



Postgraduate Studies in Satellite Engineering and Satellite Science

1. Introduction

Masters and PhD bursaries are available from 2006 to do a research project for a maximum period of 2 years for a Masters degree and 3 years for a PhD as a capacity building deliverable during the SA satellite project. Mainly female and black South African students (with SA citizenship) are still required for the 2006 academic year. The research project undertaken present opportunities to participate directly in the ZASAT pathfinder mission or in future South African satellite missions. The pathfinder mission will produce a 70 kg earth observation microsatellite doing multispectral imaging. The pathfinder satellite will be launched in a 500-650 km low earth sun-synchronous 10am/10pm orbit by the end of 2006.

Interested students may reside at any South African university, where they can receive the required academic supervision. It will be expected of the students to spend an initial 3 month period (February to April 2006) at the University of Stellenbosch, where they will have to take an introductory course module in Satellite Systems. Students with a particular interest in satellite engineering should consider joining the satellite engineering team within the Electronic System Laboratory (ESL) at the University of Stellenbosch.

2. Research fields

The research fields include:

- (a) All aspects of satellite engineering (e.g. MScEng candidates), to list a few:
- Orbit propagation and dynamics (e.g. formation flying)
 - Satellite propulsion systems
 - Onboard computing and housekeeping (e.g. hardware and software)
 - Satellite payloads (e.g. imaging, mass memory units, SAR)
 - Ground station and data distribution
 - Satellite power systems (e.g. batteries, solar panels)
 - Telemetry and Telecommand systems
 - Attitude determination and control systems
 - Satellite communication systems (e.g. antennas and RF units)
 - Mechanical structures and materials
 - Thermal design and properties
 - Image processing (onboard and ground based)

(b) Some aspects of space and earth science (e.g. MSc or MScEng candidates), to list a few:

- Radiation effects on satellite components
- Geographical information systems
- Agricultural remote sensing
- Ionospheric and atmospheric properties
- Geomagnetic studies
- more ...

3. Financial

Students enrolled for a 2 year Masters project will receive a bursary to a total amount of R35k per year. An additional amount to a maximum of R15k per year will be available for material and overhead costs. Students enrolled for a 3 year PhD project will receive a bursary to a total amount of R80k per year. An additional amount to a maximum of R40k per year will be available for material and overhead costs.

4. How to apply

Interested students and/or supervisors of the students can apply for a bursary by proposing a suitable research topic and sending a short CV of the candidate student, to,

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