

<b>Activity 1</b>	<b>Using Solar Energy to Power Loads [Electrical Engineering] – Professor Ali Abur (ECE)</b>
B	Examine a small-scale solar PV system, and learn how solar energy can be transformed into electrical and used to power loads.
<b>Activity 2</b>	<b>Parcel Delivery and the Commercial Use of Drones [Industrial Engineering] – Professor Mehdi Behroozi (MIE)</b>
A   B	Learn about the applications of unmanned aerial vehicles in different fields and how the commercial application of drones can transform the field of logistics and parcel delivery.
<b>Activity 3</b>	<b>Polymeric Hydrogels to Improve Life Quality [Bioengineering &amp; Chemical Engineering] – Professor Sidi A. Bencherif (ChemE/BioE)</b>
B	Learn about polymers by making your own hydrogels and understand how they can be used as a drug/cell delivery device.
<b>Activity 4</b>	<b>Human Brain Modeling [Bioengineering &amp; Chemical Engineering] – Professor Leila Deravi (ChemE/BioE)</b>
A	Learn about the human brain by making a hydrogel to mimic its texture.
<b>Activity 5</b>	<b>Storing Electricity with Batteries [Chemical Engineering] – Professor Joshua Gallaway (ChemE)</b>
A   B	We need better batteries for automobiles, buildings, and the power grid itself: learn all about engineering batteries.
<b>Activity 6</b>	<b>Data Analytics for Smart Manufacturing [Industrial Engineering] – Professor Xiaoning (Sarah) Jin (MIE)</b>
B	Introduction to and interactive demonstration of smart manufacturing and data analytics (statistics, machine learning, AI, etc).
<b>Activity 7</b>	<b>Talking to Your Robot [Electrical &amp; Computer Engineering] – Professor Dave Kaeli (ECE/BioE)</b>
A	Interact with a robotic arm to carry out a set of tasks and learn how servo motors are controlled using software.
<b>Activity 8</b>	<b>Sustainable and Efficient Buildings [Civil Engineering] – Professor Michael Kane (CEE)</b>
A   B	Explore the relationships between heat input, thermal storage, and heat transfer using the concept of balance point or equilibrium temperature.
<b>Activity 9</b>	<b>Microscopy U [Bioengineering] – Professor Abigail Koppes (ChemE/BioE)</b>
A   B	Learn about tissue engineering and how fluorescence microscopy is used to visualize samples in engineering and health applications.
<b>Activity 10</b>	<b>Drinking Water Treatment [Environmental Engineering] – Professor Philip Larese-Casanova (CEE)</b>
B	Learn how river water is converted to drinking water and conduct your own tabletop treatment plant.
<b>Activity 11</b>	<b>Virtual Reality Technologies for Rehabilitation [Computer &amp; Bioengineering] – Professor Danielle Levac (BioE/PT)</b>
B	Learn about virtual reality and how can it help patients learn and relearn movement skills after injury or illness.
<b>Activity 12</b>	<b>Deep Learning Security and Acceleration [Computer Engineering]– Professor Xue (Shelley) Lin (ECE)</b>
B	Learn about deep learning security and acceleration: data extraction techniques for Artificial Intelligence.
<b>Activity 13</b>	<b>Illusion Optics [Mechanical Engineering]– Professor Yongmin Liu (MIE/ECE)</b>
A   B	Build your own 3D hologram pyramid and invisibility cloak that help you to understand the fundamentals of optics.
<b>Activity 14</b>	<b>Harvesting Energy with Wind Turbines [Civil Engineering] – Professor Andrew Myers (CEE)</b>
B	Learn the basic mechanics of lift-driven wind turbines and compete to design a wind turbine rotor that generates the most power.
<b>Activity 15</b>	<b>Optimizing Production: Can you Build it Better? Faster?– Professor Hande Musdal Oudemir (MIE)</b>
A   B	Explore two primary modes of production, assembly line or single production method and learn about important industrial engineering applications.
<b>Activity 16</b>	<b>Designing Earthquake Resistant Buildings [Civil Engineering]– Professor Ugurcan Ozdemir (CEE)</b>
A   B	Explore the world of structural engineering: see how designing earthquake-proof structures is important to the safety of millions.
<b>Activity 17</b>	<b>Bio-Inspired Robots [Electrical Engineering] – Professor Alireza Ramezani (ECE)</b>
A	Learn about the process and background needed to build and control biology inspired robots.
<b>Activity 18</b>	<b>Power Issues in IoT Devices [Electrical &amp; Computer Engineering] – Professor Aatmesh Shrivastava (ECE)</b>
A	Learn about self-powered and ultra-low power circuits and systems for Internet of Things devices through a research presentation and lab tour.
<b>Activity 19</b>	<b>Mobile Robots and their Coordinated Motion [Mechanical &amp; Electrical Engineering] – Professor Rifat Sipahi (MIE)</b>
B	Learn about low-cost mobile robots from manufacturing to software development, how to coordinate the robots, and undergraduate research opportunities at NU.
<b>Activity 20</b>	<b>Brain Stimulation and Virtual Reality [Bioengineering &amp; Neuroscience] – Professor Eugene Tunik (BioE/ECE/PT)</b>
A	Explore cutting-edge technology used in the neurosciences to study the brain and behavior, such as TMS and EMG, as well as virtual reality (VR) and robotics used to examine human behavior.
<b>Activity 21</b>	<b>Regenerating the Central Nervous System [Bioengineering &amp; Neuroscience]– Professor Gunther K.H. Zupanc (BNS)</b>
A	Learn about the processes underlying the repair mechanisms by stem cells, and how biological information connect to a mathematical framework to and predict the biological repair phenomena.