Manufacturing
At a Glance
Welcome to Cranfield University

A driving force in the advancement of manufacturing innovation. Working with our strategic partners, our expertise in technology and management, combined with fundamental materials research enables us to develop novel products and manufacturing processes, and to provide postgraduate education and training to build sustainable manufacturing growth.

We provide:

- Transformational research
- Premier learning
- Impact and influence
Our learners:

Over half of our Manufacturing learners come from outside the UK, representing 45+ countries.

Most programmes are accredited by professional institutions including: The Royal Aeronautical Society, The Institution of Engineering and Technology and The Institution of Mechanical Engineers.

Our alumni:

A professional network of 60,000+

“I recommend Cranfield as the university of choice for students who wish to excel within manufacturing. The industry-informed taught modules have provided me with a wide knowledge, and will guide my professional development in the longer term.”

Boyang Song, Engineering and Management of Manufacturing Systems, MSc 2015

“Cranfield University’s postgraduate programmes are closely linked with industry, and students work together in order to provide answers to real business challenges. The flexibility of the part-time courses, along with state-of-the-art facilities deliver the perfect learning environment for graduands.”

Maud Seraffon, Materials Engineer, E.ON Technologies (UK) Limited, PhD 2012.
Cranfield leads:

- **manufacturing excellence in the UK**, hosting the Manufacturing 2075 global think tank, the National Manufacturing Debate and the National Apprenticeship Competition,

- the **Integrated Vehicle Health Management Centre (IVHM)**, supported by Boeing, BAE Systems, Rolls-Royce, Meggitt, Thales, Alstom, MOD and DRS (UK).

A partner in ‘The Future Composites Manufacturing Hub’, driving automated manufacturing technologies for demanding applications, funded by EPSRC and industry.

**Unique facilities include:**

- **Precision engineering**
  World-class temperature-controlled precision engineering laboratories.

- **National High Temperature Surface Engineering Centre**
  The most comprehensive high-temperature coating facilities of any university worldwide.

- **Aero-structure Assembly & Systems Installation**
  A Centre of Excellence in intelligent automation, working in partnership with Airbus to develop new aircraft assembly technologies.

- **Laser welding**
  With one of the highest-powered fibre lasers in the world we are one of few places that can weld industrial-scale structures for research.

**Making manufacturing environmentally sustainable**

Cranfield developed ‘THERM’, a new integrated modelling tool that simulates the manufacturing process to identify more resource-efficient and sustainable opportunities.

“The project solved the demand for manufacturing to become low-carbon and resource efficient.”

**Dr Michael Oates**, Technical Analyst, Integrated Environmental Solutions (IES) Ltd.

**Developing next generation sensors**

Optical fibre sensor technology developed by Cranfield has supported the development and subsequent sales of state-of-the-art superconducting magnet systems.

“Cranfield has enabled Oxford Instruments to further optimise the design of our high field magnets.”

**Dr Andrew Twin**, Development Engineering Manager, Oxford Instruments Nanoscience, UK.
Strategic partnerships: we have strategic relationships with global companies such as Airbus, AWE, BAE Systems, Boeing and Rolls-Royce; working across the Technology Readiness Levels from concept to launch.

Additive manufacturing: we develop processes for the manufacture of large structural parts at a significantly reduced lead time and cost. Working with BAE Systems we produced one of the largest 3D printed metal parts in the UK and continue to develop technology to revolutionise the way aircraft are produced.

Surface engineering: we conduct world-leading research into smart coating systems and advanced, functional surface engineering. Our barrier coating systems have improved the thermal efficiency of gas turbines and can be found in Rolls-Royce engines powering the Airbus A340 and the Boeing 787 Dreamliner.

Through-life engineering services: we are working with BAE Systems, Boeing, Bombardier Transportation, Network Rail, Ministry of Defence (MOD) and Rolls-Royce to develop technologies and processes to improve predictability and reliability of complex engineering systems with the lowest possible life-cycle cost.

Precision engineering: we design, manufacture and build ultra-precision machines, tools and processes. Our research in making and measuring surfaces has laid the foundations for a redefinition of the world standard for temperature measurement.