

Physics – Electrical Engineering Track

3+2 Engineering Dual Degree Program with Notre Dame

Bachelor of Science (BS.PHYS(ELEC))

Core Requirements			Credits	Notes/Instructions
College Sem.	Quest for Meaning	CSEM 100	3	†A student may be required to take ENGL 105 and/or MATH 100 based on placement exams administered prior to their first semester at King's College. ENGL 105 and MATH 100 are 3-credit courses and will count as free electives. †† The Intercultural Competence requirement can be satisfied by taking a 100-level language class for 3 credits or participating in an approved Study Abroad experience. SBM = Satisfied By King's Major requirement(s) and credit(s) listed below. (3) To satisfy the King's Core requirements, a student will need to complete four (4) Core requirements at Notre Dame.
Communication & Creative Expression	Writing	ENGL 110†	(3)	
	Oral Communication	COMM 101	(3)	
	Literature	ENGL 140-149	(3)	
	The Arts	ARTS 100-149	(3)	
Citizenship	History	HIST 100-149	(3)	
	Intercultural	FREN/GERM/SPAN 100-level or Study Abroad††	(3)	
	Global Connections	ECON 150-199; GEOG 150-199; HIST 150-199; PS 150-199; SOC 150-199	(3)	
Quantitative & Scientific Reasoning	SBM Quantitative Reasoning	MATH 120 [†] or higher level	-	
	SBM Scientific Endeavor	NSCI 100	-	
	SBM Science in Context	NSCI 171-199	-	
	Human Beh. & Soc. Inst	ECON 111, 112; GEOG 101, 102; PS 101, PSYC 101, SOC 101	(3)	
Wisdom, Faith, & the Good Life	Introduction to Phil.	PHIL 101	(3)	
	Phil. Investigations ³	PHIL 170-199; MSB 287 ³	(3)	
	Theology & Wisdom	THEO 150-159	(3)	
	Theology & the Good Life	THEO 160-169	(3)	
Total Core Credits taken at King's			27	

King's Major Requirements		Credits
PHYS 113 ^{2,CR} Physics for Sci. & Eng. I		3
PHYS 113L Phys. for Sci./Eng. I Lab		1
PHYS 114 ^{PR} Physics for Sci. & Eng. II		3
PHYS 114L ^{PR} Phys. for Sci./Eng. II Lab		1
PHYS 231 ^{PR} Modern Physics		3
PHYS 231L ^{PR} Modern Physics Lab		1
PHYS 233 ^{PR} Electronics I		3
PHYS 233L ^{PR} Electronics I Lab		1
PHYS 330 ^{PR} Classical Mech.		3
PHYS 350 ^{PR} Thermo/Stat. Mech.		3
PHYS 371 ^{PR} Electricity & Magnetism I		3
PHYS 440 ^{PR} Quantum Mech.		3
PHYS 490 ^{PR} Senior Seminar		3
PHYS Elective*		-
PHYS Elective*		-
CHEM 113 ² Gen. Chem. I		3
CHEM 113L Gen. Chem. I Lab		1
CHEM 114 ^{PR} Gen. Chem. II		3
CHEM 114L ^{PR} Gen. Chem. II Lab		1
MATH 129 Calculus I		4
MATH 130 ^{PR} Calculus II		4
MATH 231 ^{PR} Calculus III		4
MATH 237 ^{PR} Math Meth. for Phys. Sci.		3
MATH 238 ^{PR} Diff. Equations		3
ENGR 150 Engineering Seminar		2
ENGR 250 ^{PR} System Design & Analysis		3
ENGR 250L ^{PR} Syst. Design & Analysis Lab		1
CS 111 Programming for Sci. and Eng.		3
CS 111L Prog. for Sci. and Eng. Lab		0
CS 270 ^{PR} Computer Organization		3
CS 270L ^{PR} Computer Organization Lab		1
Other Requirements		
HCE 101 Holy Cross Experience		1
Total King's Major and Other Credits		81

Notre Dame's Major Requirements		Credits
CSE 20133 Intro to Computing		3
CSE 20221 Logic Design		-
EE 20224 Intro to Electric Circuit Analysis		-
EE 20225 Intro to Electrical Engineering		-
EE 20234 Electric Circuits		3
EE 20242 Electronics		4
EE 30344 Signals & Systems		3
EE 30347 Fund of Semiconductors		3
EE 30348 Electromagnetic Fields		-
EE 30363 Random Phenomena In EE		3
EE 41430 Design I		3
EE 41440 Design II		3
EE Elective		3
EE Elective		3
EE Elective		3
EE Elective		3
EE Elective		3
EE Elective		3
EE Elective		3
Technical Elective		-
Technical Elective		3
Technical Elective		3
Engineering Science Elective		-
A&L Course (King's Core Course)		3
A&L Course (King's Core Course)		3
A&L Course (King's Core Course)		3
A&L Course (King's Core Course)		3
Total Notre Dame Credits		61
General Information		
The 3-2 engineering program is a dual degree program. Students spend 3 years at King's College (King's) taking math, science and CORE courses and then transfer to Notre Dame (ND) for 2 years, focusing on engineering courses in their chosen field. Upon successful completion of the program at Notre Dame, students will receive both a B.S. in Physics from King's and a B.S. in Electrical Engineering from Notre Dame. (For more information, refer to the college catalog).		

Total Credits required for Graduation = 159

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3+2 Dual Degree Engineering Program with Notre Dame

Suggested Sequence

A suggested course sequence of degree requirements is listed below. Refer to the college catalog for course titles, descriptions, and prerequisites. Always consult your Academic Advisor when planning and scheduling your classes.

King's College			
Fall 2019	Credits	Spring 2020	Credits
CHEM 113 ² Gen. Chem. I	3	CHEM 114 ^{PR} Gen. Chem. II	3
CHEM 113L Gen. Chem. I Lab	1	CHEM 114L ^{PR} Gen. Chem. II Lab	1
PHYS 113 ^{2,CR} Physics for Scientists & Engineers I	3	PHYS 114 ^{PR} Physics for Scientists & Engineers II	3
PHYS 113L Physics for Sci. & Eng. I Lab	1	PHYS 114L ^{PR} Physics for Sci. & Eng. II Lab	1
MATH 129 Calculus I	4	ENGR 150 Engineering Seminar	2
Core Course ¹	3	MATH 130 ^{PR} Calculus II	4
HCE 101 Holy Cross Experience	1	Core Course ¹	3
	16		17
Fall 2020	Credits	Spring 2021	Credits
PHYS 231 ^{PR} Modern Physics	3	PHYS 330 ^{PR} Classical Mech.	3
PHYS 231L ^{PR} Modern Physics Lab	1	PHYS 233 ^{PR} Electronics I	3
MATH 231 ^{PR} Calculus III	4	PHYS 233L ^{PR} Electronics I Lab	1
MATH 238 ^{PR} Differential Equations	3	ENGR 250 ^{PR} System Design & Analysis	3
CS 111 Programming for Sci. and Eng.	3	ENGR 250L ^{PR} Syst. Design & Analysis Lab	1
CS 111L Prog. for Sci. and Eng. Lab	0	MATH 237 ^{PR} Math Methods for Phys. Sci.	3
Core Course ¹	3	Core Course ¹	3
	17		17
Fall 2021	Credits	Spring 2022	Credits
PHYS 371 ^{PR} Electricity & Magnetism I	3	PHYS 440 ^{PR} Quantum Mech.	3
PHYS 350 ^{PR} Thermo/Stat. Mech.	3	PHYS 490 ^{PR} Senior Seminar	3
Core Course ¹	3	CS 270 ^{PR} Computer Organization	3
Core Course ¹	3	CS 270L ^{PR} Computer Organization Lab	1
Core Course ¹	3	Core Course ¹	3
	15	Core Course ¹	3
			16

Notre Dame			
Fall 2022	Credits	Spring 2023	Credits
CSE 20133 Intro to Computing	3	EE 20242 Electronics	4
EE 20234 Electric Circuits	3	EE 30363 Random Phenomena in EE	3
EE 30344 Signals & Systems	3	EE Elective	3
EE 30347 Fundamentals of Semiconductors	3	EE Elective	3
A&L Course (King's Core Course ¹)	3	A&L Course (King's Core Course ¹)	3
	15		16
Fall 2023	Credits	Spring 2024	Credits
EE 41430 Design I	3	EE 41440 Design II	3
EE Elective	3	EE Elective	3
EE Elective	3	EE Elective	3
Technical Elective	3	Technical Elective	3
A&L Course (King's Core Course ¹)	3	A&L Course (King's Core Course ¹)	3
	15		15

Total Credits Required for Graduation = 159

Notes:

One PHYS Elective required for the King's degree is satisfied by EE 20242 Electronics, and the other with EE 30347 Fund of Semiconductors.

PHYS 233/L satisfies the Notre Dame requirement for EE 20224 Intro to Electric Circuit Analysis and EE 20225 Intro to Electrical Engineering

PHYS 371 satisfies the Notre Dame requirement for EE 30348 Electromagnetic Fields

CS 270 satisfies the Notre Dame requirement for CSE 20221 Logic Design

PHYS 350 will satisfy one of Notre Dame's Technical Elective requirements

PHYS 330 will satisfy Notre Dame's Engineering Science Elective requirement

¹Choose one course from each of the Core Requirements listed on the reverse side.

²Course may satisfy both a Major and a Core requirement. CHEM 113 and PHYS 113 will satisfy the Scientific Endeavor and Science in Context Core requirements.

MATH 129 will satisfy the Quantitative Reasoning Core requirement.

^{PR} Course has a prerequisite – check college catalog.

^{CR} Course has a co-requisite – check college catalog.