UNISEC-Southern Africa: Our big picture

By

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Outline

- Our vision
- The big picture
- What we have
- The way forward
- Conclusion
Our vision

To drive and facilitate the growth of a new breed of space engineers within the southern Africa region through effective and efficient inter- and intra-university collaboration, and the optimal use of research facilities and industry.
The big picture

Engineering

Space project

Business

Politics

law
1980-1994: Military space program
Unfortunately the satellite was not completed

1992-1998: SunSat (64 kg), built by Stellenbosch University graduate students and staff.
Launch: 23/02/1999 on Delta II USAF
Altitude: 640 km to 850 km
Last contact: January 2001
2005-2006: SumbandilaSat (83 kg), built by SunSpace in about 15 months
Launch: 17/09/2009
Altitude: 505 km

Tokyo Haneda Airport Area (about 12 km by 8 km)
European Commission’s 7th Framework Programme (FP7):

- Stellenbosch University participating in the “DeorbitSail” Project.

- Stellenbosch University leading the “ZA-AeroSat” Project with CPUT/F’SATI collaboration, as part of the QB50 constellation.

- Stellenbosch University contributing 15 ADCS bundles to other QB50 CubeSats.
- CPUT/F’SATI leading “ZACube-1” and “ZACube-2” projects with Stellenbosch University contributing the control system design.

- ZACube-1 was launched on November 21st 2013. Africa’s first nano-satellite is alive and called TSEPISO (Promise).
Outreach...

- Space science and technology is promoted through high school outreach both in and out of South Africa

- CanSat Program: CPUT/F’SATI uses the CanSat program as an outreach tool, a teaching tool and a commercial venture
Partnerships...

- **Inter-University partnerships**
  - Cape Peninsula University of Technology & Stellenbosch University

- **University-Research facility partnerships**
  - Cape Peninsula University of Technology & National Research Foundation / iThemba Laboratory for Accelerator Based Sciences
  - Stellenbosch University & National Research Foundation / iThemba Laboratory for Accelerator Based Sciences
- Stellenbosch University & Agricultural Research Council

- University-Industry partnerships
  - Stellenbosch University & Denel’s Spaceteq
  - Stellenbosch University & Space Commercial Services (SCS)
The way forward

1. State of space affairs in Southern Africa
   - Strength and weaknesses

2. Propose partnerships and collaborations
   - Strengthen core knowledge

3. Include other relevant university departments
   - Revisit 1 and 2 and expand
Conclusion

- MUCH work to be done
- Southern Africa is Central to the development of space engineering in Africa
- A successful UNISEC-Southern Africa is an imperative for Africa
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Thank you for your attention !!