

Mid PTK Community Project Makes Huge Impact

Students, alumni, and advisors from Mid Michigan College's chapter of Phi Theta Kappa Honors Society (PTK), recently attended the National Virtual Catalyst Convention. Each year prior to the convention, PTK students, from chapters around the world, choose an Honors in Action project to positively impact their communities.

This year, Mid students became aware of a need related to emergency preparedness planning in Gladwin County following the devastating floods that occurred in May of 2020. During the COVID-19 global pandemic, devastation and destruction struck mid-Michigan yet again, when dams collapsed following a record-breaking rainfall, resulting in a "500-year flood" that forced more than 10,000 residents from their homes.

"Students set goals as a team, completed detailed research, collaborated with students, faculty, and staff, as well as community and business leaders to create an action plan based on their findings," noted Tammy Alvaro, Director of Student Advancement and Mid's PTK Chapter Advisor. "By going through this process students have developed the soft skills and critical thinking muscle needed to succeed in their careers, positively impact their communities, and prepare for future challenges."

Mid's PTK students met and toured the damaged infrastructure with Robert North, Gladwin County's Emergency Management and Homeland Security Director.

"The students concluded that multiple factors led to the destructive flood, including a lack of awareness related to how water flows through the county," noted Alvaro. "Robert North shared his desire to better educate community members and leaders about watersheds and county topography, and that inspired the project's next steps."

A 3D map of Gladwin County showing the various elevations, waterways, and funnel-like topography became the goal. After exploring the options available at Mid and needing a more high-tech solution, Faculty Member Eric Sander connected the students with GoEngineer, located in Auburn Hills.

GoEngineer delivers software, technology, and expertise in the additive manufacturing industry, more commonly known as 3D printing and computer aided drafting and design. With more than 35 years' experience in high tech, medical, machine design, energy, and other industries, GoEngineer provides state-of-the-art design solutions using SOLIDWORKS CAD, Stratasys 3D printing, Creaform & Artec 3D scanning, CAMWorks, PLM, and more.

"We were delighted to assist with this project," explained Richard Cromwell, Additive Manufacturing Application Engineer at GoEngineer. "Giving back to communities and making a difference is a truly satisfying experience."

The first step involved taking the geographic data students gathered and converting it into a solid model using SOLIDWORKS 3D computer-aided drafting software. After a few design modifications, the model was ready to be processed in GrabCAD Print and then 3D printed using a Stratasys Fortus 450mc 3D Printer and FDM (Fused Deposition Modeling) technology.

"The goal was to print the model as large as possible, while maintaining fine enough detail to best educate the community about the topography of their county," said Cromwell. "I gained a better appreciation for the geography of the area and the challenges they faced as this project took shape."

The project is now a reality and in the hands of North and Gladwin County.

"We are so grateful to have partnered with Mid and GoEngineer," shared North. "This is a great tool for public education, emergency preparedness, and our residents will benefit tremendously."

Mid's Honors in Action project team included Elliott Dawes (Lake), Jessalyn Justice (Mt. Pleasant), Lindsey Marlin (Beaverton), Halsey Riesberg (Alma), Montana Russell (Mt. Pleasant), and Anna Woodworth (Mt. Pleasant).

"We started this project over one year ago, just after the floods," said Jessalyn Justice. "It's an amazing feeling to see the idea and data come to life!"

The team received the 1st Runner Up Honors in Action Award at the National Virtual Catalyst Convention and 1st Place in the Honors in Action Award Theme Category.

The team was recently notified that their project, entitled *Dam It! What Caused the 500 Year Flood of 2020?*, has been selected from among 400 entries to be included as one of eighteen articles in the 2021 edition of *Civic Scholar: Phi Theta Kappa Journal of Undergraduate Research*. The publication is expected to be available soon in hard copy format and online at ptk.org.

Mid launched a Phi Theta Kappa (PTK) chapter in 1989. Over the past 32 years, Mid's chapter has earned and maintained the highest level of achievement - a 5 Star Chapter.

Phi Theta Kappa is the premier honor society recognizing the academic achievement of students at associate degree-granting colleges and helping them to grow as scholars and leaders. The



Society is made up of more than 3.5 million members and nearly 1,300 chapters in 11 nations, with approximately 240,000 active members in the nation's colleges. Learn more at ptk.org.

For more information about Mid's Phi Theta Kappa chapter, visit midmich.edu/ptk or contact Tammy Alvaro, Director of Student Advancement, at talvaro@midmich.edu or (989) 386-6634.

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[About Mid Michigan College](#)

Mid Michigan College, with campuses in Harrison and Mt. Pleasant, has been serving its community since 1965. With state-of-the-art facilities, experienced faculty, and strong community connections, Mid is dedicated to helping students get the most out of their education. Learn more about Mid and all we have to offer at midmich.edu.

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