

# Student aircraft designs put to the test



Not only do University of Pretoria (UP) teams steal the intervarsity spotlight on the sportsfield; they also put on a striking performance in the sky. A number of fourth-year aeronautical students took part in the annual Intersarsity Model Aircraft Fly-off Competition, which was held at the Swartkops Air Force Base on 27 and 28 October 2012, and resulted in an overall win for the University for the third year in a row.

This competition, organised by the Aeronautical Society of South Africa, aims to encourage interest in aviation and aeronautics in competitors and spectators alike. The goal of the competition is to conceptualise, design, construct and fly a radio-controlled model aircraft that is capable of taking off over as short a distance as possible and then to fly as slowly as possible over a short course, while carrying a pre-specified payload. This year, the payload was specified as a full 355 ml cooldrink can.

The challenge is aimed at two different groups of participants and is divided into two parts. The Inter-university Challenge is judged on the academic portion of the aircraft design, while the Open Challenge only includes the take-off and flight portion of the competition. The competition is open to teams of up to six competitors. Each team is allowed three model aircrafts, which are each significantly different in geometry. While anybody may enter as a team member, only a South African Model Aircraft Association (SAMAA)-approved pilot may fly the aircraft at the competition.

Models entered must be an original design, using no major components from existing model aircrafts. Designs are limited to fixed-wing aircraft configurations, which means that no rotary-wing aircrafts, like helicopters, autogyros or lighter-than-air systems are allowed. Participants are encouraged to design an aircraft that can fly largely on the aerodynamic effects of its wings. For the adventurous team, aircraft geometry changes like flaps and wing sweeps are allowed, provided that it is brought about by remote control.

University teams must produce an A1-sized poster for judging, which covers the design concept, the performance prediction, and the stability and control predictions. All these elements provide for a score out of 100 points. The combined score of the design presentation and the flight determines the winner. This year, the three overall winning teams, UP Superheroes, UP Fly Boys and UP AeroAddicts, were all from the University. ➔



→ Members of the University of Pretoria's teams: UP Superheroes, UP AeroAddicts, and UP Fly Boys.



→ Receiving the award for Best University from Rob Jonker are Prof Josua Meyer, Head of the Department of Mechanical and Aeronautical Engineering (left), and Barbara Huyssen, lecturer in Aerodynamics.



→ Receiving the award for the winning team from Rob Jonker, former President of the Aeronautical Society of South Africa (AeSSA), are two members of the UP Superheroes team, EK Wamithi (left) and B Gwashavanhu (right).