Foreword – Chairman and Founder

We have been working collaboratively with companies for over thirty years, developing innovative products and processes which have made a real impact on the global market place. Our approach to research is to work with companies on a specific problem, and whether at the design stage or through the manufacturing process our goal is always the same; to develop innovative solutions to real world problems through ground breaking research.

In order to succeed in the global environment companies must be able to adapt to the changing global landscape; this includes having entrepreneurial leaders who have an appreciation of science, technology, engineering and who can achieve a global impact.

We will only develop these leaders if we provide them with the opportunities to work on real world problems. Here at WMG, our research students engage in specific projects which entail them collaborating with and learning from our academic experts as well as those within companies.

We pride ourselves on being forward thinking and taking the lead in many areas of research innovation. Materials manufacturing has been at the heart of our success, undertaking big infrastructure projects with practical innovations in areas such as lightweight materials, low carbon technologies, and enhanced vehicle interiors.

We are one of the world’s leading research and education groups with state-of-the-art facilities which provide a research environment second to none. By joining us you will acquire the skills and knowledge that industry is seeking and which will enable you to work on the global stage.

S.K. Bhattacharyya

Professor Lord Kumar Bhattacharyya, Kt, CBE, FREng, FRS
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An academic department of the University of Warwick, WMG is an international role model for how universities and business can successfully work together.

In 2014 we launched three new R&D centres: the Energy Innovation Centre, the Automotive Composites Research Centre, and the International Institute for Nanocomposites Manufacturing. The National Automotive Innovation Centre will be opening in late 2016.

An academic department of the University of Warwick, we are at the forefront of innovative technology, leading major multi-partner projects to create and develop exciting new processes, products and services that can lead to major breakthroughs and be of huge benefit to organisations both in the UK and globally.

These projects have seen us impact a wide range of sectors including automotive, aerospace and defence, digital, construction, energy and utilities, finance, food and drink, healthcare, IT, pharmaceutical and rail.

We have collaborated with government sponsored bodies, the NHS, innovative SMEs and global corporations such as Airbus, Arup, AstraZeneca, Auto Insulations Limited, BAE Systems, Bladon Jets (UK) Ltd, Bosch Ltd, Buehler, Drayson Racing Technologies LLP, GE Healthcare, GlaxoSmithKline, Jaguar Land Rover, Lloyds Banking Group, Network Rail, Nikon, Rolls-Royce, Siemens, Simpact Limited, Tata Motors, Tata Steel and TVS Motor Company to name but a few.

We are a leading centre for world class management studies, offering unrivalled innovative postgraduate and professional education programmes that meet business and industry needs. We attract high calibre students and executives and in the academic year 2012/13 we awarded over 900 Master’s Degrees and around 400 Professional Awards.

Being awarded the Queen’s Anniversary Prize for Higher and Further Education in 2009 was a tremendous honour and highlights that our philosophy of providing academic excellence with a clear business focus is a winning formula.

The development of the WMG Academies for Young Engineers is part of two new and exciting learning campuses catering for 14 – 18 years olds from Coventry, Warwickshire, Solihull, and Birmingham. We will be working alongside some of the largest employers in the region to deliver a dynamic curriculum, underpinned by a radical learning and teaching approach designed around the needs of both students and employers.

WMG was founded by Professor Lord Bhattacharyya in 1980 to help reinvigorate UK manufacturing. From its inception, WMG’s mission has been to improve the competitiveness of organisations through the application of value adding innovation, new technologies and skills deployment, bringing academic rigour to industrial and organisational practice.

Today we are one of the world’s leading research and education groups, with over 500 people working across six buildings on the Warwick campus plus collaborative centres in seven countries. We have an annual programme of £180m which includes industrial and in-kind support.

About WMG
Introduction to Research Degrees

Combine doctoral level research and education with clear business relevance through our EngD and PhD programmes.

We offer promising researchers and research entrepreneurs the opportunity to challenge themselves and develop their career opportunities by taking on industrially relevant applied research projects.

You will gain invaluable academic and industry experience, develop your professional networks, and make a contribution to society through the impact of your work.

Our vision is to deliver high quality, interdisciplinary research to achieve global impact in the fields of low carbon mobility, healthcare, and business, while training the academic and industrial research leaders of the future. Our research strategy has been to develop academic leadership and international recognition through sixteen specialist research groups, undertaking applied research across five broad themes:

- Design
- Materials
- Manufacturing
- Systems
- Business

We have invested heavily in our world class academics as well as our cutting edge facilities, and we have been successful in attracting a broad portfolio of funding from the Technology Strategy Board (TSB), Engineering and Physical Sciences Research Council (EPSRC), European Union, and the Royal Academy of Engineering (RAEng), as well as industrial funding from project partners.

As a doctoral student at one of the world’s leading research and education groups, you will be part of a community of 140 postgraduate research students at WMG, and over 1700 across the wider University of Warwick. You will carry out independent and original research at a university consistently ranked in the Top Ten in the UK, have access to expert supervisors from both academia and industry, and be part of a research community making a real difference to industry not just in the UK but around the world.

We have a traditional PhD programme running across all of our research groups (see pages 14-15) which is an excellent grounding for a career in academia and commercial research.

We offer two Engineering Doctorate (EngD) programmes which focus around specific industry challenges. Students accepted on this option carry out PhD-equivalent research, but also undertake taught business and technical modules whilst working closely with an industrial sponsor. Successful candidates are awarded the degree of Doctor of Engineering (EngD). See pages 6-9 for more detail.

Both our EngD and PhD programmes are designed to equip future entrepreneurs, researchers, and business leaders with the high level know-how and research capability essential to compete in today’s global market place. Our students are given the environment and support to explore fully an issue which will have a commercial impact.
The Centre for Doctoral Training in Sustainable Materials and Manufacturing is a collaboration between the Universities of Warwick, Exeter and Cranfield, with support from the Engineering and Physical Sciences Research Council (EPSRC) and partner companies.

You will be addressing industry-driven research challenges around sustainability such as establishing natural or recovered materials as feed-stocks, reducing process inputs and outputs without compromising performance or economic viability, extracting high value materials from waste streams, and ultimately establishing economic and environmental sustainability.

Qualification

The EngD (International) is a next generation doctorate, building on the original EngD created by EPSRC and pioneered by WMG over 20 years ago. A four-year programme, it combines original research with taught modules to bring you up to best industrial practice.

You will work on a project submitted by one of our partner companies, who will act as your sponsor for the duration of the programme. Your project will have been identified as being fundamental in addressing current or future challenges around sustainable materials and manufacturing faced by that company or the wider sector.

Flexibility is a key advantage of an EngD. The work you undertake on the project will be of a multidisciplinary nature, and your final submission will be in the form of a portfolio, rather than a single project, allowing for a broader range of knowledge and the ability to stay ahead of the game and fit the changing needs of industry.

As the Centre is a collaboration between three institutions, each doctoral project will be based at a home University (either Warwick, Exeter or Cranfield). You will split the majority of your time between the home university and your sponsoring company, but will visit the partner institutions for modules, master classes and other activities. Your degree will be jointly awarded by all three institutions.

You will work within a research group and be supervised by a primary academic mentor at your home institution, and will also be assigned a second mentor from one of the other two partner universities. You will also have an industrial mentor from within your sponsor company. This arrangement ensures you work with supervisors who have both academic and industry expertise and experience.

Launched in 2014, the Centre offers an International Engineering Doctorate (EngD (Int)) in Sustainable Materials and Manufacturing, with an embedded MSc in Sustainable Materials and Manufacturing, and an international placement with our overseas partners to give you the broadest possible range of experiences.
Embedded MSc

Embedded within the EngD (International) is an MSc in Sustainable Materials and Manufacturing. You will undertake nine modules (six core and three elective) during Years 1-3 of the programme.

Core Modules:
- Business Model Generation (Warwick)
- Product Design and Development Management (Warwick)
- Mechanics of Materials (Exeter)
- Environmental Processes (Exeter)
- Introduction to Manufacturing, Materials and Research Techniques (Cranfield)
- Whole System Design (Cranfield)

For more information on elective modules please visit the Centre website (see page footer).

Industry Visits

Industry visits will take place throughout the programme. These will include organisations with differing roles in manufacturing, for example government funding institutions, policy makers, industrial headquarters and R&D labs, and technology transfer agents.

International Placement

To further help you to understand the global manufacturing environment, you will undertake a placement in Year 3 with one of our international academic partners and their regional industrial partners. You will develop research collaborations, give an academic presentation, undertake visits to companies and meetings with government and legislators in your area of research.

The Centre is supported by a large number of international academic partners including Monash University in Australia, Purdue (USA), Fribourg (Switzerland), Kyoto (Japan), IIT Bangalore (India), Queensland (Australia), British Columbia and McGIll (Canada), and Jonköping (Sweden).

Industrial partners include: the Confederation of Indian Industry (CII), India; Develop Indy, USA; the Commission for Technology and Innovation (CTI), Austria; Canadian Autoparts Toyota Inc, and Titanium Metals Corp, Canada; CASTS Consortium, Australia.

Group Projects

Project work is a core part of the EngD (International). While projects can fall across the full range of areas from manufacturing management to technology, it is important that the projects have the potential for innovation and are of significance to the business.

In addition to your ongoing research, you will undertake a group project with other doctoral students for the embedded MSc. It should be based on the development of a product from concept to manufacture and address a key sustainability issue.

Outcomes

Throughout the four-year programme you will have unrivalled access to research and teaching expertise from three leading univeristies. You will have built a close working relationship with a forward thinking company through your project sponsorship, as well as a wide network of academic and industry contacts with the leading players in your field.

You will have produced applied research with the potential for real impact on the economy and society and you will have demonstrated a range of key competences required by industry including:
- Expert knowledge of an engineering area
- Technical organisational skills
- Financial and project planning and control
- Project and programme management
- Teamwork and leadership skills
- Oral and written communication skills
- Optimal solutions to complex problems
- Multidisciplinary research skills

You will be in an excellent position to make a real difference to the academic and industrial community and to take senior positions in global organisations.

Key Information

Qualification
EngD (International)

Programme Duration
4 years

Entry Requirements
- First or upper second class honours degree (or equivalent) in a related subject, e.g. Engineering, Computer Science, Chemistry, Physics, Maths
- Students with an MSc in a related subject may be exempt from certain taught modules
- Overseas applicants should have IELTS 6.5 or TOEFL. Pre-sessional language courses are available for applicants who narrowly miss these requirements
- Please see individual project adverts for additional requirements

Funding
Eligible Home/EU students tax free stipend of circa £19,000 per annum

Applications
Project adverts and enquiry form available online

Find out more about our research groups and potential supervisors

go.warwick.ac.uk/wmgdoctorate
Launched in 2011 to support doctoral research in the area of High Value, Low Environmental Impact Manufacturing, the Centre brings together research entrepreneurs with sponsoring companies that have real world problems to solve.

You will be addressing industry-driven research challenges with a focus on innovation around high value manufacturing with low environmental impact, such as: business transformation including product lifecycle management tools, sustainable business models, and information optimisation; energy innovation for low carbon vehicles; lightweight materials; additive layer manufacturing (3D printing); product evaluation technologies to reduce waste in the development process.

**Qualification**

The EngD (International) is a next generation doctorate, building on the original EngD created by EPSRC and pioneered by WMG over 20 years ago. A four-year programme, it combines original research with taught modules to bring you up to best industrial practice. You will work on a project submitted by one of our partner companies, who will act as your sponsor for the duration of the programme. Your project will have been identified as being fundamental in addressing current or future challenges around high value, low environmental impact manufacturing faced by the company or the wider sector.

You will work within one of our leading research groups and be supervised by an academic within that group. You will also have an industrial mentor from your sponsor company. This ensures you work with supervisors who have both academic and industry expertise and experience.

You will divide your time between the University and your sponsor company, in order to build relationships and make best use of the expertise, advice and facilities available to you for the development of your research.

Flexibility is a key advantage of an EngD. The work you undertake on the project will be of a multidisciplinary nature, and your final submission will be in the form of a portfolio, rather than a single project, allowing for a broader range of knowledge and the ability to stay ahead of the game and fit the changing needs of industry.

The Centre offers an International Engineering Doctorate (EngD (Int)) in High Value, Low Environmental Impact Manufacturing, with an embedded MSc in Innovation and Entrepreneurship, and an international placement with one of our overseas partners to give you the broadest possible range of experiences.
## Embedded MSc

Embedded within the EngD (International) is an MSc in Innovation and Entrepreneurship. You will develop a sense of how to seize new business opportunities and will learn from experienced entrepreneurs and early-stage investors about the creation of a successful business model through a combination of innovation, technical skill, drive and know-how.

You will undertake nine modules (seven core and three elective) during Years 1-3 of the programme.

### Core Modules:
- Business Model Generation
- Establishing a New Business
- Management of Change
- Innovation
- Leadership
- Financial Analysis and Control Systems
- Sales and Sales Management

For more information on elective modules please visit the Centre website (see page footer).

### Industry Visits

Industry visits will take place throughout your time on the programme. These will include organisations with differing roles in manufacturing, for example government funding institutions, policy makers, industrial headquarters, R&D labs, and technology transfer agents.

### International Placement

To further help you understand the global manufacturing environment, you will undertake a placement in Year 3 with one of our international academic partners and their regional industrial partners. You will develop research collaborations, give an academic presentation, undertake visits to companies and meetings with government and legislators in your area of research.

International placements are available with our partner institutions in the US, China, India or Singapore. Alternatively, you may undertake a placement through your sponsor company if they have international links. This will enable you to better understand the global manufacturing environment and open doors for collaboration.

### Group Projects

Project work is a core part of the EngD (International). While projects can fall across the full range of areas from manufacturing management to technology, it is important that the projects have the potential for innovation and are of significance to the business.

In addition to your ongoing research, you will undertake a group project with other doctoral students for the embedded MSc aimed at delivering real solutions to a business idea.

### Outcomes

Throughout the four-year programme you will have unrivalled access to the research and teaching expertise, as well as cutting edge facilities, of one of NZ’s top 10 universities and one of the world’s largest research and education groups. You will have built a close working relationship with a forward thinking company through your project sponsorship, as well as a wide network of academic and industry contacts with the leading players in your field.

You will have produced applied research with the potential for real impact on society and you will have demonstrated a range of key competences required by industry including:
- Expert knowledge of engineering area
- Technical organisational skills
- Financial and project planning and control
- Project and programme management
- Teamwork and leadership skills
- Oral and written communication skills
- Optimal solutions to complex problems
- Multidisciplinary research skills

You will be in an excellent position to make a real difference to the academic and industrial community and to take senior positions in global organisations.

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### Key Information

#### Qualification

EngD (International)

#### Programme Duration

4 years

#### Entry Requirements

- First or upper second class honours degree (or equivalent) in a related subject, e.g. Engineering, Computer Science, Chemistry, Physics, Maths
- Students with an MSc in a related subject may be exempt from certain taught modules
- Overseas applicants should have IELTS 6.5 or TOEFL. Pre-sessional language courses are available for applicants who narrowly miss these requirements
- Please see individual project adverts for additional requirements

#### Funding

Eligible Home/EU students tax free stipend of circa £19,000 per annum

#### Applications

Project adverts and enquiry form available online

go.warwick.ac.uk/wmgengd

Find out more about our research groups

go.warwick.ac.uk/wmg/research

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[go.warwick.ac.uk/wmgdoctorate]
Can you tell us about your background and your area of research?

I completed a Master’s in Design for Sustainability at Cranfield University. During my time there I was fortunate enough to work with companies on my group and thesis project and I saw the benefit of combining academia and industry. Seeing first-hand how research can have practical benefits for a company then lead me to pursue this EngD (International).

This project aims to identify the requirements needed for luxury brands to achieve long-term profitable growth in a sustainable future. Sustainability and luxury can seem paradoxical, but a deeper understanding of the two uncovers similarities fundamental to both, such as: timelessness, durability, innovation, and a careful selection of materials. Within this, companies have to ensure that their products are still desirable and the company is still profitable. However, customers have some reservations about the quality of sustainable products and a general hesitation towards purchasing them. This project is useful because it helps to achieve an understanding of how to optimise sustainability while maintaining customer satisfaction.

How is the project useful to your sponsor company, and how does the arrangement work?

Legislation has driven the automotive industry into becoming more sustainable, which can come in many forms, such as increasing operational efficiency and reducing tailpipe emissions. Within this, companies have to ensure that their products are still desirable and the company is still profitable. However, customers have some reservations about the quality of sustainable products and a general hesitation towards purchasing them. This project is useful because it helps to achieve an understanding of how to optimise sustainability while maintaining customer satisfaction.

I have regular meetings with my industrial supervisor and I often go to the engineering facility at Gaydon and headquarters at Whitley to speak to key people. I also visit the design studio, virtual innovation centre, and attend group meetings, all of which provide a great insight into the workings of the company.

How is the project progressing and what benefits are you seeing by working together with a sponsor company?

I am really enjoying the project so far. I think the main benefit of working together is being able to gain industrial experience and discussing ideas with people that have experience in business, design and engineering. I can then combine this with academic resources and draw on the latest research to reach conclusions that may not otherwise have been possible.

It has been fascinating and challenging at the same time. Having such a big project to yourself is sometimes overwhelming but this is definitely made easier by the support around you. Fortunately, I have been able to meet people from various departments throughout the university and Jaguar Land Rover who have all been very enthusiastic about the project.

If you enjoy research and want to gain industrial experience then an EngD (International) is a great way of combining the two. You have your own deadlines and responsibilities to adhere to and you gain a lot of skills that are useful for future employment along the way.
Can you tell us about your background and your area of research?

My background is in chemistry and I spent the final year of my degree working on solar panels. I was looking for an EngD project related to renewable technologies and that’s why I applied to Warwick.

My project is ultimately to improve how long a battery lasts in automotive applications. Coming from an electrochemist’s point of view, the focus is more on understanding why and how a battery has aged or failed. I’m putting together a procedure that allows us to analyse these batteries and use this information to improve cell lifetime on future products.

The work that I’m doing will end up in a model which will allow a manufacturer to plan for something as simple as a warranty for the product, but it will also tell us how the battery is aging and how we then plan for that into the future.

Battery technology could be vital for the automotive industry in the future. Modelling allows me to simulate life cycles of the battery in the vehicle and decide if it will last ten or fifteen years. The models can show me how the different chemistries react and things that will change. Modelling is undeniably the future of battery engineering, as it will be how we produce the vehicles of the future.

My work inputs into the model, and the data that I’m able to collect tells the model what’s important and what Jaguar Land Rover (JLR) need to consider.

How is the project useful to Jaguar Land Rover and how does the arrangement work?

We’re essentially working on emerging technology. How batteries really age and how they behave over a lifetime has major implications on a hybrid’s fuel economy, a plug-in hybrid electric vehicle’s lifecycle or range, and how that changes over a vehicle’s life. If there are root causes, we need to know how to stop those root causes.

Having that collaboration and contact with JLR allows me to quickly understand if a line of enquiry is important, as I run it past them and they tell me if it’s a relevant course of investigation. It doesn’t mean that it’s not important, it just means that it’s not important to JLR.

How is the project progressing and what benefits are you seeing in both parties working together?

The partnership we have here is massive and it’s feeding innovation and growth. From a research point of view, bringing in the industrial relevance to the project automatically gives you focus when you first start and sets targets for your research and studies. Although I felt a little overwhelmed at the start of the project, I certainly felt less lost than I could have been.

Because of this unique collaboration we have here, we can look into areas that perhaps JLR wouldn’t normally look at in an engineering environment. Because of the academic involvement, we can explore new theories or areas that might have not been applicable due to them not being deemed transferable. Now we’re learning more than ever before.
**Sponsor Companies**

Our doctoral students will deliver rigorous research and innovative solutions to tackle real industry problems which you have identified as being vital for current or future challenges faced by your company or sector.

The skills the researcher develops will enable them to work effectively within your multidisciplinary teams as they divide their time between the University and your organisation, and what they learn from our partner institutions, your company, and internationally will underpin and govern their future approach, influencing the direction of your business and positively impacting your long term success.

The EngD (International) programmes combine both academic and industrial expertise, ensuring that the researcher is not only addressing research challenges for the project, but learning from taught postgraduate business and technical courses, opportunities for networking and engagement, and an international placement. As a direct result, doctoral students and their sponsor organisations will be better equipped to deliver long term solutions and increase their competitiveness in manufacturing.

As a sponsor company you will benefit from the international perspective of the programme and WMG’s wealth of expertise and cutting edge facilities, with the knowledge gained on the project being transferred back and embedded into your everyday practice. Our graduates have reported significant and permanent culture changes throughout their organisations as a result of their involvement with the original Engineering Doctorate and new EngD (International) programme. Companies have hailed tangible benefits including reduced manufacturing costs, technological advances, and a transformation in entire processes and ways of thinking.
Companies who have been involved in programmes to date include:

- Airbus
- Alexander Dennis
- Alstom
- Altairnano
- Arup
- BAE Systems
- Britvic
- Cosworth Technology
- Cummins
- HMGCC
- I MechE
- Jaguar Land Rover
- PTC
- Superform
- Tata
- Thermacore
- UK Coal

Company Commitment

The relationship between the University and your company is at the heart of the programme, providing the opportunity for you to directly support the researcher through access to staff, facilities and time. By providing a suitable and experienced industrial mentor, you will have a hands-on role in ensuring that both the researcher and resultant research are aligned to your long term strategic goals and will play a key part in achieving them.

It is important that the researcher builds up a network which includes fellow postgraduate students, senior industrialists, policy makers and opinion formers. They will develop relationships at an international level through accessing our own established multi-sector networks, spending time in global organisations and through a variety of networking activities.

Working with Us

If you have a project, or a portfolio of short projects, which could form the basis of a Doctorate, please get in touch with us to discuss how we can help.

Projects will be advertised widely by the University to attract a 'new recruit' looking to earn their doctorate and develop their industry experience. Alternatively you may already have a candidate in mind from within your workforce who you feel shows both research and leadership potential.

"WMG can become the incubator for tomorrow’s industrial leaders, highly skilled, business trained, internationally minded, innovative and committed to securing a low carbon future. That includes bridging across silos and functions and creating new expertise patterns and new job disciplines.

The International Doctorate Centre can make the difference and we at JLR are proud to be one small part of it."

Dr Ralf Speth, CEO of Jaguar Land Rover

"In return for their investment, companies will expect output, and we have a track record of excellent output over the past 25 years. Our critical mass in expertise and facilities allows us not only to do impactful research, but to train people - creating top class researchers and entrepreneurs who will go on to be leaders on the global stage."

Professor Lord Bhattacharyya, Chairman and Founder, WMG
Our PhD programme is primarily focused on achieving a contribution of knowledge to your specific research area. It requires you to discover, interpret and communicate new knowledge through original research, and to present and defend research outcomes which extend the forefront of your chosen discipline.

WMG provides an exciting and supportive environment for postgraduate research and attracts outstanding students from a variety of academic backgrounds.

We have PhD students working within all of our sixteen research groups and across our five themes. Our current students are researching areas as diverse as brain-computer interfacing, cost modelling in the oil and gas industry, 3D printing for bone tissue engineering, high dynamic range video, manufacture of instrumented lithium ion batteries, and electrospun nanocomposites.

Qualification
A three-year programme, the Doctor of Philosophy in Engineering (PhD) emphasises research training and original research. During the course of your studies you should become an expert on your subject area. As well as producing your thesis, you will be encouraged to publish papers on the findings from your research.

You will need to be disciplined, organised and have an enthusiasm for the specialist subject area. As a guide, your PhD might follow this structure:

- Year 1 will predominately involve planning, allowing you to ensure that you have successfully identified your research question. In addition you will clarify the methods which will be employed in order to conduct your research.
- Year 2 will predominately involve primary research.
- Year 3 will be when the bulk of your writing up is done, although you will be encouraged to write up as much as possible as you progress throughout the programme.

You will be assigned a supervisor and co-supervisor from our senior academic staff and depending on the nature of your project, you may also have a mentor from industry.

Outcomes
Throughout the three-year programme you will have unrivalled access to the research and teaching expertise, as well as cutting edge facilities, of one the of UK's top 10 universities and one of the world's largest research and education groups.

During your time with us you will:
- Develop your originality and creativity in research
- Uncover and critically examine the background of your topic
- Enhance your skills in forming and testing hypotheses
- Contribute new insights into or develop innovative applications for current tools, techniques or processes
- Develop your skills in writing and presenting results to publishable quality

Upon receiving your Doctorate you will be in an excellent position to make a real difference to the academic and industrial community and to take senior academic or commercial research positions in global organisations.

Key Information

Qualification
Doctor of Philosophy in Engineering (PhD)

Programme Duration
3 years

Entry Requirements
- First or upper second class honours degree (or equivalent) in a related subject, e.g. Engineering, Computer Science, Chemistry, Physics, Maths
- Overseas applicants should have IELTS 6.5 or TOEFL. Pre-sessional language courses are available for applicants who narrowly miss these requirements
- Please see individual project adverts for additional requirements

Funding
Many of our projects are fully funded, see individual project adverts

For information on grants and scholarships
[go.warwick.ac.uk/graduateschool](go.warwick.ac.uk/graduateschool)

Applications
Project adverts and enquiry form available online
[go.warwick.ac.uk/wmgphd](go.warwick.ac.uk/wmgphd)

Find out more about our research groups
[go.warwick.ac.uk/wmg/research](go.warwick.ac.uk/wmg/research)
PhD Profiles

Shazmin Aniza Abdul Shakor
Towards 3D Indoor Modelling for AEC Applications using Laser Scanner
WMG Research Group: Automation Systems

I have a Bachelor’s degree in Mechatronic Engineering and a Master’s in Electrical Engineering, both from Malaysian universities.

My project was to develop a platform to process point cloud data obtained from laser scanners in order to generate 3D interior modelling. It is interesting, as existing interiors come with complex structures - with lots of clutter and occlusions due to the people, furniture and related equipment.

3D interior modelling is an important attribute in Building Information Modelling (BIM), and there are long-term plans to have it imposed towards all building life cycles. By developing an alternative solution to boost up this development, professionals like surveyors, engineers, architects, and facility managers can use this project in creating such model.

I have had a number of opportunities to present and share my research outcomes with related professionals currently working in this area. Based on the feedback, they were appreciative of what has been developed, as it can provide alternative solutions in pacing up the development of 3D modelling for existing interiors.

Being an academic, to have a PhD has helped a lot. I am trying to share all the valuable knowledge and experiences gained in completing my PhD with my students here.

I have also secured research grants, obtained recognition through research exhibition awards and publishing in indexed publications, as well as supervising postgraduate students. I would not have been able to achieve all this without my PhD.

Mujthaba Ahtamad
The Disconnect Between Market Research Data and Structured Evaluations in the Automotive Industry
WMG Research Group: Experiential Engineering

My background is in Psychology and I am interested in how products are designed with people in mind. WMG provided me with a platform to research an emerging area of interest for experts working in both industry and academia. As a result, I was researching a very relevant and important topic in the automotive sector.

Manufacturers are always looking to find new ways to attract and retain customers. It is imperative that the physical attributes of a product reinforce positive psychological experiences and complement the core ideals of the brand they represent.

OEMs can use many techniques to capture customer satisfaction and feedback, namely through market research and laboratory based evaluations. The automotive industry is a great example of where market research, customer ratings and reviews can often encourage new car sales, e.g. JD Power Customer Ratings, Top Gear reviews, What Car reviews. However the usability of these methods has not been fully investigated. This raised a unique opportunity to investigate how customers take part in market research in comparison to structured evaluations.

This exciting, yet challenging project was extremely multidisciplinary and received support from both the EPSRC and ESRC. The project also received industrial support from Jaguar Land Rover, as well as interest from a US-based market research agency currently providing consumer insights to the automotive sector.

I saw my PhD as being like a licence that was needed to become an independent researcher at an accepted level of expertise.

I am now specialising further within the automotive and transport sectors by looking at how vehicle features can help enhance the experience of driving, while also looking at the development of safety features. I still have a passion for presenting and teaching so I am hoping to stay involved with delivering lectures in engineering, psychology, human factors and product development.
Excellent transport and road links

- 1 hour to London by train
- Nearest airport – Birmingham International – 20 minutes
- Nearest train station – Coventry – 10 minutes

Getting in touch

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