

THE 3RD UNISEC-GLOBAL MEETING,
3 - 5 JULY 2015
UNIVERSITY OF TOKYO, JAPAN



Progress in space Engineering education and research programs

Tunisia/North Africa



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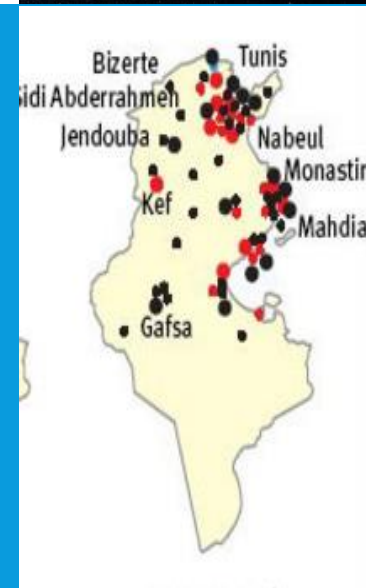
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TUNISIAN UNIVERSITIES



- 2nd African Research and Innovation Ranking (1st ZAF)
- 11 millions population
- 13 universities
- 22400 Teachers
- 320 000 students
- 1/3 in Fundamental sciences, engineering, Informatics, multimedia,...



- New opportunities

Space technology is an attractive discipline
when it becomes available

WORKING GROUP ROADMAP OF UNISEC TUNISIA



- **Promotion of National projects:**
 - prototypes, experiments and launch operations, imaging, Monitoring, ground station, safety methods, Cansat....
- **Working on Fundraising and Project Support:**
 - design satellites, water monitoring, ground station, devices and antennas ..
- **Promotion of the alliance:**
 - Research-Education-Business-Industry-Government-Agencies
- **Organization of events:**
 - conferences, competitions, calls for mobilizing actors collaboration
- **Federation and dissemination:**
 - Training supports and academic activities in the field.
- **Promotion of International Cooperation:**
 - (IAA, UNOOSA, BSTI, UNISEC, other organization and universities...)



BECAUSE SPACE IS SPECIFIC AND MULTIDISCIPLINARY

- We introduce courses in MSc level for Basic approaches:
 - Astrophysics ...
 - Based knowledge in space physics and technologies
 - Satellite Telecommunication
 - Global Positioning Systems
 - Signal and image processing
 - Small satellite design
 - Mechatronics & Microelectronics
 - Computer Technology (Space & Ground Segments)
 - Space Flight Projects - NASA

Mission projects & Ground station



University
of Monastir
Pr Kamel BESBES

UAV, Recognition Embedded systems



University
of Sousse
Pr Chokri SOUANI

University Consortium



University
of Sfax
Pr Mohamed
Adel ALIMI

University
of Tunis El
Manar
Pr Ali
GHARSALLAH

Sat Design Power Systems



Sup'Com Tunis
Pr Riadh
Abdelfattah



Antennas, RF communication



TUNISIAN AND REGIONAL NETWORK AGENCIES AND RESEARCH CENTRES

- CNCT : National Mapping and Remote Sensing Center:



- INM : National Institut of Meteorolgy



- To consolidate capacity building in space technology with Tunisian space programs we work with two Research Centers and a regional agency

- CERT: **Research and Studies Communication Centre**



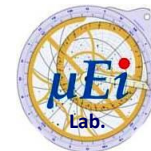
- CRMN: **Centre for Research in Microelectronics and Nanotechnology**



- CRTEAN: **North African Center for Remote Sensing**



- (Mauritania, Morocco, Algeria, Tunisia, Libya, Egypt, Sudan)



The 2nd Maghreb International Courses in **Spatial Technology** **(Nano-Satellites)**

University of Monastir 27-28 Mars 2014

Scientific Program

SCIENTIFIC PROGRAM

Day 1:

09: Opening
Pr Kamel Besbes

10:30: Nano satellite mission design
Pr Farouk Aguin Aguin

14:00: Space craft design
Pr Alim Besbes

16h : Introduction to ESD/est1 project
Pr Mohamed Adel ALIMI

17h : Young Original experience Challenge/est
Kerim HAMID

Day 2:

09 : Haseebary Est program: HEIMSAT Case
Pr Farouk Aguin Aguin

11h: Mission Idea Contest 3, for Micro, Nano satellite utilization
Pr Kamel Besbes

14:00: System engineering Program and Tuning
Pr Alim Besbes

16h : closing

Organizers

Space Systems Design and Test Laboratory

THE 2ND MAGHREB
INTERNATIONAL
COURSES IN
SPATIAL
TECHNOLOGY

NANO-SATELLITES DESIGN

*2nd MIC-ST
Monastir-Tunisia
27-28 March 2014*

Registration fee to : Club-Jeunes Sciences Conférences
 UID MONASTIR-Tunisia
 IDAR - TR0912 022 030 4079007 90



Pr Aquelet Pr Aslan Pr Alimi Mr Hmaied Pr Besbes



Mic 2, Mic 3, Mic4 Maghreb coordinator (2012-2015)
 3rd UNISEC Global -Tokyo - 2015

IN RESEARCH ACTIVITIES

Develop projects on:

- **Water monitoring based on small-satellite real time telemetry.**
- **Design and Prototype devices and subsystems (ERPSat-1)**

- We introduced several talks on our projects and activities, in Tunisia and outside, to develop our network of partners including.
 - UN-PSIPW 3rd International Conference on the Use of Space Technology for Water Management 1-5 April 2014, **Rabat, Morocco**
 - 24th UN/IAF Workshop on “Space Technology for Socio-Economic Benefits” with focus on global health and maritime applications 26 - 28 September 2014, **Toronto, Canada**
 - IMEKO TC19 Symposium on Environmental Instrumentation and Measurements September 23-24 2014, **Chemnitz, Germany**
 - ATSIP'2015 (Advanced Processing Techniques and Information Fusion: Methods & Applications) 21-24 March 2015, **Monastir –Tunisia**

INTERNATIONAL COLLABORATION

- we submitted successfully for funding bilateral research project for two years (2015 and 2016)
- As part of the collaborative initiative between UNISEC-TUNISIA and UNISEC-Turkey,
- Monastir and Sfax Universities with Technical Istanbul University
- **Development of Intelligent Control Modules for nano-satellites.**
- Informal collaboration with :
- Vigo University, Visiting Professor
- Wurzburg University, Visiting Professor, visiting Young Researcher

OUR NEW CHALLENGES

- **More National activity expansion**

- This requires better UNISEC Tunisia technology capacities.
- Acquisition of equipments for ground station and cubesat elements
- Organize of experimental work meeting as CanSat and cubesat workshop to demonstrate feasibility and accessibility of space engineering.
- Develop new educational issues to space technology and application

- **MENA and africa activity expansion**

- **Only 3 space agencies:**

- Nigeria (1998), Algeria (2002), SouthAfrica in 2010
- Interest North African universities to join us
- New research subjects related to regional development



MIC Coordination

