

# Mechanical Engineering Course Plan

## Catalog Year 2019-2020

### Legend

**\* Major Requirement**

Must be taken to fulfill major requirements.

**† Major Elective**

Must be taken to fulfill major requirements, or replaced with an equivalent course.

**‡ Gen-Ed Requirement**

Must be taken to fulfill general education requirements.

**§ Elective**

Can be chosen from a selection of courses.

*See MyGFU for detailed academic requirements.*

### First Year

#### Fall Semester

|                                       |                   |
|---------------------------------------|-------------------|
| Engineering Principles I (ENGR 151) * | 3 credits         |
| General Chemistry (CHEM 211) *        | 4 credits         |
| Calculus I (MATH 201) *               | 4 credits         |
| Knowing and Being Known (LIBA 100) ‡  | 3 credits         |
| I Believe I (THEO 101) ‡              | 3 credits         |
| <b>Semester Total</b>                 | <b>17 credits</b> |
| <b>Cumulative Total</b>               | <b>17 credits</b> |

#### Spring Semester

|  |                   |
|--|-------------------|
| Engineering Principles II (ENGR 152) *     | 3 credits         |
| General Physics with Calculus (PHYS 211) * | 4 credits         |
| Calculus II (MATH 202) *                   | 4 credits         |
| Introduction to Communication (COMM 100) ‡ | 3 credits         |
| I Believe II (THEO 102) ‡                  | 3 credits         |
| <b>Semester Total</b>                      | <b>17 credits</b> |
| <b>Cumulative Total</b>                    | <b>34 credits</b> |

## Second Year

### Fall Semester

|   |                   |
|---|-------------------|
| Principles of Material Science (ENGM 250) * | 3 credits         |
| Statics (ENGM 211) *                        | 3 credits         |
| General Physics with Calculus (PHYS 212) *  | 4 credits         |
| Calculus III (MATH 301) *                   | 3 credits         |
| Math Elective †                             | 3 credits         |
| <b>Semester Total</b>                       | <b>16 credits</b> |
| <b>Cumulative Total</b>                     | <b>50 credits</b> |

### Spring Semester

|  |                   |
|--|-------------------|
| Circuits & Instrumentation (ENGR 260) *                | 4 credits         |
| Dynamics (ENGM 212) *                                  | 3 credits         |
| Materials & Processes in Manufacturing (ENGM 220) *    | 3 credits         |
| Engineering Thermodynamics (ENGM 311) *                | 3 credits         |
| Differential Equations and Linear Algebra (MATH 311) * | 4 credits         |
| <b>Semester Total</b>                                  | <b>17 credits</b> |
| <b>Cumulative Total</b>                                | <b>67 credits</b> |

## Third Year

### Fall Semester

|  |                   |
|--|-------------------|
| Servant Engineering I (ENGR 381) *                     | 2 credits         |
| Machine Dynamics and Vibration (ENGM 350) *            | 3 credits         |
| Fluid Mechanics (ENGM 330) *                           | 3 credits         |
| Application of Engineering Thermodynamics (ENGM 312) * | 2 credits         |
| Mechanics of Materials (ENGM 320) *                    | 3 credits         |
| Lifelong Fitness (HHPA 120) ‡                          | 2 credits         |
| <b>Semester Total</b>                                  | <b>15 credits</b> |
| <b>Cumulative Total</b>                                | <b>82 credits</b> |

### Spring Semester

|   |                   |
|---|-------------------|
| Servant Engineering II (ENGR 382) *           | 2 credits         |
| Finite Elements & Computer Model (ENGM 360) * | 3 credits         |
| Mechanical Engineering Design (ENGM 400) *    | 3 credits         |
| Mechanics of Materials Lab (ENGM 321) *       | 1 credits         |
| Heat Transfer (ENGM 380) *                    | 3 credits         |
| Energy Lab (ENGM 381) *                       | 1 credits         |
| Intercultural GE Requirement ‡                | 3 credits         |
| <b>Semester Total</b>                         | <b>16 credits</b> |
| <b>Cumulative Total</b>                       | <b>98 credits</b> |

## Fourth Year

### Fall Semester

|   |                    |
|---|--------------------|
| Senior Design I (ENGR 481) *                                    | 1 credits          |
| Senior Seminar (ENGR 490) *                                     | 1 credits          |
| ME Elective (ENGM 4xx) *  | 3 credits          |
| Control Systems Engineering (ENGM 480) *                        | 3 credits          |
| HUMA 290 or Art, Beauty and Truth GE Requirement (HUMA 290) ‡   | 3 credits          |
| Christianity and Culture (LIBA 400) ‡                           | 3 credits          |
| Bible Elective GE Requirement (Bible Elective GE Requirement) ‡ | 3 credits          |
| <b>Semester Total</b>   | <b>17 credits</b>  |
| <b>Cumulative Total</b>   | <b>115 credits</b> |

### Spring Semester

|   |                    |
|---|--------------------|
| Senior Design II (ENGR 482) *                                   | 3 credits          |
| ME Elective (ENGM 4xx) *  | 3 credits          |
| Philosophy and Literature (HUMA 205) *                          | 3 credits          |
| History/Politics/International Affairs GE Requirement ‡         | 3 credits          |
| Principles of Microeconomics or Macroeconomics (ECON 201/202) * | 3 credits          |
| <b>Semester Total</b>   | <b>15 credits</b>  |
| <b>Cumulative Total</b>   | <b>130 credits</b> |