

# B.S. in Civil Engineering

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(120 credits minimum)

**First Year**

| <b>1st Semester</b> |   | <b>Credits</b> |
|---------------------|---|----------------|
| CS 101              | Computer Programming and Problem Solving              | 3              |
| CHEM 125            | General Chemistry I                                   | 3              |
| FED 101             | Fundamentals of Engineering Design                    | 2              |
| ENGL 101            | English Composition: Introduction to Academic Writing | 3              |
| MATH 111            | Calculus I  | 4              |
| FYS SEM             | First-Year Student Seminar                            | 0              |
| CHEM 125A           | General Chemistry Lab I                               | 1              |
| <b>Term Credits</b> |   | <b>16</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 111            | Physics I   | 3         |
| PHYS 111A           | Physics I Lab   | 1         |
| CE 101              | CE Computer Aided Design                                  | 1         |
| <b>Term Credits</b> |   | <b>15</b> |

**Second Year****1st Semester**

|                     |  |           |
|---------------------|--|-----------|
| CE 200              | Surveying                                | 2         |
| CE 200A             | Surveying Laboratory                     | 1         |
| MATH 211            | Calculus III A                           | 3         |
| MATH 279            | Statistics and Probability for Engineers | 2         |
| MECH 235            | Statics                                  | 3         |
| PHYS 121            | Physics II                               | 3         |
| PHYS 121A           | Physics II Lab                           | 1         |
| <b>Term Credits</b> |  | <b>15</b> |

**2nd Semester**

|                     |   |           |
|---------------------|---|-----------|
| CE 210              | Construction Materials and Procedures     | 3         |
| CE 260              | Civil Engineering Methods                 | 2         |
| MATH 322            | Differential Equations for Applications   | 3         |
| MECH 239            | Strength of Materials for Civil Engineers | 3         |
| ENE 262             | Introduction to Environmental Engineering | 3         |
| <b>Term Credits</b> |   | <b>14</b> |

**Third Year****1st Semester**

|  |                             |           |
|--|-----------------------------|-----------|
| CE 320   | Fluid Mechanics             | 3         |
| CE 320A  | Hydraulics Laboratory       | 1         |
| CE 321   | Water Resources Engineering | 3         |
| CE 332   | Structural Analysis         | 3         |
| MECH 236   | Dynamics                    | 2         |
| 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>15</b> |

**2nd Semester**

|        |                            |   |
|--------|----------------------------|---|
| CE 333 | Reinforced Concrete Design | 2 |
| CE 341 | Soil Mechanics             | 3 |

|  |  |            |
|--|--|------------|
| CE 341A  | Soil Mechanics Laboratory                                      | 1          |
| CE 350   | Transportation Engineering                                     | 3          |
| CE 360   | Sustainable Civil Engr Mat                                     | 3          |
| History and Humanities GER 300+ level ( <a href="http://catalog.njit.edu/undergraduate/academic-policies-procedures/general-education-requirements/ger-300-level/">http://catalog.njit.edu/undergraduate/academic-policies-procedures/general-education-requirements/ger-300-level/</a> )          |  | 3          |
| <b>Term Credits</b>  |  | <b>15</b>  |
| <b>Fourth Year</b>   |  |            |
| <b>1st Semester</b>  |  |            |
| CE 431   | Construction Materials Lab                                     | 1          |
| CE 432   | Steel Design   | 2          |
| CE 443   | Foundation Design  | 3          |
| CE 494   | Civil Engineering Design I                                     | 3          |
| CE Elective <sup>1</sup>   |  | 3          |
| 300-level GER: Select one of the following:  |  | 3          |
| COM 339  | Practical Journalism   |            |
| COM 312  | Oral Presentations   |            |
| COM 319  | Technical, Professional and Scientific Writing for Publication |            |
| COM 337  | Photojournalism  |            |
| COM 316  | Creative Writing   |            |
| <b>Term Credits</b>  |  | <b>15</b>  |
| <b>2nd Semester</b>  |  |            |
| CE 495   | Civil Engineering Design II                                    | 3          |
| CE Designated Elective <sup>1</sup>  |  | 3          |
| Science Elective <sup>2</sup>  |  | 3          |
| IE 492   | Engineering Management   | 3          |
| 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>15</b>  |
| <b>Total Credits</b>   |  | <b>120</b> |

**Co-op Option A Track**

(145 credits minimum)

**First Year**

|                     |   | <b>Credits</b> |
|---------------------|---|----------------|
| <b>1st Semester</b> |   |                |
| CS 101              | Computer Programming and Problem Solving                  | 3              |
| CHEM 125A           | General Chemistry Lab I                                   | 1              |
| CHEM 125            | General Chemistry I                                       | 3              |
| FED 101             | Fundamentals of Engineering Design                        | 2              |
| ENGL 101            | English Composition: Introduction to Academic Writing     | 3              |
| MATH 111            | Calculus I  | 4              |
| FYS SEM             | First-Year Student Seminar                                | 0              |
| <b>Term Credits</b> |   | <b>16</b>      |
| <b>2nd Semester</b> |   |                |
| CHEM 126            | General Chemistry II                                      | 3              |
| ENGL 102            | English Composition: Introduction to Writing for Research | 3              |
| MATH 112            | Calculus II   | 4              |
| PHYS 111            | Physics I   | 3              |
| PHYS 111A           | Physics I Lab   | 1              |
| CE 101              | CE Computer Aided Design                                  | 1              |
| <b>Term Credits</b> |   | <b>15</b>      |

**Second Year**

**1st Semester**

|                     |  |           |
|---------------------|--|-----------|
| CE 200              | Surveying                                | 2         |
| CE 200A             | Surveying Laboratory                     | 1         |
| MATH 211            | Calculus III A                           | 3         |
| MATH 279            | Statistics and Probability for Engineers | 2         |
| MECH 235            | Statics                                  | 3         |
| PHYS 121            | Physics II                               | 3         |
| PHYS 121A           | Physics II Lab                           | 1         |
| <b>Term Credits</b> |  | <b>15</b> |

**2nd Semester**

|                     |   |           |
|---------------------|---|-----------|
| CE 210              | Construction Materials and Procedures     | 3         |
| CE 260              | Civil Engineering Methods                 | 2         |
| MATH 322            | Differential Equations for Applications   | 3         |
| ENE 262             | Introduction to Environmental Engineering | 3         |
| MECH 239            | Strength of Materials for Civil Engineers | 3         |
| ENGR 211            | Professional Skills for Engineers I       | 1         |
| <b>Term Credits</b> |   | <b>15</b> |

**Summer**

|                     |  |          |
|---------------------|--|----------|
| CO-OP I             |  |          |
| <b>Term Credits</b> |  | <b>0</b> |

**Third Year**

**1st Semester**

|                     |                         |           |
|---------------------|-------------------------|-----------|
| ENGR 310            | Co-op Work Experience I | 12        |
| <b>Term Credits</b> |                         | <b>12</b> |

**2nd Semester**

|  |                             |           |
|--|-----------------------------|-----------|
| CE 320   | Fluid Mechanics             | 3         |
| CE 320A  | Hydraulics Laboratory       | 1         |
| CE 321   | Water Resources Engineering | 3         |
| CE 332   | Structural Analysis         | 3         |
| MECH 236   | Dynamics                    | 2         |
| 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>15</b> |

**Summer**

|                     |  |          |
|---------------------|--|----------|
| CO-OP II            |  |          |
| <b>Term Credits</b> |  | <b>0</b> |

**Fourth Year**

**1st Semester**

|                     |                          |           |
|---------------------|--------------------------|-----------|
| ENGR 410            | Co-op Work Experience II | 12        |
| <b>Term Credits</b> |                          | <b>12</b> |

**2nd Semester**

|   |                            |           |
|---|----------------------------|-----------|
| CE 333  | Reinforced Concrete Design | 2         |
| CE 341  | Soil Mechanics             | 3         |
| CE 341A   | Soil Mechanics Laboratory  | 1         |
| CE 350  | Transportation Engineering | 3         |
| CE 360  | Sustainable Civil Engr Mat | 3         |
| History and Humanities GER 300+ level ( <a href="http://catalog.njit.edu/undergraduate/academic-policies-procedures/general-education-requirements/ger-300-level/">http://catalog.njit.edu/undergraduate/academic-policies-procedures/general-education-requirements/ger-300-level/</a> ) |                            | 3         |
| <b>Term Credits</b>   |                            | <b>15</b> |

**Fifth Year****1st Semester**

|                              |  |   |
|------------------------------|--|---|
| CE 431                       | Construction Materials Lab                                     | 1 |
| CE 432                       | Steel Design   | 2 |
| CE 443                       | Foundation Design  | 3 |
| CE 494                       | Civil Engineering Design I                                     | 3 |
| CE Elective                  |  | 3 |
| Select one of the following: |  | 3 |
| COM 339                      | Practical Journalism   |   |
| COM 312                      | Oral Presentations   |   |
| COM 319                      | Technical, Professional and Scientific Writing for Publication |   |
| COM 313                      | Technical Writing  |   |
| COM 316                      | Creative Writing   |   |

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|                     |           |
|---------------------|-----------|
| <b>Term Credits</b> | <b>15</b> |
|---------------------|-----------|

**2nd Semester**

|  |                             |   |
|--|-----------------------------|---|
| CE 495   | Civil Engineering Design II | 3 |
| CE Designated Elective <sup>1</sup>  |                             | 3 |
| Science Elective <sup>2</sup>  |                             | 3 |
| IE 492   | Engineering Management      | 3 |
| 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 |

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|                     |           |
|---------------------|-----------|
| <b>Term Credits</b> | <b>15</b> |
|---------------------|-----------|

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|                      |            |
|----------------------|------------|
| <b>Total Credits</b> | <b>145</b> |
|----------------------|------------|

**Co-op Option B Track**

(145 credits minimum)

**First Year****1st Semester**

|          |   | <b>Credits</b> |
|----------|---|----------------|
| CE 101   | CE Computer Aided Design                              | 1              |
| CS 101   | Computer Programming and Problem Solving              | 3              |
| CHEM 125 | General Chemistry I                                   | 3              |
| FED 101  | Fundamentals of Engineering Design                    | 2              |
| ENGL 101 | English Composition: Introduction to Academic Writing | 3              |
| MATH 111 | Calculus I  | 4              |
| FYS SEM  | First-Year Student Seminar                            | 0              |

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|                     |           |
|---------------------|-----------|
| <b>Term Credits</b> | <b>16</b> |
|---------------------|-----------|

**2nd Semester**

|           |   |   |
|-----------|---|---|
| CHEM 126  | General Chemistry II                                      | 3 |
| CHEM 124  |   |   |
| ENGL 102  | English Composition: Introduction to Writing for Research | 3 |
| MATH 112  | Calculus II   | 4 |
| PHYS 111  | Physics I   | 3 |
| PHYS 111A | Physics I Lab   | 1 |

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|                     |           |
|---------------------|-----------|
| <b>Term Credits</b> | <b>14</b> |
|---------------------|-----------|

**Second Year****1st Semester**

|          |  |   |
|----------|--|---|
| CE 200   | Surveying                                | 2 |
| CE 200A  | Surveying Laboratory                     | 1 |
| MATH 211 | Calculus III A                           | 3 |
| MATH 279 | Statistics and Probability for Engineers | 2 |
| MECH 235 | Statics                                  | 3 |

|   |   |           |
|---|---|-----------|
| PHYS 121  | Physics II                                | 3         |
| PHYS 121A   | Physics II Lab                            | 1         |
| <b>Term Credits</b>   |   | <b>15</b> |
| <b>2nd Semester</b>   |   |           |
| CE 210  | Construction Materials and Procedures     | 3         |
| CE 260  | Civil Engineering Methods                 | 2         |
| MATH 322  | Differential Equations for Applications   | 3         |
| ENE 262   | Introduction to Environmental Engineering | 3         |
| MECH 239  | Strength of Materials for Civil Engineers | 3         |
| <b>Term Credits</b>   |   | <b>14</b> |
| <b>Third Year</b>   |   |           |
| <b>1st Semester</b>   |   |           |
| CE 320  | Fluid Mechanics                           | 3         |
| CE 320A   | Hydraulics Laboratory                     | 1         |
| CE 321  | Water Resources Engineering               | 3         |
| CE 332  | Structural Analysis                       | 3         |
| MECH 236  | Dynamics                                  | 2         |
| 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         |
| ENGR 211  | Professional Skills for Engineers I       | 1         |
| <b>Term Credits</b>   |   | <b>16</b> |
| <b>2nd Semester</b>   |   |           |
| ENGR 310  | Co-op Work Experience I                   | 12        |
| <b>Term Credits</b>   |   | <b>12</b> |
| <b>Summer</b>   |   |           |
| CO-OP I   |   |           |
| <b>Term Credits</b>   |   | <b>0</b>  |
| <b>Fourth Year</b>  |   |           |
| <b>1st Semester</b>   |   |           |
| CE 333  | Reinforced Concrete Design                | 2         |
| CE 341  | Soil Mechanics                            | 3         |
| CE 341A   | Soil Mechanics Laboratory                 | 1         |
| CE 350  | Transportation Engineering                | 3         |
| CE 360  | Sustainable Civil Engr Mat                | 3         |
| History and Humanities GER 300+ level ( <a href="http://catalog.njit.edu/undergraduate/academic-policies-procedures/general-education-requirements/ger-300-level/">http://catalog.njit.edu/undergraduate/academic-policies-procedures/general-education-requirements/ger-300-level/</a> ) |   | 3         |
| <b>Term Credits</b>   |   | <b>15</b> |
| <b>2nd Semester</b>   |   |           |
| ENGR 410  | Co-op Work Experience II                  | 12        |
| <b>Term Credits</b>   |   | <b>12</b> |
| <b>Summer</b>   |   |           |
| CO-OP II  |   |           |
| <b>Term Credits</b>   |   | <b>0</b>  |
| <b>Fifth Year</b>   |   |           |
| <b>1st Semester</b>   |   |           |
| CE 431  | Construction Materials Lab                | 1         |
| CE 432  | Steel Design                              | 2         |
| CE 443  | Foundation Design                         | 3         |
| CE 494  | Civil Engineering Design I                | 3         |
| CE Elective   |   | 3         |
| Select one of the following:  |   | 3         |
| COM 339   | Practical Journalism                      |           |

|  |  |            |
|--|--|------------|
| COM 312  | Oral Presentations   |            |
| COM 319  | Technical, Professional and Scientific Writing for Publication |            |
| COM 313  | Technical Writing  |            |
| COM 316  | Creative Writing   |            |
| <b>Term Credits</b>  |  | <b>15</b>  |
| <b>2nd Semester</b>  |  |            |
| CE 495   | Civil Engineering Design II                                    | 3          |
| CE Designated Elective <sup>1</sup>  |  | 3          |
| Science Elective <sup>2</sup>  |  | 3          |
| IE 492   | Engineering Management   | 3          |
| 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>15</b>  |
| <b>Total Credits</b>   |  | <b>144</b> |

<sup>1</sup> Student must choose one of the following: CE 307, CE 351, CE 410, CE 414, CE 450, EnE 360, EnE 361

<sup>2</sup> Biology, Geology, Geomorphology only

## GER Electives

Refer to the **General Education Requirement** section of this catalog for further information on GER electives.

*This curriculum represents the maximum number of credits per semester for which a student is advised to register. A full-time credit load is 12 credits.*

*First-year students are placed in a curriculum that positions them for success which may result in additional time needed to complete curriculum requirements. Continuing students should consult with their academic advisor to determine the appropriate credit load.*