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Winners Selected for the 2016-2017 TRB Airport Cooperative Research Program University Design Competition for Addressing Airport Needs

The Transportation Research Board's (TRB) Airport Cooperative Research Program (ACRP) recently selected winners for its University Design Competition for Addressing Airport Needs. The prestigious competition encourages students to design innovative and practical solutions to challenges faced by our nation's airports.

Students were invited to propose innovations in four technical challenge areas: Airport Operation and Maintenance, Runway Safety/Runway Incursions/Runway Excursions, Airport Environmental Interactions, and Airport Management and Planning. The competition requires that students work with a faculty adviser and that they reach out to airport operators and industry experts to obtain advice and assess the practicality of their proposed design solutions.

Purdue University's School of Aviation and Transportation Technology scored two first place wins, both under the guidance of faculty adviser Mary Johnson. A novel approach to using remote sensing technology to monitor snow and ice on airport runways developed by a mixed Purdue undergraduate/graduate team won first place in the Runway Safety/Runway Incursions/Runway Excursions challenge area. A team of Purdue graduate students won first place in the Airport Management and Planning challenge area for innovative revenue generation strategies for general aviation airports.

A Tufts University undergraduate mechanical engineering team's innovative approach to baggage handling to minimize delayed or damaged bags was the first place winner in the Airport Operation and Maintenance challenge area. Gary Leisk of the department of mechanical engineering was the faculty adviser.

A design for minimizing environmental impacts of de-icing chemicals at Denver International Airport garnered first place in the Airport Environmental Interactions challenge area for a team of engineering students at the University of Colorado, Boulder. Chris Corwin of the department of civil, architectural, and environmental engineering advised the team.

The ACRP is sponsored by the Federal Aviation Administration (FAA) and managed by the TRB. TRB is part of the National Academies of Sciences, Engineering, and Medicine. The competition is managed by the Virginia Space Grant Consortium based in Hampton, Virginia. Partnering organizations include the American Association of Airport Executives, the Airport Consultants Council, the Airports Council International – North America, the National Association of State Aviation Officials, and the University Aviation Association. Partners assist in developing competition guidelines, provide expert advisers for teams, disseminate competition information to organizational members, host student presentations at professional meetings, and participate in design reviews.

Volunteer panels of airport industry and academic practitioners as well as FAA representatives selected the winning proposals. Students from winning teams equally divide cash prizes. First place teams will receive their awards and present their work at the National Academies' Keck Center in Washington, D.C., on July 31, 2017. In addition, they will be given the opportunity to present their winning proposal at an industry professional conference or workshop in late summer or fall 2017.

New guidelines for the 2017 – 2018 academic year competition will be available on the competition website by August 1, 2017.

Copies of designs receiving first, second, and third place awards are available at the [competition website](#).

Other awards are listed below:

Second Place Awardees:

Runway Safety/Runway Incursions/Runway Excursions: Tower ASDE-X Improvement, submitted by the University of Southern California. Adviser: Michael Crowley.

Airport Environmental Interactions: Developing Energy Harvesting Prototypes to Generate Electricity from Runway Pavement Infrastructures of Airports, submitted by the University of Texas at San Antonio. Advisers: Samer Dessouky and A.T. Papagiannakis.

Airport Operation and Maintenance: Airport Imagery and Geospatial Data Collection Through the Use of UAS, submitted by Kansas State University Polytechnic Campus. Advisers: Tara Harl and David Burchfield.

Airport Management and Planning: SimpliFlight, submitted by Binghamton University. Advisers: Chad Nixon and Zachary Staff.

Third Place Awardee:

Airport Operation and Maintenance: Transtag - A Prioritization of Domestic Transfer Baggage, submitted by Stevens Institute of Technology. Adviser: Eirik Hole.

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