Course Specification

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Status:	Course currently being validated

Core Information

Awarding Body / Institution:	University of Wolverhampton		
School / Institute:	School of Engineering, Computing, and Mathematical Sciences		
Course Code(s):	MA039P01UF MA039P31UF	Full-time Part-time	1 Years 2 Years
Course Title:	Master of Research in Mechanical Engineering TBV		
Hierarchy of Awards:			
Language of Study:	English		
Date of DAG approval:			
Last Review:			
Course Specification valid from:	2024/5		
Course Specification valid to:	2030/1		

Academic Staff

Course Leader:	Mr Iain Lyall
Head of Department:	

Course Information

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

Entry Requirements:

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

Applicants should have or be about to complete:

- an honours degree level, with a minimum of a 2.2, in Mechanical Engineering, Technology or a closely related discipline. All first-degree qualifications in General Engineering and Physical Sciences (B Eng and B Sc) will be considered.

or,

- If the applicant does not hold a recognised degree or hold an ordinary degree, they should have at least three years of relevant work experience.

English language

If English isn’t the applicant’s first language, they will need to provide evidence of English language ability. We accept IELTS (Academic) at 6.5 overall with no individual component below 5.5.

Distinctive Features of the Course:

Elevate Your Career with the MRes in Mechanical Engineering

The Master by Research (MRes) in Mechanical Engineering offers an unparalleled opportunity for professionals and graduates to advance their skills in key areas such as manufacturing, sustainability, and project management. This programme is meticulously designed to integrate hands-on engi-neering projects that align with your passions and career aspirations.

Become a Trailblazer of Tomorrow, Elevating Your Nation's Productivity

• World-Leading Research and Innovation: Experience cutting-edge research and innovation supported by world-renowned experts. Engage in engineering projects that allow you to apply your knowledge to real-world challenges, tailored to your interests and professional goals.

• Flexible Learning Options: Our programme offers flexible learning pathways tailored to ac-commodate a wide variety of learners' backgrounds. Whether you are a seasoned profes-sional or a recent graduate, you can customise your learning experience to suit your needs and career goals.

• Cutting-Edge Manufacturing Modules: Gain in-depth expertise in both subtractive and addi-tive manufacturing technologies. These modules will equip you with the technical skills needed to drive innovation and support your business's growth.

• Comprehensive Skill Development: Beyond technical proficiency, our programme empha-sises the principles of project management, sustainability, and the socio-economic, environmental, and ethical impacts of engineering practices. You'll learn to navigate the entire product development process, from initial concept to prototype and presentation.

• Leadership and Innovation: Build your confidence and ability to innovate. Our programme fosters the skills necessary to defend your ideas and inspire future engineering leaders.

Take the next step in your engineering career with the MRes in Mechanical Engineering. This programme is your gateway to becoming a leader in the field, equipped with the knowledge and skills to make a significant impact.

Educational Aims of the Course:

Educational Aims of the MRes in Mechanical Engineering

The Master by Research (MRes) in Mechanical Engineering is designed to provide professionals and graduates with advanced skills and knowledge in key areas such as manufacturing, sustainability, and project management. The programme is built around three core pillars:

Innovation:

• Engage in practical engineering projects that address real-world challenges. These projects are tailored to your interests and career objectives, ensuring a meaningful and impactful learning experience.

Holistic Skills Enhancement:

• Gain comprehensive knowledge of subtractive and additive manufacturing technologies. The programme also emphasises project management, sustainability, and the socio-economic, environmental, and ethical impacts of engineering practices. You'll learn to navigate the entire product development process, from initial concept to prototype and presentation.

Leadership and Creativity:

• Build your confidence and capacity to innovate. The programme fosters the skills necessary to defend your ideas and inspire future engineering leaders.

Intakes:

Major Source of Funding:

Office for Students (OFS)

Tuition Fees:

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
No related data			

PSRB:

None

Course Structure:

January (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
7MA044	Applied High-Speed Machining	30	SEM2	Core
7MA050	MRes Dissertation	120	CRYRA	Core

January (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
7MA043	Sustainable Additive Manufacturing Applications	30	SEM1	Core

May (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
7MA050	MRes Dissertation	120	CRYRA	Core

May (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
7MA043	Sustainable Additive Manufacturing Applications	30	SEM1	Core
7MA044	Applied High-Speed Machining	30	SEM2	Core

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
7MA044	Applied High-Speed Machining	30	SEM2	Core
7MA043	Sustainable Additive Manufacturing Applications	30	SEM1	Core
7MA050	MRes Dissertation	120	CRYRA	Core

Please note: Optional modules might not run every year, the course team will decide on an annual basis which options will be running, based on student demand and academic factors, to create the best learning experience.

Learning, Teaching and Assessment

Academic Regulations Exemption:

None.

Reference Points:

UK Quality Code for Higher Education

Qualifications and Credit Frameworks

Subject Benchmark Statements

University Policies and Regulations

Equality Act (2010)

Accreditation of Higher Education Programmes (AHEP) – Engineering Council

University Inclusive Framework.

Overview of Assessment:

As part of the course approval process, the course learning outcomes were mapped to each of the modules forming the diet of the programme of study. This process confirmed that all course learning outcomes can be met through successful completion of the modules. This mapping applies to the final award as well as to all of the intermediate awards.

Learning Outcomes	Modules
PGCERT01 Apply a comprehensive knowledge of mathematics, statistics, natural science and engineering principles to the solution of complex problems. Much of the knowledge will be at the forefront of the particular subject of study and informed by a critical awareness of new developments and the wider context of engineering.	
PGCERT02 Formulate and analyse complex problems to reach substantiated conclusions. This will involve evaluating available data using first principles of mathematics, statistics, natural science and engineering principles, and using engineering judgement to work with information that may be uncertain or incomplete, discussing the limitations of the techniques employed.	
PGCERT03 Select and apply appropriate computational and analytical techniques to model complex problems, discussing the limitations of the techniques employed.	
PGCERT04 Select and critically evaluate technical literature and other sources of information to solve complex problems.	
PGCERT05 Design solutions for complex problems that evidence some originality and meet a combination of societal, user, business and customers’ needs as appropriate. This will involve consideration of applicable health & safety, diversity, inclusion, cultural, societal, environmental and commercial matters, codes of practice and industry standards.	

Learning Outcomes	Modules
PGCERT06 Evaluate the environmental and societal impact of solutions to complex problems (to include the entire life-cycle of a product or process) and minimise adverse impacts. PGCERT07 - Function effectively as an individual, and as a member or leader of a team. Evaluate effectiveness of own and team performance. PGCERT08 - Communicate effectively on complex engineering matters with technical and non-technical audiences, evaluating the effectiveness of the methods used.	
MA01 Apply a comprehensive knowledge of mathematics, statistics, natural science and engineering principles to the solution of complex problems. Much of the knowledge will be at the forefront of the particular subject of study and informed by a critical awareness of new developments and the wider context of engineering.	
MA02 Formulate and analyse complex problems to reach substantiated conclusions. This will involve evaluating available data using first principles of mathematics, statistics, natural science and engineering principles, and using engineering judgement to work with information that may be uncertain or incomplete, discussing the limitations of the techniques employed.	
MA03 Select and apply appropriate computational and analytical techniques to model complex problems, discussing the limitations of the techniques employed.	
MA04 Select and critically evaluate technical literature and other sources of information to solve complex problems.	
MA05 Design solutions for complex problems that evidence some originality and meet a combination of societal, user, business and customers' needs as appropriate. This will involve consideration of applicable health & safety, diversity, inclusion, cultural, societal, environmental and commercial matters, codes of practice and industry standards.	
MA06 Evaluate the environmental and societal impact of solutions to complex problems (to include the entire life-cycle of a product or process) and minimise adverse impacts. MA07 - Function effectively as an individual, and as a member or leader of a team. Evaluate effectiveness of own and team performance. MA08 - Communicate effectively on complex engineering matters with technical and non-technical audiences, evaluating the effectiveness of the methods used.	

Teaching, Learning and Assessment:

How will you learn?

The MRes in Mechanical Engineering uses different ways to help you learn and grow:

• Learn from Experts: Get personal help from top international experts to guide your research.

• Lectures and Tutorials: Learn about manufacturing principles and techniques, and improve your research and problem-solving skills.

• Hands-on Practice: Work with industry-standard manufacturing, 3D printing, and other technologies.

• Independent Study: Learn on your own to better understand manufacturing con-cepts.

• Engineer and Society: Understand the ethical, environmental, societal, and legal im-pacts of your solutions.

• Research Methods and Communication Workshops: Learn how to evaluate existing research, design experiments, analyse results, and present your findings.

How will you be assessed?

Our assessment framework, centred around CDIO (Conceiving–Designing–Implementing–Operating), helps you excel in identifying and solving problems, preparing you for real-world engi-neering challenges;

• Regular Assignments: Get feedback on your understanding and application of manufacturing principles.

• Project Proposals: Show your ability to create research questions and become a contract winner for your business.

• Research Projects: Demonstrate your ability to conduct independent research and interpret results.

• Portfolio of Designs, Prototyping, and Specifications: Create a portfolio that shows your ability to deliver innovative solutions.

Assessment Methods:

At the University of Wolverhampton, a variety of modes of assessment will be used to support and test your learning and progress and to help you develop capabilities that are valued beyond your University studies and into your working life. Your course may include a variety of assessment activities:

Written examinations (including online examinations, open and closed book examinations and quizzes)
Coursework (for example, essays, reports, portfolios, project proposals and briefs, CVs, poster presentation)
Practical (for example, oral and video presentations, laboratory work, performances, practical skills assessment)

In the final year of your undergraduate degree, and at the end of your postgraduate degree, you are likely to be expected to write an extended piece of work or research, such as a dissertation or a practice-based piece of research.

Student Support:

General University Support:

University Libraries are the key source of academic information for students. Libraries provide physical library resources (books, journals, DVDs, etc.) and offer a range of study areas to allow students to study in the environment that suit them best: Social areas, quiet and silent areas. Learning Centres also provide access to wide range of online information sources, including eBooks, e-Journals and subject databases. Libraries also provide students with academic skills support via the Skills for Learning programme. Students on campus can attend workshops or ask for one-to-one help on a range of skills such as academic writing and referencing. Students can access a range of online skills material at: www.wlv.ac.uk/lib/skills The University Student Support website offers advice on a variety of matters (careers, counselling, Student Union advice, etc.). Students can also access these services by booking appointment with the SU, careers, counselling services, etc.

Course Specific Support:

Each student will be allocated a personal tutor and will be expected to make contact at regular periods throughout their study. In addition there is a course leader in place that will advise on day to day course matters that may arise. University Libraries are the key source of academic information for students providing access to:

Physical library resources (books, journal, DVDs, etc.): Study areas to allow students to study in the environment that suits them best: Social areas, quiet and silent areas. A wide range of online information sources, including eBooks, e-journals and subject databases. Academic skills support via the

Skills for Learning programme. Students on campus can attend workshops or ask for one-to-one help on a range of skills such as academic writing and referencing. Dedicated Subject Pages to enable you to explore key online information sources that are recommended for their studies.

Leave of Absence: The University allows breaks in learning of up to two years and there is a process for applying for a leave of absence, which can be accessed through your e:Vision account. Initially you will need to apply for the leave of absence, which could be for medical, parental or personal reasons. A short-term absence, such as annual leave, must not be recorded as a break. The course leader will consider, and where appropriate agree, the leave of absence application. A return date will be identified and agreed for a suitable point in the programme. Additional course fees may be incurred as a result of a leave of absence and you are advised to discuss this with the Faculty Student Services team prior to application.

Employability in the Curriculum:

The programme's relevance to various industries, government agencies, and non-profit organisations is a key selling point. Graduates acquire skills and knowledge that are highly sought after in the job market, positioning them as valuable assets capable of making an immediate impact in the development of Mechanical Engineering Solutions.

Students on this programme will have a learning journey underpinned by the University's innovative research projects and strong links with industry. The course has been designed in close consultation with Mechanical Engineering experts and industrialists and utilises unique tools and platforms to deliver its core elements, skills and capabilities required in the field.