

## Engineering Dual Degree Requirements

### Electrical Engineering & Astronomy and Astrophysics

<b>University Core Curriculum</b>				<b>Common Engineering</b>			
<b>Common Core Requirements</b>				<b>Mathematics</b>			
FYS	101	First Year Seminar	Credits	MA	106	Calculus & Analytical Geometry 1 <sup>+</sup>	Credits
FYS	102	First Year Seminar	3	MA	107	Calculus & Analytical Geometry 2 <sup>+</sup>	4
GHS	201-209	Global and Historical Studies	3	MA	208	Calculus & Analytical Geometry 3 <sup>+</sup>	4
GHS	201-209	Global and Historical Studies	3	MA	215	Linear Algebra	3
				MA	334	Differential Equations	3
<b>General Core Requirements</b>				<b>Science</b>			
TI		Text and Ideas	Credits	CH	105	General Chemistry 1	Credits
PCA		Perspectives in the Creative Arts	3	CH	106	General Chemistry 2	5
SW		The Social World (SW 220-EC) <sup>3</sup>	3	PH	201	Introduction to Analytical Physics 1	-
AR		Analytical Reasoning (exempt)	3	PH	202	Introduction to Analytical Physics 2	-
NW		The Natural World (exempt)	5				
PWB		Physical Well-Being	1				
				<b>Engineering</b>			Credits
		Core Credits	22(30)	DD	190	Elementary Engineering Design	3
<b>Additional Core Requirements</b>				DD	297	MATLAB	1
BCR		Butler Cultural Requirement	8 events	CS	142	Intro to Computer Science & Prog <sup>+</sup>	3
ICR		Indianapolis Community Requirement	1 course				
SAC		Speaking Across the Curriculum	1 course	<b>Other</b>			Credits
WAC		Writing Across the Curriculum	1 course	COM	101	Rhetoric and the American Demo	3
				TCM	250	Career Planning for Engineers	1
<b>Liberal Arts and Science Requirements</b>				TCM	360	Comm in Engineering Practice (WAC/SAC)	2
				ENGR	200	Engineering Internship	1
Foreign Language (min 6 cr 200 level or above)			Credits				Credits
Spanish, French, German, Chinese, Latin			6-14				42
			Credits				
			28-36				
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<b>Astronomy &amp; Astrophysics</b>				<b>Electrical Engineering</b>			
AS	102	Modern Astronomy	Credits	ECON	201	Microeconomics <sup>3</sup>	Credits
AS	301	Modern Astronomical Techniques	5	PH	351	Analog Electronics (WAC)	4
AS	311	Astrophysics I	3	ME	295	Mechanics and Heat <sup>1</sup>	-
AS	312	Astrophysics II	3	ECE	202	Circuit Analysis II	3
PH	201	Introduction to Analytical Physics 1	5	ECE	208	Electronic Devices & Design Lab	1
PH	201	Introduction to Analytical Physics 2	5	ECE	210	Sophomore Seminar	1
PH	301	Modern Physics	3	ECE	255	Intro to Electronics Analysis & Design	3
PH	303	Electromagnetic Waves and Optics	3	ECE	264	Advanced C Programming	2
PH	321	Intermediate Classical Mechanics <sup>1</sup>	4	ECE	270	Digital Logic Design	4
PH	331	Electromagnetic Theory I (WAC) <sup>2</sup>	-	ECE	301	Signals and Systems	3
PH	495	Senior Seminar	1	ECE	302	Probabilistic Methods	3
				ECE	311	Electric and Magnetic Fields <sup>2</sup>	3
		Credits	35	ECE	362	Microprocessors Systems & Interface	4
<b>Recommended Courses</b>				ECE	382	Feedback Systems Analysis	3
PH	311	Experimental Modern Physics	3	ECE	401	Engineering Ethics	1
PH	325	Thermodynamics & Statistical Physics	4	ECE	440	Intro to Communication System Analysis	4
PH	421	Quantum Theory I	4	ECE	487	Senior Design I	1
PH	461	Computational Physics	3	ECE	488	Senior Design II	2
				EE Electives			15
							Credits
							57
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<b>162 - 170 Total Credits</b>							

<sup>1-3</sup> used as equivalents for degree requirements

<sup>+</sup> also required for Astronomy and Astrophysics major