

Louisiana Tech University team uses 3-D printing, sustainable materials to create UAV

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From left to right Louisiana Tech students Joseph Hagensee, Colin Dunbar, Keunta Epps and Justin Coe. Credit: Louisiana Tech University

A team of mechanical engineering students from Louisiana Tech University has used 3D printing and sustainable materials to create a

custom unmanned aerial vehicle (UAV) that could help NASA improve its efforts to study UAV applications and establish an infrastructure to enable and safely manage the widespread use of low-altitude airspace.

The four-person team comprised of Justin Coe, Colin Dunbar, Keunta Epps and Joseph Hagensee built the UAV using environmentally friendly and non-traditional engineering materials available at Louisiana Tech.

The collaboration, successfully completed as a senior capstone project under the guidance of Dr. Arden Moore, assistant professor of [mechanical engineering](#) and molecular science and nanotechnology at Louisiana Tech's Institute for Micromanufacturing, was sponsored by a Louisiana Space Consortium sub-award from the National Aeronautics and Space Administration (NASA) grant.

Moore says that the team showed skill, not only in designing and building a functioning UAV, but also in doing the background research necessary to do so and in using the equipment available.

"They showed sound engineering judgment throughout the project, and I think the final product exceeded expectations," Moore said.

"A large part of our success was due to our ability to make complex parts using three-dimensional printing, which we were able to do thanks to our program's computer modeling classes and Louisiana Tech's openly accessible 3D printers," Hagensee said.

The students said that in addition to access to cutting-edge equipment, they were able to complete the project thanks to Louisiana Tech's mechanical engineering curriculum and its emphasis on collaboration and hands-on experience.

"The project-based curriculum at Louisiana Tech showed us how to

apply what we have learned, to create a successful design," Dunbar said.

"Learning to work in groups is a staple throughout the engineering curriculum at Tech," Epps said. "This experience taught us to work as a cohesive unit, which was a major key to the success in this project."

Coe adds that Moore's expertise and advice was instrumental in the completion of the UAV. "Dr. Moore was the best advisor we could have asked for," Coe said. "He has a lot to do with the success of the project."

The team will present the [project](#) at the Louisiana Tech College of Engineering and Science Senior Projects Conference on Friday, May 6.

Provided by Louisiana Tech University

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