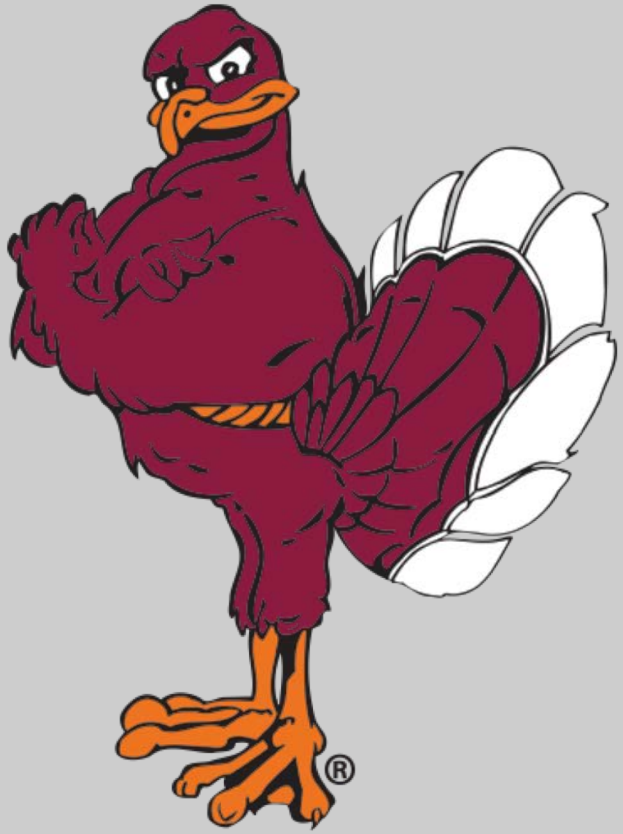


VIRGINIA TECH™

Welcome to
The College of Engineering
at Virginia Tech

Information Session

01

Creativity

02

Teamwork

03

Study Habits

04

Interest in Math and Science

05

Challenging High School Background

- AP/IB/CLEP and Honors Classes
- Extracurricular Activities

What Does It Take To Be An Engineer?

Average Reported GPA: 4.19/5.0

Average SAT (Math/Reading): 707/655

Females: 22.3%

Minority: 32%

Freshman Engineering Class of 2018*

1

Common Entry Point & Classes

https://goo.gl/SurRTA

2

AP/IB/CLEP/Dual Enrollment

Credit Accepted

- www.tranguide.registrar.vt.edu

3

Pathways for General Education Curriculum

4

Select Major at end of Freshman Year

(3.0 guarantees first choice)

Freshman Year: General Engineering

Foundations of Engineering

- Design and Teamwork
- Disciplines
- Algorithms
- Graphing
- Problem Solving
- The Future of Engineering

Engineering Education	2733
Aerospace	430
Biological Systems	171
*Biomedical	0
Chemical	337
Civil	588
Computer	589
Computer Science	850
Construction Engineering and Management	121
Electrical	522
Engineering Science and Mechanics	89
Industrial and Systems	561
Materials Science and Engineering	207
Mechanical	1189
Mining	73
Ocean	66

Fall 2018: Approximate Undergraduate Enrollment

Electrical Engineering

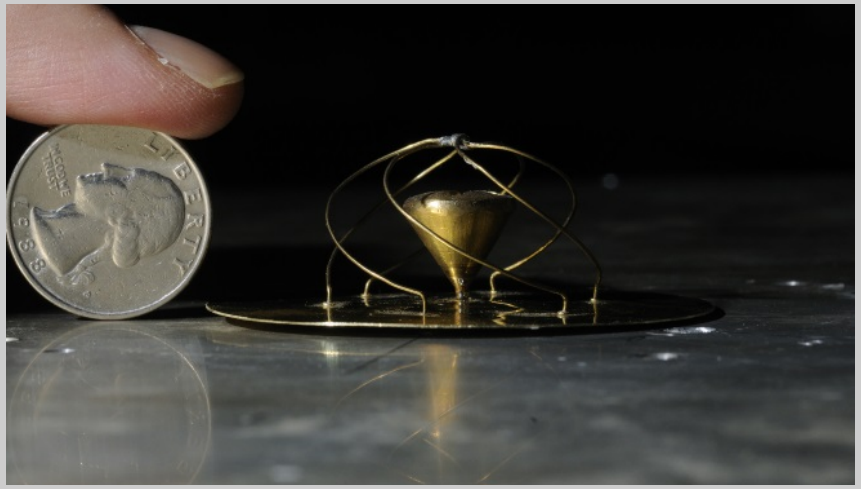
- What you do:
  - Electrical Systems
  - Electronics and microelectronics
  - Electromagnetics
  - Communication systems
  - Controls
- Lab-based design projects
- Job types/industry:
  - Power and Energy
  - Microelectronics/semiconductors
  - Communications
  - Needed everywhere
- Information Session at 2pm on Mon/Fri in 340 Whittemore

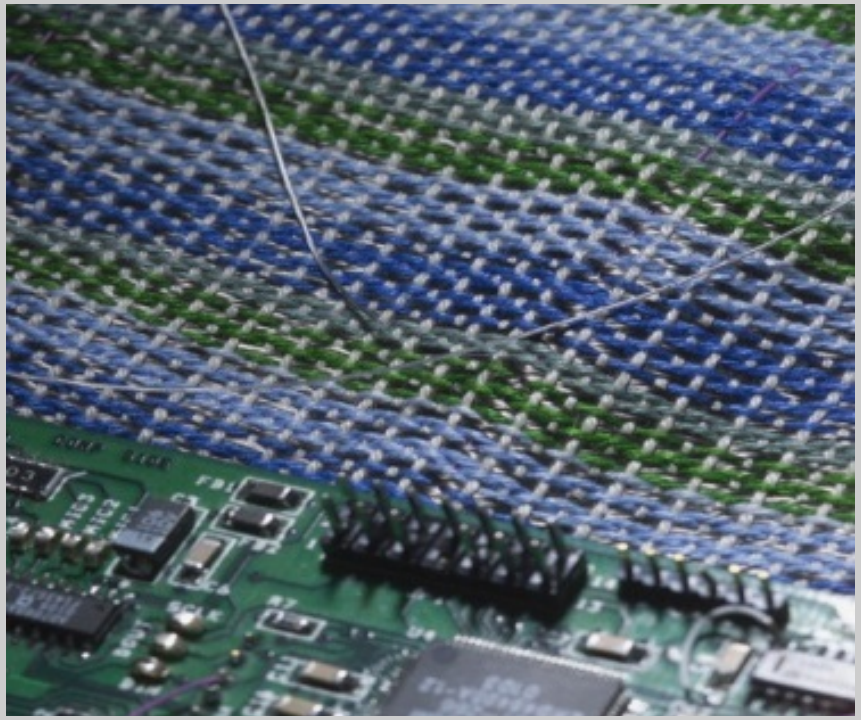
Computer Science

- Design and develop software from operating systems to applications
- Possible Areas of Study:
  - Human Computer Interaction
  - Knowledge, Information & Data
  - Media Creative Computing
  - Scientific Computing
  - Systems & Networking
- Possible 5 year B.S./M.S. Track
- Job Types:
  - Software Design & Development
  - Network & Computer Security
  - Mobile Applications
  - Game Design & Development
- Information Session at 1:15 in 114 McBryde Hall

Computer Engineering

- Incorporating computing systems into everyday life
- Developing ways to make computers, faster, smaller, and more capable
- Areas of Specialization
  - Networking
  - Hardware
  - Computer Systems
  - CyberSecurity, Software & Machine Intelligence
  - Communications
  - And more!
- Information Session at 2pm on Mon/Fri in 340 Whittemore



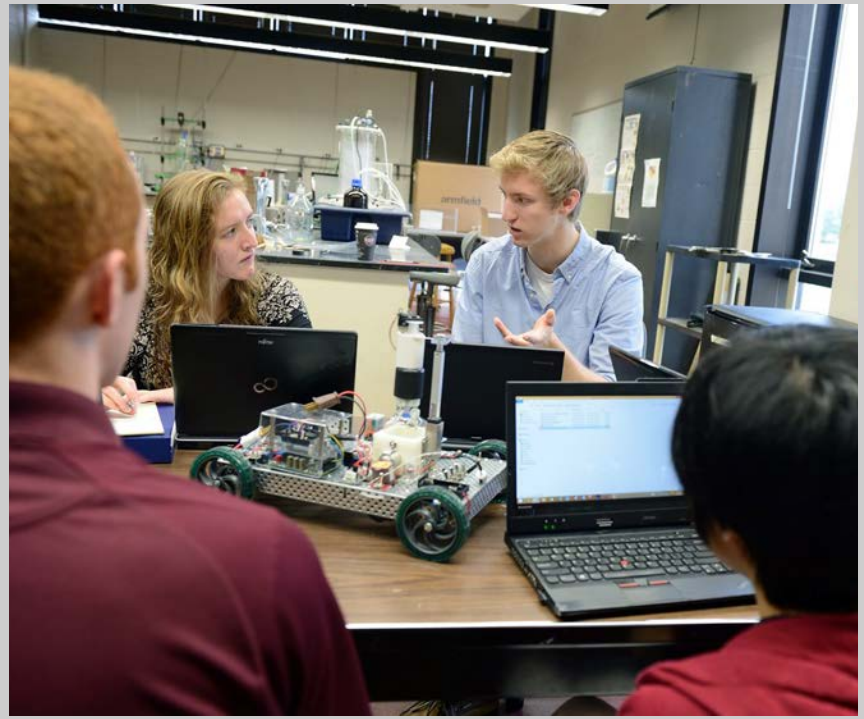


Biological Systems Engineering

- Land and Water Resource Engineering
  - Watersheds, Hydrology, Environmental Health, Resource Management
- Bio-processing Engineering (pre-med, pre-vet, pre-dental)
  - Biomolecular, Biomedical, Food Processing
- Job Types:
  Biopharmaceutical/Biotechnology/Biochemical/Biofuels/Biomass Industries, Food Processing, Ecological Engineering & Watershed Management, Government Agencies, Nonprofit Organizations

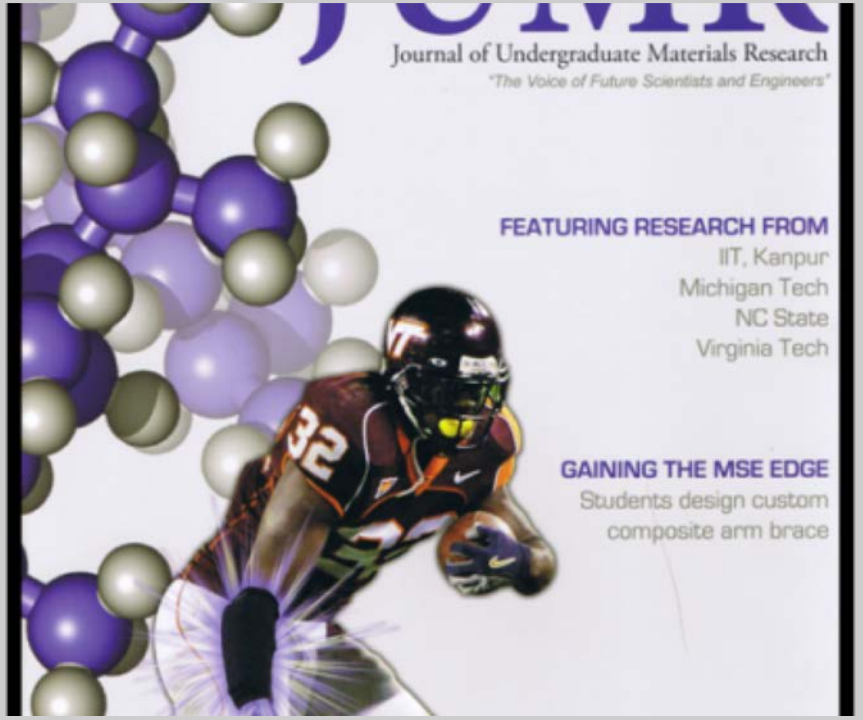
Chemical Engineering

- Applications of chemistry, mathematics, physics and biochemistry
- Find solutions in fuels and energy, chemical production, environmental quality and sustainability, food, health and pharmaceuticals
- International options for summer laboratory experience (Denmark or Germany)
- Job Types: *Fuels, Chemicals, Ceramics, Paper, Pharmaceuticals, Consumer Products, Consulting, etc.*



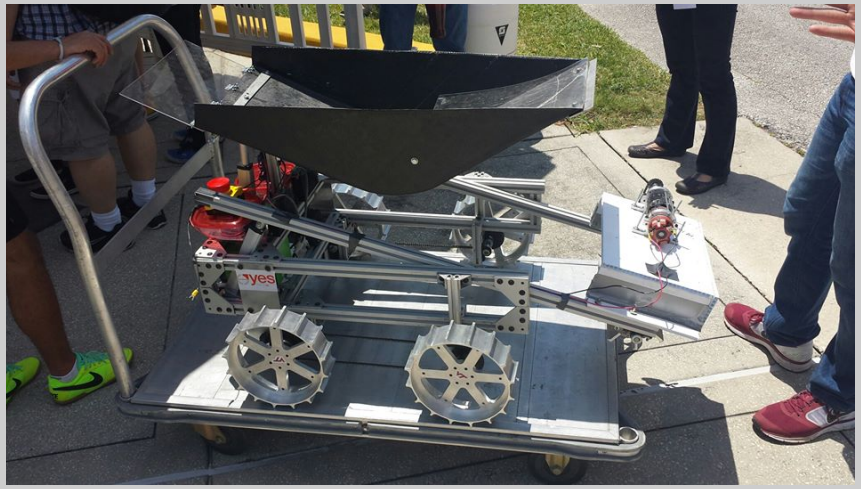
Materials Science and Engineering

- Key Areas:
  - Studying the properties and structure of materials
  - Creating new and better materials
  - Selecting appropriate materials for a wide range of applications
- Possible Areas of Study:
  - Metals
  - Polymers
  - Ceramics
  - Composites
  - Nuclear materials
  - Electronic materials
  - Biomaterials
- Hands-on laboratories (including a foundry)
- Job Types: *Design, Aerospace, Automotive, Biomaterials, Metallurgical, Semiconductors, Defense*



Mining and Minerals Engineering

- Areas of Emphasis
  - Exploration (finding new reserves)
  - Evaluation (determining economic potential)
  - Development (creating the mine)
  - Extraction (removing the ore)
  - Mineral Processing (recovering valuable materials from ore)
  - Reclamation (restoring the land)
- Job Types: *Mine Scheduling and Supervision, Mine Design, Equipment Selection, Mineral Purification*



Civil Engineering

- Design, build, and maintain infrastructure
- Areas of Emphasis:

Construction	Environmental
Land Development	Water Resources
Transportation	Geotechnical
Materials	Structures

- Job Types: *Structural Engineer, Environmental Engineer, Construction Manager, Water Resources Engineer, Transportation Engineer, and Geotechnical Engineer*

Construction Engineering and Management

- Plan, direct, and coordinate construction projects (residential, commercial, public works, etc)
- Integration of
  - Civil & Environmental Engineering
  - Building Construction
  - Business
- Engineering with construction and business management
- Job Types: *Project Engineer, Field Engineer, Assistant Project Manager, Field Planner, Estimator, & Construction Manager*

Aerospace and Ocean Engineering

- Aerodynamics, hydrodynamics, structures, propulsion, flight mechanics, design optimization, flight control, etc.
- Wind tunnels (including stability, open-jet, cascade, supersonic, hypersonic, etc.)
- Double Major with Aerospace and Ocean Engineering available
- Job Types: *Structural Analysis, Design Engineering, Control Engineering, Naval Architecture, Underwater Vehicle Development, etc.*

Mechanical Engineering

- Apply principles (motion, energy, heat, force) to design, construct, and operate machines or devices
- Topic Areas include:

Acoustics	Energy Mgmt	Power Generation
Aeronautics	Fluid Mechanics	Propulsion
Automotive	HVAC	Robotics
Biomedical	Manufacturing	Smart Materials
Combustion	Mechatronics	Vehicle Dynamics
CAD	Nuclear	
Controls		

Biomedical Engineering

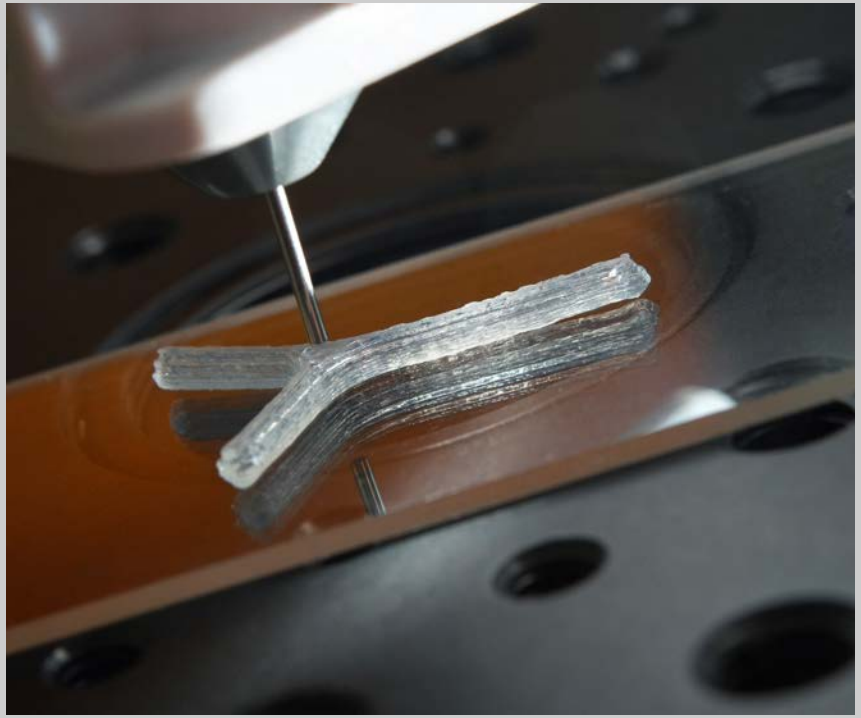
- Produces interdisciplinary trained engineers who can solve problems associated with complex biological systems by applying the principles of biology, chemistry, medicine, physics, and engineering
- Areas of interest:
  - Biomedical Devices and Bioinstrumentation
  - Biomedical Imaging
  - Biomechanics
  - Biomaterials
  - Cardiovascular Engineering
  - Nanomedicine and Nanoengineering
  - Neuroengineering
  - Tissue Engineering and Regenerative Medicine
  - Translational Cancer Research
- Sample Job Types: *Medical Devices, Tissue Engineering, Cancer Research, Automotive and Military Safety, Product and Sports Safety, Consulting, as well as advanced degree programs such as medical school and biomedical engineering graduate programs.*

Engineering Science and Mechanics

- Three main pillars:
  - Fluid Mechanics
  - Solid Mechanics and Structures
  - Dynamics
- Concentrations in:
  - Biomechanics
  - Physics
- Emphasis of engineering fundamentals to provide a strong mathematical background applicable to any field
- Job Types: *Biomedical, Civil, Nuclear, Aerospace, Mechanical, and many more!*

Industrial and Systems Engineering

- Analyze, design, implement, and improve integrated work systems
- Areas of emphasis:
  - Human Factors and Ergonomics
  - Manufacturing Systems
  - Management Systems
  - Operations Research
- Job Types: *Health Care, Transportation, Manufacturing, Cost Analysis, Optimization, Product Design and Evaluation, Consulting*



For More Information:

- Google:

Explore Engineering Virginia Tech

Opportunities Available

- **Engineering Minors:**
  - Computer Science
  - Cybersecurity
  - Green Engineering
  - Microelectronics
  - Naval Engineering
  - Biomedical Engineering
  - Interdisciplinary Engineering & Science (Scieneering)
- **Study Abroad**
- **Undergraduate Research**
- **Engineering Professional Societies & Organizations**

1 – Washington

2 – California

2 – California

2 – California

3 – Utah

4 – Minnesota

4 – Minnesota

5 – Illinois

6 – Indiana

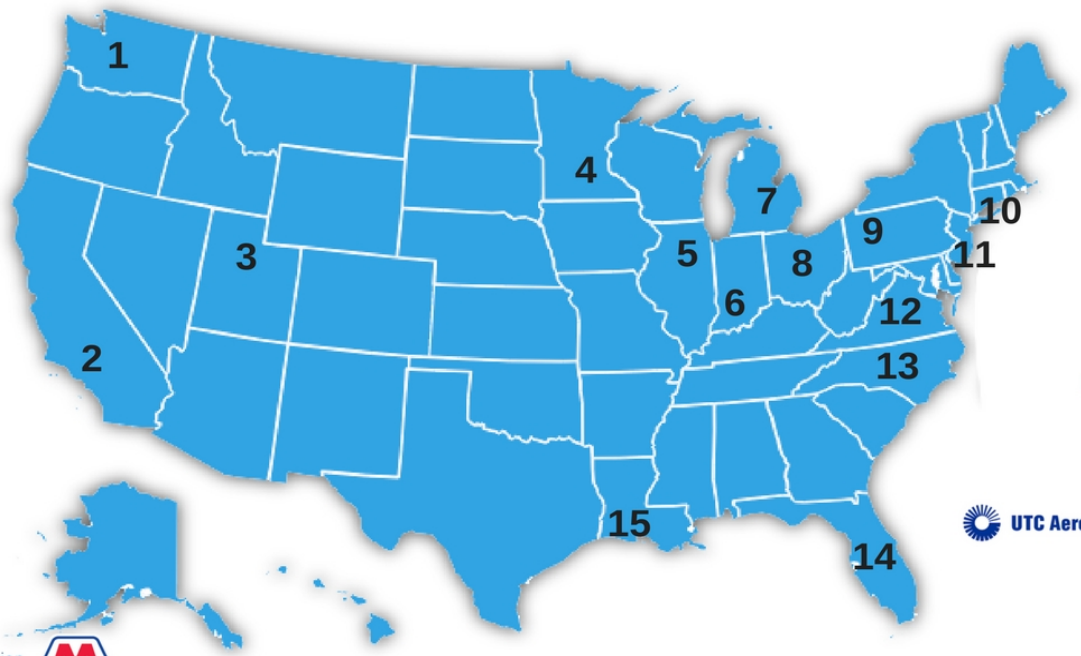
7 – Michigan

8 – Ohio

9 – Pennsylvania

10 – Connecticut

11 – New Jersey



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13 – North Carolina

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13 – North Carolina

13 – North Carolina

13 – North Carolina

14 – Florida

14 – Florida

15 – Louisiana

Internships and Co-Op Experiences

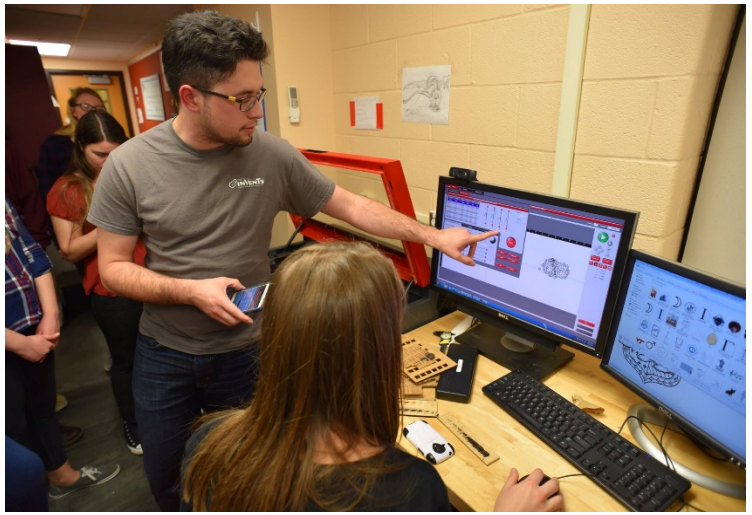
Support: Outside of Class

Career Fairs

STEP

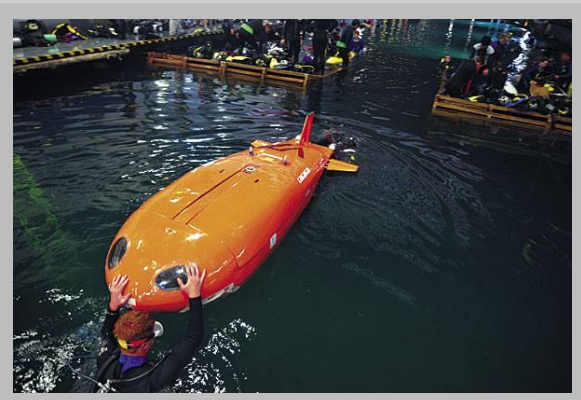
CEED Peer Mentoring

Hypatia/Galileo



Hands-On, Minds-On

- Astrobotics
- Baja SAE
- BioactiVT
- Battery Operated Land Transport
- Concrete Canoe
- Design, Build, Fly
- Formula SAE
- Houses for the Future
- Human Powered Submarine
- Hybrid Electric Vehicle
- Hyperloop
- Programming Competitions
- Steel Bridge



VT Engineering Rankings

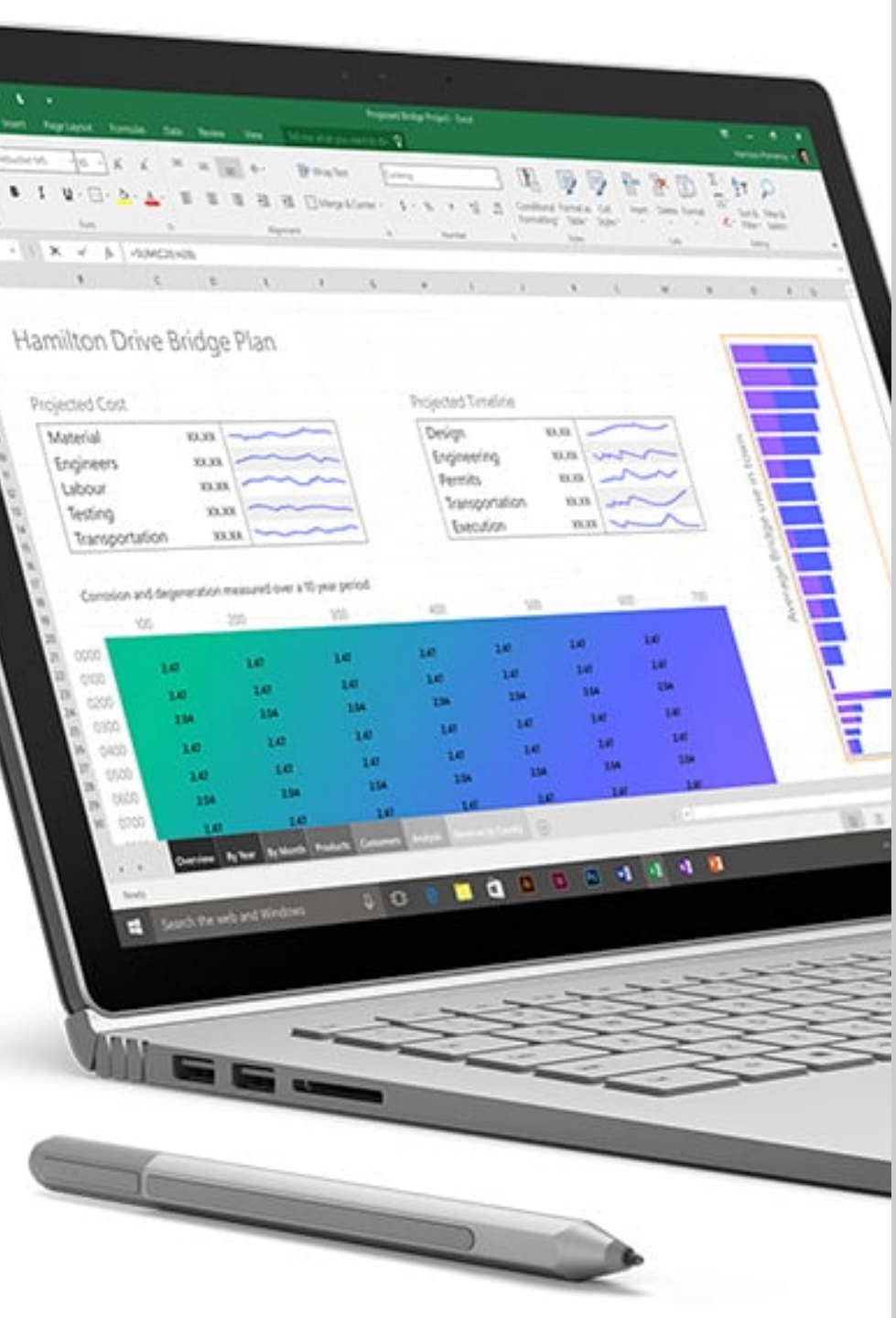
- Virginia Tech Ranked 13th Overall in Wall Street Journal "The Top 25 Recruiter Picks," 5th for Engineering
- Among Accredited Engineering Schools Nationwide: 13th
  - Aerospace 15th
  - Biological 8th
  - Civil 7th
  - Environmental 10th
  - Industrial 8th
  - Mechanical 14th
- *U.S. News & World Reports America's Best Colleges 2017

Outcomes

- Freshman who continued to a second year in engineering:
  - Last 5 years averaged **90%**
- After graduation:
  - For the Class of 2018
    - **67%** are employed
    - **13%** plan to attend graduate school OR have accepted admission
- Median Starting Salary: **$65,000** for Class of 2017

Scholarships

- **For Freshmen**
  - Davenport Leadership Scholar
  - Pratt Engineering Scholarship
  - Financial Aid
  - Leo A. Padis Scholarship
    - VCCS transfer students
- **For Upperclassmen**
  - College of Engineering Funds
  - Departmental Scholarships
  - One Application!

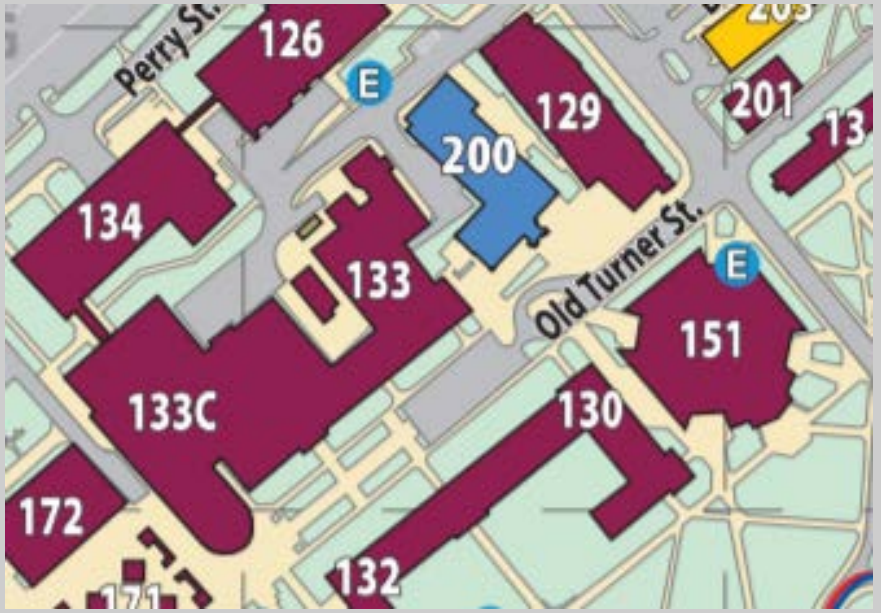


Computer Guidelines & Requirements

- A laptop or 2-in-1 tablet PLEASE CHECK SPECIFICATIONS ON WEBSITE!
- Special pricing and warranty through bookstore
- Don’t buy until summer before entering
  - Specs will be posted by **March 31, 2019**
- Benefits:
  - Digital ink for taking notes
  - Drawing diagrams
  - Writing equations
  - Submitting/grading homework

Lab Tours

- **Ware Lab**
  - Military Building (203)
  - 10:00 AM – 6:00 PM
- Doors are open for visits!



Why Did I Come to the College of Engineering at Virginia Tech?

Questions?

engrrecr@vt.edu

Where Should I Eat Lunch?

- Au Bon Pain – Squires
- Burger ‘37 – Squires
- D2
- Deet’s Place
- DXpress
- Owens Food Court
- Turner Place
- West End
- Off Campus