Aerospace Computational Engineering
MSc

This unique course covers a wide range of applications focused on aerospace computational aspects. As mirrored by developments in the motorsport industry, within the next five years there will be a demand for engineers and leaders who will be using 100% digital techniques for aeronautical design and testing. This course aims to enhance your skills through a detailed introduction to the state-of-the-art computational methods and their applications for digital age aerospace engineering applications. It provides a unique opportunity for cross-disciplinary education and knowledge transfer in the computational engineering of fluid and solid mechanics for aerospace industrial applications. Focusing on fully integrated digital design for aerospace applications you will be able to understand and implement numerical methods on various computing platforms for aerospace applications. You will be able to meet the demand of an evolving workplace that requires highly qualified engineers possessing core software engineering skills together with competency in mathematical analysis techniques. Sharing modules with the Computational Fluid Dynamics MSc and Computational and Software Techniques in Engineering MSc this course gives you the opportunity to interact with students from other disciplines.

Course structure
The taught modules are delivered from October to April via a combination of structured lectures, and computer based labs. Students on the part-time programme complete all of the compulsory modules based on a flexible schedule that will be agreed with the course director.

Individual project
The taught element of the course finishes in May. From May to September you will work fulltime on your individual research project. The research project gives you the opportunity to produce a detailed piece of work either in close collaboration with industry, or on a particular topic which you are passionate about.

Group project
The Group project is related to digital wind tunnel development.

Future career
Designed to equip you with the skills required to pursue a successful career working in the UK and overseas in computational aeronautic design and engineering. Our courses attract enquiries from companies in the rapidly expanding engineering IT industry sector across the world who wish to recruit high quality graduates who have strong technical programming skills in industry standard languages and tools. They are in demand by CAD vendors, commercial engineering software developers, aerospace, automotive and other industries and research organisations, and have been particularly successful in finding employment.

Example modules
The taught modules are delivered via a combination of structured lectures, and computer based labs.

Compulsory:
• C++ Programming,
• Computational Methods,
• Numerical Modelling for Steady and Unsteady Compressible Flows,
• Numerical Modelling for Steady and Unsteady Incompressible Flows,
• CAE Advanced Applications,
• Modelling Approaches for Aerospace Applications,
• Validation and Verification for Aerospace Applications,
• Analysis and Visualisation of Big Data System and High Performance Computing,

Duration:
MSc: Full-time - one year, Part-time - up to three years.

Start date:
September.

Location:
Cranfield Campus.

Entry requirements:
Applicants are required to either have a minimum of a UK second class Honours degree or equivalent in applied mathematics, engineering, or computer science. We accept applications as part of a recognised double degree programme and those with lesser qualifications but with relevant work experience will be considered.

Applicants who do not fulfil the standard entry requirements can apply for the Pre-master's in Engineering programme, successful completion of which will qualify them for entry to this course for a second year of study.

ATAS Certificate:
Students requiring a visa to study in the UK may need to apply for an ATAS certificate to study this course.

Contact details
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For further information please visit www.cranfield.ac.uk/courses/taught/aerospace-computational-engineering

Every effort is made to ensure the information on this sheet is correct at the time it was produced in October 2018. Please check the web pages for the latest information.