

# CURRICULUM: Bachelor of Science in Industrial Engineering (BSIE)

## FRESHMAN YEAR

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

## SOPHOMORE YEAR

Fall Semester		Credits	Spring Semester		Credits
ISE 135	Computer Modeling and Engineers	3	ECE 331	Principles of Electrical Engineering	3
MA 242	Calculus III	4		GEP Requirement *	3
MSE 200	Mechanical 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	3
ST 371	Intro to Probability and Distribution Theory	3	ST 372	Intro to Stat Inference and Regression	3
<b>Total Credits:</b>		<b>17</b>	<b>Total Credits:</b>		<b>16</b>

## JUNIOR YEAR

Fall Semester		Credits	Spring Semester		Credits
CE 214	Engineering Mechanics - Statics	3		Engineering Science Elective <sup>4</sup>	3
	Ethics *	3	ISE 352	Fundamentals of Human-Machine Systems Design	3
ISE 311	Engineering Economic Analysis	3	ISE 362	Stochastic Models in IE (CP)	3
ISE 315	Computer-Aided Manufacturing	1	ISE 443	Quality Control	3
ISE 316	Manufacturing Engineering I - Processes	1		Technical Elective	3
ISE 361	Deterministic Models in IE (CP)	3	<b>Total Credits:</b>		<b>15</b>
<b>Total Credits:</b>		<b>16</b>			

## SENIOR YEAR

Fall Semester		Credits	Spring Semester		Credits
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 (CP)	3		GEP Requirement *	3
ISE 441	Introduction to Simulation (CP)	3	ISE498 /	Senior Design Project / Healthcare	3
ISE 453	Modeling and Analysis of Supply Chains (CP)	3	ISE521	Systems Performance Improvement II <sup>8</sup> (CP)	
ISE 520	Healthcare Systems Performance Improvement I or Technical Elective	3		Technical Elective	3
<b>Total Credits:</b>		<b>16</b>	<b>Total Credits:</b>		<b>15</b>

**Minimum Credit Hours Required for Graduation:**

**127**

## Major/Program Requirements and Footnotes

<sup>1</sup> Economics: EC 205, EC 201, or ARE 201

<sup>2</sup> Mathematics: MA 303 or MA 341

<sup>3</sup> Statics: CE 214 or MAE 206

<sup>4</sup> 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.