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):	MA033H01UF MA033H31UF	Full-time Part-time	3 Years 6 Years
Course Title:	BEng (Hons) Chemical Engineering		
Hierarchy of Awards:	Bachelor of Engineering with Honours Chemical Engineering Bachelor of Engineering Chemical Engineering Diploma of Higher Education Chemical Engineering Certificate of Higher Education Chemical 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:	TOHID NEJADGHAFFAR BORHANI
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

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- 104 UCAS points

- A Level minimum of BBC. One A Level must include Maths at grade B or above. Chemistry should also be passed wth grade B or C.

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

- BTEC QCF Extended Diploma grade MMM, BTEC QCF Diploma grade DM

- 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 here Other Requirements

Other requirements:

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:

Chemical Engineering at Wolverhampton is industry focused and aims to prepare students to tackle challenges facing chemical and allied industries in the 21st century.

There are modules in the programme reviewing specialist issues of sustainability and life cycle engineering of products and processes addressed holistically and concurrently. The USP’s of this course are:

- Experience Real-World Engineering on a Pilot Plant Scale:

Step into the future of chemical engineering with hands-on access to distillation columns, adsorption units, and cutting-edge reactors at a pilot plant scale. These industrial-grade facilities let you transition seamlessly from the classroom to the plant floor, mastering the art of process design and optimisation.

- Master Tomorrow’s Technologies, Today:

Dive deep into sustainable innovations with a dedicated focus on carbon capture technologies. Learn how to tackle the world’s greatest environmental challenges while gaining expertise in clean, green, and groundbreaking solutions that set you apart in a competitive job market.

- State-of-the-Art Testing and Simulation Tools:

Designed to prepare you for a successful career in the industry, our cutting-edge testing equipment and industry standard simulation software facilitate the refinement of process models and the evaluation of system efficiencies.

- Elite Industry Connections and Collaboration:

Work alongside top chemical engineering firms through internships and live projects. Build a network of industry mentors while solving real-world problems and positioning yourself as a go-to expert for the next big engineering challenge.

- Design Projects That Define Your Career:

Push boundaries in team-based design challenges, tackling complex chemical processes and turning them into elegant, efficient systems. These high-stakes projects give you the chance to innovate, lead, and leave your unique mark on the chemical engineering world.

Educational Aims of the Course:

Chemical engineering is at the heart of innovation, sustainability, and global progress. This course is designed to ignite your passion for problem-solving, fuel your creativity, and prepare you for a future where your skills will shape industries and change the world. With cutting-edge facilities, real-world applications, and a focus on emerging technologies, this program starts your graduate career as a leader in the dynamic field of chemical, process and formulation engineering.

Strong Foundation in Core Principles:

Equip students with a deep understanding of chemical engineering fundamentals, including process design, simulation, thermodynamics, fluid mechanics, heat and mass transfer, and reaction engineering, essential for tackling industrial challenges.

Hands-On Experience with Pilot-Scale Systems:

Provide practical experience on distillation columns, adsorption units, reactors, and carbon capture systems at a pilot plant scale, bridging the gap between theoretical knowledge and real-world applications.

Focus on Sustainability and Environment:

Instil a commitment to sustainability by teaching students to design and implement eco-friendly processes, including the development of alternative renewable technologies to address climate change challenges.

Development of Analytical and Problem-Solving Skills:

Train students to critically analyse complex engineering problems, using first principles and simulation tools to develop innovative and effective solutions.

Proficiency in Advanced Tools and Technologies:

Introduce students to modern testing equipment and industry standard simulation software to enhance their computational and experimental skills, ensuring readiness for high-tech industrial roles.

Integration of Design and Innovation:

Foster creativity through team-based design projects, enabling students to conceptualise, model, and optimise chemical processes, preparing them for leadership roles in engineering innovation.

Industry-Driven Learning:

Curriculum co-creation with industry driven learning ensures that academic content is aligned with real-

world industry demands, providing students with relevant skills and practical experience. By collaborating with industry, the curriculum remains dynamic, preparing graduates to tackle current and future challenges in their field.

Preparation for Lifelong Learning and Research:

Encourage a mindset of continuous improvement and innovation, enabling graduates to pursue advanced research or adapt to evolving technologies in the dynamic field of chemical and wider engineering applications.

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
2020/1	H	Part Time	£3050.00
2020/1	Overseas	Part Time	£6125.00
2021/2	H	Full Time / Sandwich	£9250.00
2021/2	Overseas	Full Time / Sandwich	£12950.00
2021/2	H	Part Time	£3100.00
2022/3	H	Full Time / Sandwich	£9250.00
2022/3	Overseas	Full Time / Sandwich	£13450.00
2022/3	H	Part Time	£3120.00
2023/4	H	Full Time / Sandwich	£9250.00
2023/4	Overseas	Full Time / Sandwich	£14450.00
2023/4	H	Part Time	£4625
2024/5	H	Full Time / Sandwich	£9250.00
2024/5	Overseas	Full Time / Sandwich	£14950.00
2024/5	H	Part Time	£4625.00
2025/6	H	Full Time / Sandwich	£9535.00
2025/6	Overseas	Full Time / Sandwich	£15995.00
2025/6	H	Part Time	£4768.00

PSRB:

None

Course Structure:

September (Full-time)

Module	Title	Credits	Period	Type
4ET011	Principles of Chemical Engineering	20	SEM1	Core
4CH003	Fundamentals of Organic Chemistry	20	SEM1	Core
4MA002	Engineering Materials	20	SEM1	Core
4MM028	Engineering Mathematics II	20	SEM2	Core
4ET012	Unit Operations	20	SEM2	Core
4ET004	Thermodynamics and Fluids I	20	SEM2	Core

September (Full-time)

Module	Title	Credits	Period	Type
5ET030	Transport Processes	20	SEM1	Core
5ET032	Fluid Mechanics and Multiphase Systems	20	SEM1	Core
5ET015	Reaction Engineering	20	SEM1	Core
5MA053	Process Modelling and Simulation	20	SEM2	Core
5ET014	Unit Processes and design	20	SEM2	Core
5MA054	System Dynamic and Control	20	SEM2	Core

September (Full-time)

Module	Title	Credits	Period	Type
6ET025	Environmental Engineering	20	SEM1	Core
6ET015	Safety and Engineering Practice	20	SEM1	Core
6ET012	Design Project	40	YEAR	Core
6MA059	Green Energy and Renewable Technologies	20	SEM2	Core
6MA027	Discovery, research and specialism	20	SEM2	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:

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 chemical engineering, and an ability to evaluate and interpret these within the context of chemical engineering projects.	
CERTHE02 Engineering Analysis: Demonstrate the capability to analyse, interpret, and present both qualitative and quantitative data in chemical engineering, enabling the development of well-reasoned arguments and informed judgments aligned with fundamental principles and theories of chemical engineering. Evaluate the suitability and effectiveness of various approaches to solving problems in chemical engineering and related projects, considering their limitations, feasibility, and impact.	
CERTHE03 Design and Innovation: Utilise an integrated or systems-based approach to address and solve complex challenges in chemical engineering, considering interrelated processes, sustainability, and optimisation.	
CERTHE04 The Engineer and Society: Communicate the results of your chemical engineering study/work accurately and reliably, using structured and coherent arguments to support your findings and conclusions.	
CERTHE05 Engineering Practice: Demonstrate the qualities and transferable skills necessary for employment in the chemical engineering industry, requiring the exercise of personal responsibility and professional competence.	
DIPHE01 Science and Maths: Critically analyse and demonstrate a deep understanding of the core principles of chemical engineering, their evolution over time, and the limitations of your knowledge, acknowledging how these constraints influence the analysis, interpretation, and decision-making within chemical engineering projects.	

Learning Outcomes	Modules
DIPHE02 Engineering Analysis: Demonstrate a comprehensive ability to apply fundamental concepts in chemical engineering, critically assess various problem-solving methodologies, and effectively utilise established analytical techniques to interpret complex data, evaluate alternative solutions, and formulate well-founded strategies for addressing challenges in chemical engineering projects.	
DIPHE03 Design and Innovation: Apply fundamental chemical engineering principles in diverse and evolving contexts, including industrial and workplace settings, by integrating theoretical knowledge with practical applications to develop innovative, sustainable, and efficient solutions to engineering challenges.	
DIPHE04 The Engineer and Society: Demonstrate the ability to communicate complex chemical engineering concepts, analyses, and arguments effectively to both specialist and non-specialist audiences, ensuring clarity, coherence, and relevance while considering the broader societal, ethical, and environmental implications of engineering practices.	
DIPHE05 Engineering Practice: Ability to apply advanced problem-solving techniques in complex engineering systems, while ensuring personal accountability in project management, fostering collaborative decision-making, and continuously pursuing professional development through the integration of cutting-edge technologies and interdisciplinary knowledge.	
BHONSN01 Science and Maths: Integrate advanced mathematical models, statistical analysis, and core principles of chemical engineering to critically evaluate and innovate solutions for optimising process plant, while considering the interplay of sustainability, safety, and operational efficiency in complex engineering environments.	
BHONSN02 Engineering Analysis: Leverage cutting-edge computational tools, analytical methods, and chemical engineering-specific technical literature to conduct in-depth simulations, and develop robust solutions to intricate challenges, ensuring accuracy, scalability, and alignment with industry standards.	
BHONSN03 Design and Innovation: Apply advanced design principles to develop innovative, sustainable chemical engineering solutions, integrating multi-disciplinary knowledge to address complex challenges while rigorously evaluating health, safety, environmental, societal, and economic impacts, ensuring compliance with industry regulations and driving technological advancements in chemical processes.	
BHONSN04 The Engineer and Society: Critically assess the environmental and societal impacts of chemical processes, making ethically sound decisions that prioritise sustainability, safety, and social responsibility, while actively promoting equality, diversity, and inclusion in the development of chemical engineering solutions and industry practices.	

Learning Outcomes	Modules
BHONSN05 Engineering Practice: Demonstrate and develop practical skills in selecting and utilising advanced materials, technologies, and processes, effectively managing risks, ensuring stringent quality control, and demonstrating leadership in communication and teamwork, while committing to continuous professional development to meet the evolving challenges of the chemical engineering field.	
BHONS01 Science and Maths: Integrate advanced mathematical models, statistical analysis, and core principles of chemical engineering to critically evaluate and innovate solutions for optimising process plant, while considering the interplay of sustainability, safety, and operational efficiency in complex engineering environments.	
BHONS02 Engineering Analysis: Leverage cutting-edge computational tools, analytical methods, and chemical engineering-specific technical literature to conduct in-depth simulations, and develop robust solutions to intricate challenges, ensuring accuracy, scalability, and alignment with industry standards.	
BHONS03 Design and Innovation: Apply advanced design principles to develop innovative, sustainable chemical engineering solutions, integrating multi-disciplinary knowledge to address complex challenges while rigorously evaluating health, safety, environmental, societal, and economic impacts, ensuring compliance with industry regulations and driving technological advancements in chemical processes.	
BHONS04 The Engineer and Society: Critically assess the environmental and societal impacts of chemical processes, making ethically sound decisions that prioritise sustainability, safety, and social responsibility, while actively promoting equality, diversity, and inclusion in the development of chemical engineering solutions and industry practices.	
BHONS05 Engineering Practice: Demonstrate and develop practical skills in selecting and utilising advanced materials, technologies, and processes, effectively managing risks, ensuring stringent quality control, and demonstrating leadership in communication and teamwork, while committing to continuous professional development to meet the evolving challenges of the chemical engineering field.	
BHONS06 Research and Development: Integrate advanced scientific principles and engineering methodologies to conceptualize, design, and optimise a complex chemical process or system, conducting a rigorous technical literature review, establishing critically evaluated milestones, and delivering a comprehensive technical report that demonstrates analytical depth, innovation, sustainability considerations, and industry relevance.	

Teaching, Learning and Assessment:

The teaching, learning, and assessment strategy is designed to ensure students achieve the defined learning outcomes effectively and holistically.

Learning Activities

A diverse array of interactive lectures, practical laboratory experiences, tutorials, and project-based learning initiatives constitutes the foundation of the curriculum. The integration of advanced simulation tools, pilot-scale equipment, and real-world case studies into the learning process enhances students' practical understanding. Group design projects and problem-solving workshops stimulate collaboration and creativity, effectively preparing students for future professional challenges. Furthermore, independent research and guided studies contribute to the enhancement of critical thinking and self-directed learning abilities.

Assessment Methods

The integration of both formative and summative assessments is essential for a holistic evaluation of student capabilities. Formative assessments, which may include quizzes, tutorials, and group presentations, provide continuous feedback that facilitates student growth. On the other hand, summative assessments involve written examinations, technical reports, laboratory performance, and evaluations of significant design projects. Design projects are critical in assessing students' ability to apply their knowledge to resolve complex, real-world problems.

Support for Learning

The educational framework provides students with access to cutting-edge facilities, digital learning platforms, and a network of industry partners. Continuous feedback, personalised academic consultations, and workshops dedicated to research techniques and technical writing serve to improve learning outcomes. Furthermore, peer learning experiences, such as collaborative group activities and industry partnerships, greatly enrich the overall educational process.

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 and digital library resources 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 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 Faculty 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. Formative feedback- tutors provide personalised feedback on summative assessments. Tutors will also 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 modules that have written exam-like tests and enable you to interact with tutors to review parts of the course. Tests provide opportunities to experience an examination environment before the final summative test and give you feedback on your understanding.

International Students:

The International Office 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 University Student Union will also promote the integration of international students into the whole of the University's learning community. Students will be encouraged to attend relevant industrial and professional conferences.

Employability in the Curriculum:

The Chemical Engineering curriculum is designed to prepare students for dynamic and lucrative careers by equipping them with in-demand skills, practical experience, and a deep understanding of modern challenges. Key elements include:

Practical Learning with Industry-Scale Equipment:

Students work with pilot-scale distillation columns, adsorption units, reactors, and carbon capture systems. These hands-on experiences mirror real-world operations, ensuring graduates are well-prepared for industrial roles.

Training in Advanced Tools and Technologies:

The curriculum includes the use of industry standard state-of-the-art simulation software and testing equipment. Proficiency in these tools aligns students with industry expectations for modern engineering practices.

Design and Innovation Projects:

Team-based design challenges (set by industry) simulate professional engineering environments, encouraging creativity, problem-solving, and systems thinking—skills highly valued by employers.

Focus on Industry-Relevant Topics:

Modules on sustainability, process optimisation, and green technologies ensure students are equipped to address contemporary challenges in energy, environment, and manufacturing sectors.

Industrial Collaborations and Internships:

Partnerships with companies provide opportunities for internships, mentorship, and live projects,

offering insights into professional practices and enhancing job readiness.

Development of Soft Skills:

Through presentations, teamwork, and interdisciplinary projects, students build communication, leadership, and collaboration skills critical for workplace success.

Adaptation to Emerging Trends:

The curriculum is continuously updated to incorporate cutting-edge advancements in plant design, bioengineering, and sustainability, equipping graduates with the latest industry knowledge and skills. This dynamic approach ensures that students are not only prepared for current job market demands but also stay ahead of emerging trends, making them highly competitive and employable in a rapidly evolving workforce.

