UNIVERSITY OF WOLVERHAMPTON

Course Specification

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Core Information

Awarding Body / Institution:	University of Wolverhampton		
School / Institute:	School of Architecture, Computing and Engineering		
Course Code(s):	MA032H01UF	Full-time	3 Years
UCAS Code:	H300		
Course Title:	BEng (Hons) Mechanical Engineering		
Hierarchy of Awards:	Bachelor of Engineering with Honours Mechanical Engineering Bachelor of Engineering Mechanical Engineering Diploma of Higher Education Mechanical Engineering Certificate of Higher Education Mechanical Engineering		
Language of Study:	English		
Date of DAG approval:	15/Sep/2025		
Last Review:	2025/6		
Course Specification valid from:	2024/5		
Course Specification valid to:	2030/1		

Academic Staff

Course Leader:	Andrew Barnett
Head of Department:	

Course Information

Location of Delivery:	University of Wolverhampton
Category of Partnership:	Standard Provision (Not delivered in partnership)
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

- 104 UCAS points

- A Levels - grades BCC including Maths and either a Technology or Science-based subject

- BTEC L3 Extended Diploma (Technology or Science-based subject) or OCR Cambridge L3 Technical Extended Diploma (Technology or Science-based subject) - grades DMM

- Access to HE Diploma (60 credits) of which a minimum of 45 must be at Level 3 (104 UCAS points equivalence) in a Maths, Science or Technology based subject.

Applicants will normally be expected to hold GCSE English and Maths at grade C+/4 or above (or equivalent)

Use the UCAS Tariff calculator to check your qualifications and points

Students must usually have studied for a minimum of two years post GCSE level. However, we will consider applications from mature students who do not have two years of post-16 study, where they have relevant work experience. Please see http://wlv.ac.uk/mature for further information.

If you've got other qualifications or relevant experience, please contact The Gateway for further advice before applying.

International entry requirements and application guidance can be found at http://www.wlv.ac.uk/international/apply

If you've got other qualifications or relevant experience, please contact the Gateway for further advice before applying.

Distinctive Features of the Course:

Elevate Your Engineering Career with BEng Mechanical Engineering!

Course Overview
Our BEng Mechanical Engineering course is designed to integrate five key engineering attributes:

1. Creativity,
2. Employability,
3. Professional Standards,
4. Sustainability, with
5. Specialist Skills,

The highlight? An industry-informed blend of theory and hands-on practice, preparing you to meet the challenges of the 21st-centuries engineering profession both domestically and internationally, and become an invaluable asset in high-value manufacturing organisations.

Year 1: Foundations and Fundamentals

- Core Concepts: Dive into essential engineering topics like Solid Mechanics and Thermodynamics understanding the vocabulary and principles of engineering.

- Industry-Led Projects: Collaborate on projects tackling real-world challenges such as sustainable manufacturing and innovative design solutions to existing projects.
- Cutting-Edge Skills: Get introduced to Computer Aided Design (CAD), Computational Fluid Dynamics (CFD), and Finite Element Analysis (FEA), crucial tools for the mechanical engineering sector.

Year 2: Specialisation and Depth
- Focused Learning: Hone your skills in designing and manufacturing key components using advanced technologies like Additive Layer Manufacturing (ALM) and High-Speed Machining processes.
- Advanced Computational Analysis: Delve deeper into CFD and FEA tailored to industry needs.
- Enterprise Project: Continue your interdisciplinary project, exploring unique aspects like structural integrity or thermal management with other engineers.

Year 3: Application and Innovation
- Applied Computational Knowledge: Further specialise and develop key professional skills that will enhance your employability.
- Practical Application: Excel in Computer Aided Manufacturing (CAM) and Industry 4.0 principles. Work on new models and functional parts using metal 3D-printing, manufacturing complex components from metal powders, including titanium and copper.
- Showcase Your Talent: Present your individual and group projects at our annual “Innovations Unleashed” event, celebrating with our network of industry leaders.

Distinctive Features
1. Project-Based Learning: Engage in hands-on, industry-led projects.
2. State-of-the-Art Tools: Excel in industry-standard CAD, CAM, CFD, FEA packages and practical skills.
3. Cutting Edge Facilities: Experience industry-standard facilities, from metal 3D printing to high-speed material removal processes.
4. Industry Connections: Tackle problems linked to mechanical, aerospace, motorsport, and other primary engineering sectors.
5. Networking Opportunities: Build a strong network with frequent industry interactions.
6. Expert Lecturers: Learn from leading experts in the field through the department’s specialist research and world-leading consultancy expertise.

Design your future: Develop skills of the future today and become the next designer, machinist, or project engineer in high-value manufacturing organisations!

Educational Aims of the Course:

Machine your future in Mechanical Engineering!

Why Choose This Course?

1. Comprehensive Knowledge of Mechanical Principles
Dive deep into the world of mechanical engineering with a solid foundation in core principles like thermodynamics, fluid mechanics, materials science, and design engineering. Plus, get ahead with advanced topics such as additive manufacturing and digital design techniques, ensuring you're ready for the future of engineering.

2. Hands-On Experience with Cutting-Edge Technologies
Get your hands on world-class 3D printing facilities, mechanical characterisation tools, and a fully equipped design studio. You'll design, fabricate, and test real mechanical components, bridging the gap between theory and practice and gaining a deeper understanding of engineering concepts.

3. Innovation through Manufacturing and Design
Join UWM (University of Wolverhampton Manufacturing), our professional practice group who explore creative solutions to real-world challenges through design and manufacture. These platforms will nurture your problem-solving and creative thinking skills, essential for designing cutting-edge mechanical systems with the support of fellow engineers from all levels of the course.

4. Industry-Relevant Skill Development
Combine practical training with theoretical learning to develop industry-relevant skills like precision manufacturing, product prototyping, and computational design. These capabilities will make you highly employable in sectors like automotive, aerospace, robotics, energy and many more.

5. Focus on Sustainability and Emerging Technologies

Embrace sustainable practices and explore emerging technologies such as additive manufacturing, smart materials and industry 4.0. You'll be trained to design efficient systems that meet global sustainability goals while maintaining sustainable high performance.

6. Leadership and Collaboration Opportunities
Engage in projects, competitions, and activities that foster teamwork, leadership, and communication skills. By managing interdisciplinary projects and presenting your work, you'll build confidence and become capable of leading an engineering team in a professional environment.

Intakes:

September

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
2020/1	H	Full Time / Sandwich	£9250.00
2020/1	Overseas	Full Time / Sandwich	£12250.00
2021/2	H	Full Time / Sandwich	£9250.00
2021/2	Overseas	Full Time / Sandwich	£12950.00
2022/3	H	Full Time / Sandwich	£9250.00
2022/3	Overseas	Full Time / Sandwich	£13450.00
2023/4	H	Full Time / Sandwich	£9250.00
2023/4	Overseas	Full Time / Sandwich	£14450.00
2024/5	H	Full Time / Sandwich	£9250.00
2024/5	Overseas	Full Time / Sandwich	£14950.00
2025/6	H	Full Time / Sandwich	£9535.00
2025/6	Overseas	Full Time / Sandwich	£15995.00
2026/7	H	Full Time / Sandwich	£9790.00
2026/7	Overseas	Full Time / Sandwich	£17600.00

PSRB:

None

Course Structure:

September (Full-time)

Full time and Sandwich Undergraduate Honours students normally study 120 credits per academic year.

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
4MA031	Engineering Principles	40	YEAR	Core
4MA032	Engineering Analysis	40	YEAR	Core
4MA033	Engineering Practice	40	YEAR	Core

September (Full-time)

Full time and Sandwich Undergraduate Honours students normally study 120 credits per academic year.

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
5MA046	Applied Computational Engineering Analysis	40	YEAR	Core
5MA047	Applied Instrumentation and Control	20	SEM2	Core
5MA052	Thermofluids Engineering and Applications	20	SEM1	Core
5MA049	Enterprising Group Innovation project	40	YEAR	Core

September (Full-time)

Full time and Sandwich Undergraduate Honours students normally study 120 credits per academic year.

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
6MA058	Advanced Digital Design and Manufacturing	40	YEAR	Core
6MA057	Digital Manufacturing Methods and Enterprise	40	YEAR	Core
6MA054	Individual Innovation project	40	YEAR	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

Regulations Exemption:

Section 4.6.2 - A maximum of 30 credits can be compensated for a bachelors degree. Major individual project modules (40 credits) cannot be compensated.
Section 6.2.4 - The best 180 credits, including the project modules at Level 5 and Level 6, count towards degree classification.

Reference Points:

UK Quality Code for Higher Education

Qualifications and Credit Frameworks

Subject Benchmark Statements

University Policies and Regulations

University Inclusive Framework

Equality Act (2010)

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
CERTHE01 Science and Maths: Demonstrate knowledge of the underlying concepts and principles associated with mechanical engineering, and an ability to evaluate and interpret these within the context of mechanical projects.	
CERTHE02 Engineering Analysis: Demonstrate an ability to present, evaluate and interpret qualitative and quantitative data in mechanical engineering, in order to develop lines of argument and make sound judgements in accordance with basic theories and concepts of mechanical principles. Evaluate the appropriateness of different approaches to solving problems related to mechanical engineering and/or projects.	
CERTHE03 Design and Innovation: Apply basic project-specific aerospace principles including in the workplace, where relevant.	
CERTHE04 The Engineer and Society: Communicate the results of your mechanical study/work accurately and reliably, and with structured and coherent arguments.	
CERTHE05 Engineering Practice: Demonstrate the qualities and transferable skills necessary for employment in the mechanical industry, requiring the exercise of some personal responsibility.	
DIPHE01 Science and Maths: Show understanding and critical understanding of the core principles of mechanical engineering, how they have evolved, and recognise the limits of your knowledge and its impact on analysis and interpretation within mechanical projects.	
DIPHE02 Engineering Analysis: Demonstrate the ability to apply the underlying concepts in mechanical engineering, critically evaluate different problem-solving approaches, and use established techniques to analyse information and propose solutions in mechanical projects.	
DIPHE03 Design and Innovation: Apply fundamental mechanical principles in new contexts, including in the workplace, where relevant.	
DIPHE04 The Engineer and Society: Communicate effectively information, arguments, and analyses of key engineering concepts to both specialist and non-specialist audiences.	

Learning Outcomes	Modules
DIPHE05 Engineering Practice: Demonstrate transferable skills for employment in the mechanical industry, including personal responsibility, decision-making, and the ability to undertake further training, developing existing skills and acquire new competences that will enable them to assume significant responsibility within organisations.	
BHONSN01 Science and Maths: Apply advanced knowledge of mathematics, statistics, natural science, and mechanical engineering principles to analyse and solve complex problems in the mechanical industry.	
BHONSN02 Engineering Analysis: Utilise computational and analytical techniques, along with mechanical technical literature, to model and address complex problems in mechanical projects.	
BHONSN03 Design and Innovation: Design integrated mechanical solutions for complex problems that meet diverse needs while considering health, safety, societal, environmental, and commercial factors specific to the mechanical industry.	
BHONSN04 The Engineer and Society: Evaluate and minimise the environmental and societal impacts of mechanical engineering solutions, make ethical decisions, and support equality, diversity, and inclusion within mechanical principles.	
BHONSN05 Engineering Practice: Demonstrate and develop practical skills, appropriate materials, and technologies in mechanical engineering, manage risks, ensure quality, and communicate effectively while continuously developing professionally in mechanical projects.	
BHONS01 Science and Maths: Apply advanced knowledge of mathematics, statistics, natural science, and mechanical engineering principles to analyse and solve complex problems in the mechanical industry.	
BHONS02 Engineering Analysis: Utilise computational and analytical techniques, along with mechanical technical literature, to model and address complex problems in mechanical projects.	
BHONS03 Design and Innovation: Design integrated mechanical solutions for complex problems that meet diverse needs while considering health, safety, societal, environmental, and commercial factors specific to the mechanical industry.	
BHONS04 The Engineer and Society: Evaluate and minimise the environmental and societal impacts of mechanical engineering solutions, make ethical decisions, and support equality, diversity, and inclusion within mechanical principles.	
BHONS05 Engineering Practice: Demonstrate and develop practical skills, appropriate materials, and technologies in mechanical engineering, manage risks, ensure quality, and communicate effectively while continuously developing professionally in mechanical projects.	

Learning Outcomes	Modules
BHONS06 Research and Development: Demonstrate the ability to conceptualise, design, and solve a complex mechanical project supported by technical literature review and critically developed milestones, and generate a technical report.	

Teaching, Learning & Assessment Strategy/(Learning and Teaching):

- Industry-Informed Content: Course structure and content informed by industrial partners and our championship-winning racing team, enhancing practical learning and industry readiness.

- Industry Interaction: Learn from guest lectures by industry professionals and insights from experienced alumni, enhancing both learning and employability.

- Project-Based Learning: Apply problem-solving techniques through design projects and case studies.

- Real-World Solutions: Provide innovative solutions to meet real-world engineering problems and requirements.

- Software and Simulation: Use computer software and hardware to model and simulate engineering systems and products.

- Small Group Tutorials: Personalized instruction in small groups to enhance learning and provide tailored support.

- Formative and Summative Assessments: Combination of ongoing formative assessments to guide learning and summative assessments to evaluate overall mastery.

- Personalized Assessments: Experience thorough evaluations designed to enhance your unique strengths and foster your growth, tailored to your individual skills.

- Research and Criticality: Core and supplementary texts, journals, and electronic sources to stay updated with the latest developments, critically gauge and inform your design decisions.

- Club Activities and Team Projects: Participate in UWM – Manufacturing club and other team-based projects to develop teamwork skills in a multi-disciplinary environment.

- Written and Oral Presentations: Prepare and present analytical and textual reports, both individually and in groups.

- Systematic Methods: Apply structured methods to develop novel solutions and critically examine data.

- Build your expertise: Learn new skills and build your own skill-set following an evidence based certification by experts.

- Innovation Unleashed: annual engineering innovation fair celebrating student success and offering networking opportunities.

- Employability: Set yourself ahead of the competition by networking with our industrial partners from your first year and building the confidence to engage in fruitful discussions and interviews.

Unique assessment structure with:

- 40% Fundamentals: Continuously assessed throughout the semesters.

- 60% Specialisation: Focused on specialised skills and advanced knowledge within your Discipline.

Assessment Methods/Assessments:

Further Information for Student:

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 also has a host of other services to support you, please take a look at the Student Support website: www.wlv.ac.uk/current-students/student-support/ . If you have any questions, need help or advice then ASK@WLV is there for you: www.wlv.ac.uk/current-students/askwlv/.

Course Specific Support

1. Small-group tutorial sessions in mathematics

2. Report writing and oral/presentation communications skills

3. Learning centre – literature searches and information searches

4. Practical/lab/experimental activities and reporting

5. Research for project work (plus group assignments at L5/6)

6. Promotion of independent learning via project-based learning.

University provided support

As well as providing general counselling support the University Counselling Service provides short courses on topics such as "Self Confidence", "Stress Management and Relaxation" and "Life Skills". They also provide study skills and academic support, providing short courses such as provide help in areas such as "Writing and Assignment Skills", "Exam Techniques", "Enhancing Professional Skills", "Personal Development Planning" and "Making Choices for the Future."

The Learning and Skills Team in Learning and Information Services (LIS) offer year around academic skills support and guidance to all students. Students who are new to academic study and unsure of how to get started, or any student who wants to improve on their academic performance can attend drop-in sessions and workshops, or obtain advice via email or Skype. More details about how the Learning and Skills Team can help you are available at: http://www/wlv.ac.uk

Currency:

Personalisation Opportunities:

Employability in the Curriculum/Employability and Professional Development:

Competitive Edge:
- Practical skills, industry-specific knowledge, strong engineering background.
- Development of soft skills: problem-solving, teamwork, communication, and adaptability.

Learning Experience:
- Internships, workshops, and practical-based learning.
- Acquisition of theoretical knowledge.
- Unleash your creative via frequent project work.

Career Readiness:
- Curriculum aligned with industry requirements.
- Seamless transition from education to employment.

- Equipping graduates with in-demand skills sought by employers.
- Enhanced employability prospects.
- Regular industrial engagement experiences.

Employment Opportunities:
- Wide range of opportunities in technical environments globally.
- Careers in:
1. High-value manufacturing
2. Research and Development
3. Transportation
4. High Performance Technical Consultancy (Motorsport, Aerospace and beyond)

