# BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING - NUCLEAR AND RADIOLOGICAL ENGINEERING

| Code | Title | Credit Hours |
|---|---|---|
| **Wellness Requirement** | | |
| APPH 1040 | Scientific Foundations of Health | 2 |
| or APPH 10 | The Science of Physical Activity and Health | |
| or APPH 10 | Flourishing: Strategies for Well-being and Resilience | |
| **Core IMPACTS** | | |
| **Institutional Priority** | | |
| CS 1371 | Computing for Engineers | 3 |
| **Mathematics and Quantitative Skills** | | |
| MATH 1552 | Integral Calculus [2] | 4 |
| **Political Science and U.S. History** | | |
| HIST 2111 | The United States to 1877 | 3 |
| or HIST 2112 | The United States since 1877 | |
| or INTA 1200 | American Government in Comparative Perspective | |
| or POL 1101 | Government of the United States | |
| or PUBP 3000 | American Constitutional Issues | |
| **Arts, Humanities, and Ethics** | | |
| Any HUM | | 6 |
| **Communicating in Writing** | | |
| ENGL 1101 | English Composition I | 3 |
| ENGL 1102 | English Composition II | 3 |
| **Technology, Mathematics, and Sciences** | | |
| PHYS 2211 | Principles of Physics I [2] | 4 |
| PHYS 2212 | Principles of Physics II | 4 |
| MATH 1551 | Differential Calculus [2] | 2 |
| MATH 1553 | Introduction to Linear Algebra [2] | 2 |
| or MATH 1554 | Linear Algebra | |
| or MATH 1564 | Linear Algebra with Abstract Vector Spaces | |
| **Social Sciences** | | |
| Any SS | | 9 |
| **Field of Study** | | |
| CHEM 1310 | Principles of General Chemistry for Engineers [7] | 4 |
| ME 1670 | Introduction to Engineering Graphics and Design | 3 |
| MATH 2551 | Multivariable Calculus [2] | 4 |
| MATH 2552 | Differential Equations [2] | 4 |
| MSE 2001 | Principles and Applications of Engineering Materials | 3 |
| **Major Requirements** | | |
| Economics Requirement [9] | | |
| Ethics Requirement [1] | | |
| COE 2001 | Statics [2] | 2 |
| ME 2016 | Computer Applications | 3 |
| ME 2110 | Creative Decisions and Design | 3 |
| ME 2202 | Dynamics of Rigid Bodies | 3 |
| ME 3017 | System Dynamics | 3 |
| ME 3057 | Experimental Methodology and Technical Writing | 3 |
| ME 3058 | ME Systems Laboratory | 3 |
| ME 3322 | Thermodynamics | 3 |
| ME 3340 | Fluid Mechanics | 3 |
| ME 3345 | Conduction and Radiation Heat Transfer | 3 |
| COE 3001 | Mechanics of Deformable Bodies | 3 |
| ME 3210 | Design, Materials, and Manufacture | 3 |
| ME 4182 | Mechanical Design Engineering | 3 |
| or ME 4723 | Interdisciplinary Capstone Design | |
| **Other Engineering Requirements** | | |
| ECE 3710 | Circuits and Electronics | 2 |
| ECE 3741 | Instrumentation and Electronics Lab | 1 |
| ISYE 3025 | Essentials of Engineering Economy | 1 |
| MATH 3670 | Probability and Statistics with Applications | 3 |
| or ECE 3077 | Prob/Stats for ECE | |
| or ISYE 377 | Statistics and Applications | |
| **Nuclear Energy Concentration** | | |
| NRE 2120 | Elements of Nuclear and Radiological Engineering | 3 |
| Any 3000-/4000-level NRE electives [8] | | 9 |
| Required Design elective (select one): | | 3 |
| ME 4315 | Energy Systems Analysis and Design | |
| ME 3180 | Machine Design | |
| **Free Electives** | | |
| Free Electives [3,4,6] | | 6 |
| **Total Credit Hours** | | **129** |

No pass-fail courses allowed except for the Ethics overlay requirement.

Student must earn a 2.0 GPA within Major Requirements and MSE 2001, ECE 3710, ECE 3741, and ISYE 3025.

If a course is repeated, only the latest grade is included in the calculation of the Major Requirements GPA.

1. Students must complete one Ethics course during their program.
2. Minimum grade of C required.
3. At least 3 credit hours in either the Concentration Electives or Free Electives must be a 3000-level or higher ME course. ME 3141, ME 3700, ME 3720, ME 3743, ME 3744, ME 4699, ME 4741, ME 4742, ME 4753, and ME 4903 are not allowed.
4. Excludes CEE 2040, PHYS 2802, PHYS 2XXX (AP Credit) and MGT 2250.
5. ME 4803/NRE 4803 must have the title 'Nuclear Reactor Materials'
6. Students can use a maximum of 6 credit hours of VIP courses or a maximum of 6 credit hours of undergraduate research and special problems courses (2699, 4699, 4903 from any department) not to exceed 9 credit hours from both course groups towards the degree requirements for the BSME degree.
7. CHEM 1211K can substitute for CHEM 1310. CHEM 1211K and CHEM 1212K are recommended for pre-health students.
8. Excluding NRE 4699 or NRE 4903
9. Students must complete one course from the following list that includes appropriate economic content relevant to the program: ECON 2100, ECON 2101, ECON 2105, or ECON 2106. Note that ECON 2100, 2101, 2105, 2106 may also be applied toward Core

IMPACTS Social Science credit hours. You should discuss this with your academic advisor to ensure that you are taking the most efficient path to complete both areas.