Our Benedictine Engineering Club had the opportunity to spend a day at NASA Glenn as part of a Manufacturing outreach program facilitated by MAGNET. Fifteen of our students joined students from Beaumont School and St. Edwards to tour the NASA facility and learn about Science, Engineering, and Manufacturing at NASA.

Our day started by picking up our fifteen guests from Beaumont. We then arrived at NASA and cleared multiple security checkpoints. The program began at the Mission Integration Center where there were three interactive displays to evaluate and multiple NASA staff ready to explain things and field questions about NASA programs, projects and internships. Our students had the opportunity to try scientific visualization/virtual reality by controlling planes in air space and/or a rover on the surface of the moon. Junior, William Young is pictured here (on the right) verbally controlling a NASA model. Senior, Andrew Schiffer pictured on the left is controlling a MARS Rover. The second activity was an Aero Propulsion/1 by 1 wind tunnel demonstration. There was a actual rocket scientist explaining the capabilities and operation of the scaled wind tunnel. He also described the capability of the larger onsite wind tunnel and its practical applications for testing and evaluation of different NASA and industry projects.
Manufacturing Day 2018 at NASA Glenn

The third activity was the opportunity to discuss internships, senior projects and receive NASA 60th anniversary materials from current NASA employees.

Front row:  L to R  Nick Cocita, Anthony Sweet, Bryan James Jr., Luke Faulisi, Michael Rusnak and Mr. Robert Ryan
Back Row: Michael Price, Shaun Valentine, William Young, Anthony Gaskins, Andrew Schiffer, Chris Isom, Yoann-Axel Ahyi, John Witherspoon, Jonathan Cobb and Ty’Wuan Mauldin

The formal program started with a wonderful “I am Glenn” video that showcased the diversity and innovation that exists at NASA. Rob Lasalvia, Chief, Office of Education, then discussed the importance of Manufacturing working with Engineering in teams to solve complex problems. NASA Glenn takes ideas from concept to space.

NASA Chief Engineer Will Taylor then presented the Product Life Cycle to the students. He went through the steps of Formulation, Design, Assembly, Integration, Test and Delivery. Projects at NASA can take up to eight years to go from design to space. He explained how Engineering teams create things that didn’t previously exist in order to meet safety and reliability targets that exceed normal design because of their application. For the success of NASA, “It is essential in our environment that we work together through all phases of development.” He also explained why the documentation is a critical part of the final product especially for spaceflight.

We transitioned into a panel discussion about engineering education pathways, coursework and favorite projects for with Panelists:

- Kim Pham, Compact Gas Turbine Subproject, Deputy Subproject Manager  
- Brian Brandenburg, Early Career Manufacturing Technician  
- Monica Guzik, Flow Boiling and Condensation Experiment Payload Lead  
- Tonya L. Mitchell, Mechanical Engineering Technician

Our students were encouraged to develop themselves, learn everywhere and everything, be curious, find their passion, develop their teamwork skills, take an English class, communicate, have a strong work ethic and have a willingness to understand people and technology. The panel closed with a question and answer section. Everyone participating in the day was encouraged to apply to NASA for shadowing, “volunteer senior projects” and paid Co-Ops at intern.NASA.gov.
Our next stop on the tour was NASA’s Telescience Support Center. This is the facility that works with the Astronauts on the International Space Station. Glenn’s Telescience Support Center Provided Around-the-Clock Operations Support for Space Experiments on the International Space Station NASA Glenn Research Center’s Telescience Support Center (TSC) allows researchers on Earth to operate experiments onboard the International Space Station (ISS) and the space shuttles. Our guide, Margaret, described how they work with, train, and real-time communicate with the astronauts on the station to operate and oversee the 100+ experiments being conducted.

The picture on the left is a real-time videocast with an astronaut. At the support center they monitor everything that is happening on the station and everything with respect the functions of the astronauts on board.

Pictured below is a “model of the (ISS). It is about the size of a football field.

Our last stop was the manufacturing facility where they make and develop their designs from the prototype stage to production. There are over 3,000 people employed at the NASA Glen facility. One of our guides for the facility was a Benedictine Alumni, Class of 1978. Everyone we encountered loves their job and was very dedicated to innovating for improvements in Aerospace and Spacecraft. They also showed their pride.

Sophomore, Luke Faulisi was impressed with the Manufacturing capacity at the center. Luke participated and used the small OMNI jet water cutter at CASE Western Reserve’s University Maker Camp this summer and noted that NASA’s equipment was not only four times as large, but they also had two of them.

The pictures below share some of the manufacturing and design within the facility. The first two show our students intently listening to the Manufacturing engineers describe one of their current projects.
Our Engineering Club is very grateful for the opportunity to experience part of the NASA Glenn facility and would like to thank MAGNET and their partnership with the Lennon Charitable Trust for their continued support and facilitation of our Engineering and Manufacturing experiences.