

# B.S. General Engineering - Concentration in Quality and Reliability Engineering

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(120 credits)

## Concentration in Quality and Reliability Engineering

### First Year

#### 1st Semester

		Credits
CHEM 125	General Chemistry I	3
CHEM 125A	General Chemistry Lab I	1
FED 101	Fundamentals of Engineering Design	2
ENGL 101	English Composition: Introduction to Academic Writing	3
MATH 111	Calculus I	4
PHYS 111	Physics I	3
PHYS 111A	Physics I Lab	1
FYS SEM	First-Year Student Seminar	0
<b>Term Credits</b>		<b>17</b>

#### 2nd Semester

CHEM 126	General Chemistry II	3
ENGL 102	English Composition: Introduction to Writing for Research	3
MATH 112	Calculus II	4
PHYS 121	Physics II	3
PHYS 121A	Physics II Lab	1
<b>Term Credits</b>		<b>14</b>

### Second Year

#### 1st Semester

CS 101 or CS 106	Computer Programming and Problem Solving or Introduction to Computing	3
MATH 211	Calculus III A	3
PHYS 234	Physics III	3
ECON 201	Economics	3
IE 203	Applications of Computer Graphics in Industrial Engineering	2
PHYS 231A	Physics III Lab	1
<b>Term Credits</b>		<b>15</b>

#### 2nd Semester

MATH 222	Differential Equations	4
ME 215	Engineering Materials and Processes	3
ECE 231	Circuits and Systems I	3
MECH 320	Statics and Strength of Materials	3
ENGR 211	Professional Skills for Engineers I	1
History and Humanities GER 200 level ( <a href="http://catalog.njit.edu/undergraduate/academic-policies-procedures/general-education-requirements/ger-200-level/">http://catalog.njit.edu/undergraduate/academic-policies-procedures/general-education-requirements/ger-200-level/</a> )		3
<b>Term Credits</b>		<b>17</b>

### Third Year

#### 1st Semester

COM 313	Technical Writing	3
ENGR 330	Applications of Microcontrollers and IoT devices	3
ME 430	Introduction to Computer-Aided Design	3
MATH 244	Introduction to Probability Theory	3
ENGR 320	Prototyping Essentials	3

ENGR 312	Professional Skills for Engineers II	1
<b>Term Credits</b>		<b>16</b>
<b>2nd Semester</b>		
MATH 341	Statistical Methods II	3
ENGR 360	Geometric Dimensioning and Tolerancing and Applied Metrology	3
BME 303	Biological and Chemical Foundations of Biomedical Engineering	3
ENGR 301	Engineering Applications of Data Science	3
Technical Elective		3
<b>Term Credits</b>		<b>15</b>
<b>Fourth Year</b>		
<b>1st Semester</b>		
IE 355	Human Factors	3
IE 455	Robotics and Programmable Logic Controllers	3
ENGR 430	Engineering for Quality and Reliability	3
MATH 344	Regression Analysis	3
<b>Term Credits</b>		<b>12</b>
<b>2nd Semester</b>		
PHIL 334	Engineering Ethics and Technological Practice: Philosophical Perspectives on Engineering	3
ENGR 400	Multidisciplinary Engineering Design Project	3
Technical Elective		3
ENGR 425	Advanced Manufacturing Rotation	2
Humanities and Social Science Senior Seminar GER ( <a href="http://catalog.njit.edu/undergraduate/academic-policies-procedures/general-education-requirements/hss-capstone/">http://catalog.njit.edu/undergraduate/academic-policies-procedures/general-education-requirements/hss-capstone/</a> )		3
<b>Term Credits</b>		<b>14</b>
<b>Total Credits</b>		<b>120</b>

## Suggested Technical Electives

Code	Title	Credits
CHEM 243	Organic Chemistry I	3
ECE 232	Circuits and Systems II	3
MATH 337	Linear Algebra	3