

SPACE EDUCATION AND OUTREACH SYMPOSIUM (E1)  
ON TRACK - UNDERGRADUATE AND POSTGRADUATE SPACE EDUCATION (2)

Author: Ms. Mary D'Souza  
Australia, mary.dsouza@uq.edu.au

DESIGN, CONSTRUCTION AND TESTING OF SOUNDING ROCKET PAYLOADS AT THE  
UNIVERSITY OF QUEENSLAND**Abstract**

This paper describes work conducted by students as part of the MECH4552 advanced design course at The University of Queensland. This is a capstone course offered to senior students in Space Engineering. It requires synthesis of multidisciplinary material to achieve a complex design task, and validation of the results through construction, assembly, and ground and flight testing. Groups of up to 4 students spend 8 to 10 months researching, designing, constructing and testing a payload. The culmination is a field trip to the Woomera Test Range where the payloads are launched onboard a Zuni sounding rocket at the Woomera Test Range as part of the Australian Space Research Institute (ASRI) launch program. Payloads launched in recent years include a pulse detonation engine, ramjet, composite payload module and boundary layer transition experiment. Emphasis is placed mostly on directed technical achievement and students are responsible for all stages of the project. Team work and project management play an important role, and students are required to achieve compliance with the documentary requirements of the regulatory bodies involved. It is an intensive, hands-on, educational experience which challenges the students to develop the all-round integrated skills needed to be an effective practicing engineer.