UNISEC

Regional Activities of Second Mission Idea Contest (MIC2)

Coordinator: Prof Kamel BESBES

Tunisia and North Africa (Maghreb)

A special Acknowledgement and gratitude to both Professor Shinichi Nakasuka, in University of Tokyo and chairperson of the 4th United Nations/Japan Nano-Satellite Symposium and Ms. Rei Kawashima, first secretary general of UNISEC Japan for their continuous support and advice during the contest period.
The below mentioned activities couldn't be possible without their continuous support and help. We express our gratitude also to all staff members of UNISEC Japan for their kind help and support.

University of Monastir, Faculty of Sciences of Monastir

Microelectronics & Instrumentation UR

1- Introduction

Space technologies are likely the motor development of information technology in the next decade. Extension tools and control of the means of production and launch of nano satellite universities, will develop new applications and new services. The impact on society is even more important when countries and governments in developing attached to them.

Our university sensitive to these technological developments introduced over the past three years training courses and academic research: imaging and communications satellites and space technology.

Our involvement has become more important after our participation in two symposia organized by UN / Austria / ESA in 2010 and 2011:

[1] Symposium on Small Satellite Programmes for Sustainable Development: “Payloads for Small Satellite Programmes”, 21-24 September 2010, Graz, Austria

[2] Symposium on Small Satellite Programmes for Sustainable Development : "Implementing Small Satellite Programmes: Technical, Managerial, Regulatory and Legal Issues" 13-16 September 2011, Graz, Austria

2- The Mission Idea Contest (MIC)

We met at these Symposia, Mrs. Rei Kawashima. She encouraged us to continue our development and to participate in MIC1 and MIC2.

MIC: was established to provide aerospace engineers, college students, consultants, and anybody interested in space with opportunities to present their creative ideas and gain attention internationally. The primary goal of MICs is to open a door to a new facet of space exploration and exploitation. Development of micro/nano-satellites started as an educational and research program primarily at university laboratories. As the micro/nano-satellite technology matures, it have spread rapidly across the academics and industry for practical application

3- Participation au MIC1 2010 :

The first Mission Idea Contest (MIC1) was started in mid 2010 and organized by UNISEC, Axelspace Corporation and the University of Tokyo. MIC1 focused mainly on mission idea and satellite design for of nano-satellite constellation.

Microelectronics & Instrumentation UR Team in University of Monastir presented the project:

ELYSSAT A Nano Satellite for the desert remote-sensing,

It was classified 19th between 32 projects, http://www.spacemic.net/finalists1.html

4- Participation au MIC 2011:

In The 2nd Mission Idea Contest (MIC2), organized by UNISEC and the University of Tokyo, calls for ideas in two categories:

- Mission idea and Satellite Design Category or Category 1
- Business Model category of Category 2

To prepare the MIC 2 session we held a regional event in the university of Monastir called:

THE 1ST MAGHREB INTERNATIONAL COURSES IN SPATIAL TECHNOLOGY.

Monastir, Tunisia, April, 10-12, 2012

Communication with potential applicant: Tunisian, Algerian and Moroccan Universities was taken place by both email and conventional mail to inform them about the MIC and keep them updated about the MIC news and MIC web site updates and 1st MICST event to be held in Tunisia.

There were 18 participants: master students and PhD researchers but also teachers confirmed. We have not registered the foreign participants in the seminar.

The organizers of this event are:

Prof. Dr. Klaus Schilling, Chair Informatics VII: Robotics and Telematics, Faculty Mathematics and Informatics, University of Würzburg, Germany

Prof. Dr Kamel BESBES, Chair Microelectronics & Instrumentation, Faculty of Sciences Monastir, University of Monastir, Tunisia

Following this activity, the team that participated proposed 4 projects:

139	Kamel BESBES	university of Monastir Microelectronics & Instrumentation UR		1
106	Rochdi Bouchiha	university of Monastir Microelectronics & Instrumentation UR	Title: DesertGuardSAT: Nanosatellite for the desert remote-sensing and the space IP testing.	1
124	NADER GALLAH	university of Monastir Microelectronics & Instrumentation UR	Satellite real time monitoring of water flood and quality in Tunisia	2
75	zahret el imen sahtout	university of Monastir Microelectronics & Instrumentation UR	Title: WSNeTPhoSat: Monitoring and collecting WSN Data of Phosphates of Gafsa with pico and **and** nanosatellites.	1

Only one was selected in second category as semi finalist. **http://www.spacemic.net/finalists2.html**


Safia

THE 1ST MAGHREB INTERNATIONAL COURSES IN SPATIAL TECHNOLOGY *1st MIC-ST - April, 10-11-12, 2012*

Program: The overall objective of **MIC-ST** is to give the participants recent knowledge of the potential **of space technology for sustainable economic development** and to prepare Maghreb Regional participation in the 2nd Mission Idea Contest of Micro/Nano-Satellite Utilization **(MIC)**, sponsored by the Univ. of Tokyo and Univ. Space Engineering Consortium in Japan.

- Presentation of: **Nano-satellite Mission Idea Contest**
- Courses on: **Miniature Spacecraft System Design**
- Workshop: **MIC Project guideline**

History of Spaceflight, Space Mission Design: Celestial Mechanics, Keplerian Orbits, Orbit Perturbations, Mission Analysis, Contact periods, sun incidence, Miniature Spacecraft System Design: Satellite System, System Design, Subsystems, Structure& Mechanisms, On Board data handling, Attitude and Orbit Control, Telecommunications, Power, Thermal control, Spacecraft Tests, Launch Vehicles, Spacecraft operations

Ground stations, Formations of Pico-Satellites for Telecommunications and Earth Observation, Exemplary Missions, Pico-Satellites UWE-1, UWE-2, Small Satellites Abrixas, Euvsat, Interplanetary satellites Cassini/Huygens

The course curriculum will be implemented through a mixture of theory and practical examples, by using state of the art hardware, software and instrumentation facilities.

This course will be conducted jointly by ICS-Wurzburg University and uEi lab-FSM-Monastir University.

Language: All lecture, course materials and medium of instruction are in ENGLISH

Event Setting: Monastir –Tunisia

Public: Graduated students/researchers/engineers/business persons

Maghreb only : Mauritania-Morocco-Algeria- Tunisia-Libya

Maximum Available seats : 20

MICST

March, 10, 2012, End MICST Registration

March 28, 2012 Last date of regularization of registration fees

April, 10-12, 2012: Regional Seminar

Space-MIC

- May 1, 2012: Abstract Deadline
- June 15, 2012: Evaluation Deadline
- July 1, 2012: Announcement of finalist
- September 2012: Final paper deadline
- October 10-13, 2012: Final Pres. at the 4th nano-satellite symposium in Japan

About Monastir City: Monastir was founded on the ruins of the Punic–Roman city of Ruspina. The city features a well preserved the first Ribat that was used to scan the sea for hostile ships in Islamic expansion period. Several scientists came to stay in the Ribat of this peaceful city for contemplation. The Ribat was also one of the filming locations for Monty Python's Life Of Brian.

Monastir (from Latin monasterium), is situated at 20 km south of Sousse; 162 km south of Tunis. It is a city on the central shore of Tunisia, in the Sahel area.

Traditionally a commerce and fishing port, Monastir is now a major university, agriculture and tourist resort district. The city population is 100,000. It has an international airport with flights from most Western European countries. Monastir's north-eastern territories lead into a place called Skanes which is 6 miles from Monastir's town center. Skanes is a holiday resort known mostly for its professional golf courses, never-ending strips of white, sandy beaches, clear blue sea and hotels that fuse Moorish architecture with modern designs, and is frequented throughout the summer by tourists from around the World. As well as the relaxation (thalassotherapy) and sports on offer they also come for the medina, where it is possible to sample fresh Tunisian cooking as well as bargaining for local goods.

HOW To APPLY

The candidates seeking admission for the course are requested to provide the following information:

- Name (Mr/ Ms./Dr.):……
- Date of birth:……..
- Nationality:…….
- Passport details : ……..
  - number, …….
  - date and place of issue, ……..
  - validity…….
- Name of organization where employed…….
- Designation (position)…….
- Work Place Address : ……..
  - mailing address, …….
  - phone, fax and e-mail……..
- Proficiency in English : ☐ good, ☐ average, ☐ poor;
- Academic qualifications : graduate, post-graduate, PhD & disciplines/ subject

……

- Professional experience in research, teaching, consultancy etc.

……

- Registration mode: ……
- Signature of applicant.

COURSE FEE AND ACCOMODATION:

1. A course fee of 150euros (300DT) is charged. This includes Seminar room, course materials and food accommodation. Special seats are reserved to master students.
2. If participants needs hotel we will arrange at 40DT by night (20euros).
3. Payments should preferably be made in the form of bank draft (DD) in favour of Accounts Officer,
4. **Club Jeunes Sciences Conférences** payable at UIB MONASTIR-Tunisia. IBAN : TN5912 502 0003405790997 90
5. In case your organization pays for you, we request the sponsoring authority to state so in writing.
6. Candidates seeking admission for the course may present payment certificate 10 days before beginning courses
7. Completed application form and payment have to be sent latest by 28th March 2012 to the following address:

Pr Kamel BESBES

F.S.Monastir, Environment Bd,

5019, Monastir-Tunisia

Tel. : +216-98627217, +216-73500280, Fax : +216-73500278

E-mail : kamel.besbes@fsm.rnu.tn; Website: http://www.fsm.rnu.tn; http://www.ueilab.co.nr/

5- New developments in Space activity at the University of Monastir in 2012:

TN-SGS Project :a new satellite ground station project as a tool for supporting higher education in space technology in Tunisia, University of Monastir

Students in higher education, scientific and technological research need new projects to develop their competences in new scientific innovation as space technology and satellite communication, imagery and telemetry.

To meet this need, we propose a new project to install a ground station for satellite communication that allows access to satellite communication protocols and to download live satellite images and telemetry data from orbit.

In this step, we have to be connected to international university cooperation projects as GENSO, HUMSAT,… to participate from around the world providing a broad community for micro and nano satellite exploration and application development with a lower financial and engineering barrier.

The basic design of Tunisian University Satellite Ground Station TN-SGS, is based on free and other software suites, with amateur radio equipment and a home-built antenna. The satellite ground station will be able to provide access to orbit for a multitude of users, in different communication modes, when access is opened on the Tunisian area.

We will develop different application projects proposed in MIC2 as:

- Desert Guard by satellite,
- Satellite real time monitoring of water flood and quality,
- Satellite Monitoring and collecting WSN Data of Phosphates...

6- New COMMUNITY ACTIVITIES:

We joined ATUCOM : Tunisian Communications and Space Sciences Association

We are affiliated with IAA and we propose for Forming an IAA Study Group in:

Review and perspective on the use of spatial networks for the development of the information society in Africa.

Join BSTI experts:

At the symposium NU Japan Nano satellite symposium 2012 we will join the team of Basic Space Technology Initiative (BSTI), an initiative in the framework of the United Nations Programme on Space Applications aiming to support capacity building in basic space technology and to promote the use of space technology and its applications for sustainable development. We proposed to work on the development and dissemination of new programs and new teaching tools in space technologies for French and Arabic speaking countries of Africa.

Proposal for Forming an IAA Study Group

Title of Study:

Review and perspective on the use of spatial networks for the development of the information society in Africa.

Proposer(s): Dr. Mustapha MASMOUDI

(Must be member(s) of the Academy M or CM)

Primary IAA Commission Preference:

(From Commission 1 to Commission 6)

Commissions: 1 Space Physical Sciences, 2 Space Life Sciences, 3 Space Technology & Systems Development, 4 Space Systems Operations & Utilization, 5 Space Policy, Law & Economics, 6 Space and Society: Culture and Education

Secondary IAA Commission Interests:

(From Commission 1 to Commission 6)

Members of Study Team

Chair(s): Dr. Mustapha MASMOUDI

(Must be member(s) of the Academy, M or CM)

Secretary: Kamel BESBES

Other Members:

(Open to members and non- members of the Academy)

Reine Essobmadje

Lamia Kaaniche

Tijani Ben Jemaa

Kais Sellami

Bouraoui Ben Ali

For more information about space activity in Tunisia :

http://www.oosa.unvienna.org/pdf/pres/stsc2010/tech-05.pdf