



LAB TOURS
AVAILABLE!

Advanced Registration
required.
See more details on
page 2 and 3.

Explore Engineering Week

SEPTEMBER 21-28, 2021

BURRUSS HALL AUDITORIUM

INFORMATION SESSIONS WITH Q&A

No registration necessary for the Info Sessions with Q&A.

Tuesday, September 21	Video Recording	Ocean Engineering Industrial and Systems Engineering Aerospace Engineering
Wednesday, September 22	Video Recording	Civil Engineering Mining Engineering Construction Engineering and Management Mechanical Engineering
Friday, September 24	Video Recording	Chemical Engineering Biological Systems Engineering Material Science and Engineering Biomedical Engineering
Tuesday, September 28	Video Recording	Electrical Engineering Computer Engineering Computer Science

Click on each
major to learn
more about it!



Students enrolled in ENGE 1215
are required to attend at least 2 of the 4
evenings of info sessions with Q&A;
attendance will be captured
at the end of each evening.



Free COE T-Shirt
(while supplies last!)



Explore Engineering Week LAB TOURS!



Aerospace Engineering

- **Stability Wind Tunnel:** Tour the 1.8m x 1.8m VT Stability Wind Tunnel, and world-leader in aero-acoustic testing. This facility is capable of generating winds up to 180mph and features state of the art instrumentation.
- **Newport News ShipBuilding AOE Teaching Lab:** The AOE Teaching lab is the heart of undergraduate experimental education. The lab features an open jet wind tunnel, a water tunnel, a static beam testing rig, and smoke flow visualization wind tunnel. The lab also houses the AOE 3D Printing Lab.
- **Aerospace Structures & Materials Laboratory:** The Aerospace Structures and Materials Lab focuses on studying morphing structures, smart materials, and adaptive systems using modeling, design, and experimental characterization techniques.



Biological Systems Engineering

- **Biological Systems Engineering Lab Tours:** Visit four of our exciting labs – Watershed Science and Engineering Field Research: Introduction to tools used to restore streams and rivers for human health and the environment. Bionanotechnology Lab: Research focuses on fabricating nanoparticles for drug delivery and vaccines to improve human and animal health. Plant Synthetic Biology Lab: Engineering plants and living things to improve agriculture sustainability and feed our growing population. Water Quality Lab: Measures what's in freshwater; we'll highlight a program that safeguards homeowners across Virginia from bad drinking water.



Biomedical Engineering

- **VT Helmet Lab:** The VT Helmet Lab is a comprehensive Injury Biomechanics Lab with an expertise in concussion research. We've been researching, testing, and rating helmets for over 10 years.
- **Kevin Granata Biomechanics Lab:** The Kevin Granata Biomechanics Lab examines the biomechanics of human movement to understand injury prevention and recovery across the life span.
- **Therapeutic Ultrasound and Noninvasive Therapies Lab:** The Therapeutic Ultrasound and Noninvasive Therapies Lab examines the use of focused ultrasound for biomedical and conservation applications.



Chemical Engineering

- **Unit Operations Lab:** Chemical Engineers work on a huge range of processes and technologies. The Unit Operations (UO) Lab is a capstone course that requires students to develop hands-on problem solving, teamwork, and oral and written communication skills while working on large-scale processes and equipment. We will explore the UO Lab in Hancock Hall and will see experiments such as distillation, extraction, filtration, and fuel cells in operation.



Civil Engineering

- **Civil and Environmental Engineering Materials Lab:** Materials used in civil engineering such as concrete, are tested for strength and durability.
- **Civil and Environmental Engineering Hydrology Lab:** Civil engineers manage water in municipal areas, in rural areas, and when disaster occurs. This lab is the beginning focus of how water works.
- **Civil and Environmental Engineering Measurements Lab:** To assess how to create and build infrastructure, civil engineers must first know how to measure the land to build upon. This is a quick look at the equipment used for this purpose.
- **Civil and Environmental Engineering Geotechnical Lab:** When building infrastructure, civil engineers must evaluate the soil for the project – can it hold the structure? Can we dig through it without problem? What can we do to help the soil? Come see how we do this!



Computer Engineering

- **The Autonomous Mastery Prototyping (AMP) Lab:** is a lab space that gives electrical and computer engineering students the opportunity to gain hands-on experience and apply what they've learned in class with fun, hands-on projects.



Computer Science

- **Computer Science Student Space:** The Department of Computer Science will offer tours of our newest spaces in Torgersen Hall.



Construction Engineering and Management

- **BuildLab:** State-of-the-art laboratory and workshop for design, fabrication, and assembly. Overview of computer aided cutting and laser etching processes.
- **ARCADE (Automation and Robotics in Construction And Design Engineering):** The ARCADE lab is dedicated to the advanced research and development in the next generation built environment technologies leveraging innovative solutions for design, engineering, construction, and operations of buildings and infrastructures. Robotics demonstrations from SPOT the robot "dog"!
- **Smart Design & Construction Lab:** The Smart Design and Construction Lab explores planning, designing and constructing an intelligent and adaptable built environment for improved performance, resilience and sustainability. Demonstrations include Exoskeleton, AR/VR interaction with construction sites, Posture and Object detection, and VR-based Inspection within point clouds.

Lab Tour Registration Directions

- 01 Click [HERE](#)
- 02 Select a Service (Lab)
- 03 Select an available date and time
- 04 Add your name and VT email address
- 05 Click Book

If no date or time appears, all tours are full. No waitlist.
To book additional lab tours,
click "New Booking" & repeat steps 1-5

Tour availability extremely limited; first come, first serve!


Refreshments outside
Randolph Hall on
Thursday, Sept. 23
beginning at noon!

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Electrical Engineering

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Industrial and Systems Engineering

- Madigan Biomechanics Group:** Our mission is to help people live longer, healthier, and happier lives by studying the biomechanics and neuromuscular control of human motion. Most of the current work in the lab focuses understanding and preventing slips, trips, and falls. Key words: biomechanics, motion, forces, falls, mobility, aging.
- Mind Music Machine Lab:** The Mind Music Machine Lab conducts research on human-computer/robot interaction. We study the human mind - both cognitive and affective - and apply that knowledge into system design. Key words: Auditory Displays, Affective Computing, Automotive User Interfaces, Assistive Technologies, Creative Computing.
- Learning Factory:** The mission of the Learning Factory is to provide a safe and effective learning environment where hands-on undergraduate education of Industry 4.0 concepts and technologies can be experienced. Key words: Industry 4.0, renewable energy, additive manufacturing, virtual factory, digital thread, automation.
- Harris Manufacturing Processes Laboratories:** The Harris Manufacturing Processes Laboratories consists of a collection of individual labs, equipment, and support facilities for instruction and research in manufacturing. Processes such as casting, machining, welding, forming, assembly, and inspection are performed and investigated. Key words: manufacturing, industry, hands-on, machines, processes.



Materials Science and Engineering

- MSE Lab Tours:** MSE is a hands-on major that is vital to the development of new products. Student Ambassadors will provide demos of the superconductor, shape-memory wire, and the foundry in a box, and several others. On display will be the meteorite sward (Thursday only), other blade smithing samples, and winning designs from previous design competitions. These demonstrations will provide insight and examples of how every industry needs MSE.



Mechanical Engineering

- Joseph A. Ware Lab:** The Ware Lab houses undergraduate design projects in the College of Engineering where students sharpen theoretical and computational skills learned in the classroom by working on challenging, viable engineering projects. A "hands-on, minds-on" approach has led to a tradition of success for Virginia Tech engineering students – in the classroom, as members of award-winning competition. More than 450 students, some receiving academic credit and others serving as volunteers, participate as early as their first-year.
- Applied Lab:** Advance Product Prototyping Laboratory in Engineering Design (APPLIED) is 3,100 square feet of machine shop and maker space dedicated to seniors in the ME department's required 2-semester capstone senior design course. 15 work benches accommodate industry-sponsored teams and other hands-on learning opportunities.
- TREC Lab:** Terrestrial Robotics Engineering & Controls Lab was founded to study cutting edge mechanics and controls in order to create robotic platforms to change the way the world perceives robotics. We believe through the design and development of fieldable robotic platforms we can revolutionize the role robots play both in disaster response scenarios and daily life.
- DREAMS:** Design, Research, and Education for Additive Manufacturing Systems (DREAMS) researchers have access to almost every modality of the additive manufacturing process (binder jetting, metal powder bed fusion, hybrid wire arc additive manufacturing, direct ink write, fused filament fabrication, multi-axis robotic deposition, material jetting, polymer powder bed fusion, vat photopolymerization & multi-modal additive manufacturing platform).
- Assistive Robotics Lab (ARLab)** is focused on creating systems that help people. Our goal is to help people regain capabilities they have lost, or enable people to perform feats that were not previously possible. We do this through wearable and standalone robots and sensor systems that can assist or measure human motion. Our systems are designed for people who are disabled, require rehabilitation, or are in good physical condition.



Mining Engineering

- Operate a shovel in a mine simulator:** Race a friend to see who can haul the most crusted rock in this equipment simulator
- Utilizing Drones for monitoring mines:** Discover the challenges that come with operating drones in a mine a mile underground.
- Autonomous systems and minecraft, oh my:** Want to visit a mine or take a walk through a mining museum. Head this way to gain first hand experience walking around a virtual mine and a mining minecraft museum.
- New Tech for Protecting Miner Health:** Explore monitoring tools and learn about new research aimed at protecting miners from dust and diesel emissions.
- Try gold panning!** Take a step back in time and try your hand at old school mining techniques. Chat with students about how the industry has modernized mineral processing to fit the demands of the 21st century.
- CAT Simulator:** Ever wonder what it's like to operate the world's largest equipment?

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Ocean Engineering

- Hydroelasticity Lab:** Experimental research lab for fluid-structure interactions. Watch us make a splash as we drop ship-like structures into a large tank of water and flap thin fins in another tank of water.

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