

CURRICULUM: Bachelor of Science in Industrial Engineering

Semester 1 Freshman - Fall			Hours	Semester 2 Freshman - Spring			Hours
CH 101	Chemistry, A Molecular Science	3		E 102	Engineering in the 21st Century (GEP-IP)	2	
CH 102	General Chemistry Lab	1		EC 205	Economics ¹	3	
E 101	Intro to Engineering & Problem Solving	1			GEP Requirement *	3	
E 115	Intro to Computing Environments	1		HES ***	Health and Exercise Studies Course *	1	
ENG 101	Academic Writing and Research	4		MA 241	Calculus II	4	
HES ***	Health and Exercise Studies Course *	1		PY 205	Physics for Engineers and Scientists I	3	
MA 141	Calculus I	4		PY 206	Physics for Engineers and Scientists I Lab	1	
Total Hours		15		Total Hours		17	

ISE PRO TIP: If you take E 102, you only have to take three hours of interdisciplinary perspectives. If you don't take it, you have to take five hours.

ISE PRO TIP: Become a Python guru and learn about Big DATA!

Semester 3 Sophomore - Fall			Hours	Semester 4 Sophomore - Spring			Hours
ISE 135	Computer Modeling for Engineers	3		ECE 331	Principles of Electrical Engineering	3	
MA 242	Calculus III	4			GEP Requirement *	3	
MSE 200	Mech. Properties of Structural Materials	3		ISE 215	Introduction to Computer Aided Design	1	
PY 208	Physics for Engineers and Scientists II	3		ISE 216	Product Development & Rapid Prototyping	3	
PY 209	Physics for Engineers and Scientists II Lab	1		MA 303	Linear Analysis ²	3	
ST 371	Intro to Probability & Distribution Theory	3		ST 372	Intro to Stat Inference & Regression	3	
Total Hours		17		Total Hours		16	

ISE PRO TIP: Learn about product development

ISE PRO TIP: Learn to make cool stuff

Semester 5 Junior - Fall			Hours	Semester 6 Junior - Spring			Hours
CE 214	Engineering Mechanics - Statics ³	3			Engineering Science Elective ⁴	3	
	Ethics *	3		ISE 352	Fund. of Human-Machine Systems Design	3	
ISE 311	Engineering Economic Analysis	3		ISE 362	Stochastic Models in IE	3 ^{CP}	
ISE 315	Computer-aided Manufacturing	1		ISE 443	Quality Control	3	
ISE 316	Manufacturing Engineering I: Processes	3			Technical Elective	3	
ISE 361	Deterministic Models in Industrial Engr	3 ^{CP}		Total Hours		15	
Total Hours		16					

ISE PRO TIP: For your ISE degree, it is recommended to take either CE 225, CE 282, MAE 201 or MAE 208.

ISE PRO TIP: Design safe and efficient processes

ISE PRO TIP: Stop bad products before they are shipped

ISE PRO TIP: Design a facility

ISE PRO TIP: Build a model that simulates patients in a hospital

Semester 7 Senior - Fall			Hours	Semester 8 Senior - Spring			Hours
ENG 331	Technical Writing	3			GEP Requirement *	3	
ISE 398	Lean Six Sigma for Industrial Engineers	1			GEP Requirement *	3	
ISE 408	Control of Production & Service Systems	3 ^{CP}			GEP Requirement *	3	
ISE 441	Introduction to Simulation	3 ^{CP}		ISE 498	Senior Design Project <i>or</i>	3	
ISE 453	Modeling and Analysis of Supply Chains	3 ^{CP}		ISE 521	Healthcare Systems Performance Improvement II	3	
	Technical Elective <i>or</i>	3			Technical Elective	3	
ISE 520	Healthcare Systems Performance Improvement I	3		Total Hours		15	
Total Hours		16					

ISE PRO TIP: Learn to optimize supply chains

ISE PRO TIP: Work on a team project with a local company and gain real-world experience

Minimum Credit Hours Required for Graduation

127

go.ncsu.edu/BSIEcurriculum

Major/Program Requirements and Footnotes

- ¹ Economics: EC 205, EC 201, or ARE 201
 - ² Mathematics: MA 303 or MA 341
 - ³ Statics: CE 214 or MAE 206
 - ⁴ Engineering science electives: CE 225, CE 282, MAE 201, MAE 208, MAE 214, MAE 308 or MSE 355
- CP** Starting in your junior year, you will see courses (labeled with a CP) known as critical path courses. These courses represent specific major requirements that are predictive of your success in the BSIE program. If you have any questions, please contact your faculty advisor.

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 <http://oucc.dasa.ncsu.edu/general-education-program/>.

HEALTH AND EXERCISE STUDIES

Two (2) hours to be selected from the approved GEP Health and Exercise Studies list.

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

HUMANITIES

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

SOCIAL SCIENCES

Three (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 three (3) credit hours of the six (6) credit hours needed to fulfill the GEP Social Sciences requirement.

ADDITIONAL BREADTH

Three (3) credits to be selected from the approved GEP Humanities, Social Sciences or Visual and Performing Arts lists.

INTERDISCIPLINARY PERSPECTIVES

Five (5) credits to be selected from the approved GEP Interdisciplinary Perspectives list. Ethics course taken as part of the Major requirements satisfies three (3) credit hours of the five to six (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 the 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.