PHYSICAL AND EARTH SCIENCES

BACHELOR OF SCIENCE IN ENGINEERING PHYSICS

Students graduating with an engineering physics degree will be well qualified for jobs requiring highly technical skills and theoretical knowledge. Also, the degree program will prepare students for graduate studies in the fields of physics and engineering. However, those interested in employment immediately after graduation will have numerous alternatives for career choices. Job opportunities for an engineering physics graduate could include employment in industries such as: McDonnell Douglas/Boeing, Texas Instruments, Honeywell, Microsoft, Polaroid, Union Carbide, National Institute of Standards; Technology, Entergy, Tennessee Valley Authority, and Dow Chemical. Also, government agencies such as NASA, National Bureau of Standards, Office of Naval Research, Department of Energy, etc., provide additional employment opportunities for engineering physics graduates.

To qualify for a baccalaureate degree in engineering physics, the student must complete four (4) hours in chemistry, ten (10) hours in computer and information science, fifteen to eighteen (15-18) hours in mathematics, twenty-nine (29) hours in physics (including the core physics courses), thirty-two (32) hours in engineering, and one (1) hour of engineering design course (in the final semester).

Curriculum

The matrix below is a sample plan for all coursework required for this program.

Freshman

Fall	Credits
ENGL 1013 Composition I [1]	3
PHSC 1001 Orientation to Physical Science	1
MATH 2914 Calculus I	4
COMS 1011 Programming Foundations I Lab and COMS 1013 Programming Foundations I	4
CHEM 2124 General Chemistry I and CHEM 2120 General Chemistry I Lab	4
Total Hours	**16**

Spring	Credits
ENGL 1023 Composition II [1]	3
PHSC 1011 Orientation to Physical Science II	1
MATH 2924 Calculus II	4
MCEG 2023 Engineering Materials	3
PHYS 2114 Calculus-Based Physics I and PHYS 2000 Physics Laboratory I	4
Total Hours	**15**

Sophomore

Fall	Credits
SS 1XXX Social Science Courses [1]	3
COMS 2203 Programming Foundations II	3
MCEG 2013 Statics	3
PHYS 2124 Calculus-Based Physics II with PHYS 2010 Physics Laboratory II	4

Fall	Credits
MATH 2934 Calculus III	4
Total Hours	**17**

Spring	Credits
FAH 1XXX Fine Arts and Humanities Courses [1]	3
ELEG 2103 Electric Circuits I	3
MCEG 2033 Dynamics	3
PHYS 3213 Modern Physics	3
MATH 3243 Differential Equations I	3
Total Hours	**15**

Junior

Fall	Credits
FAH 1XXX Fine Arts and Humanities Courses [1]	3
PHYS 3023 Mechanics or PHYS 4013 Quantum Mechanics	3
ELEG 2113 Electric Circuits II	3
ELEG 2111 Electric Circuits Laboratory	1
PHYS 3133 Theory of Electricity and Magnetism or PHYS 4023 Computational Physics	3
COMS 2323 Programming in Python	3
Total Hours	**16**

Spring	Credits
USHG 1XXX U.S. History and Government [1]	3
PHYS 3003 Optics or PHYS 4113 Advanced Physics Laboratory	3
(PHYS 4213 Advanced Topics in Physics and Astronomy or an upper division Mathematics course) or PHYS 4003 Thermodynamics and Statistical Mechanics	3
MCEG 3013 Mechanics of Materials	3
MCEG 3313 Thermodynamics I	3
Total Hours	**15**

Senior

Fall	Credits
MCEG 4202 Engineering Design	2
MCEG 4403 Mechanics of Fluids and Hydraulics	3
PHYS 3023 Mechanics or PHYS 4013 Quantum Mechanics	3

Fall	Credits
PHYS 3133 Theory of Electricity and Magnetism or PHYS 4023 Computational Physics	3
COMS/ELEG/MCEG Elective (3000-4000 level)	3
Total Hours	**14**

Spring	Credits
PHYS 3003 Optics or PHYS 4113 Advanced Physics Laboratory	3
(PHYS 4213 Advanced Topics in Physics and Astronomy or an upper division Mathematics course) or PHYS 4003 Thermodynamics and Statistical Mechanics	3
MCEG 4443 Heat Transfer	3
PHYS 4061 Engineering Physics Design	1
COMS/ELEG/MCEG Elective (3000-4000 level)	2
Total Hours	**12**

[1]See appropriate alternatives or substitutions in "General Education Requirements". A specific general education core course does not have to be taken in the semester listed, any other part of the general education core at any time is acceptable as well.

[2]Excluding MATH 3003 Foundations of Advanced Mathematics, MATH 3033 Methods of Teaching Elementary Mathematics, and MATH 4113 History of Mathematics.

[3]PHYS 3023 Mechanics and PHYS 4003 Thermodynamics and Statistical Mechanics will satisfy the prerequisites for MCEG 3013 Mechanics of Materials and MCEG 4403 Mechanics of Fluids and Hydraulics for engineering physics majors.

[4]Must complete both the PHYS class and one MATH upper division elective (PHYS course offered in alternating years).