# TOWARD SMART AIR MOBILITY: A MODEL-BASED DESIGN APPROACH

The interest in Urban Air Mobility (UAM) had a steep increase over the last few years. On the one hand, the slow growth rate of ground infrastructures led to critical congestion in urban areas. On the other hand, the increasing demand for moving people and payloads further and faster drove the attention of the research community and stakeholders toward the exploitation of the vertical dimension. With the aim to play a lead role in this new raising market, electrical air platforms with vertical take-off and landing (VTOL) capabilities are being considered key elements for the next generation of controlled airspace. In such a framework, crucial but challenging steps are represented by the optimization of novel configurations and the design of Guidance, Navigation, and Control systems. In this webinar, the fundamentals of the Model-Based Design (MBD) approach will be discussed and applied to VTOL platforms. Attendees will learn the workflow of MBD and investigate the steps required for performance optimization and motion stabilization of rotary-wing vehicles. Test cases will be also presented.
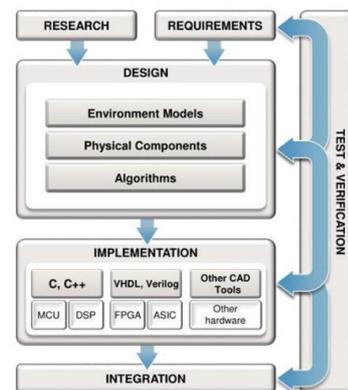
LEARNING OBJECTIVES

- ·Fundamentals of MBD method.
- ·Application of MBD approach to a sample test case.
- ·Optimal sizing and performance estimation of rotary-wing aircraft.

Target audience: Doctoral students, non-academic professionals, and undergraduate students.

Dates and time: 11/12 July 9:00-12:00 CEST

REGISTRATION AND CONTACTS

Course Code: 20220711

This course is part of the 2022 institutional activity for AIDAA members. The registration requires the purchase of one of the packages described here https://www.aidaa.it/package-list/, and the completion of the online form available on AIDAA webpage.

Course platform: Webex, a link will be sent via email as the registration is complete**.**
At the end of each course, **attendance certificates** will be sent to participants via email.

For further info, please, contact **academy@aidaa.it**

SPEAKER

Emanuele Luigi de Angelis is an Assistant Professor of Flight Mechanics at the University of Bologna since 2020, with experience in the design and optimization of highly automated ground and air vehicles. He took part in several national and international research projects, with institutional entities (INGV, ENAV, ESA, EU) and with national and European companies. His research interests include the development of software and hardware solutions for atmospheric highly automated vehicles, analysis of propulsion systems for both electric rotary-wing and fixed-wing aircraft, flight testing, and definition of attitude control systems for underactuated Low-Earth Orbit spacecraft. He is the author of more than 30 conference and journal papers.