

## Course Specification

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<b>Status:</b>	Validated

## Core Information

<b>Awarding Body / Institution:</b>	University of Wolverhampton		
<b>School / Institute:</b>	School of Engineering		
<b>Course Code(s):</b>	MA013P01UV MA013P31UV	Full-time Part-Time	12 Months 2 Years
<b>Course Title:</b>	MSc Advanced Technology Management (Sustainability)		
<b>Hierarchy of Awards:</b>	Master of Science Advanced Technology Management (Sustainability) Postgraduate Diploma Advanced Technology Management (Sustainability) Postgraduate Certificate Advanced Technology Management (Sustainability) University Statement of Credit University Statement of Credit		
<b>Language of Study:</b>	English		
<b>Date of DAG approval:</b>	01/Jun/2017		
<b>Last Review:</b>	2014/5		
<b>Course Specification valid from:</b>	2014/5		
<b>Course Specification valid to:</b>	2020/1		

## Academic Staff

<b>Course Leader:</b>	Dr Wael Abdou
<b>Head of Department:</b>	Dr Syed Hasan

# Course Information

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<b>Location of Delivery:</b>	University of Wolverhampton
<b>Category of Partnership:</b>	Not delivered in partnership
<b>Teaching Institution:</b>	University of Wolverhampton
<b>Open / Closed Course:</b>	This course is open to all suitably qualified candidates.

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## Entry Requirements:

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Entry requirements are subject to regular review. The entry requirements applicable to a particular academic year will be published on the University website (and externally as appropriate e.g. UCAS)

A lower second honours degree or equivalent in related subject is required for direct entry onto this Master's programme.

or

A Postgraduate Certificate in a related subject or equivalent with a minimum of grade C in all modules.

For entry onto the Postgraduate Certificate programme

(Completion of which, with a minimum of grade C in all modules, will allow a student to progress to the Master's programme)

A pass at degree level.

Students are selected using application form and references in the first instance and may be invited for interview.

Students applying for individual modules will be required to demonstrate the ability to absorb technical concepts and detail, possibly by way of their previous industrial or commercial experience.

Minimum English competency is the standard MSc entry: IELTS 6.0 or equivalent.

## Distinctive Features of the Course:

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This course will allow you to study the product life cycle management with an aim to design robust products / processes cost effectively while minimising overall carbon footprint and environmental impact. You will be able to explore the role/prospects that current (solar, wind, biomass, hydro power, geothermal and biofuels) and new (i.e. smart grids) technologies can play in overcoming the impacts associated with conventional energy sources (fossil fuel and nuclear) and energy distribution, supply and storage.

## Educational Aims of the Course:

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Modern industry operates within a highly competitive global market, the adoption, exploration and management of technology across design, manufacture and operational delivery of engineering services is at the forefront of providing successful business, with the competitive edge needed to survive and grow. In addition society is demanding that such business enterprises become ever more proactive in terms of sustainability, energy efficiency and the adoption of a social conscious across their business strategies and operations.

This course aims to develop your knowledge and understanding of modern, sustainable, technologies in terms of product development, optimisation, manufacture and energy supply and distribution. You will gain a comprehensive understanding of how various IT-based tools and systems function while also gaining insights

into how these are effectively implemented within the commercial, manufacturing and industrial sectors. You will be equipped to undertake cross-functional management roles and to evaluate how modern organisations can strategically exploit existing and emerging technologies, in both a broad sense, but also to acknowledge their role in improved sustainability. This reflects the growing demand for specialists with advanced skills and knowledge to drive forward effective new product development and subsequent introduction across all of the major industrial sectors. This is to include automotive, aerospace, general manufacture and energy supply.

#### Intakes:

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September

#### Major Source of Funding:

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HE FUNDING COUNCIL FOR ENGLAND (HEFCE)

#### Tuition Fees:

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Tuition fees are reviewed on an annual basis. The fees applicable to a particular academic year will be published on the University website.

Year	Status	Mode	Amount
2017/8	H	Full Time	£6020.00
2017/8	EU	Full Time	£6020.00
2017/8	Overseas	Full Time	£12445.00
2017/8	H	Part Time	£3010.00
2017/8	EU	Part Time	£3010.00
2017/8	Overseas	Part Time	£6223.00

#### PSRB:

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None

#### Course Structure:

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##### September (Full-Time)

Part time students study alongside full time students. However, they do not study more than 80 credits in each academic calendar year.

Module	Title	Credits	Period	Type
7ET022	Research Methods and Professional Skills	20	SEM1	Core
7CM002	Project Management Tools and Techniques	20	SEM1	Core
7CM004	Sustainability and Life Cycle Management	20	SEM1	Core
7CM003	CAD and Product Definition	20	SEM2	Core
7AT004	Emerging Design Tools	20	SEM2	Core
7ET026	Renewable Energy and Smart Grids	20	SEM2	Core
7ET023	Dissertation	60	CRYRA	Core

## Learning, Teaching and Assessment

### Academic Regulations Exemption:

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None

### Reference Points:

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Faculty of Science and Engineering E&D policy, 2010

Equality Act 2010

Institute of Engineering Designers. Product Design Specific Learning Outcomes (2009)

QAA subject benchmark – Masters Level - Engineering (2010)

FHEQ England, Wales and Northern Ireland (August 2008)

Descriptor for a higher education qualification at level 7: Master's degree.

### Learning Outcomes:

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#### PG Certificate Course Learning Outcome 1 (PGCCL01)

Demonstrate a systematic understanding of knowledge, and a critical awareness of current problems and/or new insights, much of which is at, or informed by, the forefront of your academic discipline, field of study or area of professional practice with a conceptual understanding that enables the student: (A) to evaluate critically current research and advanced scholarship in the discipline. (B) to evaluate methodologies and develop critiques of them and, where appropriate, to propose new hypotheses.

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#### PG Certificate Course Learning Outcome 2 (PGCCL02)

Demonstrate a comprehensive understanding of techniques applicable to your own research or advanced scholarship and ability to continue to advance your knowledge and understanding, and to develop new skills to a high level.

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#### PG Certificate Course Learning Outcome 3 (PGCCL03)

Demonstrate originality in the application of knowledge, together with a practical understanding of how established techniques of research and enquiry are used to create and interpret knowledge in the discipline.

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PG Certificate Course Learning Outcome 4 (PGCCL04)

Ability to deal with complex issues both systematically and creatively, make sound judgements in the absence of complete data, and communicate your conclusions clearly to specialist and non-specialist audiences

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PG Certificate Course Learning Outcome 5 (PGCCL05)

Demonstrate self-direction and originality in tackling and solving problems, and act autonomously in planning and implementing tasks at a professional or equivalent level.

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PG Certificate Course Learning Outcome 6 (PGCCL06)

Demonstrate the qualities and transferable skills necessary for employment requiring: (A) the exercise of initiative and personal responsibility. (B) decision-making in complex and unpredictable situations. (C) the independent learning ability required for continuing professional development.

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PG Diploma Course Learning Outcome 1 (PGDCL01)

Demonstrate a systematic understanding of knowledge, and a critical awareness of current problems and/or new insights, much of which is at, or informed by, the forefront of your academic discipline, field of study or area of professional practice with a conceptual understanding that enables the student: (A) to evaluate critically current research and advanced scholarship in the discipline. (B) to evaluate methodologies and develop critiques of them and, where appropriate, to propose new hypotheses.

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PG Diploma Course Learning Outcome 2 (PGDCL02)

Demonstrate a comprehensive understanding of techniques applicable to your own research or advanced scholarship and ability to continue to advance your knowledge and understanding, and to develop new skills to a high level.

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PG Diploma Course Learning Outcome 3 (PGDCL03)

Demonstrate originality in the application of knowledge, together with a practical understanding of how established techniques of research and enquiry are used to create and interpret knowledge in the discipline.

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PG Diploma Course Learning Outcome 4 (PGDCL04)

Ability to deal with complex issues both systematically and creatively, make sound judgements in the absence of complete data, and communicate your conclusions clearly to specialist and non-specialist audiences.

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PG Diploma Course Learning Outcome 5 (PGDCL05)

Demonstrate self-direction and originality in tackling and solving problems, and act autonomously in planning and implementing tasks at a professional or equivalent level.

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PG Diploma Course Learning Outcome 6 (PGDCL06)

Demonstrate the qualities and transferable skills necessary for employment requiring: (A) the exercise of initiative and personal responsibility. (B) decision-making in complex and unpredictable situations. (C) the independent learning ability required for continuing professional development.

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PG Masters Course Learning Outcome 1 (MACLO1)

Develop novel strategies for the management and deployment of advanced and emerging technologies, techniques and sustainable energy policy decisions for a range of engineering applications.

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#### PG Masters Course Learning Outcome 2 (MACLO2)

Select and apply appropriate industry standard computer aided engineering tools and analysis methods to model, analyse and evaluate engineering systems.

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#### PG Masters Course Learning Outcome 3 (MACLO3)

Apply knowledge to create original concepts for products, engineering systems or processes.

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#### PG Masters Course Learning Outcome 4 (MACLO4)

Make use of high level skills and abilities to exploit generic and bespoke software tools, solve complex design, configuration or process problems and thereby develop industrially appropriate solutions for delivery to a range of audiences.

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#### PG Masters Course Learning Outcome 5 (MACLO5)

Evaluate and critically appraise current research and scholarship within the general areas of Sustainability and Life Cycle Management (including energy production and distribution), Emerging Design Tools, New Product Development and Introduction, Project Management and apply to typical scenario based engineering challenges.

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#### PG Masters Course Learning Outcome 6 (MACLO6)

Establish a deep understanding of how smart use either analogue or digital information and communications technology to gather and process data, in order to and on the resultant information, such as information about the behaviours of suppliers and consumers, in an automated manner to improve the efficiency, reliability, economics, and sustainability of the production and distribution of electricity.

#### Overview of Assessment:

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Module	Title	Course Learning Outcomes
7AT004	Emerging Design Tools	PGCCLO1, PGCCLO2, PGDCLO1, PGDCLO2
7CM002	Project Management Tools and Techniques	PGCCLO1, PGCCLO2, PGDCLO1, PGDCLO2
7CM003	CAD and Product Definition	MACLO3, MACLO4, PGCCLO3, PGCCLO4, PGDCLO3, PGDCLO4
7CM004	Sustainability and Life Cycle Management	MACLO1, MACLO2, MACLO3, PGCCLO1, PGCCLO2, PGCCLO3, PGDCLO1, PGDCLO2, PGDCLO3
7ET022	Research Methods and Professional Skills	MACLO5, MACLO6, PGDCLO5, PGDCLO6
7ET023	Dissertation	MACLO2, MACLO3, MACLO4, MACLO5
7ET026	Renewable Energy and Smart Grids	MACLO1, MACLO5, MACLO6, PGCCLO1, PGCCLO5, PGCCLO6, PGDCLO1, PGDCLO5, PGDCLO6

#### Teaching, Learning and Assessment:

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You will have the opportunity to engage with a range of learning approaches during the course of your study.

You will take part in lectures and seminars. Some of these will be more traditional whereas others will require you to undertake research before coming together to discuss technical issues with a range of students and academic staff. You will have seminars from industry practitioners and have the opportunity to discuss your projects with them to gain real world insight into the problems you are trying to solve.

You will have the opportunity to work in a range of dedicated facilities such as the Prototyping and Visualisation Laboratories to develop practical skills and understand the link between the theory and practical implementation of integrated CAD, Simulation and Rapid Prototype Manufacture. Throughout the weekly class sessions and through use of the on-line support material, you will obtain skills required to successfully implement and manage a range of modern manufacturing systems, processes and methodologies.

Often working on assessment and project briefs specified by industry practitioners, you will develop solutions to meet real world problems/requirements and be able to present these to your peers, practitioners and third parties in order to obtain balanced and current feedback.

## Student Support:

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### Course support:

At the start of your course you will be assigned a Personal Tutor who will guide you through the induction process and provide support and academic counselling throughout your course on an appointment basis. They should be able to offer you advice and guidance to help you liaise with other staff and support facilities in the School and University. The Student Support Advisers (SSA) provides academic counselling and will be accessible throughout the week on a drop-in or appointment basis to discuss timetables, requests for extensions, requests for extenuating circumstances, general concerns about study and student life and general programme planning. The SSA will act as a first point of contact in relation to leave of absence (including returning after leave), withdrawal, transferring to another course (internal and external) and changes to mode of attendance. Your Course Leader will be available thereafter for meetings by appointment to discuss leave of absence, withdrawal, transferring to another course (internal and external), changes to mode of attendance, returning after leave of absence and direct entrants.

### Subject support:

Tutorials, workshops, seminars and meetings - provide the primary opportunities for students to interact with staff on topics relating to modules. All modules provide at least one of these forms of face-to-face support.

Formative feedback - tutors provide personalised written feedback on most summative assessments. The mechanism for feedback from purely formative tasks varies between assessments, but will always be provided in some form. Online formative tasks often provide feedback straight away. On occasions tutors may provide generalised verbal feedback to the whole class on points relating to an assessment

Assessment and subject-based surgeries provide additional student support for subjects that students often need extra help with. They are often concentrated around the times when assessments take place. Revision sessions are provided for many modules that have exam-like tests and enable you to interact with tutors to review parts of the course. Mock exams and tests may provide opportunities to experience an examination environment before the final summative test and give you feedback on your understanding.

### International Students:

The International Centre will provide pre and post entry visa and immigration support and advice on and arrange for the necessary paperwork to be submitted to UKBA. They will also provide appropriate University Induction support on arrival and be a point of contact for international students throughout their stay here. A range of social and cultural activities arranged by the International Centre will also promote the integration of international students into the whole of the University's learning community. English language support is also available through the international language centre in the University.

## Employability in the Curriculum:

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The course is aimed at science and technology graduates who aspire to Engineering and Manufacturing management roles in leading industrial organisations with an emphasis on the role of sustainability and renewable energy production and delivery.

On completion of the programme, you can expect to develop your career towards senior management where strategic thinking skills, project management experience and deeper technological knowledge in the areas of

advanced technology and sustainability and sustainable energy production would be beneficial.



THE UNIVERSITY OF OPPORTUNITY