



ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA
CENTRO INTERDIPARTIMENTALE
DI RICERCA INDUSTRIALE AERONAUTICA

UNISEC LIKE ACTIVITIES IN ITALY

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Outline



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- **UNISEC like activities in Italy**
- **Activities promoted by Italian Universities**
 - **ESEO**
 - **Rexus/Bexus**
 - **QB50**
- **Activities not promoted by Italian Universities**
 - **MIC2**
 - **CSDC**
- **Conclusion**

UNISEC like activities in Italy



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- Lack of this type of activity promoted by Italian departments/organizations
- The main reason can be found in the lack of connection between different Universities
- No sharing of experience



Activities promoted by Italian Universities

Similar activities are carried out thanks to the interest of researchers and professors who promote the participation of students in European programs

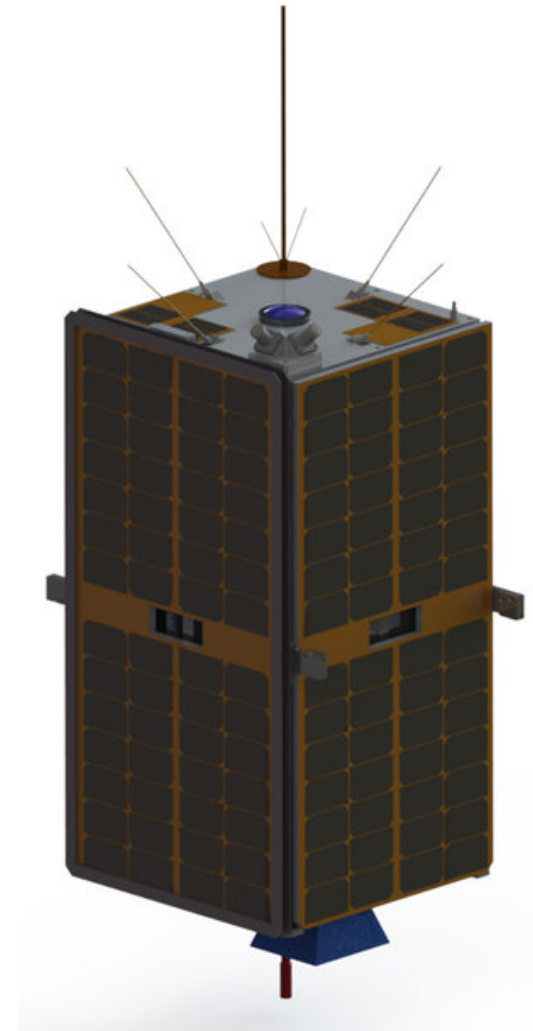
- ESEO
- QB50
- REXUS/BEXUS

ESEO



“The European Student Earth Orbiter (ESEO) is a micro-satellite mission to Low Earth Orbit. It is being developed, integrated, and tested by European university students as an ESA Education Office project”

ESEO is an ESA education project but the industrial system prime contractor is an Italian company: ALMASpace (born as University of Bologna spin off)



- **Providing technical support to students**
- **Organizing a three week course in University of Bologna facilities with international professors and experts from ESA/ESTEC and Nasa**
- **Training with the organization of workshops in different space related fields**
- **organizing Technical internship for each participating student**

This program was promoted by

- **Single professors or researchers involved with ALMASpace activities**

REXUS/BEXUS

Rocket and balloon experiment for university students: each year, two rockets and two balloons are launched, carrying up to 20 experiments designed and built by student teams. activities promoted by ESA education office (listed among the hands-on collaboration): in the specific:



ICA



SPACE MIND

Courtesy Rexus/Bexus

new production concept

REXUS/BEXUS



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“The REXUS/BEXUS programme is realised under a bilateral Agency Agreement between the German Aerospace Center (DLR) and the Swedish National Space Board (SNSB). The Swedish share of the payload has been made available to students from other European countries through a collaboration with the European Space Agency (ESA).

EuroLaunch, a cooperation between the Esrange Space Center of SSC and the Mobile Rocket Base (MORABA) of DLR, is responsible for the campaign management and operations of the launch vehicles...”

Programs like Rexus/Bexus are promoted by

- **Single professors or researchers**
- **Presentations given by ESA representatives**



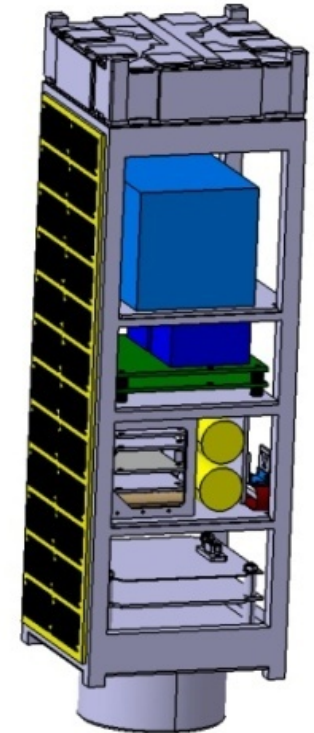
QB50



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“QB50 is an approved project involving a network of 50 CubeSats, provided by universities from all over the world for atmospheric research and in-orbit demonstration of technologies planned for launch on a single rocket in the first half of 2015.”

- QB50 is not just an educational program



QB50, an FP7 Project



QB50



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- We are involved in QB50 mission URSAMAIOR led by the University of Rome “La Sapienza”
- This cooperation is not born with the aim of establishment of a long term partnership between the two Universities, but it’s an occasional cooperation dictated by project circumstances.

This program was promoted by

- Single professors or researchers involved with University of Bologna and Rome activities





Activities not promoted by Italian Universities

Participation in meetings and symposia, through personal funds and sponsorship of private companies, has allowed us to get in touch with different possibilities and activities for students:

- Second Mission Idea Contest (MIC2)
- Canadian Satellite Design Challenge (CSDC)

This possibilities are not promoted in Italian University (so far...)

2° MISSION IDEA CONTEST



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- In 2012 we decided to participate at 2° Mission Idea Contest and we were selected as finalists.

How we came to know this initiative?

- Participation in meetings and symposia → SEMWO2011



2° MISSION IDEA CONTEST



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2° MISSION IDEA CONTEST



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MIC2 Benefits:

- **During IV Nanosatellite Symposium we met the organizer of Canadian Satellite Design Challenge (CSDC)**
- **Thanks to him we officialy were given the possibility to participate at 2° edition of CSDC**



CANADIAN SATELLITE DESIGN CHALLENGE

“The Canadian Satellite Design Challenge is a Canada-wide competition for teams of university students to design and build a small operational science research satellite known as a "3U- cubesat" or "triple-cubesat". These satellites measure 34cm x 10cm x 10cm, and have a maximum mass of 4kg. The satellites will undergo full launch and space environment qualification, with the goal of launching the winning satellite into orbit to conduct scientific research”



CANADIAN SATELLITE DESIGN CHALLENGE

A Polytechnique Montréal and University of Bologna cooperation for the realization of a 3U CubeSat

UNIVERSITY OF BOLOGNA: Primary payload

POLYTECHNIQUE MONTREAL: Satellite developer

How we came to know this initiative?

- **Participation in meetings and symposia → 2nd Mission Idea Contest**

CANADIAN SATELLITE DESIGN CHALLENGE



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CANADIAN SATELLITE DESIGN CHALLENGE

Double benefit from MIC2

- For us the possibility to participate to CSDC
- For CSCD the opportunity to broaden their outlooks introducing officially the possibility of European universities to participate.



A new Network has been created!!

CONCLUSION



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UNISEC like activities at the moment are not organized by Italian Universities/Organization

- Lack of connection and interaction between different departments
- Lack of funds



CONCLUSION



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BUT...

- After our participation at MIC2 there is a new regional coordinator: Prof. Fabio Santoni
- If properly promoted, activities like these could find good receptivity from italian community

