Academic year
2025/26 entry

Cranfield University

Postgraduate master's courses in

Automotive engineering and technology

Automotive Engineering MSc
Automotive Mechatronics MSc
Connected and Autonomous Vehicle Engineering (Automotive) MSc

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+

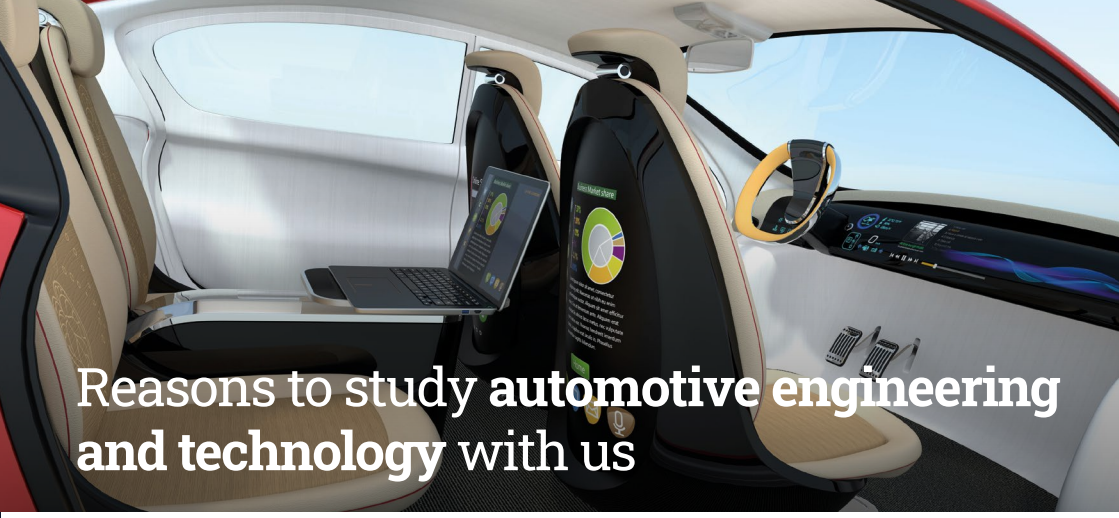
alumni, from 173+ countries.

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

What our alumni say

"It was the level of engagement with the industry, including the planning of the courses, that got me curious about the university. All the professors have strong experience in industry and that was also a factor that I considered."

Lorenzo Carena, Systems Engineer, Rimac Technology, (Connected and Autonomous Vehicle Engineering MSc 2022)



Reasons to study **automotive engineering and technology** with us

1 **Heritage**
Our Automotive Engineering MSc course is one of our longest-running academic programmes and we have a strong track record of innovations in the automotive sector.

2 **Industry links**
You will have regular contact with industry through group and individual project work as well as guest lectures. All modules are enhanced with a wide range of speakers from our industry advisory panel comprising of senior engineers from companies including Jaguar Land Rover, Nissan, Ferrari, Polestar, Tata Motors and Ricardo to ensure the content is relevant and meets the expectations of employers.

3 **Funding opportunities**
You may be eligible for the bursaries and scholarships that are available, such as the IMechE Scholarship and the Coachmakers Livery Bursary to help support your development. The Coachmakers Livery actively support young engineers to kickstart their careers within the automotive and motorsport industries.

4 **Outstanding facilities**
You will have access to Cranfield's extensive facilities, that have been developed for automotive motorsport and high-performance engineering companies worldwide. These include, the Cranfield off road dynamics facility, off-road environment hardware-in-the-loop (HIL) simulator, Multi User Environment for Autonomous Vehicle Innovation (MUEAVI) test track, driver-in-the-loop simulators, four-post tyre coupled road simulator, damper dynamometers, bespoke tyre test rigs, wind tunnels, composite labs, power train dynamometers, battery test labs and test vehicles.

5 **Learning environment**
We offer a mature and focused learning environment, with an international student body and enviable global reputation for excellence in the sector. We bring together talented students and academics to create a dynamic and inspirational learning environment.

6 **Networking opportunities**
Our close and long-established links with the automotive industry ensure that you will have opportunities to meet and develop contacts with senior engineers from automotive companies, including manufacturers, suppliers and dynamic small-and medium-sized businesses.

Courses

Automotive engineering is a rapidly-evolving field that offers a unique blend of challenges and rewards. The automotive industry is constantly pushing the boundaries of what's possible to reduce the environmental impact and maintain a positive experience for society. Those employed within automotive engineering face the exciting challenge of developing vehicles that are safer, more efficient and sustainable and great to drive.

Established for over 60 years with excellent industrial links and an outstanding record for the employment of its graduates. Our courses have been developed to provide the industry with high calibre engineers equipped with the necessary skills to advance vehicle technology to meet future demands.

Compulsory modules are listed in the order they are delivered.

Automotive Engineering

www.cranfield.ac.uk/automotiveengineering	Full-time	MSc

This course aims to provide graduates with the technical qualities, transferable skills and independent learning ability to make them effective in organisations that design and develop automotive products. Our strategic links with industry ensure that all of the course material is relevant, timely and meets the needs of organisations competing within the automotive sector. This industry-led education makes Cranfield graduates some of the most desirable in the world for automotive companies to recruit.

Modules

- Automotive Engineering Induction,
- Vehicle Design Propulsion and Performance,
- Automotive Control and Simulation,
- Vehicle Electrification and Hybridisation,
- Vehicle Dynamics,
- Powertrain Simulation and Performance,
- Automotive Aerodynamics,
- Vehicle Structures,
- Vehicle Materials and Manufacturing.

Accredited by: Engineering Council accredited degree; IET The Institution of Engineering and Technology; Accredited by Institution of Mechanical Engineers

MSc by Research

For those wishing to undertake a more research-based MSc, our MSc by Research degree allows you to demonstrate your ability to conduct research, while benefiting from the support of your supervisor.

This is an option for those who would prefer a more focused year of study to create a deeper understanding of a particular topic. People with such skills are in great demand in the automotive industry. Your project can either relate to an existing industrial problem, or more novel and innovative blue sky concepts. At the end of the course, you will submit a thesis that represents a contribution to knowledge, or the application of existing knowledge to new situations. Suitable for both full-time study, or part-time while working. Read more **www.cranfield.ac.uk/research**

Automotive Mechatronics

www.cranfield.ac.uk/automotivemechatronics	Full-time	MSc

Automotive mechatronics is a rapidly-growing field, so this course is designed for students with a solid engineering, mathematics or applied science undergraduate degree, who want to strive for a skill set which combines electrical, mechanical, digital control systems and physical system modelling.

During this MSc, you will gain skills across automotive-specific mechanics, electronics, communication, advanced control and modelling, preparing you to respond to the ever-increasing demands in the sector.

Modules

- Automotive Mechatronics Induction,
- Vehicle Design Propulsion and Performance,
- Automotive Control and Simulation,
- Vehicle Electrification and Hybridisation,
- Vehicle Dynamics,
- Mechatronics Modelling for Vehicle Systems,
- Advanced Control and Optimisation,
- Embedded Vehicle Control Systems,
- Vehicle Control Applications.

Accredited by: Engineering Council accredited degree; IET The Institution of Engineering and Technology; Accredited by Institution of Mechanical Engineers

Connected and Autonomous Vehicle Engineering (Automotive)

www.cranfield.ac.uk/cavea	Full-time	MSc

The Connected and Autonomous Vehicle Engineering (Automotive) MSc will provide you with a broad range of technical and transferable skills that are important for the development of autonomous and connected ground vehicles. This will prepare you for a career within the automotive sector.

In addition to covering the fundamental technologies, i.e. electronic systems and algorithms, that enable the automation of ground vehicles, the course provides valuable insights into industry standards and automotive best practice, including relevant regulation and ethical considerations that will impact the design and the use of connected and autonomous vehicles.

Modules

- Introduction,
- Vehicle Design Propulsion and Performance,
- Human Factors, Human-Computer Interaction and ADAS Systems,
- Sensors Perception and Visualisation,
- Technology Strategy and Business Models,
- Transport System Optimisation,
- Ethics, Safety and Regulation,
- Embedded Vehicle Control Systems,
- Path Planning, Autonomy and Decision Making,
- Networked Systems and Cybersecurity, Systems Engineering.

Modules offered for the 2024-25 academic year are shown to give you an indication of the current course content. To keep our courses relevant and up-to-date, modules may be subject to change from cohort to cohort; please check our website for the latest information.

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.

Taught programme

An intensive learning experience providing the knowledge you need to excel in your specialist field. The modules are delivered by our academic team together with a wide variety of industrial speakers who will demonstrate the industrial application of the theory you will have been taught.

Group project

The Group Design Project is designed to create an industrial environment comprising of Original Equipment Manufacturer and Tier 1 teams which focus on the design and optimisation of a particular vehicle system/assembly. As a group, you will present your findings both to an academic audience and at our automotive industry conference day.

Individual project

An opportunity to think and work in an original way. For example, this could be working on a project for a Original Equipment Manufacturer or for a university partner, delving deeper into an area of specific interest or a real-world challenge in the sector you want to work in.

Group projects

Cranfield's group project experience provides you with the opportunity to work on a consultancy-type project while working under academic supervision. Some recent projects include:

- Design of a low emission UK ambulance that featured an active suspension and active ride patient table, electric powertrain, regenerative braking and weight reduction of one tonne.
- Autonomous smart parking technology for the Transport Systems Catapult driverless 'pod' vehicle.
- Development of a steer-by-wire system for a lightweight sports car.

Industry **links**

Cranfield has unrivalled links with industry. You will benefit from our extensive contacts and track record of close collaboration with the automotive sector. These links include industrial advisory panels and project sponsors.

Industrial advisory panel

Our courses are reviewed each year by a panel of industry advisers from leading companies and institutions in the sector. This ensures that the skills you acquire are up-to-date and what employers want. Some of the companies represented on our industrial advisory panel include: TECNIQ, UTAC Millbrook, Mercedes-AMG Petronas Motorsport Formula One, JCB Power Systems, Polestar Automotive UK, Balance Batteries, ePropelled, Jaguar Daimler Heritage Trust, Applus+ IDIADA, Jaguar Land Rover, McLaren Automotive, Nissan Technical Centre Europe and Ferrari.

Careers

Our alumni can be found around the world implementing automotive engineering and technology innovation for business success.

Read more on our website **www.cranfield.ac.uk/careers**

Roles:

- Application Engineer,
- Autonomous Systems Engineer,
- Development Engineer,
- Electric Vehicle/Plug-in Hybrid Electric Vehicle Charging System Engineer,
- International Graduate Consultant,
- Performance Engineer,
- Powertrain Design Engineer,
- Project Engineer,
- Test Engineer.

Companies:

- Aston Martin,
- Bentley Motors,
- Ferrari,
- Jaguar Land Rover,
- McLaren Automotive,
- Mercedes AMG High Performance Powertrains,
- Nissan,
- Porsche,
- Prodrive,
- Red Bull Powertrains,
- Renault,
- Tata Technologies,
- Tesla,
- Thales,
- Toyota Motor Europe,
- Triumph Motorcycles.

Academic **staff**

You will be taught by a wide range of subject specialists at Cranfield and from industry, who draw on their research and industrial expertise to provide stimulating and relevant input to your learning experience.

The Programme Director, Course Directors and Admission Tutors are shown below. Over 20 academics contribute to each programme.

Professor James Brighton,

Head of Cranfield Advanced Vehicle Engineering Centre, Programme Director for Automotive and Motorsport courses

www.cranfield.ac.uk/jlbrighton

James has over 25 years' experience working at Cranfield University in the area of automotive and motorsport vehicle engineering and specialises in vehicle and tyre dynamics.

Professor Efstathios Velenis,

Professor of Vehicle Dynamics and Control, Automotive Engineering and Automotive Mechatronics MSc Course Director

www.cranfield.ac.uk/evelenis

Efstathios' research is focused on vehicle dynamics and control, optimal, nonlinear, model predictive control, active chassis control, control of autonomous vehicles, vehicle limit handling, modelling of expert driving techniques and ride optimisation.

Dr Marco Cecotti,

Course Director for Connected and Autonomous Vehicle Engineering (CAVE), Lecturer in Driving Automation

www.cranfield.ac.uk/mcecotti

After earning a PhD at Oxford Brookes University, Marco dedicated over 15 years to advancing vehicle automation and control technologies. His experience spans across renowned organisations like Tata Motors European Technology Centre, Dyson, and Cranfield University.

Dr Efstathios Siampis,

Professor of Vehicle Dynamics and Control and Lecturer in Vehicle Electrical Electronic Systems

www.cranfield.ac.uk/esiampis

Dr Siampis joined Advanced Vehicle Engineering Centre in 2019. He earned his PhD from Cranfield University in 2016 for his work on electric vehicle control. Following his PhD, he worked at Delta Motorsport on vehicle dynamics and control. His research interests include vehicle systems modelling, autonomous vehicle dynamics, control, estimation, and embedded systems.

"I chose Cranfield University because of its immense industrial connections and the depth of the modules. Before accepting the offer, I had a chat with a few alumni about their life here, both academically and personally and they recommended the course wholeheartedly"

Pavan Jonnada, student, (Automotive Engineering MSc 2022)

Key facts and statistics

Course information

Full-time
12 months.

Start date
September.

Award
MSc.

Fees
Please see the individual course pages on our website for full fee information. Terms and conditions apply. See **www.cranfield.ac.uk/fees**

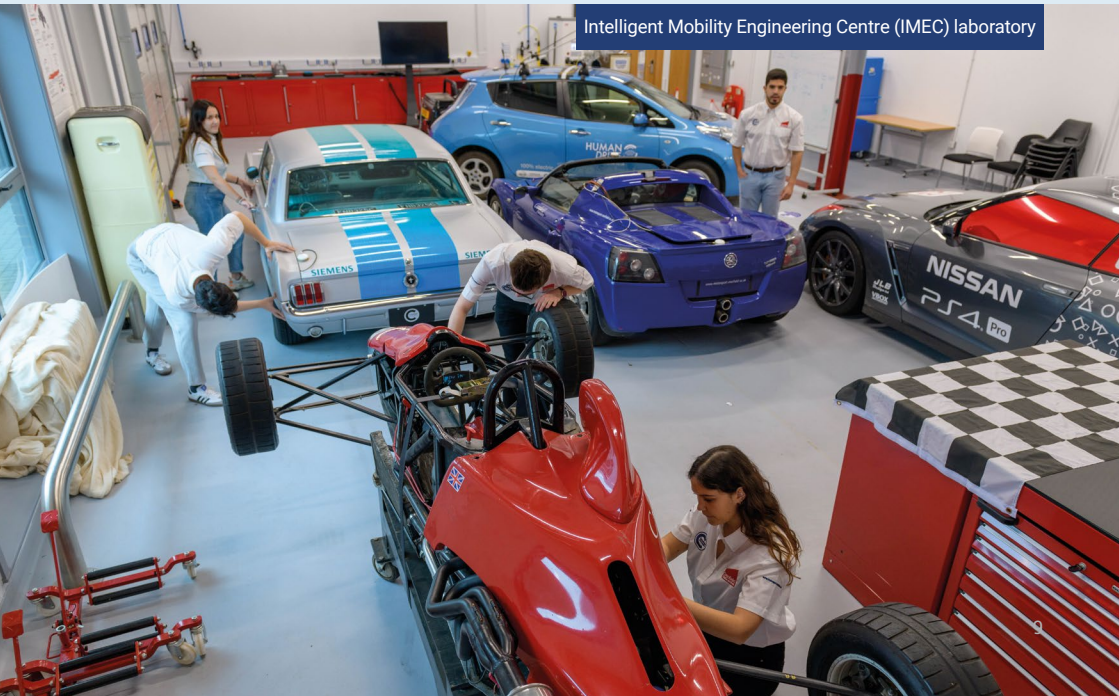
Cohort profile*

Geographic spread
4% UK.
96% International.

Typical cohort age range
20–49.

Cohort sizes:
Automotive Engineering MSc - 72,
Automotive Mechatronics MSc - 17,
Connected and Autonomous Vehicle Engineering (Automotive) MSc - 9,
Total = 98.

*These figures give an indication of the course make-up at registration across our automotive engineering courses for the entry 2023-2024.



Intelligent Mobility Engineering Centre (IMEC) laboratory

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**

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**

"The highlight of my MSc experience was the group project where we had to develop an autonomous navigation software stack and test it on a real vehicle. Sharing our knowledge and collaborating to achieve our objectives was a truly rewarding experience."

Sohan Pookolayil Varghese, student, (Connected and Autonomous Vehicle Engineering MSc 2022)

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

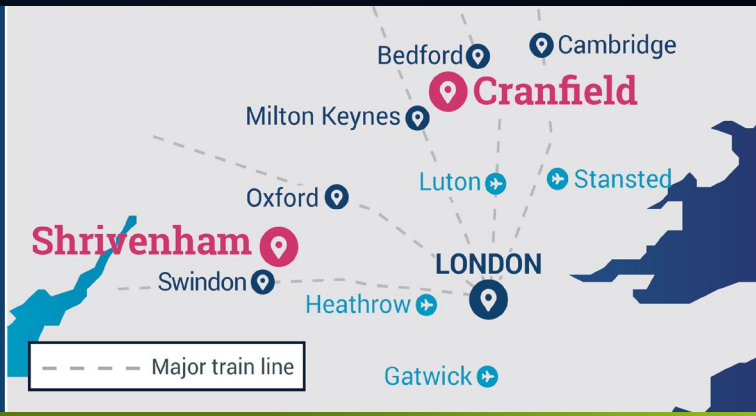
How to **apply**

Read more about our entry requirements and how to apply at **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



www.cranfield.ac.uk/transportsystems

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

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