# MECH

## Mechanical Engineering

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| **WEB LINKS** | https://mech.rice.edu/undergraduate-program |
| **FRANK ADVICE** | Students interested in pursuing a degree in Mechanical Engineering are encouraged to declare their major early. See an adviser to create your degree plan. |
| **ADVICE FOR STUDENTS WITH AP CREDIT** | Students with AP credit for calculus are encouraged to take the MATH and CAAM sequences earlier than suggested in the sample degree plan. |
| **ALTERNATIVE CURRICULA** | Double majoring is not encouraged due to the large number of required classes in the B.S.M.E. degree. Students intending to double major should consult an adviser to develop an appropriate program of study. |
| **BS VERSUS BA** | Only the B.S. degree is accredited by the Engineering Accreditation Commission (EAC) of ABET, www.abet.org, and is the most direct route toward becoming a licensed professional engineer (PE). The B.A. is recommended for students who will pursue professional careers in medicine, law, or business immediately after their undergraduate education. |
| **NOT REQUIRED BUT HIGHLY RECOMMENDED COURSES** | MECH 403, Computer Aided Design |

MECHANICAL

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| **RESEARCH** | Students are encouraged to speak with their professors directly regarding undergraduate research opportunities. To learn more about faculty research go to https://mech.rice.edu/research. |
| **INTERNSHIPS** | Most students participate in summer internships in industry, especially after sophmore and junior years. Students should register with the Center for Career Development (ccd.rice.edu/) and explore further opportunities on the CCD's RICElink, where potential employers post open positions and internships. |
| **STUDY ABROAD** | Study abroad is most feasible in the fall semesters of the sophomore and junior years. This avoids conflicts with lab classes (MECH 331, 332) and avoids conflicts with the year-long senior design sequence (MECH 407/408). |
| **PROFESSIONAL ORGANIZATIONS** | The American Society of Mechanical Engineers (asme.rice.edu/) hosts industry representatives and organizes outreach, service and design projects. The American Institute of Aeronautics and Astronautics (http://aiaa.rice.edu/) organizes activities for students interested in aerospace engineering. Many mechanical engineering students are also active in the Rice Engineers Without Borders chapter (ewb.rice.edu/). Leadership positions are often available to freshmen and sophomores in all of these organizations. |
| **INTERESTING COURSES FOR NON–MAJORS** | MECH 454 Computational Fluid Mechanics<br>MECH 498 Introduction to Robotics<br>MECH 594 Introduction to Aeronautics |

# B.A. In Mechanical Engineering

Specializations: Not Applicable

## Sample Degree Plan

*THIS IS ONE EXAMPLE OF MANY POSSIBLE SCHEDULES.*
*CONSULT A DIVISIONAL OR DEPARTMENTAL ADVISER TO CUSTOMIZE YOUR DEGREE PLAN.*

| FALL | | | SPRING | | |
|---|---|---|---|---|---|
| **FRESHMAN** | | **17 credits** | **FRESHMAN** | | **17 credits** |
| MATH 101 or 105 | Single Variable Calculus I | 3 | MATH 102 or 106 | Single Variable Calculus II | 3 |
| CHEM 121 | General Chemistry I w/Lab | 4* | CHEM 122 | General Chemistry II w/Lab | 4* |
| PHYS 101• | Mechanics w/Lab | 4* | PHYS 102•• | Electricity & Magnetism w/Lab | 4* |
| FWIS | Freshman Writing | 3 | CAAM 210 | Intro to Eng Computation | 3 |
| OPEN | Open elective | 3 | DIST | Distribution elective | 3 |
| **SOPHOMORE** | | **15 credits** | **SOPHOMORE** | | **15 credits** |
| MATH 211 | Ordinary Differential Equations | 3 | MATH 212 | Multivariable Calculus | 3 |
| MECH 211 | Engineering Mechanics | 3 | MECH 200 | Classical Thermodynamics | 3 |
| MSNE 301 | Materials Science | 3 | MECH 311 | Mechanics of Solids | 3 |
| DIST | Distribution elective | 3 | DIST | Distribution elective | 3 |
| OPEN | Open elective | 3 | OPEN | Open elective | 3 |
| **JUNIOR** | | **17 credits** | **JUNIOR** | | **15 credits** |
| CAAM 335 | Matrix Analysis | 3 | CAAM 336 | Diff Eqs in Science & Eng | 3 |
| MECH 343 | Modeling of Dynamic Systems | 4* | MECH 401 | Machine Design Applications | 3 |
| MECH 371 | Fluid Mechanics I | 3 | MECH 420 | Fundamentals of Control Systems | 3 |
| DIST | Distribution elective | 3 | MECH 481 | Heat Transfer | 3 |
| OPEN | Open elective | 3 | DIST | Distribution elective | 3 |
| LPAP | Lifetime Phys Activity elective | 1 | | | |
| **SENIOR** | | **18 credits** | **SENIOR** | | **15 credits** |
| DIST | Distribution elective | 3 | MECH 412 | Vibrations | 3 |
| OPEN | Open elective | 3 | OPEN | Open elective | 3 |
| OPEN | Open elective | 3 | OPEN | Open elective | 3 |
| OPEN | Open elective | 3 | OPEN | Open elective | 3 |
| OPEN | Open elective | 3 | OPEN | Open elective | 3 |
| OPEN | Open elective | 3 | | | |

** In addition to class hours, these courses have a regularly scheduled lab and/or discussion session that must fit into your schedule.*

*• When registering for PHYS 101, you must also register for PHYS 103, the discussion section for 101.*

*•• When registering for PHYS 102, you must also register for PHYS 104, the discussion section for 102.*

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| BASIC REQUIREMENTS | General math & science courses | 31 |
| | Core courses in major | 37 |
| ELECTIVE REQUIREMENTS | Open electives and LPAP | 39 |
| | FWIS and distribution courses | 21 |
| | Minimum credit required for the B.A. | 128 |

Of the 128 total degree credits, the B.A. in Mechanical Engineering requires 68 credits in general math and science courses and core courses.

## Major Requirements

| NUMBER | CREDIT | TITLE |
|---|---|---|
| CAAM 210 | 3 | Introduction to Engineering Computation |
| CAAM 335 | 3–4 | Matrix Analysis |
| CAAM 336 | 3–4 | Diferential Equations in Science & Engineering |
| CHEM 121 | 4* | General Chemistry I w/Lab |
| CHEM 122 | 4* | General Chemistry II w/Lab |
| MATH 101/105 | 3 | Single Variable Calculus I /AP or other credit in Calculus I |
| MATH 102/106 | 3 | Single Variable Calculus II /AP or other credit in Calculus II |
| MATH 211 | 3 | Ordinary Differential Equations & Linear Algebra |
| MATH 212 | 3 | Multivariable Calculus |
| MSNE 301 | 3 | Materials Science |
| PHYS 101• | 3* | Mechanics w/Lab |
| PHYS 102•• | 4* | Electricity and Magnetism w/Lab |
| MECH 200 | 3 | Classical Thermodynamics |
| MECH 211 | 3 | Engineering Mechanics |
| MECH 311 | 3 | Mechanics of Solids & Structures |
| MECH 343 | 4* | Modeling of Dynamic Systems |
| MECH 371 | 3 | Fluid Mechanics I |
| MECH 401 | 3 | Mechanical Design Applications |
| MECH 412 | 3 | Vibrations |
| MECH 420 | 3 | Fundamentals of Control Systems |
| MECH 481 | 3 | Heat Transfer |

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*•• When registering for PHYS 102, you must also register for PHYS 104, the discussion section for 102.*