UNIVERSITY OF WOLVERHAMPTON

Course Specification

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Core Information

Awarding Body / Institution:	University of Wolverhampton		
School / Institute:	School of Architecture, Computing & Engineering		
Course Code(s):	MA034P01UF MA034P31UF	Full-time Part-time	12 Months 2 Years
Course Title:	MSc Mechanical Engineering		
Hierarchy of Awards:	Master of Science Mechanical Engineering Postgraduate Diploma Mechanical Engineering Postgraduate Certificate Mechanical Engineering University Statement of Credit Mechanical Engineering		
Language of Study:	English		
Date of DAG approval:	15/Sep/2025		
Last Review:	2024/5		
Course Specification valid from:			
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

Students should normally be educated to 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.

RPL will be granted, if appropriate, as part of the admissions process and then ratified by the FSE RPL committee. All non-standard applicants to this course will be dealt with on a case-by-case basis. In this instance, substantial professional experience can substitute for graduate status.

Normal University of Wolverhampton criteria for English will apply to students admitted to this course. This being IELTS 6.5 minimum or equivalent

Distinctive Features of the Course:

New teaching facilities are an integral part of a recent £10m investment at the University of Wolverhampton’s Telford Innovation Campus, which meets the teaching and learning requirements of students on this MSc course. All the specialist equipment needed for the delivery of the course including Solid Mechanics and Fluid Mechanics laboratories, Subsonic and Supersonic Wind Tunnels, Advanced Materials and Composites Analysis and Advanced Additive Manufacturing Engineering Facilities, already exist. The course will be underpinned by high quality teaching, highly experienced and qualified members of academic staff who are at the cutting-edge of research in their respective fields.

The course has been developed according to the UK Engineering Council's benchmark requirements for professional engineering, to ensure that our students enter the workforce with the broad expertise and relevant capabilities that employers’ value.

Educational Aims of the Course:

The most significant development in manufacturing engineering over the past twenty years has been the emergence of digital manufacturing. As mobile communication has made markets and consumers closer to each other, engineers have exploited new technologies to design and simulate more extensively, predicting demand and eliminating waste. Modern manufacturing techniques now exploit digital manufacturing globally both physically and meta-physically with point-of-use manufacturing that eliminates costly transportation and dramatically reduces CO2 emissions. In an ecosystem dominated by data, new challenges of big-data, data mining and cyber-security have become challenging whilst still maintaining fluidity within high-speed transactions and digital commerce.

This course in designed with international digital manufacturing at the heart, taking engineers from design and mechanical analysis through I-4.0 integration through to digital manufacturing of their design, developing engineers with the high-level abilities to make informed discissions in today’s manufacturing environment.

Intakes:

September
January

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
2021/2	H	31	£3275.00
2022/3	H	Full Time	£7995.00
2022/3	Overseas	Full Time	£14450.00
2022/3	H	31	£3998.00
2023/4	H	Full Time	£8395.00
2023/4	Overseas	Full Time	£15450.00
2023/4	H	31	£4198.00
2024/5	H	Full Time	£8815.00
2024/5	Overseas	Full Time	£15950.00
2024/5	H	31	£4408.00
2025/6	H	Full Time	£9088.00
2025/6	Overseas	Full Time	£16950.00
2025/6	H	31	£4544.00

PSRB:

None

Course Structure:

January (Full-time)

Module	Title	Credits	Period	Type
7MA043	Sustainable Additive Manufacturing Applications	30	SEM2	Core
7MA044	Applied High-Speed Machining	30	SEM2	Core
7MA038	MSc Dissertation	60	CRYRA	Core

January (Part-time)

Module	Title	Credits	Period	Type
7MA043	Sustainable Additive Manufacturing Applications	30	SEM2	Core

January (Full-time)

Module	Title	Credits	Period	Type
7MA040	Design optimisation and simulation	30	SEM1	Core
7MA042	Industry 4.0	30	SEM1	Core

January (Part-time)

Module	Title	Credits	Period	Type
7MA040	Design optimisation and simulation	30	SEM1	Core

January (Part-time)

Module	Title	Credits	Period	Type
7MA044	Applied High-Speed Machining	30	SEM2	Core
7MA038	MSc Dissertation	60	CRYRA	Core

January (Part-time)

Module	Title	Credits	Period	Type
7MA042	Industry 4.0	30	SEM1	Core

September (Full-time)

Module	Title	Credits	Period	Type
7MA040	Design optimisation and simulation	30	SEM1	Core
7MA042	Industry 4.0	30	SEM1	Core
7MA043	Sustainable Additive Manufacturing Applications	30	SEM2	Core
7MA044	Applied High-Speed Machining	30	SEM2	Core
7MA038	MSc Dissertation	60	CRYRA	Core

September (Part-time)

Module	Title	Credits	Period	Type
7MA040	Design optimisation and simulation	30	SEM1	Core
7MA043	Sustainable Additive Manufacturing Applications	30	SEM2	Core

September (Part-time)

Module	Title	Credits	Period	Type
7MA042	Industry 4.0	30	SEM1	Core
7MA044	Applied High-Speed Machining	30	SEM2	Core
7MA038	MSc Dissertation	60	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

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 CLO-1 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. (M1)	
PGCERT02 CLO-2 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. (M2)	
PGCERT03 CLO-3 Select and apply appropriate computational and analytical techniques to model complex problems, discussing the limitations of the techniques employed. (M3)	
PGCERT04 CLO-4 Select and critically evaluate technical literature and other sources of information to solve complex problems. (M4)	

Learning Outcomes	Modules
PGCERT05 CLO-5 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. (M5)	
PGCERT06 CLO-6 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 (M7) CLO-7 Function effectively as an individual, and as a member or leader of a team. Evaluate effectiveness of own and team performance. (M16) CLO-8 Communicate effectively on complex engineering matters with technical and non-technical audiences, evaluating the effectiveness of the methods used. (M17)	
PGDIP01 CLO-1 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. (M1)	
PGDIP02 CLO-2 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. (M2)	
PGDIP03 CLO-3 Select and apply appropriate computational and analytical techniques to model complex problems, discussing the limitations of the techniques employed. (M3)	
PGDIP04 CLO-4 Select and critically evaluate technical literature and other sources of information to solve complex problems. (M4)	
PGDIP05 CLO-5 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. (M5)	
PGDIP06 CLO-6 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 (M7) CLO-7 Function effectively as an individual, and as a member or leader of a team. Evaluate effectiveness of own and team performance. (M16) CLO-8 Communicate effectively on complex engineering matters with technical and non-technical audiences, evaluating the effectiveness of the methods used. (M17)	

Learning Outcomes	Modules
MA01 CLO-1 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. (M1)	
MA02 CLO-2 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. (M2)	
MA03 CLO-3 Select and apply appropriate computational and analytical techniques to model complex problems, discussing the limitations of the techniques employed. (M3)	
MA04 CLO-4 Select and critically evaluate technical literature and other sources of information to solve complex problems. (M4)	
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Teaching, Learning and Assessment:

You will have the opportunity to engage with a wide range of learning approaches during your studies. You will take part in lectures, seminars and laboratory exercises. Some of these will be more traditional whereas others will require you to undertake research before coming together to discuss technical issues with other students and academic staff. You will have seminars from industry practitioners where you can discuss your project ideas 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 our state-of-the-art IT Laboratories to develop practical skills and understand the link between the theory and practical implementation of integrated CAD, Simulation and Finite Element Analysis Techniques.. You will develop solutions to meet real world problems/requirements and be able to present these to your peers, practitioners and third parties to obtain balanced and current feedback.

The assessment methods used with the programme are varied, formative and will develop your transferable skills as well as your technical ability. The ability to plan, judge, communicate complex issues, solve problems logically, and develop original solutions, in appraising critically the work of others, and in managing your own learning are all significant contributors to determining your grade for a module.

Some modules on the course are assessed by a mixture of coursework and examination. The coursework is designed to assess practical skills and problem-solving ability whereas the examination will focus more on assessing knowledge and understanding. Some modules will be teaching practical

applied skills and so may be assessed entirely by coursework which might include laboratory work, report writing and presentations.

The learning strategy will promote the transferable skills gained during the course. These will include project management, analytical thinking, process application and materials analysis allowing you to pursue a career in Mechanical engineering. Where possible, you will be encouraged to undertake live industrial projects as part of your study, as this activity will assist those who may choose industrially based careers in research and development, design, or product development. In addition, the combination of materials knowledge, design capability and the understanding of applications for new and emerging technologies will provide you with a wide range of employment opportunities in technical/research environments across the world.

To further underpin the teaching and learning activity, research-led teaching activities will be a significant feature of this MSc course. Research within Engineering is currently being done in several areas including Additive Layer Manufacture, Metal Cutting, Finite Element Analysis, and Design and Process Development; all these areas are fully represented in the MSc course proposed.

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 Learning Centres are the key source of academic information for students. Learning Centres provide physical library resources (books, journal, 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.

Learning Centres 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 Learning Centres 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 course is aimed at students who wish to undertake a career in mechanical engineering administration and management. The examples and case studies used in the course are all designed to increase the students' knowledge of the theory and practice of mechanical engineering to enhance their employability.

This innovative course offers graduates excellent career prospects in a broad field of mechanical engineering related industries. It will also provide excellent preparation for those wishing to undertake a PhD or EngD . This course is a broad-based programme covering an important and industrially-relevant portfolio of mechanical engineering modules including Fluid Dynamics and Heat Transfer, Stress Analysis, Finite Element Analysis Techniques, Advanced Materials and Computer Aided Product Design.

This taught course offers a wide exposure to the philosophy and practice of Mechanical Engineering design whilst simultaneously enabling the students to deepen their knowledge of certain engineering disciplines, which have largely been chosen on the basis of our research and teaching strengths of the discipline in the school of Engineering.

Effective communication is an important employability skill for the modern professional engineer. This course includes sessions to help develop the ability, both through formal guidance sessions dedicated to good practice in report writing, and through oral/poster presentations of project work. This is designed to support the research project (worth 60 credits) which is undertaken throughout the duration of the course. Project work is assessed by dissertation and oral/poster presentations.