

University of Puerto Rico at Mayagüez  
**Computer Science and Engineering Department**  
 Curriculum for BS in Software Engineering

**First Semester**

**First Year (BS)**

**Second Semester**

| Course Code | Course Title                     | Prerequisites  | Cr | Course Code | Course Title             | Prerequisites   | Cr |
|-------------|----------------------------------|--|----|-------------|--------------------------|---|----|
| *MATE 3031  | Calculus I                       | MATE 3005 or MATE 3143 or MATE 3172 or MATE 3174                         | 4  | MATE 3032   | Calculus II              | MATE 3031 or MATE 3183 or MATE 3144                         | 4  |
| QUIM 3131   | General Chemistry I              | Co-req: QUIM 3133 and (MATE 3171 or MATE 3005 or MATE 3143 or MATE 3173) | 3  | QUIM 3132   | General Chemistry II     | QUIM 3131 and QUIM 3133<br>Co-Req: QUIM 3134                | 3  |
| QUIM 3133   | General Chemistry Lab I          | Co-req: QUIM 3131 and (MATE 3171 or MATE 3005 or MATE 3143 or MATE 3173) | 1  | QUIM 3134   | General Chemistry Lab II | QUIM 3001 or (QUIM 3131 and QUIM 3133)<br>Co-req: QUIM 3132 | 1  |
| **INGL 3--- | English First Year               |  | 3  | **INGL 3--- | English First Year       |   | 3  |
| CIIC 3015   | Intro. to Computer Programming I |  | 4  | CIIC 3075   | Foundations of Computing | CIIC 3015 or INGE 3016<br>Co-req: MATE 3031                 | 3  |
|             |                                  |  |    | CIIC 4010   | Advanced Programming     | CIIC 3015 or INGE 3016                                      | 4  |
|             |                                  | Total Credits  | 15 |             |                          | Total Credits   | 18 |

**First Semester**

**Second Year (BS)**

**Second Semester**

| Course Code | Course Title    | Prerequisites  | Cr | Course Code | Course Title                  | Prerequisites   | Cr |
|-------------|-----------------|--|----|-------------|-------------------------------|---|----|
| MATE 3063   | Calculus III    | MATE 3032 or MATE 3184   | 3  | CIIC 4025   | Algorithm Design and Analysis | CIIC 4020 or ICOM 4035  | 3  |
| FISI 3171   | Physics I       | MATE 3031 or MATE 3183 or MATE 3144  | 4  | FISI 3172   | Physics II                    | FISI 3161 or FISI 3171  | 4  |
| FISI 3173   | Physics Lab I   | Co-req: FISI 3171  | 1  | FISI 3174   | Physics Lab II                | FISI 3173 or FISI 3163<br>Co-req: FISI 3172                             | 1  |
| CIIC 4020   | Data Structures | (CIIC 4010 or ICOM 4015) and (CIIC 3075 or ICOM 4075)<br>Co-req: MATE 3031 | 4  | INEL 3105   | Electrical Systems Analysis I | MATE 3032 and INGE 3016 <sup>1</sup><br>Co-req: FISI 3172 and MATE 3063 | 3  |
| **ESPA 3101 | Spanish I       |  | 3  | **ESPA 3102 | Spanish II                    | ESPA 3101   | 3  |
|             |                 | Total Credits  | 15 |             |                               | Total Credits   | 14 |

**First Semester**

**Third Year (BS)**

**Second Semester**

| Course Code | Course Title                              | Prerequisites                                 | Cr | Course Code | Course Title                           | Prerequisites                          | Cr |
|-------------|---|---|----|-------------|--|--|----|
| INSO 4101   | Intro to Software Engineering             | CIIC 4020 or ICOM 4035                        | 3  | INGE 3011   | Engineering Graphics                   |  | 2  |
| CIIC 3081   | Computer Architecture I                   | (CIIC 3015 or INGE 3016)<br>Co-req: INEL 4115 | 3  | CIIC 4082   | Computer Architecture II               | CIIC 3081                              | 3  |
| MATE 4145   | Linear Algebra and Differential Equations | MATE 3063 and (COMP 3010 or INGE 3016)        | 4  | INSO 4115   | Software Requirements                  | ICOM 4009 or INSO 4101                 | 3  |
| INEL 4115   | Electrical Measurements Lab               | Co-Req: INEL 3105                             | 1  | ININ 4010   | Engineering Probability and Statistics | (INGE 3016 or CIIC 3015) and MATE 3032 | 3  |
| **INGL 3--- | English Second Year                       |   | 3  | **INGL 3--- | English Second Year                    |  | 3  |

<sup>1</sup> The course CIIC 3015 substitutes INGE 3016 in the CIIC/INSO programs.

University of Puerto Rico at Mayagüez  
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| First Semester |                                  |   |                      | Fourth Year (BS) |                           |  |           | Second Semester |              |               |                      |           |
|----------------|----------------------------------|---|----------------------|------------------|---------------------------|--|-----------|-----------------|--------------|---------------|----------------------|-----------|
| Course Code    | Course Title                     | Prerequisites   | Cr                   | Course Code      | Course Title              | Prerequisites  | Cr        | Course Code     | Course Title | Prerequisites | Cr                   |           |
| CIIC 4050      | Operating Systems                | (ICOM 4035 or CIIC 4020) and (CIIC 4082 or INEL 4206) | 4                    | CIIC 4060        | Database Systems          | (ICOM 4035 or CIIC 4020)<br>Co-req. (ICOM 5007 or CIIC 4050) | 3         |                 |              |               |                      |           |
| CIIC 4030      | Programming Languages            | CIIC 4020 or ICOM 4035                                | 3                    | CIIC 4070        | Computer Networks         | (ICOM 4035 or CIIC 4020)<br>Co-req. (ICOM 5007 or CIIC 4050) | 3         |                 |              |               |                      |           |
| INSO 4116      | Software Design                  | ICOM 4009 or INSO 4101                                | 3                    | INSO 4117        | Software Testing          | ICOM 4009 or INSO 4101                                       | 3         |                 |              |               |                      |           |
| INGE 3045      | Electrical Engineering Materials | (QUIM 3002 or QUIM 3132) and QUIM 3134 and FISI 3172  | 3                    | ININ 4015        | Engineering Economics     | MATE 3032  | 3         |                 |              |               |                      |           |
| ----           | Socio-Humanistic Elective        |   | 3                    | ----             | Socio-Humanistic Elective |  | 3         |                 |              |               |                      |           |
|                |                                  |   | <b>Total Credits</b> |                  |                           |  | <b>16</b> |                 |              |               | <b>Total Credits</b> | <b>15</b> |

| First Semester |                              |  |                      | Fifth Year (BS)        |                             |   |           | Second Semester |              |               |                      |           |
|----------------|------------------------------|--|----------------------|------------------------|-----------------------------|---|-----------|-----------------|--------------|---------------|----------------------|-----------|
| Course Code    | Course Title                 | Prerequisites  | Cr                   | Course Code            | Course Title                | Prerequisites   | Cr        | Course Code     | Course Title | Prerequisites | Cr                   |           |
| INSO 4151      | Software Engineering Project | (INSO 4115 and INSO 4116 and INSO 4117 and CIIC 4025 and CIIC 4060) or DIR | 3                    | INSO 5xxx<br>CIIC 5xxx | Technical Elective***       |   | 3         |                 |              |               |                      |           |
| INGE 3035      | Engineering Mechanics        | (MATE 3031 or MATE 3144 or MATE 3183)<br>Co-req: FISI 3171 or FISI 3161    | 3                    | INME 4045              | Thermodynamics              | FISI 3172 and (QUIM 3002 or QUIM 3042 or (QUIM 3132 and QUIM 3134)) | 3         |                 |              |               |                      |           |
| -----          | Free Elective                |  | 3                    | -----                  | Free Elective               |   | 3         |                 |              |               |                      |           |
| -----          | Free Elective                |  | 3                    | -----                  | Free Elective               |   | 3         |                 |              |               |                      |           |
| ----           | Socio-Humanistic Elective    |  | 3                    | ----                   | Socio-Humanistic Elective   |   | 3         |                 |              |               |                      |           |
| EDFI -----     | Physical Education Elective  |  | 1                    | EDFI ----              | Physical Education Elective |   | 1         |                 |              |               |                      |           |
|                |                              |  | <b>Total Credits</b> |                        |                             |   | <b>16</b> |                 |              |               | <b>Total Credits</b> | <b>16</b> |

**TOTAL CREDITS: 153**

\*\*\* For the list of Approved Technical Electives, as well as general rules that apply, see "[General Information on Technical Electives in CIIC/INSO](#)" on the online version of this curriculum.