

ELECTRICAL ENGINEERING

Curriculum Guide effective Fall 2012 ~ 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	S	
	UNIV 189	Skills for Success	1		F					
			17				16			
Sophomore (27-59 crs)	EE 206	Circuit Analysis I/lab	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		
	Science Lab	0	1	0	L	Wellness Elect	0	2	0	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	0	3	0	A or B	EE Electr Elec		3		
						Math/Science		3		C
						ENGL	Upper Level Writing*	3		
			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	0	3	0	A or B
	EE/Engr Sci Elec		3		A or B	Gen Ed Elective	0	3	0	
	Gen Ed Elective	0	3	0	A or B					
			16				16			
TOTAL CREDITS							129			

General Education Electives			
<i>Approved courses listed in the registration schedule centerfold.</i>			
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 | G - Global Perspectives ● |
| B - Social/Behavioral Sciences | L - Co-requisite Lab |
| C - Communication | R - Quantitative Reasoning |
| D - Cultural Diversity ■ | S - Science & Technology |
| F - First-Year Experience | 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.

"T" indicates requirement satisfied with transfer credits

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 TECH ELECTIVES

Curriculum updated 4/2015

ECE 374	Computer Organization	4
ECE 4xx	Any Didactic 4xx ECE Course ³	3-4
ECE 494	Independent Study (max 6 hours)	3
ECE 496	Field Experience (max 3 hours)	3
ABEN 456	Biobased Energy	3
BIOL 150/150L	General Biology I and Lab*	4
BIOL 220/220L	Human Anatomy and Physiology I and Lab*	4
BIOL 221/221L	Human Anatomy and Physiology II and Lab*	4
BIOL 315/315L	Genetics and Lab*	4
CE 309/310	Fluid Mechanics and Lab*	4
CE/ME 486	Nanotechnology and Nanomaterials	3
CHEM 122/122L	General Chemistry II and Lab*	4
CHEM 341/341L	Organic Chemistry I and Lab*	4
CHEM 342/342L	Organic Chemistry II and Lab*	4
CHEM 364	Physical Chemistry I	3
CHEM 365/471	Physical Chemistry II and Lab*	5
CHEM 425/429	Inorganic Chemistry I and Lab*	5
CSCI 161	Computer Science II	4
CSCI 222	Discrete Mathematics	3
CSCI 336	Theoretical Computer Science II	3
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	Foundations of Computer 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
ENGR 310	Entrepreneurship for Engineers and Scientists	3

IME 440	Engineering Economy	3
IME 456	Program & Project Management	3
IME 461	Quality Assurance & Control	3-4
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
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 470	Renewable Energy Technology	3
MICR 445	Animal Cell Culture Techniques	2
PHYS 350	Modern Physics	3
PHYS 360	Modern Physics II	3
PHYS 413	Lasers for Scientists and Engineers	3
PHYS 415	Elements of Photonics	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
ZOO 460	Animal Physiology	3

¹ In order for the BIOL, CHEM, and CE lecture/lab courses listed above (denoted with a *) to count as an EE Tech Elective, students must take and pass both the lecture and corresponding lab, which are listed together above

² The EE Curriculum requires a minimum of 12 credits of Tech Electives; this may be satisfied by either 3 or 4 of the above courses (i.e., four 3-credit courses or three 4-credit courses)

³ See <http://bulletin.ndsu.edu/course-catalog/descriptions/ece/> for the full list of ECE courses