

# Unmanned Aerial Vehicles for Remote Sensing and Photogrammetry

COURSE AND WORKSHOP \*

(7<sup>th</sup> Edition Worldwide, GCC 1<sup>st</sup> Edition)



## DATES

20-29 March 2017

## PLACE

International Center for Biosaline Agriculture, Academic City  
Al Ain Road, Al Ruwayyah (Near Zayed University)  
Dubai, United Arab Emirates  
Map Coordinates: 25.09445 55.38968

## NO. OF PARTICIPANTS

24

## OFFICIAL CERTIFICATE

Yes

## LANGUAGE

English

## EQUIVALENT UNIVERSITY CREDIT HOURS

3 cr.

## PREVIOUS EDITIONS

Six editions of this course were already offered as "UAV Remote Sensing Applications" in Barcelona, Spain. More than 260+ participants from 60+ countries have already benefited from them. This version is specially and exclusively offered for GCC.

### ORGANIZERS

جامعة الخليج العربي  
Arabian Gulf University



BCN  
DRONE CENTER

### CO-ORGANIZER



### SAPPHIRE SPONSOR



### INDUSTRIAL PARTNERS



\* All UAV flights and demonstrations in this course are approved and regulated by Dubai Civil Aviation Authority

# Description

Two weeks extensive course and workshop about remote sensing and photogrammetry techniques using Unmanned Aerial Vehicles aerial images. A broad board of top level UAV professionals and academics has been invited to share their knowledge and experience on a wide variety of UAV and remote sensing related topics.

The theory is combined with hands-on training with real UAV datasets and case studies of real applications explained by the professionals that carried them. Furthermore, during the full two weeks, practical UAV mission flights are carried out in order to give to the participants a real case view of all topics discussed with state of the art on both related hardware and software.



Image taken from Falcon Eye Drones (FEDS) website  
[http://feds.ae/wp-content/uploads/2019/10/Drones\\_Live\\_View\\_Mapping\\_CS.jpg?78017](http://feds.ae/wp-content/uploads/2019/10/Drones_Live_View_Mapping_CS.jpg?78017)

# Objective

At the end of the course the participant will have a clear view of how to integrate drones into Geomatics' projects by setting up a complete UAV mission pipeline, from UAV system selection to image post-processing techniques, taking into account the main characteristics of each mission type and objectives. This course will help the participants to acquire all the knowledge they need to select the UAV system that best suits to their application, correctly operate them and which remote-sensing analytical techniques can be used to obtain information from the images.

Those that already have experience working with UAV systems will benefit from learning state of the art techniques for Geomatics, obtaining a broad view of all aspects of UAV in this field, discovering new applications and performing networking with other participants from around the GCC region and the world.

# Speakers



**Prof. Dr. Ismael Colomina** | PhD in Mathematics (University of Barcelona); Chief Executive & Chief Scientist - GeoNumerics; Interest: multi-sensor trajectory determination for PRSM



**Mr. Jordi Salvador** | R&D UAV Manager - CATUAV; Has been working in Robotics and UAV R&D since 2009; PhD candidate in Industrial PhD Program; Interests: robotic applications & aero space solutions



**Prof. Dr. Mazlan Hashim** | Senior Director, Research Institute of Sustainable Environment (RISE), Universiti Teknologi Malaysia (UTM); Fellow of the Geoscience and Digital Earth Centre (INSTeG), UTM



**Dr. Fran Garcia-Ruiz** | Agronomic Engineer & PhD in Crop Sciences; Founder & Director - AgroMapping; Has vast experience in data analysis & interpretation; Teaching & speaking in different courses and events



**Prof. Dr. Takahasi Yukihiro** | Department of CosmoSciences, Hokkaido University, Japan; Conceived the use of a liquid crystal tunable filter (LCTF) for small satellites and UAV cameras



**Mr. Rabih Bou Rashid** | Founder - Falcon Eye Drones (FEDS), the first remote sensing company using drones in the Middle East; Trained in Germany and France on drone mapping & photogrammetry



**Dr. Sean Casey** | Co-Founder & Managing Director - Silicon Valley Space Center; Member - Suborbital Applications Researchers Group of the Commercial Space-flight Federation; Airborne astronomer



**Dr. Ali Elbattay** | PhD (Environmental SAR Specialization) & Master (Optical Remote Sensing Specialization) - INRS-ete (Canada); Asst. Professor (Remote Sensing & Geoinformatics), AGU;



**Prof. Dr. A. Bannari** | Chair, Geoinformatics Department, Arabian Gulf University (AGU), Kingdom of Bahrain; Professor of Remote Sensing & GIS at the University of Ottawa (Ontario, Canada) for 17 years



**Dr. Amer Alroichdi** | Co-Founder & Director - Mapping Solutions Ltd., a UK-based firm that specializes in hyperspectral data acquisition, processing, analysis, and recent advances in UAV in geomatics



**Mr. Jordi Santacana** | UAV designer, test pilot and aviation business entrepreneur; Founder & CEO - CATUAV S.L.; Member, Experimental Aircraft Association (EAA); Founder, AEROPLANS BLAUS S.L.

**Mr. Ting Wen Ong** | Aeronautical Engineer working with UAVs since 2009; Holds experience on UAV flight testing, operation, flight planning & mapping, and UAV photogrammetry



**Mr. Marc Beltran** | Head of Training & Business Development Manager - BCN Drone Center; Aerospace Engineer - UPC; Has accumulated immersive experience in UAV Remote Sensing

**Mr. Nikin James** | Aeronautical Engineer with over 7 years of experience in the UAV industry; Professional certified UAV pilot & engineer with years of experience in flying advanced fixed wing & multirotor UAVs for remote sensing and aerial filming

*Note: The list of speakers may change according to circumstances.*

# Syllabus

The course is divided into two parts containing four (4) main modules:

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## Part 1 Integrating Drones into Geomatics: Principles and Applications

20-23 March 2017

### Module 1 UAV Photogrammetry and Remote Sensing Principles

- UAV Technology and Imagery Acquisition
- UAV Remote Sensing
- UAV Photogrammetry / Orthophoto, Digital Elevation Models (DEM) and 3D Point Cloud Generation
- UAV & Space Systems for Earth Observation
- UAV Image Processing

### Module 2 UAV Applications

- Drones Remote Sensing - Utilities, Construction and Infrastructure Management
- Drones Remote Sensing - Oil and Gas Industry
- Drones Remote Sensing - Precision Agriculture
- Drones Remote Sensing - Marine Projects
- Drones Remote Sensing - Surveying and 3D City Models
- Drones for Surveillance and Search & Rescue
- UAV Humanitarian Applications
- Drones Remote Sensing - Archaeology

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## Part 2 UAV Remote Sensing Mission Planning, Operations, Data Processing and Project Management

26-29 March 2017

### Module 3 UAV Operations and Mission Planning (Demo/Practical)

- UAV Technology
- UAV Planning and Operations
- UAV Autopilots
- Autonomous Mission Planning
- UAV Legislation and Legal Aspects

### Module 4 UAV Remote Sensing Payload and Onboard Sensors (Demo/Practical)

- Multispectral Imagery
- Hyperspectral Imagery
- Thermal Imagery
- Lidar Imagery
- RGB Imagery

## Part 2 (Continued)

In Part 2 of the course, industrial partners will contribute and showcase their drones, instruments, software, sensors, accessories, web/mobile application etc. BCN Drone Center and Falcon Eye Drones will share their years of expertise with live demonstrations and real imagery acquisition over the study area. Hands-on laboratory sessions are offered to participants to get enough knowledge in the UAV mission planning as well as post-mission UAV's images data handling and processing. Both fixed-wings and rotary UAV's will be used with various sensors on-board.

This practical part of the course covers two typical projects: (1) UAV Remote sensing for Environmental applications, and (2) UAV Photogrammetry for urban applications. To cover these two aspects, two practical workshops where lectures, field demos, hands-on exercises are provided to make participants generate information and be involved in real UAV projects from A to Z.

1. UAV for Precision Agriculture, Vegetation Study and Soil Mapping (Hands-On)
2. Generating 3D Building Model using UAV Remote Sensing (Hands-On)

## Participants Sessions

More than 260 participants have already participated to the BCN Drone Center UAV Test Site training. Participants sessions is a unique opportunity to expose and share great and interesting ideas related with UAV technology, so we have kept room for this special session in which all interested participants can optionally make a 10-15 minute talk about their UAV needs, projects, products, ideas, experience..., so all other participants can know about them and interact with them, this is a special feature of this course where participants are given the opportunity to be heard and to share!

## Registration Fees

### Full course and workshop registration:

- Early Bird (Until 31<sup>st</sup> January 2017 - Full Course) - 5,499 USD
- Regular Registration (Full Course) - 5,999 USD

### Registration in Part 1 (Integrating Drones into Geomatics: Principles and Applications) only:

- Regular Registration (Part 1 only) - 3,499 USD

### Registration in Part 2 (UAV Remote Sensing Mission Planning, Operations, Data Processing and Project Management) only:

- Regular Registration (Part 2 only) - 4,499 USD

Special discount of 10% for students category upon availability of seats (a valid student ID should be presented).

In case you cannot finally assist the course we offer you the possibility to keep your place for the next edition of the course or perform a registrant substitutions at any time. The course may be suspended in case there is not enough enrolled participants or any other organisation issue, in that case the full paid amount would be refund.

## Contact



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