

# MECHANICAL ENGINEERING (SIEP TRACK B) - CLASS OF 2020

## Freshman Year Fall Semester

| Course Code | Description                                      | Cr        |  |
|-------------|--|-----------|--|
| CHM 101     | General Chemistry Lec I (A1)                     | 3         |  |
| CHM 102     | General Chemistry I Lab                          | 1         |  |
| EGR 105     | Foundations of Engineering I (A4)                | 1         |  |
| MTH 141     | Intro Calculus with Analytical Geometry (A1, B3) | 4         |  |
|             | General Education Outcome(s)                     | 3         |  |
| SPA 103     | Intermediate Spanish I                           | 3         |  |
|             |  | <b>15</b> |  |

## Freshman Year Spring Semester

| Course Code | Description                           | Cr        |  |
|-------------|---------------------------------------|-----------|--|
| EGR 106     | Foundations of Engineering II (A4)    | 2         |  |
| MTH 142     | Intermed Calc with Analytic Geom (B3) | 4         |  |
| PHY 203     | Elementary Physics I (A1)             | 3         |  |
| PHY 273     | Elementary Physics Lab I (A1)         | 1         |  |
|             | General Education Outcome(s)          | 3         |  |
| SPA 104     | Intermediate Spanish II               | 3         |  |
|             |                                       | <b>16</b> |  |

## Sophomore Year Fall Semester

| Course Code                                 | Description  | Cr        |  |
|---|--|-----------|--|
| ISE 240/241<br>or ISE 220<br>and MCE<br>201 | Mfg Processes and Systems (3), Mfg Processes and Systems Lab (1)<br>Introduction to Systems Engineering (1),<br>Engineering Graphics (3) | 4         |  |
| MCE 262                                     | Statics  | 3         |  |
| MTH 243                                     | Calculus for Funcs. of Sev. Vars. (A1, B3)   | 3         |  |
| PHY 204                                     | Elementary Physics II (A1)   | 3         |  |
| PHY 274                                     | Elementary Physics Lab II (A1)   | 1         |  |
| SPA 205                                     | Spanish Language & Style I   | 3         |  |
|   |  | <b>17</b> |  |

## Sophomore Year Spring Semester

| Course Code                                 | Description  | Cr        |  |
|---|--|-----------|--|
| CVE 220                                     | Mechanics of Materials   | 3         |  |
| ISE 240/241<br>or ISE 220<br>and MCE<br>201 | Mfg Processes and Systems (3), Mfg Processes and Systems Lab (1)<br>Introduction to Systems Engineering (1),<br>Engineering Graphics (3) | 4         |  |
| MCE 263                                     | Dynamics   | 3         |  |
| MTH 244                                     | Differential Equations   | 3         |  |
|   | Science Elective**   | 3         |  |
| SPA 206                                     | Spanish Language & Style II  | 3         |  |
|   |  | <b>19</b> |  |

## Junior Year Fall Semester

| Course Code | Description                         | Cr        |  |
|-------------|-------------------------------------|-----------|--|
| CHE 333     | Engineering Materials               | 3         |  |
| MCE 301     | Applications of Mechanics in Design | 3         |  |
| MCE 341     | Fundamentals of Thermodynamics      | 3         |  |
| MCE 354     | Fluid Mechanics                     | 3         |  |
| MCE 372     | Engineering Analysis                | 3         |  |
| SPA 325     | Introduction to Literary Genres     | 3         |  |
|             |                                     | <b>18</b> |  |

## Junior Year Spring Semester

| Course Code | Description                         | Cr        |  |
|-------------|-------------------------------------|-----------|--|
| ELE 220     | Passive and Active Circuits         | 3         |  |
| MCE 302     | Design of Machinery                 | 3         |  |
| MCE 313     | Intro to MCE Experimentation        | 3         |  |
| MCE 348     | Heat and Mass Transfer              | 3         |  |
| MCE 366     | System Dynamics                     | 3         |  |
| SPA 321     | Spanish for Business and Technology | 3         |  |
|             |                                     | <b>18</b> |  |

## Semester Abroad

| Course Code | Description                             | Cr        |  |
|-------------|---|-----------|--|
| SPA/EGR 412 | Technical Spanish/Professional Elective | 3         |  |
|             | Engineering Course                      | 3         |  |
|             | General Education Outcome(s)*           | 3         |  |
|             | General Education Outcome(s)*           | 3         |  |
| SPA 4XX     |   | 3         |  |
|             |   | <b>15</b> |  |

## International Internship Semester

| Course Code | Description           | Cr         |  |
|-------------|-----------------------|------------|--|
| SPA 316-317 | Language Study Abroad | 3-6        |  |
|             |                       |            |  |
|             |                       |            |  |
|             |                       |            |  |
|             |                       |            |  |
|             |                       | <b>3-6</b> |  |

## Senior Year Fall Semester

| Course Code | Description                              | Cr        |  |
|-------------|--|-----------|--|
| MCE 401     | Mechanical Engineering Capstone Design I | 3         |  |
| MCE 414     | Mechanical Engineering Experimentation   | 3         |  |
|             | Approved Professional Elective***        | 3         |  |
|             | General Education Outcome(s)*            | 3         |  |
|             | General Education Outcome(s)*            | 3         |  |
| SPA 4XX     |  | 3         |  |
|             |  | <b>18</b> |  |

## Senior Year Spring Semester

| Course Code | Description                               | Cr        |  |
|-------------|---|-----------|--|
| MCE 402     | Mechanical Engineering Capstone Design II | 3         |  |
|             | Approved Professional Elective***         | 3         |  |
|             | Approved Professional Elective***         | 3         |  |
|             | Approved Professional Elective***         | 3         |  |
|             | General Education Outcome(s)*             | 3         |  |
| SPA 4XX     |   | 3         |  |
|             |   | <b>18</b> |  |

**Specified Math, Science, and Engineering Courses**

| Introductory Engineering |              |    |       |    |      |
|--------------------------|--------------|----|-------|----|------|
| Sem                      | Course       | Cr | Grade | QP | Note |
|                          | EGR 105 (A4) | 1  |       |    |      |
|                          | EGR 106 (A4) | 2  |       |    |      |
|                          |              | 3  |       |    |      |

| Mathematics |                   |    |       |    |      |
|-------------|-------------------|----|-------|----|------|
| Sem         | Course            | Cr | Grade | QP | Note |
|             | MTH 141 (A1 & B3) | 4  |       |    |      |
|             | MTH 142 (B3)      | 4  |       |    |      |
|             | MTH 243           | 3  |       |    |      |
|             | MTH 244           | 3  |       |    |      |
|             |                   | 14 |       |    |      |

| Natural Sciences |              |    |       |    |      |
|------------------|--------------|----|-------|----|------|
| Sem              | Course       | Cr | Grade | QP | Note |
|                  | CHM 101 (A1) | 3  |       |    |      |
|                  | CHM 102      | 1  |       |    |      |
|                  | PHY 203 (A1) | 3  |       |    |      |
|                  | PHY 273 (A1) | 1  |       |    |      |
|                  | PHY 204 (A1) | 3  |       |    |      |
|                  | PHY 274 (A1) | 1  |       |    |      |
|                  |              | 12 |       |    |      |

| **Professional Elective |        |    |       |    |      |
|-------------------------|--------|----|-------|----|------|
| Sem                     | Course | Cr | Grade | QP | Note |
|                         |        | 3  |       |    |      |
|                         |        | 3  |       |    |      |
|                         |        | 3  |       |    |      |
|                         |        | 3  |       |    |      |
|                         |        | 12 |       |    |      |

| Engineering Science and Design (Major) |                    |    |       |    |      |
|--|--------------------|----|-------|----|------|
| Sem                                    | Course             | Cr | Grade | QP | Note |
|  | CHE 333            | 3  |       |    |      |
|  | CVE 220            | 3  |       |    |      |
|  | ELE 220            | 3  |       |    |      |
|  | ISE 220****        | 1  |       |    |      |
|  | ISE 240            | 3  |       |    |      |
|  | ISE 241            | 1  |       |    |      |
|  | MCE 201            | 3  |       |    |      |
|  | MCE 262            | 3  |       |    |      |
|  | MCE 263            | 3  |       |    |      |
|  | MCE 301            | 3  |       |    |      |
|  | MCE 302            | 3  |       |    |      |
|  | MCE 313            | 3  |       |    |      |
|  | MCE 341            | 3  |       |    |      |
|  | MCE 348            | 3  |       |    |      |
|  | MCE 354            | 3  |       |    |      |
|  | MCE 366            | 3  |       |    |      |
|  | MCE 372            | 3  |       |    |      |
|  | MCE 401 [capstone] | 3  |       |    |      |
|  | MCE 402 [capstone] | 3  |       |    |      |
|  | MCE 414            | 3  |       |    |      |
|  |                    | 56 |       |    |      |

| **Science Elective |        |    |       |    |      |
|--------------------|--------|----|-------|----|------|
| Sem                | Course | Cr | Grade | QP | Note |
|                    |        | 3  |       |    |      |
|                    |        | 3  |       |    |      |

**\*General Education Outcomes:** at least 40 credits must be completed. (A1-D1) must be met by at least three credits. A single course may satisfy one or two outcomes, and at least one course must be a "Grand Challenge". No more than twelve credits can be from the same course code except HPR. General education courses may also be used to meet requirements of your major(s) or minor(s) when appropriate.

**\*\*Science Elective:** choose from CHM 112, CHM 124, PHY 205, PHY 275

**\*\*\*Professional Electives:** Must be satisfied by **twelve (12) credits** of professional electives, with a minimum of **three (3) three (3)- credit MCE courses** (no more than two (2) courses from the MCE 47\*/CHE47\* series), two (2) of which must be taken at URI. The fourth course may be a 300-, 400-, or 500-level course offered by the College of Engineering, CHM, CSC, PHY, or STA; or a 400- or 500-level MTH course. Professional elective courses taken outside URI are subject to URI transfer credit rules and require prior written approval.

| Spanish Language Requirements (min. 30 credits) |            |    |    |    |
|---|------------|----|----|----|
| Sem   | Course     | Cr | Gr | QP |
|   | SPA ____   | 3  |    |    |
|   | SPA ____   | 3  |    |    |
|   | SPA 316    | 3  |    |    |
|   | SPA 317    | 3  |    |    |
|   | SPA 321    | 3  |    |    |
|   | SPA 325    | 3  |    |    |
|   | SPA 412    | 3  |    |    |
|   | SPA 4 ____ | 3  |    |    |
|   | SPA 4 ____ | 3  |    |    |
|   | SPA 4 ____ | 3  |    |    |

SPA 101, 102, 391, 392, and 393 cannot be counted towards the Spanish major and SPA 321 may only count toward the major for students in the IEP or IRP.

SPA 412 and 421 will not fulfill any of the 9 credits required that are above the 400-level, but may count toward any of the remaining credits required for the major.

LIN 202 and 220 may be used towards major requirements

The IEP requires SPA 316, 317, 321, 325, 412 and (3) 400-level Spanish Literature courses. IEP students that are beginning Spanish at the 200-level may use up to 6 credits of Portuguese toward the major, as long as all other requirements are met.

Students may opt to take summer or Jterm classes to advance in their Spanish skills at a faster pace

| General Education Outcome Audit  |                             |        |
|--|-----------------------------|--------|
|  | Course                      | Credit |
| <b>Knowledge</b>   |                             |        |
| A1. STEM   | CHM & PHY (see above)       | 11     |
| A2. Social & Behavioral Sciences   |                             |        |
| A3. Humanities   | SPA 205/206 (suggested)     | 3      |
| A4. Arts & Design  | EGR 105 & 106               | 3      |
| <b>Competences</b>   |                             |        |
| B1. Write Effectively  |                             |        |
| B2. Communicate Effectively  |                             |        |
| B3. Mathematical, statistical, or computational strategies                     | MTH (see above)             | 11     |
| B4. Information literacy   |                             |        |
| <b>Responsibilities</b>  |                             |        |
| C1. Civic knowledge & responsibilities   |                             |        |
| C2. Global responsibilities  | SPA 205/206 (suggested)     | 3      |
| C3. Diversity and Inclusion  |                             |        |
| <b>Inegrate &amp; Apply</b>  |                             |        |
| D1. Ability to synthesize  | TBD from major requirements | 3      |
| <b>Grand Challenge</b>   |                             |        |
| G. Check that at least one course of your 40 credits is an approved "G" course |                             |        |
| Total General Education Outcome Credits  |                             | 40     |