Small Unmanned Fixed-wing Aircraft Design: A Practical Approach
Andrew J. Keane, András Sóbester, James P. Scanlan

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DESCRIPTION

Small Unmanned Fixed-wing Aircraft Design is the essential guide to designing, building and testing fixed wing UAVs (or drones). It deals with aircraft from two to 150 kg in weight and is based on the first-hand experiences of the world renowned UAV team at the UK’s University of Southampton.

The book covers both the practical aspects of designing, manufacturing and flight testing and outlines and the essential calculations needed to underpin successful designs. It describes the entire process of UAV design from requirements definition to configuration layout and sizing, through preliminary design and analysis using simple panel codes and spreadsheets to full CFD and FEA models and on to detailed design with parametric CAD tools. Its focus is on modest cost approaches that draw heavily on the latest digital design and manufacturing methods, including a strong emphasis on utilizing off-the-shelf components, low cost analysis, automated geometry modelling and 3D printing.

It deliberately avoids a deep theoretical coverage of aerodynamics or structural mechanics; rather it provides a design team with sufficient insights and guidance to get the essentials undertaken more pragmatically. The book contains many all-colour illustrations of the dozens of aircraft built by the authors and their students over the last ten years giving much detailed information on what works best. It is predominantly aimed at under-graduate and MSc level student design and build projects, but will be of interest to anyone engaged in the practical problems of getting quite complex unmanned aircraft flying. It should also appeal to the more sophisticated aero-modeller and those engaged on research based around fixed wing UAVs.
ABOUT THE AUTHOR

Andrew J. Keane is a Professor of Computational Engineering in the Faculty of Engineering and the Environment at the University of Southampton. He is the Director of the Rolls-Royce University Technology Center for Computational Engineering at the University and is a fellow of the RINA, IMechE and the Royal Academy of Engineering.

András Sóbester is a Senior Lecturer of Aeronautical Engineering in the Faculty of Engineering and the Environment at the University of Southampton. His main research focus is on developing techniques for the aerodynamic optimization of aircraft.

James P. Scanlan is a Professor of Design in the Faculty of Engineering and the Environment at the University of Southampton. He spent more than 10 years working in the aerospace industry and now manages a number of research programmes sponsored by BAE systems, Airbus, Rolls-Royce and the EPSRC. He is a Fellow of the Royal Aeronautical Society.

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