DesIRE

Tempus

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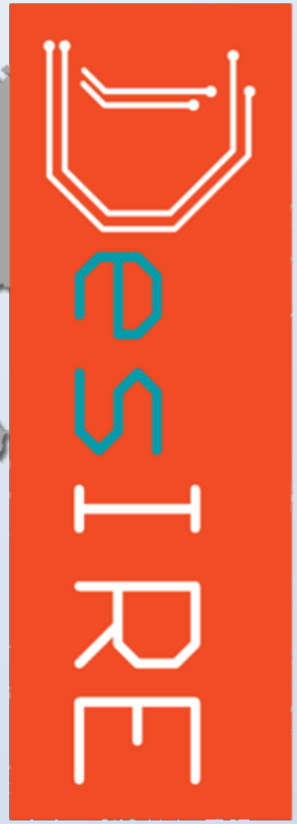
Is there life after DesIRE???

Verlangen
Wunsch
Túžba
Прагнення
ნაცვრა
Ցանկություն



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There is!

APPLE
Applied curricula in space exploration and intelligent robotic systems

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Applied curricula in space exploration and intelligent robotic systems

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Joint Project: Capacity Building in the Field of Higher Education
ERASMUS+ 2016

Applied curricula in space exploration and intelligent robotic systems (APPLE)

Project overview

AMIES 2017

Vaasa, 14 - 15.09.2017

Ing. Dirk Van Merode MSc.

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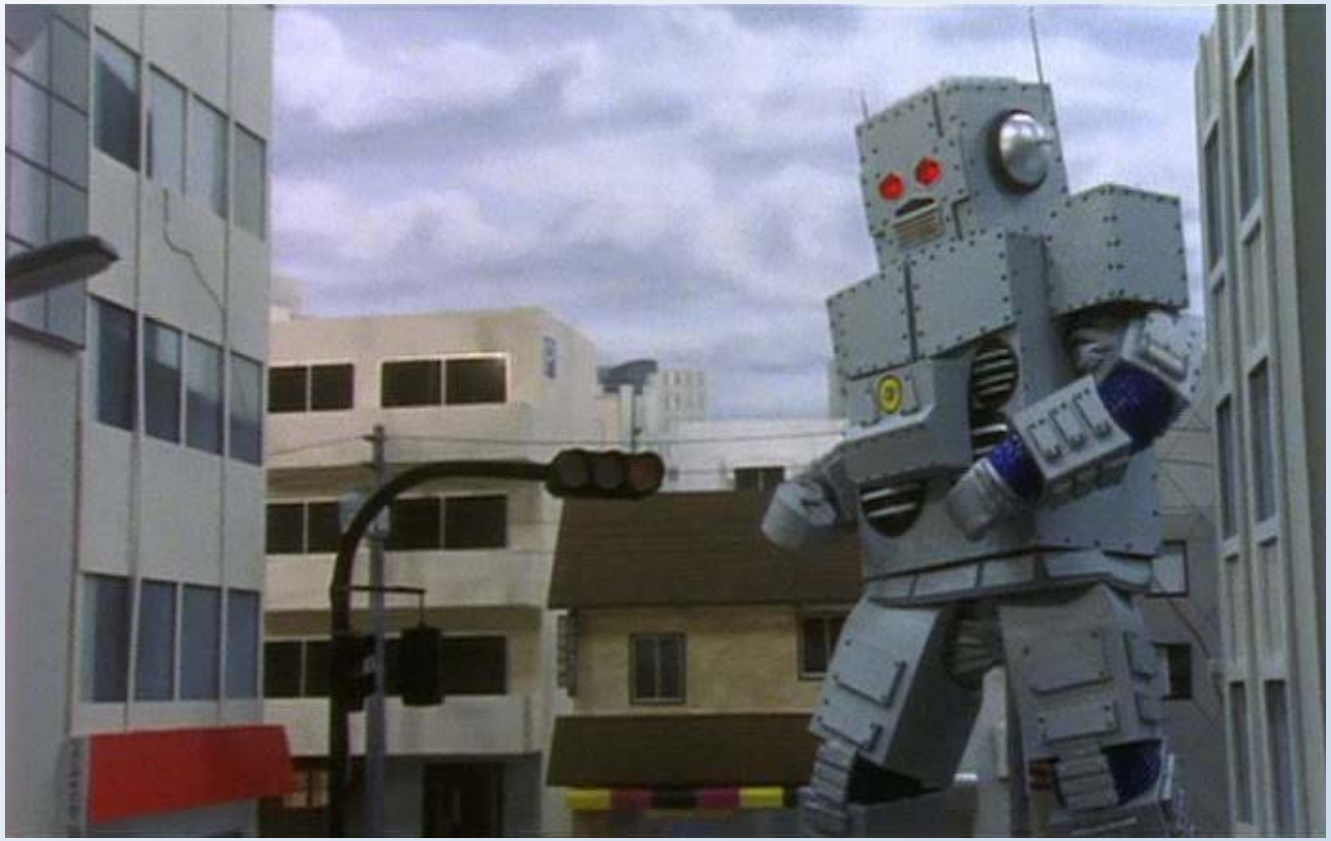
Space robotics?



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APPLE facts

Theme for cooperation
Modernization of curriculum by developing and innovative courses and methodologies using ECTS, the three cycle system and the recognition of degrees.

Project duration: 3 years

Budget size (Tempus Grant)
999.111,- EUR

Selection results of call EAC/A04/2014
- 736 applications received
- 147 (20%) proposals recommended for funding

Target countries / priorities
This application addresses priorities in curricula reform: Kazakhstan, Russia, Belarus - engineering/engineering trades

Project type:
Joint project, cross-regional

Consortium size: 25 organisations

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Project objectives

- ✓ improve the quality of higher education and enhance its relevance for the labour market and society;
- ✓ improve the level of competences and skills in HEIs by developing new and innovative education programs;
- ✓ support the modernisation and internationalisation of the HE in space exploration in the targeted Universities in KZ, RU and BY through innovation of two cycles curricula;
- ✓ analyse the educational needs in space exploration and robotic systems through problem and job analysis and review the current curricula;
- ✓ update the current curricula in space exploration and robotic systems;
- ✓ develop, implement and accredit curricula including ECTS;
- ✓ bring the HEIs of PC closer to the Labour Market;

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Main goals

6 Transferable curricula/modules

✓Soft skills for engineers. Knowledge management/ Productivity improvements/ Start-up initiatives
✓Interdisciplinary awareness for engineers
✓Employability and survival on labor market
✓Situational coaching in student based learning
✓Effective communication with groups
✓Practice oriented training module on Eng. Management Methods and Business Administration

14 core curricula/modules

✓Space electronics and remote sensing devices
✓Processing and Database Creation for Ionosphere Exploration
✓Intelligent robotic systems for space exploration
✓CAD tools for design of systems on chip
✓Celestial mechanics for space mission engineering
✓Advanced Microelectronics: design of custom integrated circuits in CMOS technologies for space applications
✓**Development of space-grade embedded systems**
✓**Electronic Design and Assembly or Space Systems**
✓**Digital Signal Processing on Satellite Systems**
✓Energy Efficiency of Onboard Systems and Equipment
✓Equipment and Innovation Strategy Management
✓Combined Robotic Platform
✓Model based mechatronic systems modelling methodology in conceptual design stage
✓Embedded system and robotic education in a blended learning environment utilizing remote and virtual labs

Updated current curricula in the target field

New supporting learning environment

✓Joint web based platform
✓Space Robotics Laboratory (ROBOLAB)

Linking to the labor market

✓Establishing Technology Transfer Programme Office (TETRO) with stakeholders support

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Partners

Technische Universität Berlin

THOMAS MORE University College

1862 RIGA TECHNICAL UNIVERSITY

UPMC SORBONNE UNIVERSITÉS

TALLINN UNIVERSITY OF TECHNOLOGY

ECM ENGINEERING CONSULTING AND MANAGEMENT FOR SPACE TECHNOLOGIES

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Technische Universität Berlin

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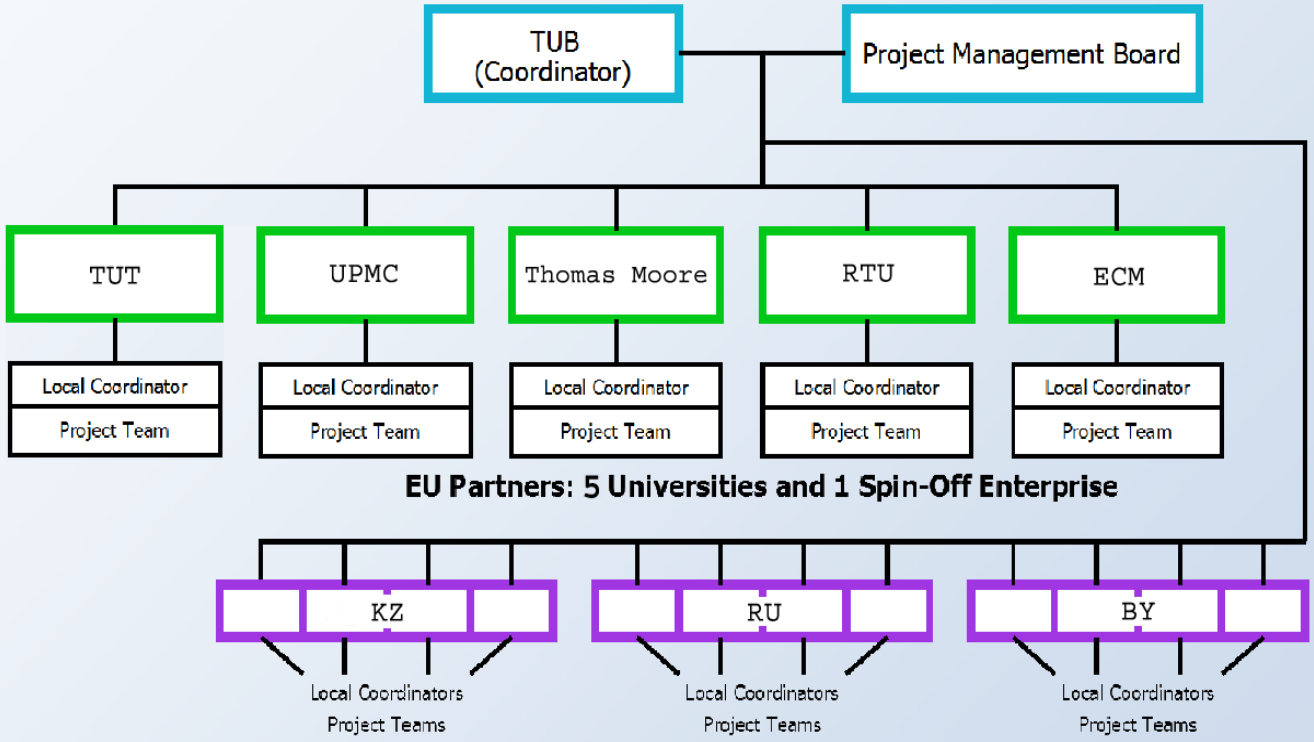
ECM
ENGINEERING CONSULTING AND MANAGEMENT FOR SPACE TECHNOLOGIES

Management structure and decision making process (PMB established)



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TMMA Courses

Embedded System development: development of space-grade embedded systems.
Objectives:

- Develop an understanding of the technologies behind an embedded system on ARM Cortex-M processor
- Software components: RTOS, HAL Drivers, Libs
- Hardware Modules: USB, Ethernet,
- Interaction between software and hardware
- Build system, compiler settings, performance
- Coding Standards(CERT C, MISRA C)

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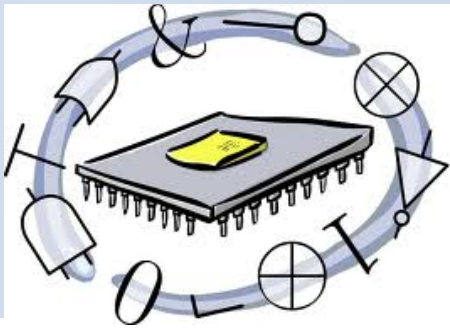
TMMA Courses

Embedded System development: development of space-grade embedded systems – VHDL-FPGA

Objectives:

- Develop basic digital components on an FPGA
- Use dataflow, behavioral and structural design elements
- Simulate designs
- Develop combinatorial components
- Develop sequential components
- Final State Machines
- System on Chip design



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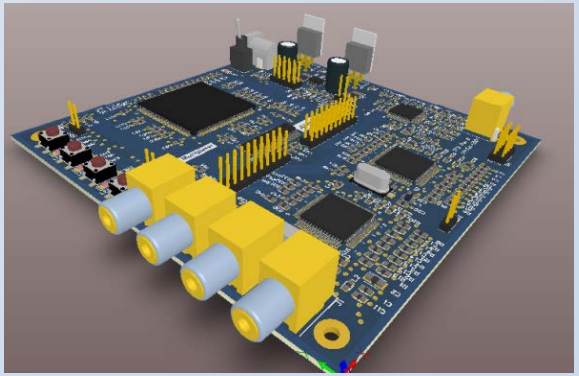
TMMA Courses

Electronic Design and Assembly for Space Systems

Objectives:

- Get an understanding of the design flow of embedded hardware
- Make a design with the limiting conditions of testability, manufacturing, component availability, cost effectiveness, reliability, environment conditions, space standards
- Consider power design, assembly process, high-density, high-speed, flex-rigid design
- Learn Altium as a professional design tool

Altium Designer®



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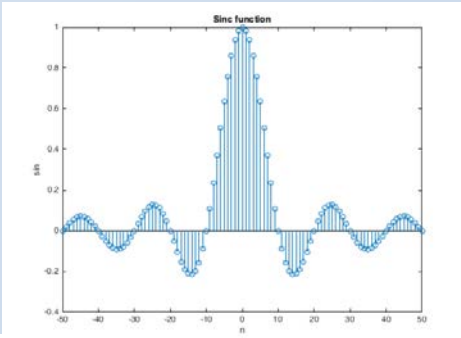
TMMA Courses

Digital Signal Processing on Satellite Systems
Objectives

- Design DSP algorithms using C and/or a higher level language
- Test the algorithms in a sensible manner
- Calculate the impulse response of a LTI-system
- Convolution sum and a DFT
- Digital filters
- Analyze frequency content of digital signals using the DFT/FFT
- Create a transfer function and draw a pole-zero plot using the Z-transform



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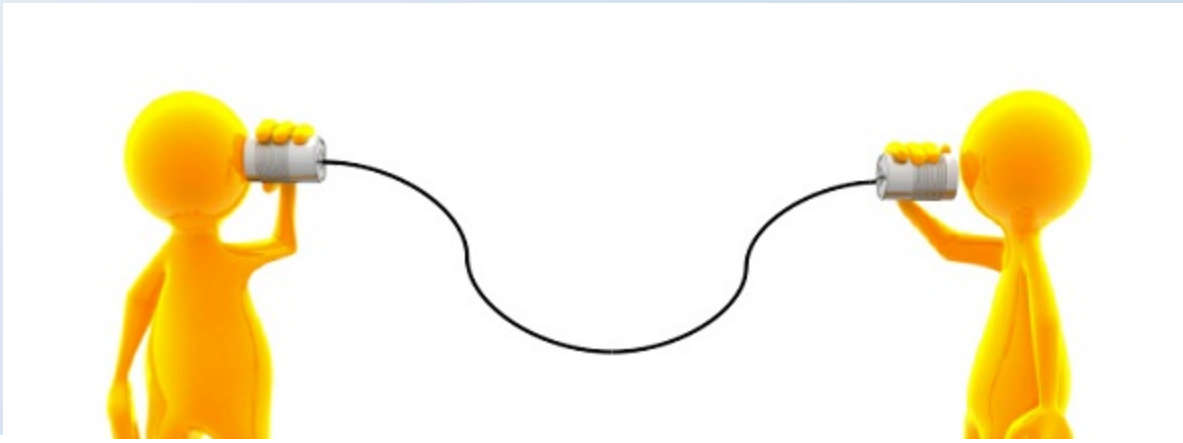
TMMA Courses

Effective communication with groups

Objectives

- Effective Presentations: From Intro to Applause
- Meetings for Beginners: 10 Pointers
- Effective writing: How to-Guide
- Project Management: Lean & Agile Communication



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TEMPUS + KA2 - CBHE

„Curricula Reform in Space Technology in Kazakhstan, Russia, Ukraine"
JOINT PROJECT CURRICULUM DEVELOPMENT
European Commission TEMPUS
financed by Tempus
CRIST
www.crist-kru.eu

PROMENG
financed by Tempus
Practice oriented Master Programmes in Engineering in Russia, Ukraine, Uzbekistan
Joint Project Curricula Reform
TEMPUS
www.promeng.eu

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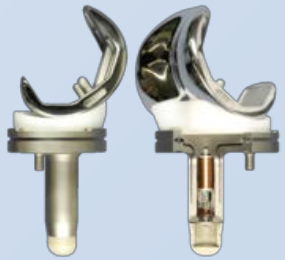
New: BIOArt

Interested? New ideas?

Topics / courses

Deadline: beginning of February



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The future of cyber security

Challenges for companies and governments

Workshop - conference:

- Security Policy Making and Legal Issues
- Security of Critical Infrastructures and Large Enterprises
- IoT and Cloud Security
- Information Security Education and Awareness

NATO OTAN

The NATO Science for Peace and Security Programme

The future of cyber security

Challenges for companies and governments

- Armenia
- Beginning of June 2018
- 20 – 50 speakers
- East & West
- Key notes
- Paper presentations
- Publication
- Round table discussion
- Networking event
- Project preparation
- Travel costs are covered (TBD)

We are in the conceptual phase!!!
=> Suggestions?

NATO OTAN

The NATO Science for Peace and Security Programme

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THANK YOU FOR YOUR ATTENTION!

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THANK YOU FOR YOUR ATTENTION!

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