

CURRICULUM: Bachelor of Science in Industrial Engineering (BSIE)

general engineering

FRESHMAN YEAR

Fall Semester		Credits
CH101	Chemistry, A Molecular Science ¹	3
CH102	General Chemistry Lab ¹	1
E101	Intro to Engineering & Problem Solving ¹	1
E115	Intro to Computing Environments	1
ENG101	Academic Writing and Research ¹	4
	Calculus I ¹	4
PE10 *	Fitness and Wellness Course *	1
Total Credits:		15

Spring Semester		Credits
	GEP Requirement *	3
EC205	Economics (or EC201 or ARE201 *)	3
MA241	Calculus II ¹	4
PY205	Physics for Engineers and Scientists I ¹	4
	Physical Ed/Healthy Living Elective *	1
Total Credits:		15

become an Excel guru and study BIG DATA

SOPHOMORE YEAR

Fall Semester		Credits
ISE110	Computer Modeling and Engineers ⁶	3
MSE200	Mechanical Properties of Structural Materials	3
MA242	Calculus III	4
PY208	Physics for Engineers and Scientists II	4
ST371	Intro to Probability & Distribution Theory	3
Total Credits:		17

Spring Semester		Credits
ECE331	Principles of Electrical Engineering	3
ISE216	Product Development & Rapid Prototyping	3
MA303	Linear Analysis	3
ISE215	Product Specification I	1
ST372	Intro to Stat Inference & Regression	3
	Engineering Science Elective ³	3
Total Credits:		16

learn about product development

make cool stuff

JUNIOR YEAR

Fall Semester		Credits
ENG331	Technical Writing	3
ISE316	Manufacturing Engineering I: Processes	3
ISE315	Product Specification II	1
ISE441	Intro to Simulation	3
ISE361	Deterministic Models in IE	3
	Ethics (GEP Requirement *)	3
Total Credits:		16

Spring Semester		Credits
ISE352	Work Analysis & Design	4
ISE362	Stochastic Models in IE	3
ISE443	Quality Control	3
	Technical Elective ⁷	3
CE214	Engineering Mechanics - Statics	3
Total Credits:		16

Design safe and efficient processes

build a model of patients in a hospital

stop bad products before they ship

optimize supply chains

SENIOR YEAR

Fall Semester		Credits
ENG311	Engineering Economic Analysis	3
ISE408	Control of Production & Service Systems	3
	/ Technical Elective ⁷ / Healthcare Systems	3
ISE520	Performance Improvement I ⁸	3
ISE453	Production Systems Design	3
	GEP Requirement *	3
Total Credits:		15

Spring Semester		Credits
ISE498 / ISE521	Senior Design Project / Healthcare Systems Performance Improvement II ⁸	3
	Technical Elective ⁷	3
	GEP Requirement *	3
	GEP Requirement *	3
	GEP Requirement *	2-3
Total Credits:		14-15

Work on an industry project

design a facility

Minimum Credit Hours Required for Graduation:

124

Major/Program Requirements and Footnotes

¹ For matriculation, courses must be completed with a grade of C or higher.

² Must be completed with a grade of C- or higher.

³ Engineering science electives: CE 215, CE 313, MAE 208, MAE 314, MAE 301 or MAE 308.

⁴ Ethics elective: IDS 201, IDS 303, STS 214, STS 302, STS 304, STS 322, or STS 325.

⁵ Graduation requirements include: (a) 2.0 overall GPA, or higher, on all courses attempted at NCSU, and (b) a GPA of 2.0 or higher in the major (all courses bearing the ISE-designation) OR a grade of C- or higher in each ISE course used to satisfy the requirements in the major.

⁶ ISE/TE 110 must be completed with a C or better.

⁷ Technical electives include: ISE 416, ISE 417, ISE 452, ISE 462, ISE 495, MSE 465, MSE 445, MSE 485, ST 430 and ST 431.

⁸ To earn a Health Systems Engineering Certificate, students will take ISE 520 as a technical elective and ISE 521 instead of ISE498.

* 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-gep/gep-course-lists-2/>.

PHYSICAL EDUCATION – 2 hours to be selected from the approved GEP Physical Education list.

- One fitness and wellness course (any PE 100-level course).
- One additional credit hour of PE activity courses.

HUMANITIES – 6 credits to be selected in two different disciplines (two different course prefixes) from the approved GEP Humanities list.

SOCIAL SCIENCES – 3 credits to be selected in a discipline other than economics from the approved GEP Social Sciences list. EC 205 taken as part of the Major requirements satisfies 3 credit hours of the 6 credit hours needed to fulfill the GEP Social Sciences requirement.

ADDITIONAL BREADTH – 3 credits to be selected from the approved GEP Humanities, Social Sciences or Visual and Performing Arts lists.

INTERDISCIPLINARY PERSPECTIVES – 5 credits to be selected from the approved GEP Interdisciplinary Perspectives list. Ethics course taken as part of the Major requirements satisfies 3 credit hours of the 5-6 credit hours needed to fulfill the GEP Interdisciplinary Perspectives requirement.

Co-requisites: U.S. Diversity and Global Knowledge co-requisites must be satisfied to complete the General Education requirements. Choose course(s) that are identified on the approved GEP course lists as meeting the U.S. Diversity and Global Knowledge co-requisites.

Foreign Language proficiency at the FL_102 level will be required for graduation.