# Erasmus+ Project

# New curricula in Precision Agriculture using GIS technologies and sensing data

# (CUPAGIS)

# AGENDA Draft

# Training on 19-30 August: Geographic Information System

# Precision Agriculture

# Remote sensing

## Course Overview

Get exclusive access to the world's best training in precision agriculture using new technologies in physical sciences, such as Geographic Information System/GIS, big data and remote sensing. This intensive course is unique and numbers are limited to give you a personal and interactive education experience. The course also provides the participants with exposure to a unique interdisciplinary, international and intercultural learning environment.

## About Us:

The training is offered by the Chair of Space Technology, one of the six chairs of the Department of Aeronautics and Astronautics at Technische Universität Berlin, established in 1963, it is the first Aerospace Department in Germany. Since then, it has successfully conducted research and educates systems engineers for the aerospace industry. The focus is set on the design, implementation and operation of small satellite missions. State-of-the-art research on picosatellites and nanosatellites (BEESAT series, Technosat, TUBIN, S-NET) shall continue the successful tradition of the ILR (TUBSAT series).

# Training Course Program

| Mo. 19.08.2019 | Venue: Berlin Institute of Technology |
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| 9:00 – 10:00 | **Registration of the participants/Opening keynotes. Presentation of the participants. Presentation of the study program. Administration issues** |
| 10:00 – 10:30 | **Welcome by the Head of International Relation Office, Mrs. E. Skurski** |
| 10:00- 12:30 | **MBA, Elena Eyngorn**<br><br>• **Soft Skills for Engineers**<br><br>• **Start-up initiatives for future farmers**<br><br>• **Management Marketing and Decision Making in Precision Agriculture** |
| 12:30 – 13:30 | Lunch |
| 13:30 – 17:30 | **Soft Skills for Engineers**<br><br>• **Start-up initiatives for future farmers**<br><br>• **Management Marketing and Decision Making in Precision Agriculture** |
| 18:00 | Guided tour through Berlin and Reichstag visit |

| Tue. 20.08.2019 | Venue: Berlin Institute of Technology |
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| 10:00 – 13:00 | **Dr. Abror Gafurov**<br>• Introduction into spatial data analysis using satellite data<br><br>• Processing of satellite data for practical application<br><br>• Spatio-temporal analysis of satellite data<br><br>• Simple model setup with the application of satellite data<br><br>• Automatization of processing scheme |
| 13:00 – 14:00 | Lunch |
| 14:00 – 17:00 | **Dr. Abror Gafurov**<br><br>• Time series extraction and analysis of satellite data<br><br>• Application of satellite data for early warning of natural hazards<br><br>• Quality assessment of satellite data |

| Wed. | Venue: Berlin Institute of Technology |
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| 21.08.2019 | |
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| 10:00 – 14:00 | **Dr. Jitka Kumhálová / Prof. Kumhála František**<br><br>• Yield sensors for Precision Agriculture<br><br>• Soil physical properties and its measurement |
| 14:00 – 15:00 | Lunch |
| 15:00 – 17:00 | **Dr. Jan Chyba**<br><br>• Application of Precision Agriculture for crops growing |

| Thu.<br>22.08.2019 | **Venue: Berlin Institute of Technology** |
|---|---|
| 10:00 – 14:00 | **Dr. Jitka Kumhálová / Prof. Kumhála František**<br><br>• Yield sensors for Precision Agriculture<br><br>• Soil physical properties and its measurement |
| 14:00 – 15:00 | Lunch |
| 15:00 – 17:00 | **Dr. Jan Chyba**<br><br>• Application of Precision Agriculture for crops growing |

| Fr.<br>23.08.2019 | **Venue: Berlin Institute of Technology** |
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| 10:00- 12:30 | **Prof. Dr. Dr. h.c. Harald Schuh, Director of "Geodesy" at Helmholtz Centre Potsdam, GFZ German Research Centre for Geosciences, President of the International Association of Geodesy (IAG) ,Professor for "Satellite Geodesy" at Technische Universität Berlin (TU Berlin)**<br><br>• Space Geodetic Techniques<br><br>• Space geodesy (VLBI, GNSS, etc.) |
| 12:30 – 13:30 | Lunch |
| 13:30 – 17:30 | **Prof. Dr. Dr. h.c. Harald Schuh**<br><br>• Space Geodetic Techniques |

| Mo.<br>26.08.2019 | **Venue: Berlin Institute of Technology** |
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| 10:00 – 13:00 | **Prof. Kada**<br><br>• GIS Geovisualization<br><br>• GIS Internet, Mobile, and Distributed GIS |

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| | • GIS Advanced Methods for Geospatial Analysis |
| 13:00 – 14:00 | Lunch |
| 14:00 – 17:00 | **Prof. Kada**<br><br>• GIS. Data processing and adjustment<br><br>• Processing of remote sensing data obtained from satellites<br><br>• Spatial Databases and Infrastructures<br><br>• GIS Geographical Information Systems |

| Tue.<br>27.08.2019 | Venue: Berlin Institute of Technology |
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| 10:00 – 13:00 | **Prof. Dimo Atanasov**<br><br>• Using of SENTINEL1-2-3 imagery for agricultural field monitoring<br><br>• Precision agriculture – characteristics, technologies, economic efficiency, optimal use of resources |
| 13:00 – 14:00 | Lunch |
| 14:00 – 17:00 | **Prof. Krum Hristov**<br><br>• Global Navigation Satellite Systems (NAVSTAR, GLONASS, GALILEO) |

| Wed.<br>28.08.2019 | Venue: Berlin Institute of Technology |
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| 10:00 – 13:00 | **Prof. Julieta Arnaudova**<br>• Using GIS and SENTINEL1-2-3 imagery for agricultural field monitoring |
| 13:00 – 14:00 | Lunch |
| 14:00 – 17:00 | **Prof. Dimo Atanasov**<br><br>• Precision agriculture – characteristics, technologies, economic efficiency, optimal use of resources |

| Thu.<br>29.08.2019 | Venue: Berlin Institute of Technology |
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| 10:00 – 13:00 | **Dr. Abror Gafurov**<br><br>MODSNOW-Tool – a remote sensing based instrument to monitor water resources<br><br>• Introduction into MODSNOW-Tool<br><br>• Manual processing scheme of satellite snow cover data |

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| | • Operational monitoring of snow and water using the satellite data |
| 13:00 – 14:00 | Lunch |
| 14:00 – 17:00 | **Dr. Abror Gafurov**<br><br>MODSNOW-Tool – a remote sensing based instrument to monitor water resources<br><br>• Time series analysis of satellite snow cover data<br><br>• Statistical modelling of water availability using the satellite snow cover data<br><br>• Quality assessment of MODSNOW-processing and modelled results |

| Fr.<br>30.08.2019 | Venue: Berlin Institute of Technology |
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| 10:00 – 14:00 | **Prof. Tarmo Soomere**<br><br>• Scientific Work and Paper |
| 14:00 – 15:00 | Lunch |
| 15:00 – 16:00 | **Dr. Arnold Sterenharz**<br><br>• Methodology of curricula development |
| 16:00 – 18:00 | **Coordination meeting.** |

**TU Berlin campus map**



TUB Main Building

Institute of Aeronautics and Astronautics

Student's canteen

Underground station Line U2