Sustainable Automotive Electrification

Course Aims

Develop the skills to design and evaluate the next generation of automotive products that have a lower environmental impact than conventional vehicles. Within the context of environmental legislation and consumer expectations for vehicle quality, reliability, and performance, the course addresses the different technology options and methods for design, system integration, and verification, that will drive the market introduction of new energy efficient vehicles. Working within WMG's state-of-the-art facilities, and gaining from the latest innovations in research and technology management that are prerequisite for career progression within the international automotive industry. Covering the latest innovations in research, technology management, and leadership that are pre-requisite for career progression within the international automotive industry. This course will be accredited by the Institution of Engineering and Technology (IET) on behalf of the Engineering Council as meeting the requirements for Further Learning for registration as a Chartered Engineer.

Course Learning Outcomes

- Critically evaluate vehicle level design of current and new energy vehicle technology, within the context of technological and sustainability challenges relevant to the automotive industry.
- Critically evaluate the broad range of stakeholder influences on vehicle level design
- Interpret both drivetrain and energy storage system level design in the context of current and future new energy vehicle technology
- Demonstrate comprehensive specialist knowledge of at least one associated component technologies at the forefront of automotive electrification.
- Comprehensively apply systems engineering, functional safety and modelling techniques in the context of sustainable automotive products and technologies.
- Independently conceive, plan and implement a sustained individual project including the effective written and oral dissemination of the project outcomes

Module Requirements for Sustainable Automotive Electrification

Candidates for the MSc will be required to pass 180 credits, as follows:

- The 60 credit project
- 90 credits defined as Core in the MSc/PgDip list
- 30 credits defined as Optional Core in the MSc/PgDip list

Candidates for the Postgraduate Diploma will be required to pass 120 credits, as follows:

- 90 credits defined as Core in the MSc/PgDip list
- 30 credits defined as Optional Core in the MSc/PgDip list

Candidates for the Postgraduate Certificate will be required to pass 60 credits, as follows:

- 30 credits defined as Core in the PgCert list
- 15 credits defined as Option list A in the PgCert list
- 15 credits defined as Option list B in the PgCert list

Candidates for the Postgraduate Award will be required to pass 30 credits, as follows:

- 15 credits defined as Core in the PGA list
- 15 credits defined as Optional Core in the PGA list

20/21 to 23/24: Sustainable Automotive Electrification – UK Full Time and Part Time MSc Programmes

MSc / PgDip list	PgCert list	PGA list	Module Code	Module Title	Credits
Core			WM996-60	Dissertation MSc in Sustainable Automotive Electrification	60
Core	Core	Optional Core	WM998-15	Automotive Research, Strategy and Environment	15
Core			WM993-15	Modelling and Simulation of Systems	15
Core	Core	Core	WM985-15	Automotive Hybridisation and Electrification	15
Core	Option List A / Option List B	Optional Core	WM994-15	Electrical Drivetrains	15
Core	Option List A / Option List B	Optional Core	WM986-15	Energy Storage Systems	15
Core			WM984-15	Systems Engineering and Functional Safety	15
Optional Core	Option List B		WM995-15	Battery Electrochemistry, Design and Manufacturing	15
Optional Core	Option List B		WM982-15	Power electronic converter design and manufacturing	15
Optional Core	Option List B		WM983-15	Electrical machine design and manufacturing	15
Optional Core			WM997-15	Smart, Connected and Autonomous Vehicle Fundamentals	15

Students may apply to the Programme Management for exemptions from specific modules, and, if granted, must select an alternative appropriate elective module to comply with the module requirements for the course. Modules listed under other WMG modular master's degree regulations may be available to candidates for these awards as a replacement for those listed above, subject to approval by the Director of Studies.

Definition of terms:

- Core: students must pass the module (50% or above)
- Optional core: students must take the stated proportion of modules from this list and must achieve a pass (50% or above).
- Required: students must achieve mark of 40% or above on the module
- Defined Elective: students must take the stated proportion of modules from this limited list
- Optional (elective) modules: students may take any remaining credits from this list after satisfying the list requirements outlined above
- Students are still required to achieve the stated amount of passed credits and credits failed in the 40s for award as per General PGT Regulations page

Course regulations are written as the basis on which awards can be made. They are not written to make any guarantee of which optional modules may be available in any location in a specific academic year.

Below are links to pdf files containing previous academic years' course regulations:

16/17 to 19/20 Sustainable Automotive Engineering FTMSc

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Business

Education

Research

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