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 ___ Citizenship Theme GE[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**[8] *(Eng Phy Capstone I)* ..... 3 hr ___ NE Elective ..... 3 hr ___ NE Elective ..... 3 hr ___ Targeted Elective[6] ..... 3 hr ___ Citizenship Theme GE[7] ..... 3 hr ___ Student Choice Theme GE[7] ..... 3 hr	___ **Physics 5801**[8] *(Eng Phy Capstone II)* ..... 3 hr ___ NE Elective ..... 2 hr ___ NE Elective ..... 3 hr ___ Targeted Elective[6] ..... 3 hr ___ Physics Elective[5] ..... 4 hr ___ Student Choice Theme GE[7] ..... 3 hr

Total Hours to complete the degree program = 131; Courses printed in **bold** are taught only during the term shown.

[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] Take either two 3-credit hour classes or one 4-credit hour class for each of the two GE Thematic Pathways requirements. If two 3-hour courses are taken, they must be from different subjects.

Students can take the College of Engineering Multidisciplinary Capstone Design sequence, Engineering 5901.01-5902.01 in place of Physics 5800-5801. Enrollment in ENGR 5901.01 requires approval. More information about ENGR 5901.01, including the

enrollment request details, can be found on the Department of Engineering Education website.

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 below and at physics.osu.edu/engineering-physics-program/engineering-physics-degree-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 4536	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	Au	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