



Kentucky Wesleyan College

Engineering

Dual-Degree Program

Engineers apply the principles of science and mathematics to develop economical solutions to technical problems. Their work is the link between scientific discoveries and the commercial applications that meet societal and consumer needs. Many engineers design and develop new products, such as robots, chemicals, computers, power plants, helicopters, and toys. In addition to design and development, many engineers work in testing, production, or maintenance. These engineers supervise production in factories, determine the causes of component failure, and test manufactured products to maintain quality. They also estimate the time and cost to complete projects. Supervisory engineers are responsible for major components or entire projects.

To meet the challenges of increased competition in the job marketplace, many of today's college students are choosing to widen their educational foundations by pursuing multi-faceted objectives such as minors along with majors, double majors, and dual undergraduate degrees. Such combinations provide increased competitiveness at the job entry level, as well as enhanced opportunities during one's later career. Students, who recognize the value of broadening their educational experience to include one of the fundamental sciences such as physics, as well as engineering, will find Kentucky Wesleyan's Dual-Degree Engineering Program a good combination.

Kentucky Wesleyan College in conjunction with ABET accredited engineering schools, offers a dual-degree program in engineering. A student choosing this program would complete the pre-engineering program at Kentucky Wesleyan and then transfer to an accredited engineering school. Upon completion of the accredited engineering school program the student would receive a Bachelor of Science degree in engineering from the engineering school and a Bachelor of Science degree from Kentucky Wesleyan. Many different engineering degrees are available from accredited engineering schools including but not limited to: Aerospace, Agricultural, Biomedical, Chemical, Civil, Computer, Electrical, Electronics, Environmental, Health and Safety, Industrial, Marine, Materials, Mechanical, Mining, Nuclear, and Petroleum engineering. The types of science degrees available from Kentucky Wesleyan include: Chemistry, Physics, and Applied Mathematics.

The pre-engineering program at Kentucky Wesleyan is designed to prepare engineering students for entrance into engineering schools to complete a baccalaureate degree in engineering. Engineering students are expected to have an understanding of the general principles of chemistry, physics, calculus, and computer programming, and the ability to apply mathematical techniques to the solution of a wide variety of technical problems.

Kentucky Wesleyan College, in conjunction with the local Green River chapter of the Kentucky Society of Professional Engineers, has a student engineering society. All engineering students are encouraged to become members of the society and participate in engineering related activities locally and within the region.

BACHELOR OF SCIENCE DEGREE REQUIREMENTS — 91 HOURS†

At Kentucky Wesleyan the student would satisfy the General Education Program, make significant progress toward a traditional science degree and complete a minimum of 91 semester hours.

PRE-ENGINEERING REQUIREMENTS — 51 HOURS

ENGR 1301	Introduction to Engineering	One of the following math electives:	
ENGR 1306	Computer Graphics/Communication	MATH 3300	Advanced Calculus
CHEM 1351	General Chemistry I	MATH 3307	Linear Algebra
CHEM 1251	General Chemistry Laboratory I	MATH 3309	Discrete Mathematics
CHEM 1352	General Chemistry II	MATH 3320	Statistics I
CHEM 1252	General Chemistry Laboratory II	MATH 3321	Statistical Analysis
MATH 1402	Introductory Calculus (Calculus I)	MATH 4303	Partial Differential Equations
MATH 2305	Calculus: Sequences and Series (Calculus II)	One of the following science electives:	
MATH 2306	Calculus: Vector Methods (Calculus III)	ENGR 2321	Statics
MATH 3301	Differential Equations	ENGR 2480	Design of Logic Circuits
PHYS 2404	General Physics I	PHYS 3401	Electronics
PHYS 2405	General Physics II	PHYS 3402	Optics
PHYS 3408	Modern Physics (PHYS 3403 may be substituted)	PHYS 3403	Heat and Thermodynamics
One of the following programming courses:		ENSC 2400	Environmental Science
CIS 2301	Beginning Java		
CIS 2303	Beginning Visual Basic		
CIS 2305	Beginning C++		

ADDITIONAL GENERAL EDUCATION REQUIREMENTS — 40 HOURS

The student would then transfer to an accredited engineering school and finish his or her engineering degree. To complete his or her science degree at Kentucky Wesleyan, the student would transfer back from the engineering school the necessary courses to complete a science major and a total of 128 hours. Additional courses may be required at Kentucky Wesleyan for some of the particular engineering and science degrees.

†Sample Three-Year Plan for Engineering Dual Degree Program on reverse side.

Sample Three-Year Plan at Kentucky Wesleyan College for Engineering Dual Degree Program

Freshman Year (Fall Semester)		Freshman Year (Spring Semester)	
KW1101	0	CL1101	1
ENGL1301	3	ENGL1302	3
CHEM1351	3	CHEM1352	3
CHEM1251 LAB	2	CHEM1252 LAB	2
MATH1402	4	MATH2305	3
<u>ENGR 1301</u>	<u>3</u>	<u>ENGR 1306</u>	<u>3</u>
TOTAL	15	TOTAL	15
Sophomore Year (Fall Semester)		Sophomore Year (Spring Semester)	
PHYS2404	4	PHYS2405	4
MATH2306	3	CART1341	3
CIS2301, 2303, or 2305	3	PE+Wellness	3
GEN ED	3	GEN ED	3
<u>GEN ED</u>	<u>3</u>	<u>GEN ED</u>	<u>3</u>
TOTAL	16	TOTAL	16
Junior Year (Fall Semester)		Junior Year (Spring Semester)	
PHYS3408 ¹	4	Science Elective ²	4
MATH3301	3	Math Elective ³	3
GEN ED	3	GEN ED	3
GEN ED	3	<u>GEN ED</u>	<u>3</u>
<u>GEN ED</u>	<u>3</u>	TOTAL	13
TOTAL	16		

¹PHYS 3403 Heat and Thermodynamics may be substituted for PHYS 3408 Modern Physics.

²ENGR 2321 Statics, ENGR 2480 Design of Logic Circuits, PHYS 3401 Electronics, PHYS 3402 Optics, PHYS 3403 Heat and Thermodynamics, or ENSC 2400 Environmental Science.

³MATH 3300 Advanced Calculus, MATH 3307 Linear Algebra, MATH 3309 Discrete Mathematics, MATH 3320 Statistics I, MATH 3321 Statistical Analysis, or MATH 4303 Partial Differential Equations.



General Physics Lab



Yu Hak Hahn Center for the Sciences



Advanced Physics Lab



General Chemistry Lab



Science Center Rotunda



Math Computational Lab