

WHOLE AIRCRAFT CAPABILITIES STATEMENT

EXPERTISE: The whole aircraft thematic group contains a diverse range of academics and researchers looking at all aspects of flight. The groups interests span across four research groups and covers multidisciplinary research in other sectors such as energy, rail, nuclear, highways and marine. Some examples include:

- **AAM Flight Physics** - Flight physics training content to fill knowledge gaps in eVTOL flight physics
- **WINGPULSE** – Demonstration of advanced pulsed jet actuator concepts for flow separation control.

Specific areas of expertise lie within and across:

Design	Dynamics	Materials and modelling	Structures	Systems	Platforms
Aircraft design	Rotor and aero dynamics	Material behaviour and modelling	Finite element analysis (FEA)	Thermal management	Regional and large passenger aircraft
Aircraft performance	Experimental thermodynamics	Turbulence modelling	Structural modelling	Fuel, oil and hydrogen systems	Drones and UAVs
Future aircraft design	Experimental thermofluids	Machine learning models	Structural dynamics	Systems engineering, risk and reliability, and resilience	VTOL
Drone, UAV and VTOL design	Flow control	Composite materials	Error estimation	Electrical aircraft systems and propulsion	Flight demonstrators

PEOPLE: Over **100 academics and researchers** work within and across this diverse range of research themes to deliver novel, cross-disciplinary, integrated research projects to both industry and research funders.

RESEARCH FACILITIES: Across our research entities, we can provide access to:

Flight simulators (Alsim AL250 and an Xplane flight simulator network)	Large, closed return wind tunnel with 6DOF force balance, a 3D traverse system, pressure scanners and hot-wire anemometry	High temperature characterisation
Modal analysis	Thermal property determination	Composites and additive manufacturing laboratories

TRACK RECORD: Our specialist aerospace teams at UoN work in partnership with a range of major aerospace companies and SMEs. We also have an extensive track record in securing key UK and EU funding from Horizon Europe (and its predecessor programmes), Innovate UK, ATI, EPSRC, NERC, the Royal Society, and others.



<https://www.nottingham.ac.uk/aerospace>