Innovation Technologies in Space Systems and Communications Engineering

Training Dates

11 Jan 2021 – 22 Jan 2021

Place

Online Zoom Master Classes

Link: https://us02web.zoom.us/j/4256316104?pwd=ZysrQ1dQUW5oZUZmMEZkblBlQXBqQT09

ID: 425 631 6104

Password: SPACECOM

Features

Space system engineers follow, and often lead, space projects from conception to delivery, working with other disciplines to define user needs, define requirements and shape the final design before supporting the project through the assembly, integration and testing phase and finally into operation.

Join our International online School 2021!

Space Systems and Communications Engineering is a crucial discipline within the space sector, and a keen understanding of what it is and how it is applied is key in defining the success of any space mission, from a student-built CubeSat to a commercial communications satellite.

To help prepare the next generation of Space Systems engineers, TU Berlin & EXOLAUNCH & COURSENTO in collaboration with EU partner universities is inviting you to participate in the **International online School 2021 *"Innovation Technologies in Space Systems and Communications Engineering"***, to be held from 11 – 22 January 2021 via Zoom.

The online Master Classes ensure improvement of skills in the field of space systems as well as introduce to the background and challenges of communications engineering. The course will also give students valuable insight into system engineering products and some real-world problems faced by space system engineers.

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Agenda

11 Jan 2021 – 15 Jan 2021

Mo. 11.01.2021	Venue: Online Zoom Master Class **Moderator: Head of the department, PhD Khabibullo Nosirov, Tashkent University of Information Technologies named after Muhammad al-Khwarizmi, Uzbekistan**
9.30 AM – 10 AM (CET)	Registration of the participants. Presentation of the study program. Administration issues. **Welcome speech by Rector of TUIT Mr. Sarvar Babakhodjaev** **Welcome speech by Vice-President of European Affairs Mrs. Véronique Perdereau**
10 AM – 1 PM (CET)	**Research Engineer, MSc Dirk Van Merode, AP University of Applied Sciences and Arts, Antwerp, Belgium** **Topic: FPGA for Space Applications** **Content:** Introduction to digital systems, Overview of the FPGA market, Overview of the FPGA hardware, VHDL, Digital components, System-on-Chip, FPGAs in Space, DSP on FPGAs
Tue. 12.01.2021	Venue: Online Zoom Master Class
10 AM – 1 PM (CET)	**Prof. DSc Slavka Tzanova, Technical University of Sofia, Sofia, Bulgaria** **Topic: Microelectronics for Information and Communication Technologies** **Content:** 2020 Nanotechnologies for ICT, Memories, Displays
Wed. 13.01.2021	Venue: Online Zoom Master Class
10 AM – 11 PM (CET) **11 PM-12:30 PM**	**Prof. Lionel Lacassagne, Sorbonne Université, Paris, France** **Topic: Microelectronics for Space Technologies** **Content:** Embedded Algorithms for real time video Proceeding with restrained Hardware and energy Resources **Prof. Julien Sarrazin, Sorbonne Université, Paris, France** **Topic: Antenna Design for 5G communications**

Thu. 14.01.2021	Venue: Online Zoom Master Class
10 AM – 1 PM (CET)	**Dipl.-Ing. Daria Stepanova, EXOLAUNCH GmbH** **Topic: Cubesat Technologies** **Content: CubeSat Technology, small satellite communications, small satellite applications.**
Fri. 15.01.2021	Venue: Online Zoom Master Class
10 AM – 1 PM (CET)	**Dipl.-Ing. Daria Stepanova, EXOLAUNCH GmbH** **Topic: Communication constellations** **Content:** New era of communication satellite, technologies, applications

18 Jan 2021 – 22 Jan 2021

Mo. 18.01.2021	Venue: Online Zoom Master Class
10 AM – 1 PM (CET)	**Associate Prof. Dimitri Galayko, Sorbonne Université, Paris, France** **Topic: Microelectronics for Information and Communication Technologies** **Content:** Design of analog and mixed integrated Circuits, CAD tools
Tue. 19.01.2021	Venue: Online Zoom Master Class
10:30 AM – 1:30 PM (CET)	**MBA Elena Eyngorn, Technische Universität Berlin, Berlin, Germany** **Topic: Soft Skills** **Content:** Leadership, Hard Skills, Soft Skills, Presentations Skills
Wend. 20.01.2021	Venue: Online Zoom Master Class
10 AM – 1 PM (CET)	**Dipl.-Ing. Dmitriy Ostroverkhov, Technische Universität Berlin, Berlin, Germany** **Topic: Satellite Technologies & Satellite Ground Station** **Content:** Satellite Communication, Satellite Technologies, Space Technologies, Satellite Ground Station

Thu. 21.01.2021	Venue: Online Zoom Master Class
10 AM – 1 PM (CET)	**Research Engineer, BSc, MBA Geert Van Hulle, AP University of Applied Sciences and Arts, Antwerp, Belgium** **Topic: Software Defined Radio** **Content:** Introduction, Radio Signal Sampling, Complex Numbers, SDR Receiver, Sample Rates, Filters, SDR Transmitter, Digital Modulation
Fri. 22.01.2021	Venue: Online Zoom Master Class
10 AM – 1 PM (CET)	**Associate Prof. Hassan Abouchady, Sorbonne Université, Paris, France** **Topic: Microelectronics for Information and Communication Technologies** **Content:** Microelectronics for Radiofrequency Communications

European Partners

The internationally renowned ***Technische Universität Berlin (TU Berlin)*** is located in Germany's capital city at the heart of Europe. With almost 34,500 students, around 100 course offerings and 40 institutes, TU Berlin is one of Germany's largest technical universities. Apart from the main campus in central Berlin, there are further sites across the city of Berlin and a satellite campus in El Gouna, Egypt.

TU Berlin is a member of TU9, which is the alliance of nine of the largest and most notable German institutes of technology. This membership allows for student exchanges between many of the engineering schools.

EXOLAUNCH GmbH was founded in 2008 by scientific staff of the department of aeronautics at Berlin Institute of Technology to commercialize the results of research on the design, construction and operation of small satellites. Nowadays, EXO has a leading position in the field of design and manufacturing of the satellite systems and has own communication satellite in Orbit. Moreover, EXO is the largest European-wide provider of piggyback launches on various Launch Vehicles and manufacturer of unique and customized separation systems for small satellites. Since 2008 EXO participated in the 18 EU projects: 5 Erasmus+ projects, 7 TEMPUS projects, 1 Erasmus Mundus project and 5 FP7 research projects.The company has assembled more than 20 ground stations for satellite communication in VHF/UHF/S-Band of various configurations with D-Star Function.

Furthermore, EXO has developed a large partner network with different European and Asian organizations due to its participation in various educational and research projects.

EXO has a vast experience in quality monitoring and assurance of international educational projects, communication with the industry of Europe and Asia, and since its

employees possess a knowledge of various language, incl. language of the partner countries, EXO can be a reliable mediator between the industry, research institutions, organizations, potential employers and partner universities.

Sorbonne Université (SU) is a world-class research university, presenting through its 3 faculties a comprehensive disciplinary range of arts, humanities, social sciences, natural sciences, engineering and medicine. P3 is at the crossroads of diverse types of knowledge and capable of responding to the intellectual and scientific challenges of the 21st century. SU has been created the 1st of January 2018, after a fusion of two oldest French universities, Université Pierre and Marie Curie (UPMC, Paris 6) and Université Paris-Sorbonne (Paris 4). SU more than 130 research structures draw on over 3,400 professor-researchers in its laboratories and another 3,300 research partners from the major French research organizations.

Since 2013, SU hosts a University Space Center CurieSat, in which a team composed of professors, engineers and students of SU develop a space mission Meteorix based on a 3U Cubesat nanosatllite.

Artesis Plantijn University College Antwerp (AP) is a higher education institution located in Antwerp, Belgium. In its current form AP is a rather young university, resulting from the merger of two universities with a large history: Artesis University College and Plantijn University College. AP has 12000 students, 24 bachelor and 8 art programmes, clustered into 4 faculties and 2 schools of arts. Since 2010 the university is also hosting several programmes of adult education and vocational training.

In the last few years the university has been involved both as partner or as coordinator in a large number of challenging international projects (Erasmus+, Creative Europe, Fundamental Rights and Citizenship, AMIF, ERDF/Interreg, Youth in Action, Tempus, Erasmus Mundus, ESF).

Technical University of Sofia (TUS) is an independent government-funded educational institution. TUS is the largest technical higher educational and research establishment in Bulgaria. Currently over 12 thousand students are studying on accredited degree programs at 14 faculties and institutes. For more than 70 years the university has been preparing specialists in the field of engineering. In this period, over 100 thousand engineers have graduated from it and have found jobs in their professional fields both in Bulgaria and abroad.

The Department of Microelectronics is a national technological center in micro- and nanotechnologies. It offers teaching programs, research opportunities, and industrial collaboration in micro- nanoelectronics, microsystems and semiconductor science and technology. ECAD Laboratory is a National information and training center in design of ICs, microsystems etc.

What else:

- International certificate
- 3 ECTS