BACHELOR OF SCIENCE IN NUCLEAR AND RADIOLOGICAL ENGINEERING - NUCLEAR ENGINEERING CONCENTRATION

Code	Title	Credit Hours
Wellness Requirement		
APPH 1040	Scientific Foundations of Health	2
or APPH 10	The Science of Physical Activity and Health	
or APPH 10	Flourishing: Strategies for Well-being and Resilience	
Core IMPACTS		
Institutional Priority		
CS 1371	Computing for Engineers	3
Mathematics and Quantitative Skills		
MATH 1552	Integral Calculus [1]	4
Political Science and U.S. History		
HIST 2111	The United States to 1877	3
or HIST 2112	The United States since 1877	
or INTA 1200	American Government in Comparative Perspective	
or POL 1101	Government of the United States	
or PUBP 3000	American Constitutional Issues	
Arts, Humanities, and Ethics		
Any HUM [2]		6
Communicating in Writing		
ENGL 1101	English Composition I	3
ENGL 1102	English Composition II	3
Technology, Mathematics, and Sciences		
PHYS 2211	Principles of Physics I	4
PHYS 2212	Principles of Physics II	4
MATH 1551	Differential Calculus [1]	2
MATH 1553	Introduction to Linear Algebra [1]	2
or MATH 1554	Linear Algebra	
or MATH 1564	Linear Algebra with Abstract Vector Spaces	
Social Sciences		
Any SS [2]		9
Field of Study		
CHEM 1310	Principles of General Chemistry for Engineers [4]	4
MATH 2551	Multivariable Calculus [1]	4
MATH 2552	Differential Equations [1]	4
MSE 2001	Principles and Applications of Engineering Materials	3
NRE 2120	Elements of Nuclear and Radiological Engineering	3
Major Requirements		
Economics Requirement [10]		
Ethics Requirement [2]		
NRE 3026	Experimental Nuclear Reactor Physics	3
NRE 3112	Nuclear Radiation Detection	3
NRE 3208	Nuclear Reactor Phys I	3
NRE 3301	Radiation Physics	3
NRE 3316	Radiation Protection Engineering	3
NRE 4350	Design Methods & Tools	3
NRE 4351	Design of Nuclear and Radiological Systems	3
Non-NRE Requirements		
COE 2001	Statics	2
ECE 3710	Circuits and Electronics	2
ECE 3741	Instrumentation and Electronics Lab	1
ISYE 3025	Essentials of Engineering Economy	1
ME 3322	Thermodynamics	3
ME 3340	Fluid Mechanics	3
MATH 3670	Probability and Statistics with Applications	3
or ECE 3077	Prob/Stats for ECE	
or ISYE 3770	Statistics and Applications	
Nuclear Energy Concentration requirements [5]		
ME 3345	Conduction and Radiation Heat Transfer	3
NRE 4210	Nuclear Reactor Theory	3
NRE 4214	Reactor Engineering	3
Math/Science Elective [6]		3
Engineering Elective [7]		3
Free Electives		
Free Electives (1000-level or higher) [8]		3
Free Electives (2000-level or higher) [9,11]		9
Total Credit Hours		**126**

No Pass-Fail courses allowed except for Ethics overlay requirement.

Students must earn a minimum Major GPA of 2.0 (truncated). Major GPA includes all required NRE and ME classes plus classes used for the concentration. If a class is repeated, only the last grade is included in the calculation.

1 Minimum grade C

2 Ethics Overlay may be Core IMPACTS Arts, Humanities, & Ethics or Social Sciences and can be any course from the GT-approved list: http://www.catalog.gatech.edu/academics/undergraduate/core-curriculum/ethics/.

3 Students can receive credit for only one of ECON 2100, ECON 2101, ECON 2105 and ECON 2106. The only exception is that students can receive 6 hours credit for both ECON 2105 and ECON 2106.

4 CHEM 1211K can substitute for CHEM 1310. CHEM 1211K and CHEM 1212K are recommended for pre-health students.

5 Students must satisfy the requirements of EITHER the Nuclear Engineering (NE) Concentration or the Radiological Science and Engineering (RSE) Concentration. NE Concentration requires ME 3345, NRE 4210, and NRE 4214; RSE Concentration requires NRE 4328 and two courses from the following list: NRE 4750, NRE 4803 (Nuclear Safeguards), and NRE 4407. Students may complete both Concentrations using free or engineering electives.

6 Any Math or Science at 2000 level or higher with the exception of selected 1000-level courses: BIOS 1107/BIOS 1107L, BIOS 1108/BIOS 1108, and CHEM 1212K.

7 Engineering Elective is any class from the College of Engineering at the 2000-level or higher excluding: ME 3141, ME 3700,ME 3720, ME 3743, ME 3744, ME 4741, ME 4742, and ME 4753. Also excludes

project-type courses such as VIP, and 2699, 2903, 4699, 4903 classes. Cannot duplicate any other material used to satisfy the BSNRE degree requirements.

[8] Free 1XXX: Cannot duplicate any other material used to satisfy the BSNRE degree requirements.

[9] Free 2XXX: At least 9 hours of free electives must be at the 2000 level or above with the exception of 4 hours that may be satisfied with one of the following: BIOS 1107/BIOS 1107L, BIOS 1108/BIOS 1108L, or CHEM 1212K. Cannot duplicate any other material used to satisfy the BSNRE degree requirements

[10] Engineering students must complete an Economics course. Students should take ECON 2100, ECON 2101, ECON 2105, ECON 2106 to complete this requirement. The course will also satisfy 3 hours of Core IMPACTS Social Science courses.

[11] Students can use a maximum of 6 credit hours of VIP courses (ECE 2811, 381X, 481X) or a maximum of 6 credit hours of undergraduate research and special problems courses (2699, 4699, 4903 from any department) not to exceed 9 credit hours from both course groups towards the degree requirements for the BSNRE degree.