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

Sophomore: 1st semester (17 credits)
- ME 2034 (3) Elem Materials Engr
- PHYS 2306 Physics II (4) Pre: PHYS 2305, MATH 1226
- ENGE 1215 (2) Found Engr
- CHEM 1035 (3) Chemistry
- CHEM 1045 (1) Chem Lab Co: CHEM 1035
- PHYS 2305 (4) Physics I Pre: MATH1225 (B) or MATH1226
- ME 2134 (4) Thermodynamics Pre: CHEM1035, MATH 2204 & PHYS2305

Sophomore: 2nd semester (16 credits)
- ME 2134 (4) Thermodynamics Pre: CHEM1035, MATH 2204 & PHYS2305
- ME 2304 (3) Heat & Mass Transfer Pre: ME2134, ME3414, ME2004, & MATH2214
- ME 3414(4) Fluid Mech (w/lab) Pre: MATH 2114, 2214 & 2204, ME2004; Co: ME2134
- ME 3024 (3) Numerical Methods Pre: MATH2122, ENGE1215, MATH 2114
- ECE 2054 (3) Electrical Theory Pre: PHYS 2306, Co: MATH 2214
- MATH 2214 (3) Diff Eqns Pre: MATH1226, MATH2114

Junior: 1st semester (17 credits)
- ME 3034 (4) Controls (w/lab) Pre: ESM2104, & ME 2004
- ME 3534 (4) Heat & Mass Transfer Pre: MATH2122, MATH2214, 2204 & 2214
- ME 4005 ME Lab (3) Pre: ECE2004, STAT3704, & ME3524
- ME 3534 (4) Controls (w/lab) Pre: ESM2104 & 2304, ME2004, MATH2122, 2204 & 2214
- CS 1044 (3) Programming in C Pre: MATH 2204
- Pathways** Concept 2 (3)
- Pathways** Concept 3 (3)

Junior: 2nd semester (17 credits)
- ME 3414(4) Fluid Mech (w/lab) Pre: MATH 2114, 2214 & 2204, ME2004; Co: ME2134
- ME 3024 (3) Numerical Methods Pre: MATH2122, ENGE1215, MATH 2114
- ECE 2054 (3) Electrical Theory Pre: PHYS 2306, Co: MATH 2214
- MATH 2214 (3) Diff Eqns Pre: MATH1226, MATH2114
- ESM 2104 Statics (3) Pre: MATH 2204
- Pathways** Concept 3 (3)
- Pathways** Concept 2 (3)
- Pathways** Concept 3 (3)

Senior: 1st semester (15-18 credits)***
- ME 3045 (3) Senior Capstone Design Pre: ME3024, ME3034, ME304, ME3534, ME3524, ME3524, & ME 4005
- ME 4016 (3) Senior Capstone Design (Spring only) Pre: ME 4015 (continuation of ME 4015 project from previous Fall)
- ECE 3254 (3) Ind. Electronics Pre: ECE2054
- ECE 3254 (3) Ind. Electronics Pre: ECE2054
- Pathways** Concept 2 (3)
- Pathways** Concept 3 (3)
- Pathways** Concept 2 (3)

Senior: 2nd semester (12 credits)
- ME 4015 (3) Senior Capstone Design Pre: ME3024, ME3034, ME304, ME3534, ME3524, & ME 4005
- ME 4524 (3) Lecture &**ME 4584 (1) Lab Robotics & Automation Pre: ME3524, 3534
- **ME 4734 (1) Robotics & Mechatronics Seminar Pre: ECE3254 & ME3534

Notes:
- Arrows denote prerequisites. Prerequisites of prerequisites must be met. Prerequisites may change without warning - see undergrad catalog for updates.
- **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.
- †Assumes that classes with white fill have been completed before entering ME Department; adjust as necessary.

Continued enrollment requirements: see ME website for more information, www.me.vt.edu.

In-Major GPA 2.000 minimum (All ME, NSIG courses); if no in-major GPA, average 2.000 or higher in ESM2104, 2204, & 2304.
Overall GPA 2.000 minimum (All VT courses)
MATH2114, MATH2204, & ESM2104 Complete within 50 attempted required credits
ME2004 Complete within 2 semesters of entry into ME Department and complete within 60 attempted required credits
MATH2214 & ESM2304 Complete within 69 attempted required credits
ME2134 Complete within 3 semesters of entry into ME Department and complete within 87 attempted required credits
ME3524 & (ME3624 or ME3924) Complete within 87 attempted required credits
ME4015 Complete within 104 attempted required credits

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