

# ELECTRICAL ENGINEERING & PHYSICS DOUBLE MAJOR

## Curriculum Guide effective Fall 2017 ~ North Dakota State University

STUDENT \_\_\_\_\_

ID # \_\_\_\_\_

ADVISOR \_\_\_\_\_

	Fall					Spring				
	Course		Crs	Grade	Gen Ed	Course		Crs	Grade	Gen Ed
Freshman	PHYS 171	Intro Physics Projects	1			ECE 111	Intro to ECE	3		
	Wellness Elec		2		W	ENGL 120	College Composition II	3		C
	COMM 110	Fund Public Speaking	3		C	MATH 129	Basic Linear Algebra	3		
	ECE 173	Intro to Computing	4			MATH 166	Calculus II	4		
	ENGL 110	College Composition I	3		C	PHYS 251	Univ Physics I	4		S
	MATH 165	Calculus I	4		R	PHYS 251L	Univ Physics I Lab	1		S & L
						PHYS 251R	Physics I Recitation	1		
			17					19		
Sophomore	EE 206	Circuit Analysis I/lab	4			PHYS 370	Computational Physics	3		
	MATH 265	Calculus III (w/vectors)	4			ECE 311	Circuit Analysis II/lab	4		
	ECE 275	Digital Design/lab	4			MATH 266	Intro Differential Equations	3		
	PHYS 252	Univ Physics II	4		S	PHYS 350	Modern Physics	3		
	PHYS 252L	Univ Physics II Lab	1		S	Gen Ed Elective <sup>1</sup>		3		A or B
	PHYS 252R	Physics II Recitation	1							
			18					16		
Junior	ECE 320	Electronics I/lab	3			ECE 401	Design I (capstone)	1		
	ECE 321	Electronics II/lab	2			ECE 331	Energy Conversion/lab	4		
	PHYS 355	Classical Mechanics	3			ECE 376	Embedded Systems/lab	4		
	PHYS 360	Modern Physics II	3			ECE 351	Applied EM/lab	4		
	PHYS 462	Thermal/Statistical Phys	3			ECE 343	Signals & Systems	4		
	ENGL	Upper Level Writing*	3		C					
			17					17		
Senior	ECE 403	Design II (capstone)	2			ECE 405	Design III (capstone)	3		
	ENGR 402	Engr Ethics/Social Resp	1			ECE Elective		3		
	PHYS 485	Quantum Mechanics I	3			ECE Elective		3		
	ECE 341	Random Processes	3			Gen Ed Elective		3		A or B
	PHYS Elective		2			Gen Ed Elective <sup>2</sup>		3		A or B
	ECE/PHYS Elec		3							
	Gen Ed Elective <sup>2</sup>		3		A or B					
			17					15		
						<b>TOTAL CREDITS</b>		<b>136</b>		

General Education Electives			
Approved courses listed in the registration schedule centerfold.			
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

<sup>1</sup>Suggested to take either ECON 105, ECON 201, or ECON 202

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

<sup>2</sup>Suggested to take ENGR 312 and ENGR 311

Students must earn a "C" or better in ECE 173, ECE 275, EE 206, and all required MATH courses, before enrolling in ECE courses listed above in the Junior or Senior years

<sup>3</sup>Students must take ECE 111 prior to enrolling in ECE courses listed above in the Junior or Senior year; otherwise, students must take an additional ECE Elective in lieu of ECE 111

**ECE Elective:** any didactic ECE 4xx course<sup>2</sup> (not 493, 494, 496)

**ECE/PHYS Elective:** cross-listed ECE/PHYS 4xx course<sup>2</sup>

**PHYS Elective:** PHYS 481, 486, 489, PHYS 215 (at least 2 credits), or MSUM AST 3xx/4xx course (with permission from Physics department)

<sup>1</sup> Students must have at least a 2.0 GPA in all required EE, ECE, and PHYS courses taken at NDSU, in order to graduate. Elective ECE or PHYS courses are not included in this GPA requirement.

<sup>2</sup> See <http://bulletin.ndsu.edu/course-catalog/descriptions/ece/> for the full list of ECE and ECE/PHYS courses

## Electrical Engineering & Physics Double Major Curriculum Flowchart

