Engineering Physics
Sample Curriculum for Nuclear Engineering Specialization

Student Information

Name:_____ OSU Email: _____

Suggested Curriculum

This should be used as a **guide** only. Semester offerings are subject to change.

Year	Autumn	Spring
1	___ Physics 1270[1] *(Into Physics I)* ..... 5 hr ___ Math 1151 *(Calculus I)* ..... 5 hr ___ Engineering 1181 *(Intro Engineering I)* ..... 2 hr ___ Engineering 1100 *(Engineering Survey)* ..... 1 hr ___ Writing & Info Literacy GE ..... 3 hr	___ Physics 1271[1] *(Intro Physics II)* ..... 5 hr ___ Math 1172 (*Eng Mathematics A)* ..... 5 hr ___ Engineering 1182 *(Intro Engineering II)* ..... 2 hr ___ Social and Behavioral Sciences GE ..... 3 hr ___ GenEd 1201[3] ..... 1 hr
2	___ Physics 2300 *(Mechanics I)* ..... 4 hr ___ **Physics 2095** *(Physics Seminar)* ..... 1 hr ___ CSE 1222[2] *(C++ Programming)* ..... 3 hr ___ Math 2173 *(Eng Mathematics B)* ..... 3 hr ___ Race, Ethnicity, Gender Diversity GE ..... 3 hr ___ Literary, Visual and Performing Arts GE ..... 3 hr	___ Physics 2301 *(Mechanics II)* ..... 4 hr ___ Math 2174[4] *(Differential Eq/Linear Algebra)* ..... 3 hr ___ NE 4505 *(Intro to Nuclear Engr)* ..... 3 hr ___ Physics 3700 *(Data Analysis Lab)* ..... 3 hr ___ Historical and Cultural Studies GE ..... 3 hr
3	___ **Physics 5500** *(Quantum Mechanics)* ..... 4 hr ___ NE Elective ..... 3 hr ___ NE Elective ..... 3 hr ___ Targeted Elective[6] ..... 3 hr ___ Thematic Pathways #1[7] ..... 3 hr	___ **Physics 5400** *(Electromagnetism)* ..... 4 hr ___ Physics 4700 *(Electronics Lab)* ..... 3 hr ___ NE Elective ..... 3 hr ___ NE Elective ..... 3 hr ___ Race, Ethnicity, Gender Diversity GE ..... 3 hr
4	___ **Physics 5800** *(Eng Phy Capstone I)* ..... 3 hr ___ NE Elective ..... 3 hr ___ NE Elective ..... 3 hr ___ Targeted Elective[6] ..... 3 hr ___ Thematic Pathways[7] #2 ..... 3 hr ___ Thematic Pathways[7] #3 ..... 3 hr	___ **Physics 5801** *(Eng Phy Capstone II)* ..... 3 hr ___ NE Elective ..... 2 hr ___ NE Elective ..... 3 hr ___ Targeted Elective[6] ..... 3 hr ___ Physics Elective[5] ..... 4 hr ___ Thematic Pathways[7] #4 ..... 3 hr

Total Hours to complete the degree program = 131

[1] Students can take Physics 1250-1251, 1250H-1251H, 1260-1261, or 1270-1271

[2] Students can take CSE 1222, CSE 1223, CSE 1224, Astronomy 1221, or Engr 1281H as their programming course

[3] GenEd 1201 must be taken within the first three semesters

[4] Or (Math 2415 and Math 2568) or (Math 2255 and Math 2568) or Math 5520H can be completed in pace of Math 2174.

[5] Physics Elective options are Physics 3470, 5300, 5401H, 5501, 5600, 5680, and 5810

[6] A list of Targeted Electives options is available at go.osu.edu/targeted-electives.

[7] The requirement is to take either two 3-credit hour classes or one 4-credit hour class for each of the two GE Theme categories

Courses printed in **bold** are taught only during the term shown.

Engineering Specializations

Engineering Physics students are required to take at least 27 hours from one of the following engineering specializations. Note: this document outlines the requirements for the **Nuclear Engineering** (NE) specialization.

Aerospace Engineering
Chemical & Biomolecular Engineering
Computer Science & Engineering
Electrical and Computer Engineering
Industrial & Systems Engineering
Materials Science & Engineering
Mechanical Engineering
Nuclear Engineering

Requirements for each specialization can be found at https://physics.osu.edu/engineering-physics-program/concentration-requirements

Nuclear Engineering Specialization

Required course (3 hours)

Course	Course title	Credits	Term	Prerequisites
NE 4505	Introduction to Nuclear Science and Engineering	3	Au, Sp	Math 2153 or above; and (Physics 1251, 1261, or 1271)

Electives courses (choose 24 hours)

Course	Course title	Credits	Term	Prerequisites
NE 4506	Undergraduate Nuclear Engineering Laboratory	3	Au	NE 4505
NE 4563	Nuclear Reactor Systems	3	Sp	NE 4505
NE 5001	Interactions of Radiation with Matter	3	Au	NE 4505
NE 5002	Reactor Physics	3	Au	NE 4505
NE 5003	Nuclear Reactor Systems and Analysis	3	Sp	NE 4505 and ME 3500
NE 5004	Materials in Nuclear Systems	3	Sp	Senior standing (rank 4)
NE 5606	Radiation Protection and Shielding	3	Sp	(Math 2153 or 2173) and (Physics 1250, 1260, or 1270)
NE 5610	Reactor Safety	3	Sp	NE 4505
NE 5735	Nuclear Power Plant Operations	3	Sp	NE 4505

NE 5742	Nuclear Instrumentation, Radiation Sensor and Detection	3	Sp	None
NE 5776	Nuclear Fuel Cycle and Radioactive Waste Management	3	Sp	NE 4505
ME 3500	Engineering Thermal Sciences	3	Au, Sp	(Math 2174, 2255, or 2415) and (Physics 1250, 1260, or 1270)

General Education Requirement

A list of approved general education courses can be found at advising.engineering.osu.edu/current-students/curriculum/general-education