Cranfield University

Aerospace Integration Research Centre (AIRC)

www.cranfield.ac.uk/airc

The Aerospace Integration Research Centre (AIRC) is one of Cranfield University's newest world-class facilities. The Centre is of international significance and is part of the UK's High Value Design capability.

At the AIRC, industry and academia work together under one roof on cutting-edge research. Working closely with our two inaugural co-funders, Airbus and Rolls-Royce, our research focuses on all aspects of integration in aerospace, including integrating power plant with platform, systems with structure and platforms into airspace. We aim to conduct cutting-edge and applied research, integrating advanced technologies from areas such as autonomous systems and intelligent automation as well as reducing time from innovation to industrial application.

Our laboratories connect the University's 'land-side' ground-based research with our 'air-side' flight research, providing the capability to take aerospace concepts from theory to flight demonstration and allowing us to validate our research to technology readiness levels TRL6/7 - levels normally addressed by industry.

Cranfield University plans to change the way the world thinks about flight, working with industry to re-imagine aircraft and airspace concepts and shape the future of aerospace globally.

Our facilities include

IDEAS Space

The AIRC is intended to be an innovative environment and includes an IDEAS (Integration, Demonstration, Engineering, Analysis and Simulation) space, designed as an area both for collaboration and for visualisation of simulations and design activities. Widescreen displays enable the viewing of aircraft and airspace simulations using multiple live feeds.

Air Traffic Management Laboratory

We investigate new and novel air traffic management strategies using our airport control tower simulator. Fully networked, it links with other flight simulators, enabling pilots and air traffic controllers to understand the impact of different strategies within air traffic management and on airspace users.

Flight Simulator

Cranfield University has extensive capability in flight simulation and operates two large flight simulators. The AIRC-based engineering flight simulator enables pilots to gauge the effect of aircraft design modifications on performance, handling and safety and can be connected to inputs from research to provide a hardware in the loop capability.

Intelligent Automation Laboratory

Cranfield is performing research into human robot collaboration. Our laboratory in the AIRC is home to several of Cranfield's industrial robot cells, including the FANUC-CR-35iA robot which can operate in an uncaged and open space.

Aerospace Autonomy Laboratory

Research into autonomy involves medium and large aerial platforms, developing algorithms, sensors, communications and network systems for aerospace. We also focus on researching new technology on board autonomous flight vehicles, such as thermoelectric generators and novel real-time control.

Open Laboratory

In addition to individual covered laboratories, the AIRC has a large 1500m² lab space. Its 18m x 6m sliding doors provide access for demonstrator aircraft, such as the University's 19-seater Jetstream 31, in order to provide a flight test capability for research projects.

"The AIRC working with other Cranfield facilities, including the runway, is unique. This is the only place where universities and companies can demonstrate, validate and research at the platform level – up to the technology readiness levels (6-7) more normally associated with business."

Professor Iain Gray
Director of Aerospace
Cranfield University

Work with us

Whether you are a large or small business, a potential partner university, consultancy or researcher, we would welcome a discussion to see how we can help you.

For further information about the AIRC, please contact:

Tim Mackley
Head of the Aerospace Integration Research Centre
E: t.c.mackley@cranfield.ac.uk
T: +44 (0)1234 75 8238

Cranfield University
MK43 0AL, UK

www.cranfield.ac.uk/airc

The AIRC has been co-funded by Airbus, Rolls-Royce, the Higher Education Funding Council of England (HEFCE) and Cranfield University.

AIRBUS

HIGHER EDUCATION FUNDING COUNCIL FOR ENGLAND hefce

ROLLS ROYCE Rolls-Royce