Capstone projects solve real-world problems

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The members of Team Inventilator, seniors majoring in biomedical engineering at Tulane University, were more than happy to explain their invention ☐ an automated airway-suctioning device for patients on ventilators.

Callie Turlington, right, checks out the work of Team Inventilator, demonstrated by George Torsilieri, left, and Daniel Ash, center. (Photo by Paula Burch-Celentano)

"Some patients, such as those with ALS, require suctioning of mucus accumulation in the airway," said Stephen Lee during the annual Biomedical Engineering Team Design Show this week at the Lavin-Bernick Center on the uptown campus. "Currently, caregivers have to suction the buildup manually. Our device automates the process with a push of a button."

Lee and his five teammates developed their device over the past two semesters as part of a capstone design course required of all biomedical engineering seniors. Their team and five others met with clients, established needs and goals, and applied biomedical engineering principles to their designs.

Projects included a warehouse inventory system for medical mission services, an exoskeleton for surgical patient positioning, an outdoor exercise module for persons with disabilities, and a patient monitoring system for reducing the incidence of

ventilator-associated pneumonia.

Team Hawkeye used existing eye-tracking technology and other inexpensive components to develop an affordable motorized wheelchair control system inspired by former New Orleans Saint Steve Gleason, whose diagnosis of ALS in 2011 has led to a nationwide movement against the disease.

Each team had a faculty advisor and community partners such as Team Gleason, St. Margaret's at Mercy, New Orleans Medical Mission Services, the Tulane Simulation Center and FitLot, a nonprofit that builds outdoor fitness parks.

"The student design teams rose to the challenge, producing inventive designs that have strong potential to make a difference in the community and beyond," said professor of practice Lars Gilbertson, who oversees the design class.

"We have wonderful students, staff, faculty mentors and community partners a winning combination that is helping to create a unique NOLA brand of innovation and entrepreneurship to benefit society."