

# Nuclear Engineering (BS) (14NEBS)

Critical Path Courses – Identify using the code (CP) which courses are considered critical path courses which represent specific major requirements that are predictive of student success in a given program/plan. Place the (CP) next to the credit hours for the course.

## Freshman Year

Fall Semester	Credit	Spring Semester	Credit
CH 101 Chemistry, A Molecular Science <sup>6</sup>	3	CSC 113 Intro Comp: MATLAB <sup>7</sup>	3
CH 102 General Chemistry Lab <sup>6</sup>	1	MA 241 Calculus II <sup>6</sup>	4
E 101 Intro to Engr & Prob Solving <sup>1</sup>	1	PY 205 Physics for Engineers & Scientists I <sup>6</sup>	3
E 115 Intro to Computing Environ	1	PY 206 Physics for Engineers & Scientists I Lab	1
ENG 101 Academic Writing & Research <sup>1</sup>	4	EC 205 Economics (or EC 201 or ARE 201)*	3
MA 141 Calculus I <sup>6</sup>	4	E 102 Engineering in the 21st Century (GEP-IP)	2
HES_*** Health & Exercise Studies Course*	1		
	15		16

## Sophomore Year

Fall Semester	Credit	Spring Semester	Credit
MAE 206 Engineering Statics	3	MAE 208 Engineering Dynamics	3
MA 242 Calculus III	4	MA 341 Appl Differential Eq	3
NE 201 Intro to Nuclear Engr	2	NE 202 Rad. Sources Interact & Detect <sup>1</sup>	4
PY 208 Physics for Engineers & Scientists II	3	GEP Requirement*	3
PY 209 Physics for Engineers & Scientists II Lab	1	GEP Requirement*	3
Advanced Comm Elective <sup>2</sup>	3		
	16		16

## Junior Year

<b>Fall Semester</b>	<b>Credit</b>	<b>Spring Semester</b>	<b>Credit</b>
MAE 201 Engr Thermo I	3	MAE 308 Fluid Mechanics	3
MA 401 Appl Diff Equations II	3	MSE 201 Struct Prop of Engr Mat	3
NE 301 Fund of Nuclear Engr <sup>1</sup>	4	NE 400 Nuclear React Ener Conver	4
ISE 311 Engr Ec Analysis	3	NE 401 React Analysis & DES	4
GEP Requirement*	3	HES_*** Health & Exercise Studies Course*	1
	16		15

## Senior Year

<b>Fall Semester</b>	<b>Credit</b>	<b>Spring Semester</b>	<b>Credit</b>
NE 402 Reactor Engr	4	NE 405 Reactor Systems	3
NE 404 Rad Safety & Shielding	3	NE 408 Nucl Engr Des Proj	3
NE 406 Nuclear Engr Senior Design Prep	1	ENGR Tech Elective <sup>5</sup>	3
NE Elective <sup>3</sup>	3	GEP Requirement*	3
Tech Elective <sup>4</sup>	3	GEP Requirement*	3
	14		15

Minimum Credit Hours Required for Graduation\*:

## Major/Program requirements and footnotes

1. Minimum grade of C- required.
2. Advanced Communication Elective: COM 110, COM 112, COM 146, COM 211, ENG 215, ENG 288, ENG 289, ENG 322, ENG 331, ENG 332, ENG 333, FLA 201, FLA 202, FLC 201, FLC 202, FLF 201, FLF 202, FLF 208, FLG 201, FLG 202, FU 201, FLI 202, FU 201, FU 202, FU 203, FU 204, FU 205, FLK 201, FLK 202, FLN 201, FLN 202, FLP 201, FLR 201, FLR 202, FLS 201, FLS 202, FLS 208, GRK 201, GRK 202, LAT 201, LAT 202, PER 201, PER 202. If any of the listed courses are taken to satisfy this requirement, must take another course for any of the GEP requirements.
3. Nuclear Engineering Electives: NE 409, NE 412, NE 418, NE 509, NE 512, NE 528, NE 541
4. Technical Electives: CSC 302; CH 315, 331; MA 405, 427; PY 341, 411, 414, 415, 525; ST 361, 370, 371.
5. Engineering Technical Electives: Any course from the list of approved NE electives (Footnote 3) or any College of Engineering course at the 300- level or above, except for CSC courses.
6. Grade of C (2.0) or higher required.
7. CSC 113 Introduction to Computing- Matlab or NE 491 Special Topics – FORTRAN

### \*General Education Program (GEP) requirements

To complete the requirements for graduation and the General Education Program, the following credit hours and co-requisites must be satisfied. University approved GEP course lists for each category can be found at <https://oucc.dasa.ncsu.edu/general-education-program/>.

#### A) **Mathematical Sciences** (6 credit hours – one course with MA or ST prefix)

Choose from the University approved GEP Mathematical Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement:

#### B) **Natural Sciences** (7 credit hours – include one laboratory course or course with a lab)

Choose from the University approved GEP Natural Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement:

#### C) **Humanities** (6 credit hours selected from two different disciplines/course prefixes)

Choose from the University approved GEP Humanities course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement:

#### D) **Social Sciences** (6 credit hours selected from two different disciplines/course prefixes)

Choose from the University approved GEP Social Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement:

#### E) **Physical Education/Healthy Living** (2 credit hours – at least one 100-level Fitness and Wellness Course)

Choose from the University approved GEP Physical Education/Healthy Living course list.

#### F) **Additional Breadth** (3 credit hours to be selected from the following checked University approved GEP course lists)

\_\_\_ Humanities/Social Sciences/Visual and Performing Arts or \_\_\_ Mathematical Sciences/Natural Sciences/Engineering

#### G) **Interdisciplinary Perspectives** (5-6 credit hours)

Choose from the University approved GEP Interdisciplinary Perspectives course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement:

#### H) **Introduction to Writing** (4 credit hours satisfied by completing ENG 101 with a C- or better) The following **Co-Requisites** must be satisfied to complete the General Education Program requirements:

##### I) **U.S. Diversity (USD)**

Choose from the University approved GEP U.S. Diversity course list or choose a course identified on the approved GEP course lists as meeting the U.S. Diversity (USD) co-requisite. The following course(s) completed as part of the Major requirements may fulfill this requirement:

##### J) **Global Knowledge (GK)**

Choose from the University approved GEP Global Knowledge course list or choose a course identified on the approved GEP course lists as meeting the Global Knowledge (GK) co-requisite. The following course(s) completed as part of the Major requirements may fulfill this requirement:

##### K) **Foreign Language proficiency**– Proficiency at the FL\_102 level is required for graduation.