital Control	3
ECE 470	Digital Systems II	3
ECE 471	Computer Sys Design & Implementation	3
ECE 483	Instrumentation for Engineers	3
ECE 485	Biomedical Engineering	3
ECE 487	Cardiovascular Engineering	3
ECE 494	Individual Study	3
ECE 496	Field Exp (max credits allowed = 3)	3
ECE 499	Special Topics	3

Math/Science Electives		Credits
S BIOL 150	General Biology	3
S CHEM122	General Chemistry II	3
CHEM 341	Organic Chemistry I	3
CHEM 364	Physical Chemistry I	4
CSci 222	Discrete Mathematics	3
CSci 235	Theoretical Computer Science I	3
CSci 236	Theoretical Computer Science II	3
MATH 270	Introduction to Abstract Math	3
MATH 420	Abstract Algebra I	3
MATH 421	Abstract Algebra II	3
MATH 429	Linear Algebra	3
MATH 450	Real Analysis I	3
MATH 451	Real Analysis II	3
MATH 452	Complex Analysis	3
MATH 480	Applied Differential Equations	3
MATH 481	Fourier Analysis	3
MATH 483	Partial Differential Equations	3
MATH 488	Numerical Analysis I	3
MATH 489	Numerical Analysis II	3
PHYS 350	Modern Physics	3
PHYS 401	Engr. Physics I: Fund. Prop. of Solids	3
PHYS 485	Quantum Mechanics I	3
STAT 450	Stochastic Processes	3
STAT 451	Bayesian Stat Decision Theory	3
STAT 468	Probability & Math Stats II	3

Engineering Science Electives		Credits
CE 309	Fluid Mechanics	3
CE 310	Fluid Mechanics Lab	1
CSci 161	Computer Science II	4
CSci 366	Files for D-Base Systems	3
CSci 372	Comparative Languages	3
CSci 426	Introduction to Artificial Intelligence	3
CSci 458	Microcomputer Graphics	3
CSci 459	Local Area Networks	3
CSci 467	Algorithm Analysis	3
CSci 474	Operating Systems Concepts	3
CSci 475	Operating Systems Design	3

CSci 477	Object-Oriented Systems	3
IME 440	Engineering Economy	2-3
IME 456	Program & Project Management	3
IME 461	Quality Assurance & Control	3-4
ME 221	Engineering Mechanics I	3
ME 222	Engineering Mechanics II	3
ME 223	Mechanics of Materials	3
ME 350	Thermodynamics & Heat Transfer	3
ME 411	Intro. to Nuclear Engineering	3
PHYS 415	Elements of Photonics	3