Choosing an engineering or science major

Still not sure about a major? See: www.careercornerstone.org for help choosing an engineering or science major.

Sophomore: 1st semester (17 credits)
- **CHEM 1035 (3) Chemistry**
- **CHEM 1045 (1) Chem Lab**
  - Co: CHEM 1035
- **MSE 2034 (2) Elem Materials Engr**
  - Pre: CHEM 1035, MATH 2204 & PHYS2306; Co: MATH2314
- **PHYS 2305 (4) Physics I**
  - Pre: MATH1225
  - Co: MATH 1226
- **ME 2004 (3) Numerical Methods**
  - C- or higher in ME2004 & ME2134 to meet prerequisite & graduation requirements.
- **PHYS 2306 Physics II (4)**
  - Pre: MATH 2214
  - Co: MATH 1226

**Sophomore: 2nd semester (16 credits)**
- **ME 2134 (4) Thermodynamics**
  - Pre: CHEM1035, MATH 2204 & PHYS2306; Co: MATH2314
- **ECE 2054 (3) Electrical Theory**
  - Pre: PHYS 2306, MATH 2214
- **PHYS 2307 (4) Electromagnetics**
  - Pre: MATH 2214
  - Co: MATH 1226
- **PHYS 2308 (4) Optics**
  - Pre: MATH 2214
  - Co: MATH 1226

Junior: 1st semester (17 credits)
- **ME 3414(4) Fluid Mechanics (w/lab)**
  - Pre: MATH 2114, 2214 & 2204, ME2004(C-); Co: ME2134
- **ME 3034 ME Discourse (1)**
  - Pre: ME2004(C-); ME3024
- **ME 5354 (4) Controls (w/lab)**
  - Pre: ESM2104 & 2304, ME2004(C-), ESM2304, MATH2114 & 2214
- **ME 4005 ME Lab (3)**
  - Pre: ECE 2054
  - ESM 3704, & ME3524
  - Co: ME5354

**Junior: 2nd semester (17 credits)**
- **ME 3034 ME Discourse (1)**
  - Pre: ME2004(C-); ME3024
- **ME 5354 (4) Controls (w/lab)**
  - Pre: ESM2104 & 2304, ME2004(C-), ESM2304, MATH2114 & 2214
- **ME 4005 ME Lab (3)**
  - Pre: ECE 2054
  - ESM 3704, & ME3524
  - Co: ME5354

Senior: 1st semester (15-18 credits)**
- **Pathways**
  - Concept 3 (3)
  - Concept 7 (3)

**Senior: 2nd semester (12 credits)**
- **Pathways**
  - Concept 2 (3)
  - Concept 3 (3)

Notes:
- Arrows denote prerequisites. Prerequisites of prerequisites must be met. Prerequisites may change without warning - see undergrad catalog for updates.
- *Must earn C- or higher in ME2004 & ME2134 to meet prerequisite & graduation requirements.
- **Combine Pathways Concept 7 with Concept 2 or 3 to eliminate 3 credits.
- **Senior courses are offered only once per year; ME4015 & ME4016 must be taken in order during the same academic year, beginning in Fall.

**B.S. in Mechanical Engineering – Robotics & Mechatronics Major Co-op Plan (8 semesters of classes)**

**Continued enrollment requirements:** see ME website for more information, www.me.vt.edu.
- 2.000 minimum in-major GPA (all “ME” & “NSEG” courses)
- 2.000 minimum extended in-major GPA ("ME", "NSEG" courses & ESM2104, 2204, & 2304)
- 2.000 minimum overall GPA (all courses)
- By 45 attempted required hours completion of: ESM2104, MATH2204 & MATH2114
- By 60 attempted required hours completion of: MATH2214, ESM2304, & ME2004 (C-)
- By 72 attempted required hours completion of: ME2134 (C-), (ME3024 or ME3624), & ME3524
- By 93 attempted required credits completion ME4015 and ME4254

Revised November, 2021. For more information please see www.me.vt.edu
This is an unofficial planning tool only; please see the approved checksheets on the Registrar’s website for official graduation requirements.
Co-op Schedule with First Work Term Spring of Second Year

<table>
<thead>
<tr>
<th>Year</th>
<th>Fall</th>
<th>Spring</th>
<th>Summer</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Sophomore 1</td>
<td>Work</td>
<td>Work</td>
</tr>
<tr>
<td>3</td>
<td>Sophomore 2</td>
<td>Work</td>
<td>Work</td>
</tr>
<tr>
<td>4</td>
<td>Junior 1</td>
<td>Junior 2</td>
<td>Open</td>
</tr>
<tr>
<td>5</td>
<td>Senior 1</td>
<td>Senior 2</td>
<td>Open</td>
</tr>
</tbody>
</table>

Co-op Schedules with 8 Academic (School) Terms:
See the color-coded degree path sheet on the previous page for which courses should be taken in each term.

Note: Be sure to add any required (Pathways or CLE) humanities electives you have not completed. Note that “Junior 2” courses must be taken during a Spring semester or over the summer (not recommended).

Students gain 1+ years of engineering-related work experience while spreading out their courses into an additional semester. Median hourly rates for our co-op students were over $19/hour in 2018. Some students also received housing allowances or free housing and overtime pay.

In general, co-op students who work multiple terms with the same employer tend to:
- earn a higher hourly rate compared to summer interns who work for a single term only,
- participate in longer-term, more complex projects than interns
- get a broader experience with a company than an intern, possibly rotating between departments or job functions, and
- have a job offer from their employer before they start their senior year

Employers expect all engineering students to have related work experience before they start a full time job after graduation. Co-op students tend to get higher starting salaries and more job offers than students who do internships only or who have no work experience at all. It is typically easier to find a co-op job than a summer internship, especially for rising sophomores and rising juniors.

Students care more about how long it takes them to graduate and how high their grades are, but above a minimum GPA (sometimes as low as a 3.0), employers care more about prior work experience.

The ME advisors strongly encourage students to get work experience over the summer instead of taking classes. If the required course load is too heavy, then one of the co-op schedules to the left may be perfect for you!