

TOGETHER WE CAN SHAPE THE FUTURE

Launch your career at WMG, University of Warwick and work on real-world leading international research and development projects within science, technology and engineering.

TWO-YEAR GRADUATE DEVELOPMENT PROGRAMME

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Realise your potential

Gain valuable professional experience on our two-year Graduate Development Programme, providing a competitive graduate salary and the chance to thrive at a leading international institution for collaboration between academia and industry.

Work with leading academic and industry partners

Become an innovator in the world of science, technology and engineering at WMG, University of Warwick.

Develop the brightest ideas that will shape our future by working with leading academic and industry partners on real-world research and development projects.

Build your network

Build vital industry contacts and complement your technical knowledge by acquiring business skills in-line with best practice both academically and industrially.

Our diverse pathways promote learning on the job, knowledge expansion through tailored training modules, and informed problem solving through involvement in real-world projects.

Launch your career with WMG and start shaping your future from October 2023.

Explore our pathways

- **Energy Innovation**
- **Smart, Connected and Autonomous Vehicles**
- **Catapult Projects**
- **Materials and Manufacturing**

As a Graduate Trainee Engineer at WMG, you'll be provided with the scope to specialise and work on particular projects, whilst also having the flexibility to rotate across the main functions related to your chosen pathway.

You'll develop your technical knowledge and skills whilst gaining experience of applied research in a fast-paced environment, guided by leading experts in their field.

Choose your pathway here:

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Energy Innovation

Energy Innovation is a major area of growth, not just for WMG, but for industry globally.

Innovating for sustainability

As our society continues to grow, transformation in energy and mobility is required to create sustainable environments. Our research priorities are focused on ways that we can innovate to move towards a more sustainable and resilient system for key areas including transportation, manufacturing and grid storage.

Our Energy Innovation Centre (EIC)

You'll be based on the main University campus at our Energy Innovation Centre (EIC), where you'll be working on technology that can be transferrable to sectors such as aerospace, light rail, marine and defence.

What will you be doing?

Undertake research and development to **develop new battery chemistries**, process scale-up, characterisation, testing and analysis.

Conduct innovative research and development activities in the fields of electric motors, power electronics and energy management.

Learn from experienced technicians, doctoral students, project managers and research engineers.

Work on the development of battery modules and assembly systems.

Help deliver practical, reliable and economical systems and projects for industry partners, contributing to design, manufacture, testing and demonstrators.

Work on the application of battery technologies in electric and hybrid vehicles or machines.

Search 'WMG Energy Innovation Pathway' and start shaping the future.

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Graduate Engineers on the Energy Innovation pathway will have a 'home' research group. Please indicate your preferred research team within your application.

Battery Systems

Assess how individual cells can be optimised, how processes and manufacturing can be improved and how they can be integrated into completed systems, which can be used in applications such as aerospace, automotive and micro-mobility.

Electrochemical Materials

Apply the latest electrochemical techniques and energy storage materials knowledge to characterise, validate and optimise new processes, systems, and devices for breakthrough solutions in lithium-ion batteries, alongside research into new chemistries.

Power Electronics, Machines and Drives

Design and manufacture electric machines and drives in partnership with industry and improve existing manufacturing processes to optimise production. Create custom power electronic converters for applications including EV wireless charging, V2X and battery systems.

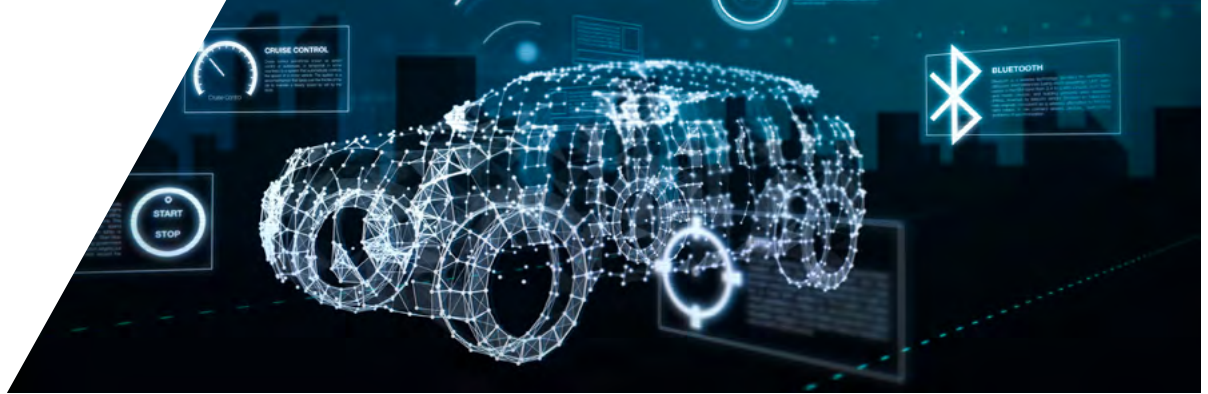
Energy Applications

Find and deliver efficient energy storage, supply, and management solutions with a focus on emerging zero-emissions technologies. This is often carried out in collaboration with various industry sectors, incl. automotive, aerospace, marine and rail.

You may be well-suited to this pathway if you have...

- Previous lab experience
- Proficiency with mathematical modelling or data analysis
- A willingness to learn and adapt
- A knowledge of CAD or Finite element analysis (FEA) simulation





Smart, Connected and Autonomous Vehicles

Intelligent vehicles are set to transform the UK economy and the Smart, Connected and Autonomous Vehicles vision is motivated by the potential societal benefits the technology offers – increasing safety, decreasing traffic congestion and driving lower emissions.

However, the concept of 'driverless' vehicles also brings significant challenges, such as improving public confidence in the safety, cyber security and robustness of autonomous vehicles.

What will you be doing?

Access a state-of-the-art 3XD Simulator for Intelligent Vehicles, a unique driving simulator platform for the evaluation of CAV.

Conduct applied research into improving the reliability and safety of Smart, Connected and Autonomous Vehicles (CAV).

Develop models for sensors and simulated environments, and **investigate the use of Artificial Intelligence**, control systems and test methods to accelerate the introduction of future autonomous and connected vehicles.

Understand customer usage and behaviour around intelligent vehicles and the legal and ethical frameworks.

Work alongside doctoral students in CAV research fields from human factors, to communications and virtual validation.

Evaluate new technology and understand user interaction.

Our research capabilities:

Verification and Validation

Verify the safe and robust functionality of Advanced Driving Systems and Automated Driving Systems before commercial application, by using innovative evaluation techniques and developing dynamic test scenarios.

Connectivity and Communications Technology

Collaborate to deliver solutions that will enable vehicles to communicate with their own systems, those of other vehicles and the wireless technologies in the wider infrastructure.

Co-operative Autonomy

Exploit opportunities in ultra-low-latency communications and application frameworks, to enable cooperation between road users and infrastructures, and design novel solutions to the positioning, perception, and control of CAV.

Human Factors

Understand human interaction with technology, systems, or services within both simulated and real environments to inform product design. Research CAV technology, alongside public understanding and trust.

IV Sensors

Focus on 'Robust Sensing' - ensuring the quality of data provided by environmental perception sensors (i.e., cameras, LiDARs, RADARs etc.) to safely link automation systems with the real world.

Search 'WMG Autonomous Vehicles Pathway' and work towards achieving a safer, less congested and environmentally friendly world.

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You may be well-suited to this pathway if you have...

- Proficiency with coding, data analysis and/or programming
- Previous project-based experience
- Good commercial knowledge
- A strong sense of initiative



Catapult Projects

WMG Centre High Value Manufacturing (HVM) specialise in innovation aimed at making transport cleaner, safer and more efficient. We work with manufacturing partners to develop automated, connected, electric and shared mobility for a sustainable future.

We are a founding member of HVM Catapult, a consortium of seven world-class research centres around the UK. Our overarching mission is to improve the competitiveness of UK manufacturing. We do this by collaborating on R&D projects, transferring knowledge into businesses, and educating highly skilled people.

Our research themes:

- **Transport and electrification**
- **Automated and connected vehicles**
- **Digital manufacturing**
- **Materials and manufacturing**

Search 'WMG Catapult Pathway' and join the strive towards carbon Net-Zero.

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What will you be doing?

- **Contribute to a variety of Catapult funded projects** within WMG and manage research aspects including contributing to academic publications, technical reports and other presentations and dissemination methods.
- **Develop an understanding of external funding** through research grants or contracts to support the research agenda and contribute to applications to support research.
- **Provide necessary administration and project management** during each placement. This may include organising events, collating information on project activities, creating progress reports, and coordinating ethics and information governance activities.
- **Attend external events related to sustainability and net zero** such as UKMF to gain knowledge and **build a network of contacts.**



Materials and Manufacturing

We're focused on the delivery of transformational results in both materials and manufacturing processes that help to create a cleaner future and sustainable economy. Our interdisciplinary approach across the full technology supply chain allows us to develop sustainable materials from next generation solutions, and improved manufacturing processes which shape the future.

Our research capabilities:

- **Polymer Processing** – plastic formulation, manufacturing, sustainability, recycling, and circularity
- **Light Alloys** – development and advanced characterisation
- **Advanced Steel** – primary steel production through to final manufactured products
- **Automotive Composites** – from sheet moulding compounds and constituent materials to final manufacture and testing for structural applications
- **Digital Lifecycle Management**
- **Additive Manufacturing** – higher performance materials and products at lower cost and reduced lead times

What will you be doing?

- **Undertake research and development** activities across a broad range of materials and manufacturing processes including **characterisation, testing and analysis**.
- Conduct innovative research and development activities in the fields of materials and manufacturing.
- Work alongside and **learn from the experience of our technicians**, doctoral students, project managers and research engineers.
- Work on the **development of innovative and sustainable materials and processes**.
- Contribute to collaborative commercial projects with industry partners to produce project demonstrators.



Search 'WMG Manufacturing Pathway' and deliver sustainable solutions for materials and processes.

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What's in it for you?

We value your expertise

As well as nurturing the brightest graduates, we also see how vital it is that we appreciate the hard work and effort that our graduates demonstrate.

Our benefits package includes:

- A competitive starting salary of **£27,929**
- **26 days paid annual leave** (plus four customary days over Christmas, and eight statutory Bank Holidays)
- Entry to a pension scheme with excellent employer contributions
- The opportunity to complete APM Project Planning Management and Control Qualification
- Study towards a post-graduate level qualification
- Potential opportunities to attend conferences and industry events to support your learning and build your networks
- Develop working relationships with key academic and industry figures
- Access to fantastic campus eateries and facilities, such as the Sports Hub and Arts Centre

We'll help you expand your skillset

Whichever pathway you choose, you'll be able to acquire the business skills and awareness needed to complement your technical knowledge, including:

- Developing commercial and business awareness
- Implementing project management skills
- Enhancing soft skills in the workplace (IT competency, time management, emotional intelligence).

Potential opportunities on completion of the programme

- A Project Engineer or Project Manager role at WMG (subject to vacancy availability and your performance on the programme)
- Further study – e.g. Masters or PhD/EngD
- A career in industry – e.g. in commercial research or project management





Prospects

100% of our previous Graduate Engineers have been offered a Project Engineer or equivalent role upon completion of the two year programme. Here they reflect upon workplace culture, industry projects and the programme's impact on their development and career aspirations.

"The WMG Graduate Programme provided immense skills and knowledge training to fine-tune my expertise in the field of sustainability and net-zero as a WMG Catapult Project Engineer."



Friya Tailor – Project Engineer,
HVM Catapult

"The programme provided me with a solid foundation of skills in electric machine design and manufacture. This proved invaluable in my current role as a Project Engineer, where I collaborate with Industry Partners to create innovative solutions."



Ed Griffin – Project Engineer,
Energy Innovation

"I think one of the most important aspects of the graduate scheme is the people I met. They shaped who I am both professionally and personally and taught me valuable life lessons that I will keep forever."



Jet Feng - Lead Engineer,
Smart Connected
Autonomous Vehicles

What we're looking for...

- You must have/be scheduled to graduate between **January 2022** and **September 2023**
- You'll hold, or expect to gain, a minimum of a **2:1 Honours Degree** in any Engineering related discipline. We also encourage applications from candidates with a degree in Maths, Physics, Project Management, Chemistry, Statistics or Computer Science
- Other degree courses will be considered if they demonstrate an alignment to the disciplines listed above and you can show you have:
 - a flair for solving complex technical issues
 - excellent communications and interpersonal skills, combined with proven team working ability
 - self-motivation and ability to work on your own initiative
- You must have the **right to work in the UK** for the duration of the two year programme as we are unable to sponsor work permits or visas for this role.

Shape your future with WMG ...

Apply to our Graduate Development Programme today and take the next step on your journey:

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   @wmgwarwick