Establishing UNISEC-Egypt:

Space Engineering Education in Egypt

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Outline

• History.
• CanSat Training (CLTP, CLP).
• Activities Timeline.
• Major Outcomes.
• Students Achievements.
• UNISEC-EGYPT.
• The Future.
HISTORY

• Space Education at Cairo University starts officially in 1990 when the department changed from *Aeronautical Engineering* to *Aerospace Engineering*.

• Space Education has a boost around 1994, with the establishment of "Egypt's National Authority for Remote Sensing and Space Sciences".

• Around year 2000, Prof. Sayed Desoky contacts his colleague from Stanford Prof. Twiggs who offers visiting Egypt and teaching us CANSAT technology.

• Unfortunately, the offer was rejected by Egyptian Authorities!
HISTORY

• A remote sensing satellite EgyptSat1 (165Kg, 7.8 m resolution) program started as a cooperation with the Ukraine and was launched on 17th April 2007.
• A team of Aerospace engineers, under the supervision of Aerospace department faculty members, has joined EgyptSat 1 development.
• Different space courses (graduate and undergraduates) where offers through this period such as:
  • Attitude Dynamics and Control, Mission analysis, orbital Dynamics, Space Structures, Space propulsion, etc.
HISTORY

• Different graduation projects were also executed such as:
  • Moon-Sun Sensor, Gas propulsion thrusters, Solar Cells
    cruise sun-sensor, Mission Analysis software, Orbital
    propagator, etc.
  • More than 10 master and Ph.D.
    theses were conducted.

• After stopping of satellite program, space education and
  research slowed down till three faculty members joined The
  Japanese Cansat Leader Training Program CLTP.
CLTP

1 Participant from Egypt in CLTP1
2 Participants in CLTP3
Total of 3 Participants in CLTP
First CanSat Training Program (CTP1)
Second CanSat Training Program (CTP2)
Third CanSat Training Program (CTP3)
Fourth CanSat Training Program (CTP4)
Announcement about MIC - 2 within Egypt and MENA Region

Deadline for CLTP-2 Application

Start of CLTP2

CTP-1

Participation in EED

MIC-2 Regional Seminars started

Participation in CLTP2 launch observation and 3rd Nano-satellite symposium
2012 Activities Timeline

- MIC2 Seminars
- Application Deadline For CLTP3
- Application Deadline for MIC2
- CLTP3 Start
- Jan-12
- Feb
- Mar
- Apr
- May
- Jun
- Jul
- Aug
- Sep
- Oct
- CTP-II
- TEDx Show
- AUC Students Competition
- Seminar and Panel Discussion about Establishing UNISEC-Egypt
- Participation in EED-12
2013 Activities Timeline

Jan - 2013
CTP3

Feb
Participation Siemens-
Middle east competition

Mar
Participation in PreMIC3

Apr
Participation in RAST 2013
Symposium in Istanbul

May
Participation in UN
Symposium in Daubi

Jun
Three capstone projects
Affiliated to SSTLAB

Jul
Participation In 5th Nano-
Symposium

Aug
Participation in ICC2013

Sep
Iran Int’l Cansat
Competition

Oct

Nov
EED 2013
**2014 Activities Timeline**

Two capstone projects

- Seminar on requirements for supporting space tech (I).
- Seminar on requirements for supporting space tech (II).
- Participating in URC
- Participating in ARLISS 2014
- Participating in the second UNISEC global meeting
Major Outcomes

• CanSat allows introducing interesting teaching modules with more design and hardware contents.

• We start getting the best Engineering students in Egypt after changing the stereotype idea of: “Aerospace students are book worms and never have fun”
Major Outcomes

• Advanced Graduation projects:
  • Students get more acquainted with electronics (microcontroller, sensors).
  • They start working on more advanced topics and trying new ideas.
Students Achievements

2011
- EED – 1st Place

2012
- EED – 1st Place
- AUC – 1st Place

2013
- EED – 1st Place
- 3rd IRAN INT’L CANSAT COMP.
  7th Place From 150

2014
- Achieving the 9th place over other 31 teams
- Participating in ARLISS 2014
Outreach

• PortSaid TEDx Session (2012).

• Several TV shows. (2012-2013).
UNISEC-EGYPT

Seminar and Panel Discussion about establishing UNSEC-Egypt  (July 4, 2012)
UNISEC-EGYPT

During the first meeting it was agreed that:

• Mailing list was established to disseminate important information.
• To hold a second workshop in 2013 to allow each institute to present its capability.
• Explore the legal issues related to establish NGO UNSEC-EGYPT.
• Due to the current political situation things delayed.
• We are aiming at Alexandria university (the second top university in Egypt after Cairo University)
ESTABLISHING UNISEC-EGYPT

1) Challenges in establishing UNISEC in Egypt?

- Political instability.
- Difficulty in funding.
- Lack of managerial staff.
- Limited institutions that conduct research and development for space systems.
2) What would be the opportunities in having UNISEC in your region?

- It makes it possible for us to catch up with the advanced world in space research.
- Sharing in UNISEC activities will expand space knowledge in the region and give us the needed publicity.
- We hope that belonging to an international organization will give us some edge in asking for governmental funds (not successful yet!).
- It is a wakeup call for the government to start supporting space research.
Possible Contribution to UNISEC-Global After Becoming a Member

- Participating in MIC competition.
- Participating in CLTP.
- Sharing in any new activities initiated by UNISEC-Global or any UNISEC chapter
Future Plan

• Continuing CanSat Education (CTP5).

• Competing nationally and internationally (EED, ARLISS, MIC, etc.).

• CubeSat (moving to engineering Model).

• Blending with Egypt’s space research plan and cooperating with different Egyptian research institutions such as NARSS and Ministry of scientific research.
Thank you
Ready for Questions