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*This activity  
is supported by:*

The NATO Science for Peace  
and Security Programme

# ADVANCED TRAINING COURSE

## UAV Systems Development and Deployment to counter Emerging Security Challenges

# BOOK OF ABSTRACTS



27.05 – 02.06.2018  
Kharkov, Ukraine

Organized by:



Military  
University  
of Technology



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# Event Program

## Day 1 - The Arrival day

After 14.00: Arrivals of trainees and speakers, Hotel check-in  
18.00 dinner

## Day 2 - UAV Navigation Systems Development

Morning session: *Co-directors & Organizing committee*

9.00: Registration,  
9.30: **Introduction. Goals of the training. Presentation of participants**  
10.30: coffee brake  
11.00: *Remus Dogaru, Civil Aviation Authority, Moldova.*  
**Aspects of the law for UAVs flights in Europe.**  
12.30: lunch

Afternoon session: *Natalia Shyriaieva, PhD, Associate professor of International Business and Finance Department at National Technical University 'Kharkiv Polytechnic Institute', Kharkiv, Ukraine*

14.00: **Integrated Navigation System Design for UAVs**  
15.00: coffee brake  
15.30: **Introduction to SANACAD - navigation software design**  
17.00: Summary of a day - Discussion  
18.00 dinner

## Day 3 - UAV Control Systems Development

Morning session: *Augustin LUPU - UVS Romania*

9.00: **Use of open hardware and software for ground station command and control**  
10.30: coffee brake  
11.00: **Feedback Linearization and Adaptive Control of UAV**  
12.30: lunch

Afternoon session: *Kortunov Vyacheslav; Doctor of Technical Science; Professor, Head of the Department of Production of Aircraft Radio-Electronic Systems; National Aerospace University Kharkiv Aviation Institute', Kharkiv, Ukraine*

14.00: **UAV control and guidance tools**  
15.00: coffee brake  
15.30: **Debugging tools of the software for the control system of UAV**  
17.00: Summary of a day - Discussion  
18.00 dinner



# Event Program

## Day 4 UAV flight security and safety

Morning session: *Bartosz Brzozowski Military University of Technology, Warsaw, Poland*

9.00: **Navigation in GNSS denied environment. Introduction to SLAM - reliable indoor navigation**

10.30: coffee break

11.00: *Konrad Wojtowicz Military University of Technology, Poland*

**State of art for UAV technology with emphasis on safety**

12.30: lunch

Afternoon session: *Pasquale Daponte, University of Sannio, Italy*

14.00: **Metrology for drone and drone for metrology: measurement systems on small civilian drones that improve flight security and safety.**

15.00: coffee break

15.30: *Luca De Vito, University of Sannio, Italy*

**Design and characterization of a drone-based measurement instrument.**

17.00: Summary of a day - Discussion

18.00: Social Reception

## Day 5 - UAV deployment - Safety and security in emergency

Morning session: *Leopold Kruszka, Military University of Technology, Poland*

9.00: **General approaches for ensuring the protection of structures and monitoring of critical objects in disaster areas in NATO countries using UAV's**

10.30: coffee break

11.00: *Karol Cheda, JSW Innowacje, Warsaw, Poland*

**Automatic and autonomous UAV missions - a system demonstrator and testing ground for U-Space.**

12.30: lunch

Afternoon session: *Pospelov B.B.; Doctor of Technical Science; Professor, Chief Researcher of National University of Civil Protection of Ukraine, Kharkiv, Ukraine*

14.00: **Using UAV for the monitoring the critical state of natural and technical objects and disaster areas in Ukraine: New wireless communication technology for UAV in emergency - Theoretical basis.**

15.00: coffee break

15.30: **Modelling the use of new wireless technology for UAVs in emergency situations - practical part.**

17.00: Summary of a day - Discussion

18.00 dinner

## Event Program

### Day 6 UAV deployment - Energy infrastructure security

Morning session: *Rezinkiw Marina; Doctor of Technical Science; Head of the Department, of Theoretical Bases of Electrical Engineering of National Technical University 'Kharkiv Polytechnic Institute', Kharkiv, Ukraine*

9.00: **Perspectives of UAV usage in Ukraine for monitoring of power energy facilities.**

10.30: coffee brake

11.00: **Determination of the electric field strength in the vicinity of overhead power lines for safe UAV operation**

12.30: lunch

Afternoon session: *David Chechelashvili, Ilia State University, Tbilisi, Georgia*

14.00: **Utility asset management with UAV**

15.00: coffee brake

15.30: **Commercial UAVs disrupting the oil and gas industry - possible ways of protection**

17.00: Summary of a day - Discussion

18.00 Closing ceremony Gala Dinner - Summary of the event; Certificates of completion of the course.

### Day 7 - Departure Day

to 12.00: Hotel Checkout, Return Flight.