ENGINEERING MAJOR

Requirements for a Major in Engineering

Bachelor of Science

Randolph-Macon's Engineering (Bachelor of Science with a major in Engineering) program is accredited by the Engineering Accreditation Commission of ABET (https://www.abet.org), under the commission's General Criteria with no applicable program criteria.

Code	Title	Hours
Must complete the following required math and science courses		**30**
PHYS 151	Introductory Physics	
PHYS 152	Introductory Physics	
PHYS 210	Digital Electronics	
PHYS 250	Mathematical Physics	
MATH 131	Calculus I	
MATH 132	Calculus II	
MATH 203	Multivariable Calculus	
MATH 307	Differential Equations: A Modeling Perspective	
Must complete the following Engineering Physics courses		**16**
EPHY 150	Introduction to Engineering:Stress, Strain, and Fluids	
EPHY 250	Engineering Mechanics:Statics	
EPHY 255	Engineering Mechanics: Dynamics	
EPHY 300	Mechanics of Solids	
EPHY 350	Fluid Mechanics	
Must complete the following Engineering courses		**20**
ENGR 220	CAE Design	
ENGR 320	Engineering Thermodynamics	
ENGR 400	Solid Mechanics Lab	
ENGR 401	Fluid Mechanics Lab	
ENGR 420	CAE Analysis	
ENGR 495	Senior Design Seminar	
ENGR 496	Engineering Capstone	
Must complete one Ethics course selected from the following		**3**
PHIL 212	Ethics	
PHIL 213	Environmental Ethics	
PHIL 216	Organizational & Professional Ethics	
RELS 235	Religious Ethics	
RELS 237	Christian Ethics	
Must complete three Engineering elective courses selected from the following		**9**
ENGR 321	Thermal Systems Design	
ENGR 331	Mechanical Systems Design	
ENGR 335	Advanced Solid Mechanics	
ENGR 337	Principles of Materials and Manufacturing	
ENGR 345	Energy Conversion Systems	
ENGR 373	Principles of Geotechnical Engineer	
Must complete one additional math or science elective selected from the following		**3-4**
ASTR 101	Introductory Astronomy	
ASTR 231	Astrophysics I	
ASTR 232	Astrophysics II	
BIOL 121	Foundations of Experimental Biology	
BIOL 123	Principles in Molecular Biology	
CHEM 215	Principles of Chemistry	
CHEM 220	Basic Inorganic Chemistry	
CHEM 230	Quantitative Chemical Analysis	
MATH 111	Introduction to Statistics	
MATH 113	Introduction to Statistics	
MATH 213	Elementary Linear Algebra	
MATH 220	Discrete Mathematics	
PHYS 205	Modern Physics	
PHYS 220	Quantum Computing	
PHYS 340	Electricity and Magnetism	
PHYS 430	Introductory Quantum Mechanics	
Total Hours		**81-82**

A student who majors in Engineering may not also major or minor in Engineering Physics.

For students interested in majoring in Engineering, the recommended major courses to begin with are PHYS 151-PHYS 152, MATH 131-MATH 132, and EPHY 150. Students should begin these courses in their freshman year.

Requirements for a Teaching Endorsement in Engineering

Students who are interested in earning a teaching license from the Commonwealth of Virginia to teach grades 6 –12 should double major in Engineering and Education. Interested students should contact both their Engineering advisor and their Education advisor. The program requirements of a student planning to major in education for the purpose of certification in Engineering vary from those of other Engineering majors. Information regarding the Education program and required courses for licensure can be found in the Teacher Preparation Handbook.

Code	Title	Hours
EPHY 150	Introduction to Engineering:Stress, Strain, and Fluids	3
ENGR 220	CAE Design	4
PHYS 151	Introductory Physics	4
PHYS 152	Introductory Physics	4
PHYS 250	Mathematical Physics	3