

CURRICULUM: Bachelor of Science in Industrial Engineering (BSIE)

FRESHMAN YEAR

Fall Semester		Credits	Spring Semester		Credits
CH101	Chemistry, A Molecular Science ¹	3	EC205	Economics ¹	3
CH102	General Chemistry Lab ¹	1	MA241	Calculus II ¹	4
E101	Intro to Engineering & Problem Solving ¹	1	PY205	Physics for Engineers and Scientists I ¹	3
E115	Intro to Computing Environments	1	E102	Engineering in the 21st Century (GEP-IP)	2
ENG101	Academic Writing and Research ¹	4	HES_***	Physical Ed/Healthy Living Elective *	1
MA141	Calculus I ¹	4		GEP Requirement *	3
HES_***	Health and Exercise Studies Course *	1			
Total Credits:		15	Total Credits:		17

SOPHOMORE YEAR

Fall Semester		Credits	Spring Semester		Credits
MSE200	Mechanical Properties of Structural Materials	3	ECE331	Principles of Electrical Engineering	3
ISE135	Computer Modeling and Engineers	3	ISE215	Introduction to Computer Aided Design	1
MA242	Calculus III	4	ISE216	Product Development & Rapid Prototyping	3
PY208/209	Physics for Engineers and Scientists II and Lab	4	MA303	Linear Analysis	3
ST371	Intro to Probability & Distribution Theory	3	ST372	Intro to Stat Inference & Regression	3
	Total Credits:	17		GEP Requirement *	3
			Total Credits:		16

JUNIOR YEAR

Fall Semester		Credits	Spring Semester		Credits
ISE311	Engineering Economic Analysis	3	ISE352	Fundamentals of Human-Machine Systems Design	3
ISE316	Manufacturing Engineering I: Processes	3	ISE362	Stochastic Models in IE	3 (CP)
ISE315	Computer-aided Manufacturing	1	ISE443	Quality Control	3
CE214	Engineering Mechanics - Statics ³	3		Technical Elective	3
ISE361	Deterministic Models in IE	3 (CP)		Engineering Science Elective ⁴	3
	Ethics *	3			
Total Credits:		16	Total Credits:		15

SENIOR YEAR

Fall Semester		Credits	Spring Semester		Credits
ISE441	Introduction to Simulation	3 (CP)	ISE498 /	Senior Design Project / Healthcare	3 (CP)
ISE398	Lean Six Sigma for Industrial Engineers	1	ISE521	Systems Performance Improvement II ⁸	
ISE408	Control of Production & Service Systems	3 (CP)		Technical Elective	3
ISE520	Healthcare Systems Performance Improvement I or Technical Elective	3		GEP Requirement *	3
ISE453	Modeling and Analysis of Supply Chains	3 (CP)		GEP Requirement *	3
ENG331	Technical Writing	3		GEP Requirement *	2-3
Total Credits:		16	Total Credits:		14-15

Minimum Credit Hours Required for Graduation:

124

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

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.