

## BS Mechanical Engineering Recommended Plan

| <b>Freshman Year</b>     |     |   |   | <i>Fall Semester</i>     | <i>Credits</i> | <i>Spring Semester</i>                   | <i>Credits</i> |
|--------------------------|-----|---|---|--------------------------|----------------|--|----------------|
| CH                       | 101 | Chemistry, A Molecular Science <sup>1</sup>     | 3 | CSC                      | 113            | Intro Comp MATLAB                        | 3              |
| CH                       | 102 | General Chemistry Lab <sup>1</sup>              | 1 | MA                       | 241            | Calculus II <sup>1</sup>                 | 4              |
| E                        | 101 | Introduction to Engr & Prob Solv <sup>1,2</sup> | 1 | PY                       | 205            | Physics for Engr & Sc I <sup>1</sup>     | 3              |
| E                        | 115 | Intro to Computing Environ <sup>1,2</sup>       | 1 | PY                       | 206            | Physics for Engr & Sc I <sup>1</sup> Lab | 1              |
| ENG                      | 101 | Academic Writing and Research <sup>1,2</sup>    | 4 | GC                       | 120            | Foundations of Graphics                  | 3              |
| MA                       | 141 | Calculus I <sup>1</sup>                         | 4 | HESF                     | 10*            | Fitness & Wellness Course*               | 1              |
| EC                       | 205 | Economics (or EC 201 or ARE 201)*               | 3 | E                        | 102            | Engineering in the 21st Cent             | 2              |
| HES                      | *** | Health & Exercise Studies                       | 1 |                          |                |  |                |
| <b>Semester Total 18</b> |     |   |   | <b>Semester Total 17</b> |                |  |                |

| <b>Sophomore Year</b>    |     |   |   | <i>Fall Semester</i>     | <i>Credits</i> | <i>Spring Semester</i>             | <i>Credits</i> |
|--------------------------|-----|---|---|--------------------------|----------------|------------------------------------|----------------|
| MA                       | 242 | Calculus III                              | 4 | MA                       | 341            | Appl Differential Eq               | 3              |
| MAE                      | 200 | Introduction to ME Design <sup>3</sup>    | 1 | MAE                      | 201            | Engr Thermodynamics I <sup>2</sup> | 3              |
| MAE                      | 206 | Engineering Statics <sup>2</sup>          | 3 | MAE                      | 305            | ME Lab I                           | 1              |
| PY                       | 208 | Physics for Engr & Sc II                  | 3 | MAE                      | 208            | Engineering Dynamics <sup>2</sup>  | 3              |
| PY                       | 209 | Physics for Engr & Sc II <sup>1</sup> Lab | 1 | MAE                      | 214            | Solid Mechanics <sup>2</sup>       | 3              |
| ST                       | 370 | Prob & Stat for Engineers ( or ST 371)    | 3 | ***                      | ***            | GEP Requirement*                   | 3              |
| ***                      | *** | GEP Requirement*                          | 3 |                          |                |                                    |                |
| <b>Semester Total 18</b> |     |   |   | <b>Semester Total 16</b> |                |                                    |                |

| <b>Junior Year</b>       |     |                        |   | <i>Fall Semester</i>     | <i>Credits</i> | <i>Spring Semester</i>                   | <i>Credits</i> |
|--------------------------|-----|------------------------|---|--------------------------|----------------|--|----------------|
| ENG                      | 331 | Comm Engr & Tech       | 3 | ECE                      | 331            | Principles of Elec. Engr. I              | 3              |
| MAE                      | 302 | Engr Thermodynamics II | 3 | MAE                      | 310            | Heat Transfer Fundamentals               | 3              |
| MAE                      | 306 | ME Lab II              | 1 | MAE                      | 316            | Strength of Mech Comp                    | 3              |
| MAE                      | 308 | Fluid Mechanics        | 3 | MSE                      | 200            | Mech. Prop. Engr. Materials (or MSE 201) | 3              |
| MAE                      | 315 | Dynamics of Machines   | 3 | **E                      | ***            | Tech Elective <sup>4</sup>               | 3              |
| ***                      | *** | GEP Requirement*       | 3 |                          |                |  |                |
| <b>Semester Total 16</b> |     |                        |   | <b>Semester Total 15</b> |                |  |                |

| <b>Senior Year</b>  |     |                                 |   | <i>Fall Semester</i>  | <i>Credits</i> | <i>Spring Semester</i>                  | <i>Credits</i> |   |
|---|-----|---------------------------------|---|---|----------------|---|----------------|---|
| **E   | *** | Tech Elective <sup>4</sup>      | 3 | **E   | ***            | Tech Elective <sup>4</sup>              | 3              |   |
| ISE   | 311 | Engr Econ Analysis              | 3 | ***   | ***            | GEP Requirement*                        | 3              |   |
| MAE   | 405 | Controls Lab                    | 1 | ***   | ***            | Ethics (GEP Req*) <sup>5</sup>          | 3              |   |
| MAE   | 435 | Prin of Auto Control            | 3 | Select one of the following ME Senior Design Part 2: <sup>6</sup> |                |   |                |   |
| Select one of the following ME Senior Design Part 1:          |     |                                 |   | 3   | MAE            | 416                                     | ME Design II   | 4 |
| MAE   | 415 | ME Design I                     |   | MAE   | 483+           | Engr Entrepreneurship Develop 1 and Lab |                |   |
| MAE   | 482 | Engr Entrepreneurship Develop 1 |   | 484   |                |   |                |   |
| <b>Semester Total 13</b>                                      |     |                                 |   | <b>Semester Total 13</b>  |                |   |                |   |
| <b>Minimum Total Credit Hours Required for Graduation 126</b> |     |                                 |   |   |                |   |                |   |

### Major/Program requirements and footnotes:

<sup>1</sup>Courses required for Change of Degree Audit (CODA): Grade of C or higher in CH 101+102, MA 141, MA 241, and PY 205 + 206.

<sup>2</sup>Minimum grade of C-, E 115 requires satisfactory completion (S).

<sup>3</sup>MAE 200 may be taken in the fall semester of the sophomore or junior year.

<sup>4</sup>Technical electives must be selected from the following list: <https://www.mae.ncsu.edu/academics/undergraduate-programs/electives/>

<sup>5</sup>Select from IDS 201, MS 402, NS 420, PHI 214, PHI 227, PHI/STS 325, PHI 375, STS 302, or STS 304.

<sup>6</sup>Select ME Senior Design Part 2 based on Part 1 choice: MAE 416 follows MAE 415; MAE 483+484 follows MAE 482.

### \*General Education Program (GEP) requirements and GEP Footnotes:

To complete the requirements for graduation and the General Education Program, the following category credit hours and co-requisites must be satisfied.

University approved GEP course lists for each of the following categories can be found at <http://oucc.ncsu.edu/gep-courses>.

**Humanities** (6 credit hours selected from two different disciplines/course prefixes)  
Choose from the University approved GEP Humanities course list.

**Social Sciences** (6 credit hours selected from two different disciplines/course prefixes)

Choose 3 credits from the University approved GEP Social Sciences course list in a discipline other than Economics.

Economics 205 (or EC 201 or ARE 201), taken as part of the Major requirements, satisfies 3 credit hours needed to fulfill the GEP Social Sciences requirement.

**Health and Exercise Studies** (2 credit hours – must include one HESF 100-level course and one additional HES course)

Choose from the University approved GEP Health and Exercise Studies course list.

**Additional Breadth** - (3 credit hours to be selected from the following University approved GEP course lists)

Choose from the Humanities/Social Sciences/Visual and Performing Arts

**Interdisciplinary Perspectives** (5-6 credit hours)

Choose from the University approved GEP Interdisciplinary Perspectives course list.

**The following Co-Requisites must be satisfied to complete the General Education Program requirements:**

#### I. U.S. Diversity (USD)

Choose from the University approved GEP U.S. Diversity course list or choose a course identified on the approved GEP course lists as meeting the U.S. Diversity (USD) co-requisite.

#### J. Global Knowledge (GK)

Choose from the University approved GEP Global Knowledge course list or choose a course identified on the approved GEP course lists as meeting the Global Knowledge (GK) co-requisite.

#### K. Foreign Language proficiency

Proficiency at the FL\_102 level is required for graduation.