

Academic year  
2025/26 entry



Postgraduate master's courses in

**Defence**

# Cranfield University

## Our reputation

We are the UK's only specialist postgraduate university in technology and management, with longstanding relationships with some of the most prestigious global companies. Our close collaboration with industry, and passion for the areas we operate in, will help your career.



### Specialist postgraduate

A research-focused professional community.



We work with over

# 1,500

businesses and governments based in over 40 countries.



### Over £150m

of investment in new facilities over the past five years.



### 5,000+

postgraduate students from 100+ countries.



A network of

### 80,000+

alumni, from 170+ countries.

As we are postgraduate only, we are not listed in many league tables that help compare undergraduate universities.

## Defence at Cranfield

With a global reputation, Cranfield University offers some of the most career critical master's degrees in the sector.



### Over 70%

of our defence learners are serving military officers and civil servants



### COTEC

is the only testing and evaluation centre owned and operated by a UK university



### One of the leading

specialist science and technology (STEM) universities in England

Knowledge Exchange Framework 2023



# Reasons to study Defence with us

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1

## Heritage

As an academic provider to the United Kingdom's Ministry of Defence (MOD) we support the education, training and continual development of the nation's military leaders and innovators.

2

## Industry links

Our close relationships with the MOD, defence organisations and engineering councils enable us to deliver courses that are taught by leading experts, drawing on a wealth of experience.

3

## Flexible delivery

We recognise that the majority of students seek to further their careers or add skills and experience to their portfolio while continuing to work. Our courses are organised and resourced to provide flexible options to enable you to maximise limited study time.

4

## World-class facilities

The University has its own airport, both on- and off-site explosive ranges, simulation and synthetic experimentation facilities and multiple world-class laboratory facilities.

5

## Hands-on learning

We use hands-on simulations and workshops to bring our teaching to life. Learn from experienced academics and industry professionals in an environment that prepares you for your future role.

6

## Expert-driven teaching

Our team of academics and researchers are at the forefront of their fields, offering you the chance to learn and work with current practitioners, industry experts and the opportunity to continue your studies through to further research.

# Courses

**Cranfield is one of the world's leading universities for defence and security education, research and consultancy.**

Addressing the changing needs of an evolving sector, we provide specialist knowledge to industry, security and emergency services, military, governments and NGOs, underpinning defence and security sector reform around the world. As a postgraduate academic provider to the UK's Ministry of Defence, we offer a unique gateway to delivering practical education and solutions that make a real difference to the lives of military, security and civilian personnel.

Our academics' expertise ranges from energetics and defence acquisition to international stabilisation and cyber security.



# Air and space systems

## Aerosystems

[www.cranfield.ac.uk/aerosystems](http://www.cranfield.ac.uk/aerosystems)

Part-time (Shrivenham)

MSc

Designed with expert engineering at heart, this course covers the areas of uninhabited aircraft systems, guided weapons, electro-optics, communications, radar, electronic warfare and information networks. It looks at key concepts, fundamental principles, and considerations of design and critical thinking.

## Military Aerospace and Airworthiness

[www.cranfield.ac.uk/maa](http://www.cranfield.ac.uk/maa)

Part-time (Cranfield and Shrivenham)

MSc, PgDip, PgCert

This MSc distinguishes itself from similar courses offered by focusing specifically on the military context of aerospace, airworthiness and design.

It provides practicing engineers with the knowledge and skills to enable you to work more effectively in aerospace engineering, airworthiness, and safety.



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SOCIETY

## Further recommended courses

There are other courses from across the University in this area which may be of interest to you. These include:

**Aerospace Manufacturing MSc** – [www.cranfield.ac.uk/aerospacemanufacturing](http://www.cranfield.ac.uk/aerospacemanufacturing)

**Aerospace Materials MSc** – [www.cranfield.ac.uk/aerospacematerials](http://www.cranfield.ac.uk/aerospacematerials)

**Advanced Air Mobility Systems MSc** – [www.cranfield.ac.uk/advairmobility](http://www.cranfield.ac.uk/advairmobility)

# Command, control, communications, computers, intelligence, surveillance and reconnaissance

## Counterterrorism

[www.cranfield.ac.uk/counterterrorism](http://www.cranfield.ac.uk/counterterrorism)

Full-time/part-time (Cranfield)

MSc, PgDip, PgCert

The Counterterrorism MSc will provide you with an understanding of how traditional and advanced techniques in counterterrorism are used in the modern-day world. You will gain clear insight into how research and ideas can be applied to help resolve real-world problems in this critical arena.

## Counterterrorism, Risk Management and Resilience

[www.cranfield.ac.uk/riskandresilience](http://www.cranfield.ac.uk/riskandresilience)

Full-time/part-time (Cranfield)

MSc, PgDip, PgCert

This course brings together a distinctive mix of different subjects, providing you with the fundamental knowledge, core expertise and evidence-based methodological tools and approaches necessary to understand, analyse, prevent and mitigate terrorism.

## Information Capability Management

[www.cranfield.ac.uk/icm](http://www.cranfield.ac.uk/icm)

Full-time/part-time (Shrivenham)

MSc, PgDip, PgCert

Information is the fundamental basis of a functioning society with billions of people taking in, creating and distributing information both online and offline every day. This course aims to create skilled professionals who can source, analyse and strategise improvements, assess digital infrastructure and keep up with an ever-increasing and developing world of information and technology.



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Accredited  
Degree



The library  
and information  
association

“

Cranfield's environment just gives you a sense of calm and you're able to focus on your studies. As a Chevening Scholar, it also gave me a sense of comfort and confidence that there is a community, a network, that I could tap into whenever I have ideas that I want to either apply or to learn more about at the University'."

**Richard Robinson**, Chevening Scholar,  
(Counterterrorism MSc 2023)





# Cyber and electromagnetic activities

## Cyber Defence and Information Assurance

<a href="http://www.cranfield.ac.uk/cdia">www.cranfield.ac.uk/cdia</a>	Full-time/part-time (Shrivenham)	MSc, PgDip, PgCert
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Designed to develop professionals who can lead in a cyber environment, this course focuses on understanding and articulating the executive-level responses to serious present and emerging threats in the information domain.

 Accredited by:

 **CILIP**  
The library and information association

## Cyberspace Operations

<a href="http://www.cranfield.ac.uk/co">www.cranfield.ac.uk/co</a>	Part-time (Shrivenham)	MSc, PgDip, PgCert
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Designed to develop military and defence industry professionals who can lead in a defensive cyber environment, to effectively exploit the threats and opportunities of cyberspace at the organisational level.

## Sensors Electronic Warfare

<a href="http://www.cranfield.ac.uk/sew">www.cranfield.ac.uk/sew</a>	Part-time (Shrivenham)	PgCert
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Designed to benefit officers of the Armed Forces and for scientists and technical officers in government defence establishments and defence industry, this PgCert explains the expertise behind military systems such as electro-optics, infrared sensor systems and management of military radar.



# Energetics and materials

## Explosives Ordnance Engineering

[www.cranfield.ac.uk/eoe](http://www.cranfield.ac.uk/eoe)

Full-time/part-time (Shrivenham)

MSc, PgDip, PgCert

We see, hear and use thousands of explosives around the world every day, from the military and defence sector to mining and other industrial operations. Our MSc will teach you the necessary understanding behind explosives engineering, munitions and target response and look to the future in explosives development.



Accredited by:



Accredited by



The Institution of  
Engineering and Technology

### Further recommended courses

There are other courses from across the University in this area which may be of interest to you. These include:

**Advanced Materials: Engineering and Industrial Applications MSc –**  
[www.cranfield.ac.uk/advancedmaterials](http://www.cranfield.ac.uk/advancedmaterials)



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# Management and decision support

## Defence Simulation and Modelling

[www.cranfield.ac.uk/dsm](http://www.cranfield.ac.uk/dsm)

Full-time/part-time (Shrivenham)

MSc, PgDip, PgCert

This course addresses the design, development, procurement, use and management of models and simulations for applications in experimentation, training, testing, analysis and assessment of military forces, systems and equipment.

## Systems Engineering

[www.cranfield.ac.uk/systemsengineering](http://www.cranfield.ac.uk/systemsengineering)

Part-time (Cranfield)

MSc, PgDip

Systems engineers address some of the most complex challenges and problems that society faces. This course will equip you to address the root causes of a problem situation, understanding requirements from multiple perspectives and the tension that may exist between them.

## Systems Thinking Practice

[www.cranfield.ac.uk/systemsthinking](http://www.cranfield.ac.uk/systemsthinking)

Part-time (Cranfield)

MSc, PgDip, PgCert

Systems thinking has become critical to success; organisations need to focus on their systems and the need for adaptability and resilience like never before. This MSc aims to enhance the knowledge and understanding of those in positions in their mid-career decision-making roles or part of strategy development.

### Further recommended courses

There are other courses from across the University in this area which may be of interest to you. These include:

**Computational and Software Techniques in Engineering MSc** –  
[www.cranfield.ac.uk/computationalste](http://www.cranfield.ac.uk/computationalste)

**Logistics and Supply Chain Management MSc** – [www.cranfield.ac.uk/som/msclscm](http://www.cranfield.ac.uk/som/msclscm)

# Robotics and autonomous systems and human machine teaming

## Further recommended courses

There are other courses from across the University in this area which may be of interest to you. These include:

**Applied Artificial Intelligence MSc** – [www.cranfield.ac.uk/aai](http://www.cranfield.ac.uk/aai)

**Autonomous Vehicle Dynamics and Control MSc** – [www.cranfield.ac.uk/autonomousvehicledc](http://www.cranfield.ac.uk/autonomousvehicledc)

**Robotics MSc** – [www.cranfield.ac.uk/robotics](http://www.cranfield.ac.uk/robotics)

# Sense and detect

## Military Electronic Systems Engineering

[www.cranfield.ac.uk/mese](http://www.cranfield.ac.uk/mese)

Full-time/part-time (Shrivenham)

MSc, PgDip, PgCert

Specifically developed for those who will be involved with the specification, analysis, development, technical management or operation of military radar, electro-optics, communications, sonar or information systems, where the emphasis will be on an electronic warfare environment.

# Sustainability

## Further recommended courses

There are other courses from across the University in this area which may be of interest to you. These include:

**Data Science and Artificial Intelligence for Sustainability MSc** – [www.cranfield.ac.uk/datascienceandai](http://www.cranfield.ac.uk/datascienceandai)

**Sustainability MSc** – [www.cranfield.ac.uk/sustainabilitymsc](http://www.cranfield.ac.uk/sustainabilitymsc)

# Weapon systems

## Guided Weapon Systems

[www.cranfield.ac.uk/gws](http://www.cranfield.ac.uk/gws)

Full-time/part-time (Shrivenham)

MSc, PgDip, PgCert

As one of our flagship courses, we have an outstanding reputation within the guided weapons community. The course meets the requirements of all three UK armed services and is also open to students from NATO countries, Commonwealth forces, selected non-NATO countries, the scientific civil service and industry.

It takes you on to an understanding of the principles of guided weapon systems technology and all interrelated and multidisciplinary facets involved with the complete systems design process.



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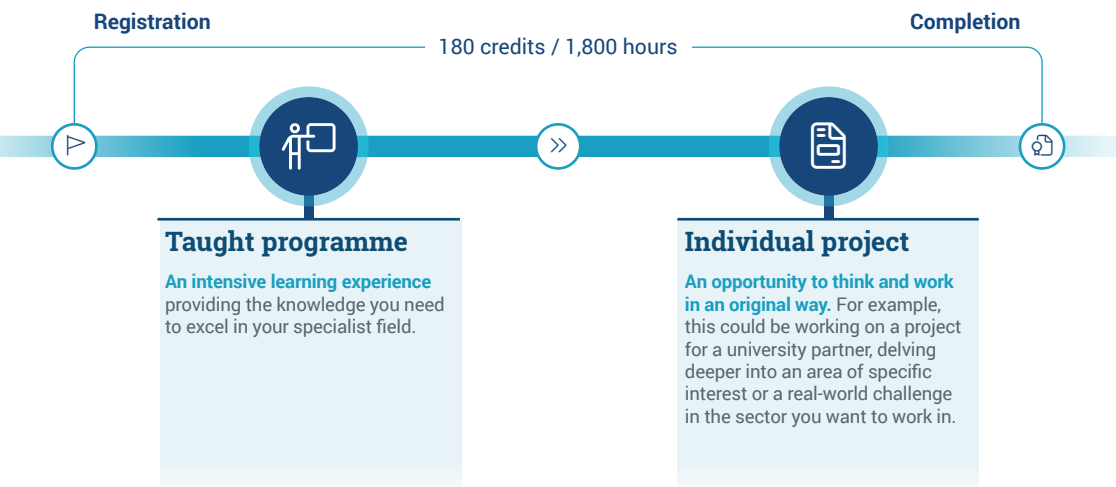
ROYAL  
AERONAUTICAL  
SOCIETY



# Course structure

Our specialist, sector-focused master's courses are set up and developed in close collaboration with industry partners, ensuring the content of our courses remains industry-relevant and employers are impressed with our graduates' business-readiness.

This diagram illustrates the standard course structure for our master's programmes. Please check your course structure online for more detailed information.



“The Explosives Ordnance Engineering MSc was a really fun learning experience. I got to just explore the thing I was passionate about. It allowed me to apply my engineering background alongside it and I immediately knew that I wanted to further my studies after I graduated.”

**Bonny Thawani,**  
current PhD student



# Industry links

**Cranfield has unrivalled links with industry and military organisations worldwide. You will benefit from our extensive contacts and track record of close collaboration with the defence and security sector.**

## **Our courses are informed by industry**

We ensure that the latest practices and teaching methods are being taught to the highest standard that will mean a seamless transition from learning to application within the workplace. Each course is reviewed every year by an academic panel, who use industry experience and current practitioners to inform the review.

## **Examples of the organisations we work with:**

AWE, Defence Science and Technology Laboratory (Dstl), MBDA, QinetiC.



## Careers

The applied and practical research you will do on your course will ensure that you will be valued by a wide variety of organisations across the world. Successful graduates can expect to go on to a range of careers as professional scientists or engineers in the defence and security sector, in roles across the full breadth of industrial and public sector organisations.

These are some of the specific roles our students have gone on to:

### **Roles:**

- Academic Advisor,
- Air Certification Engineer,
- Border Force Officer,
- Capability Integration Officer,
- CEO,
- Modelling and Simulation Engineer,
- Project Manager,
- Senior Mechanical Systems Engineer.

### **Organisations:**

- Babcock International Group PLC,
- Defence Equipment & Support,
- Home Office,
- Japan Ministry of Defence,
- Nigerian Army,
- Pelorus Technologies,
- Raytheon Systems Ltd.,
- Royal Navy.

Read more on our website  
[www.cranfield.ac.uk/careers](http://www.cranfield.ac.uk/careers)

# Academic staff

**You will be taught by a wide range of subject specialists drawn from the University staff and supported by industry professionals, who bring their research and industrial expertise to provide stimulating and informed input to your learning experience.**



**Professor Jackie Akhavan,**  
Professor of Explosive Chemistry  
and Head of the Centre for Defence  
Chemistry

[www.cranfield.ac.uk/jakhavan](http://www.cranfield.ac.uk/jakhavan)

Jackie is a Fellow of the Royal Society of Chemistry and a Fellow of the Institute of Explosives Engineers and in 2018 she was selected as an independent member on the Defence Science Expert Committee as the UK expert in energetics, explosives and weapon technologies for a three-year term.



**Professor Gareth Appleby-Thomas,**  
Professor of High Strain-Rate  
Material Response for Defence  
Applications and Head of the Centre  
for Defence Engineering

[www.cranfield.ac.uk/gthomas](http://www.cranfield.ac.uk/gthomas)

Gareth took on the role of Head of Centre for Defence Engineering in 2019 and was made a Professor in High Strain-Rate Material Response for Defence Applications in 2020. His main focus is based around the fields of Survivability, Lethality and Materials.



**Professor Alessio Balleri,**  
Professor of Radar Systems

[www.cranfield.ac.uk/aballeri](http://www.cranfield.ac.uk/aballeri)

Alessio joined Cranfield in 2012. He is currently serving as the a Professor of Radar Systems at Shrivenham and also contributes as a special Issue editor for the *IET Radar, Sonar & Navigation journal* and he has recently been elected as a member of the IEEE AESS Radar System Panel.



**Dr Karthik Depuru-Mohan,**  
Lecturer in Aerodynamics

[www.cranfield.ac.uk/kdepurumohan](http://www.cranfield.ac.uk/kdepurumohan)

Karthik conducts research and teaching in the fields of aerodynamics, aeroacoustics, propulsion, and airworthiness for aerospace, defence, automobile, motorsport, UAV, and energy applications. Prior to joining Cranfield, he performed research amongst others at the NASA Langley Research Center and University of Cambridge.

“

The course leader was always there for me and ready to assist with any course challenges, and would direct me to the relevant person for expert information. Equally, the support staff were always on hand to help me with any questions I had and were always incredibly helpful.”

**Khuthadzo Lourate Mutele-Nkuna,** South African Navy,  
(Explosive Ordnance Engineering MSc 2019)

# Key facts and statistics

## Course information



### Full-time

One year.



### Part-time

Up to five years. See the course page for more information about part-time study.



### Start date

Various. Please visit course pages for more information.



### Location

Our courses are either delivered at the Defence Academy of the United Kingdom, Shrivenham or Cranfield. Please visit course pages for more information.



### Fees

Please see the individual course pages on our website for full fee information and full-time or part-time options. Terms and conditions apply. See [www.cranfield.ac.uk/fees](http://www.cranfield.ac.uk/fees)

## Cohort profile\*



### Average cohort age

30–39.



### Student to staff ratio

10:1.

\*Figures as of May 2024.



# Useful information



## Financing your studies

Whether you are a UK-based or international student, we provide information, advice and a range of online tools to help you put together the funding package you need. Take a look at our funding finder which provides a searchable database of sources of financial support. We also offer bursaries for high quality applicants. Visit our website where we provide a range of additional sources of potential funding and helpful organisations and contacts for information, advice and guidance.

Learn more at [www.cranfield.ac.uk/funding](http://www.cranfield.ac.uk/funding)

## More than a degree with the **Cranfield Enhance programme**

Cranfield graduates are valued for their distinctive skills and capabilities. We have developed these programmes to complement and enhance what you learn on your chosen qualification. On the Cranfield Enhance programme, you will be able to earn 'digital badges' in areas such as employability and entrepreneurship to showcase your new skills to prospective employers.

Read more at [www.cranfield.ac.uk/enhance](http://www.cranfield.ac.uk/enhance)

“

"If you have access to using the apprenticeship levy then 100% go for it. It's a great opportunity. I'm a long time out of school, but there's an opportunity to think 'how can I develop myself?'. You own your own development. Just go and ask your employer and say, 'I want to do this'."

**Ben Merrills**, current student  
(Systems Thinking Practice Apprenticeship)





# Life at Cranfield

A welcoming, professional campus community.



## Explore our University

You can personalise your virtual visit to our campus by choosing the subject area you are interested in on our interactive tool:

**[virtualexperience.cranfield.ac.uk](https://virtualexperience.cranfield.ac.uk)**



## How to apply

Read more about our entry requirements and how to apply at **[www.cranfield.ac.uk/apply](https://www.cranfield.ac.uk/apply)**



# Our location



Located just over an hour from London in the English countryside, Cranfield's campus environment supports close, working relationships between our multinational postgraduate students and academic and industry experts.

[www.cranfield.ac.uk/visit](http://www.cranfield.ac.uk/visit)



[www.cranfield.ac.uk/defenceandsecurity](http://www.cranfield.ac.uk/defenceandsecurity)

## Our sector study areas:

Aerospace,  
Defence and Security,  
Energy and Sustainability,  
Environment and Agrifood,

School of Management,  
Manufacturing and Materials,  
Transport Systems,  
Water.



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[blogs.cranfield.ac.uk](mailto:blogs.cranfield.ac.uk)

For a full list of Cranfield courses, please see our prospectus and website.

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[www.cranfield.ac.uk](http://www.cranfield.ac.uk)

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