Programme Specification (Undergraduate) FOR ENTRY YEAR: 2024/25

Date created: n/a **Last amended:** 06/03/2026 **Version no.** 3

1. Programme title(s) and code(s):

BEng Mechanical Engineering

Dip HE Mechanical Engineering*

Cert HE Mechanical Engineering*

* An award marked with an asterisk is only available as an exit award and is not available for students to register onto.

a) HECOS Code

HECOS Code	%
100190	100

b) UCAS Code (where required)

H300

2. Awarding body or institution:

University of Leicester

3. a) Mode of study

Full-time

b) Type of study

Campus-based in Panjin Campus DUT.

4. Registration periods:

Bachelor of Engineering (Mechanical)

The normal period of registration is 4 years

The maximum period of registration 6 years

5. Typical entry requirements

All students that have followed the Chinese school and qualification system must be from the same Gaokao group (the top group out of four) as students entering other DUT undergraduate programmes. Students must also possess a sufficient level of English language to enable such students to undertake studies with the English language as the teaching medium;

For Year 1 entry, a Gaokao English language score of 70% for English language or an IELTS score of 5.0 will be required. After intensive English language teaching in Year 1, students will be required to demonstrate CEFR Level B2 in English language (otherwise IELTS 6.0).

6. Accreditation of Prior Learning

APL will not be accepted for exemptions from individual modules, however may be considered for direct entry to year 2, on a case by case and subject to the general provisions of the University APL policy.

7. Programme aims

All the variants of the programmes aim to satisfy the criteria of the accrediting engineering institutions in preparation for future application of the accreditation. These are based on the Engineering Council's Accreditation of Higher Education Programmes (AHEP) learning outcomes. These are defined in 6 overarching outcomes:

- Science and Mathematics (SM),
- Engineering Analysis (EA),
- Design (D),
- Economic, Legal, social, ethical and environmental context (EL)
- Engineering Practice (P)
- Additional General Skills (G).

Programme-level Intended Learning Outcomes for the degrees programmes are mapped, using the shorthand codes above, to these overarching outcomes in section 9 - Programme Outcomes below. Each of these overarching outcomes is divided into a maximum of 11 specific outcomes (e.g. P1 – P11). These are mapped to module-level Intended Learning Outcomes and assessment elements, and are detailed in the module specifications.

The BEng programme aims to

1. provide a curriculum that is enjoyable and motivating and which creates enthusiasm for engineering through the challenge of responding to interesting engineering problems;
2. provide students with the breadth of understanding in relevant science and mathematics to allow analysis and design of Mechanical Engineering systems that improve quality of life through being able to integrate knowledge from other engineering disciplines.
3. develop students' knowledge and understanding of the tools and techniques used for modelling, analysis, design and control of complex Mechanical engineering systems;
4. develop students' detailed knowledge and understanding of engineering applications used in research and industry;
5. cultivate the synergy between teaching and research; and
6. foster students' independent learning and organisational skills.

8. Reference points used to inform the programme specification

- QAA Benchmarking Statement
- Framework for Higher Education Qualifications (FHEQ)
- UK Quality Code for Higher Education
- Engineering Accreditation Board (EAB) Bachelors and Integrated Masters Degree Learning Outcomes (AHEP 3rd Edition)
- UK-SPEC (UK Standard for Professional Engineering Competence)
- Engineering Council Compensation and Condonement requirements November 2018.
- University Education Strategy
- University Assessment Strategy
- University of Leicester Periodic Developmental Review Report
- External Examiners' reports (annual)
- United Nations Education for Sustainable Development Goals

- Student Destinations Data

9. Programme Outcomes

Unless otherwise stated, programme outcomes apply to all awards specified in 1. Programme title(s).

a) Discipline specific knowledge and competencies

i) Mastery of an appropriate body of knowledge

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Demonstrate knowledge of the scientific and mathematical principles and techniques necessary for a Mechanical Engineer, including materials, applied thermodynamics, fluids, dynamics, structures, failure mechanisms (SM).	Lectures, tutorials, seminars, laboratory practicals, directed reading, independent research, resource-based learning.	Lectures, tutorials, seminars, laboratory practicals, directed reading, independent research, resource-based learning.

ii) Understanding and application of key concepts and techniques

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Demonstrate knowledge, understanding and application of appropriate mathematical, computational and scientific techniques and methods for modelling and analysing Mechanical engineering problems (SM, EA).	Lectures, tutorials, surgeries problem solving classes, computer practical classes, example sheets.	Examinations, laboratory reports, seminar presentations, contributions to discussions, problem-based exercises, design tasks, simulation exercises, group projects, independent projects.
Demonstrate knowledge and understanding of the design process and design methodologies used in the discipline (D)	Lectures, tutorials, surgeries problem solving classes, independent research, project supervision.	Examinations, laboratory reports, seminar presentations, contributions to discussions, problem-based exercises, design tasks, simulation exercises, group projects, independent projects.
Demonstrate knowledge and understanding of management and business practices that influence an engineer's work (EL).	Lectures, tutorials, independent research, project supervision.	Examinations, laboratory reports, seminar presentations, contributions to discussions, problem-based exercises, design tasks, simulation exercises, group projects, independent projects.
Demonstrate knowledge and understanding of manufacturing and/or operational practice (P).	Lectures, tutorials, independent research, project supervision.	Examinations, laboratory reports, seminar presentations, contributions to discussions, problem-based exercises, design tasks, simulation exercises, group projects, independent projects.

iii) Critical analysis of key issues

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Apply scientific principles to model and analyse engineering systems, processes and products (SM).	Lectures, tutorials, surgeries problem solving classes computer practical classes, example sheets.	Examinations, laboratory reports, seminar presentations, contributions to discussions, problem-based exercises, design tasks, simulation exercises, group projects, independent projects.
Analyse systems, processes or components as part of the design process.	Lectures, tutorials, surgeries problem solving classes computer practical classes, example sheets.	Examinations, laboratory reports, seminar presentations, contributions to discussions, problem-based exercises, design tasks, simulation exercises, group projects, independent projects.
Evaluate commercial risks and technical risks (EL).	Problem solving exercises, independent research projects, group projects.	Examinations, laboratory reports, seminar presentations, contributions to discussions, problem-based exercises, design tasks, simulation exercises, group projects, independent projects.

iv) Clear and concise presentation of material

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Interpret and report results, presenting data in alternative forms suitable for a range of different audiences in order to create deeper understanding and/or greater impact (D, P, G).	Lectures, seminars, masterclasses.	Written assignments, exhibitions, poster displays, reports, independent research projects.

v) Critical appraisal of evidence with appropriate insight

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Select and apply appropriate computer-based methods for modelling and analysing engineering problems (EA)	Computer practical classes, lectures, surgeries.	Computer-based exercises, simulation exercises, research projects.
Evaluate customer and user needs taking into account the wider engineering context (D)	Design tasks, laboratory practicals, simulation exercises, group projects, work placement	Problem solving exercises, simulations, exhibitions, independent research.

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Create and design new processes or products to fulfil a specified requirement through synthesis of ideas from a wide range of sources (D).	Design tasks, laboratory practicals, simulation exercises, group projects.	Problem solving exercises, simulations, exhibitions, independent research.
Perform practical testing, technical analysis and critical evaluation of design ideas in laboratory or through simulation (P)	Design tasks, laboratory practicals, simulation exercises, group projects, , group projects.	Laboratory examinations, laboratory reports, simulation reports.

vi) Other discipline specific competencies

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Select and use appropriate test and measurement instrumentation (P).	Laboratory practicals, group research projects, independent research projects.	Laboratory reports, examinations, projects reports.
Select and conduct appropriate experimental procedures (P).	Laboratory practicals, design tasks, independent research.	Laboratory reports, examinations, project reports.
Demonstrate knowledge and understanding of manufacturing and/or operational practice (P)	Manufacturing skills programme, work placement.	Laboratory reports, written assignments, work placement report.
Apply understanding of codes of practice related to hazards and operational safety to ensure good working practices and effective risk management (EL).	Laboratory practicals, design tasks, independent research.	Laboratory reports, written assignments.

b) Transferable skills

i) Oral communication

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Present technical and business information orally, in an appropriate form for a given audience (D, G).	Tutorials, group projects, independent research, project supervision.	Oral presentations, portfolio.

ii) Written communication

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Communicate business and technical information in an appropriate written form for a given audience (D).	Lectures, group projects, independent research, project supervision.	Written assignments, laboratory reports, essays, independent project reports.
Report on a practical or simulation test of a design solution including analysis and discussion of the results (D).	Lectures, group projects, independent research, project supervision.	Written assignments, laboratory reports, essays, independent project reports.

iii) Information technology

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Use standard and specialist engineering IT software confidently to conduct and report on engineering analysis and projects (G).	Lectures, group projects, independent research, project supervision.	Written assignments, laboratory reports, essays, independent project reports.

iv) Numeracy

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Manipulate and sort data to generate new data sets (SM, EA).	Problem-solving classes, research projects.	Computer-based exercises, written assignments, poster displays, oral presentations.
Manipulate and present data in alternative formats to create deeper understanding or greater impact (EA, D).	Problem-solving classes, research projects.	Computer-based exercises, written assignments, poster displays, oral presentations.

v) Team working

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Work collaboratively as part of an engineering team undertaking a range of different team roles (P).	Tutorials, masterclasses, project supervision, induction programmes.	Learning logs/diaries, learning portfolios, group projects, simulation exercises.

vi) Problem solving

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Solve problems through the integration of knowledge of mathematics, science, information technology, design, business context and engineering practice (SM, EA).	Project supervision, lectures, tutorials, example sheets, simulation exercises, laboratory based exercises, computer-based exercises, independent research projects, group projects.	Individual research projects, oral presentations, project reports, problem-based examinations, practical demonstrations.
Select & analyse appropriate evidence to solve non-routine problems (EA, D).	Project supervision, lectures, tutorials, example sheets, simulation exercises, laboratory based exercises, computer-based exercises, independent research projects, group projects.	Individual research projects, oral presentations, project reports, problem-based examinations, practical demonstrations.
Use systematic analysis and design methods to solve problems in unfamiliar situations (D).	Project supervision, lectures, tutorials, example sheets, simulation exercises, laboratory based exercises, computer-based exercises, independent research projects, group projects.	Individual research projects, oral presentations, project reports, problem-based examinations, practical demonstrations.
Use creativity and innovation to solve problems (D).	Project supervision, lectures, tutorials, example sheets, simulation exercises, laboratory based exercises, computer-based exercises, independent research projects, group projects.	Individual research projects, oral presentations, project reports, problem-based examinations, practical demonstrations.
Apply standard management techniques to plan and allocate resources to projects (EL).	Project supervision, lectures, tutorials, example sheets, simulation exercises, laboratory based exercises, computer-based exercises, independent research projects, group projects.	Individual research projects, oral presentations, project reports, problem-based examinations, practical demonstrations.

vii) Information handling

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Select and apply scientific evidence based methods in the solution of problems (SM).	Lectures, tutorials, example sheets, simulation exercises, laboratory based exercises, computer-based exercises, independent research projects, group projects.	Individual research projects, oral presentations, project reports, problem-based examinations, practical demonstrations.
Search for information related to design solution, evaluate it and suggest requirements for additional information (D).	Lectures, tutorials, example sheets, simulation exercises, laboratory based exercises, computer-based exercises, independent research projects, group projects.	Individual research projects, oral presentations, project reports, problem-based examinations, practical demonstrations.

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Plan and manage the design process, including cost drivers and evaluate outcomes (D)	Lectures, tutorials, example sheets, simulation exercises, laboratory based exercises, computer-based exercises, independent research projects, group projects.	Individual research projects, oral presentations, project reports, problem-based examinations, practical demonstrations.

viii) Skills for lifelong learning

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Demonstrate knowledge and understanding of the professional and ethical responsibilities of an engineer and legal requirements (EL).	Work placement, simulation exercises, independent research.	Work placement report, simulation exercises, reports, independent projects.
Learn independently and understand new concepts in the discipline readily (G).	Independent research projects, group research projects,	Work placement report, independent project report, learning logs/diaries, learning portfolios.
Develop and implement personal plan of work to meet a deadline. Identify the critical activities within a personal plan of work (G).	Independent research projects, group research projects.	Work placement report, independent project report, learning logs/diaries, learning portfolios.
Exercise initiative and personal responsibility, which may be as a team member or as a leader (P, G).	Independent research projects, group research projects, work placement.	Work placement report, independent project report, learning logs/diaries, learning portfolios.
Explore career development opportunities (G)	Masterclasses, learning portfolios, work placement	Learning portfolios

10. Progression points

This programme follows the standard Scheme of Progression set out in Senate Regulations – see the version of Senate Regulation 5 governing undergraduate programmes relevant to the year of entry.

There are two progression points in each academic year: end of Semester 1 and end of Semester 2 of the DUT-DLI teaching calendar. A progression decision is made by the DLI Board of Examiners on the basis of the Semester 1 exam/resit results in March and Semester 2 exam/resit results in July each year. Where it is known following Semester 1 that a student has not met the requirements to progress to the next year, they may be required to suspend their studies at that stage.

The following additional progression requirements for this programme have been approved:

- Students must pass the English language modules in year 1, which cannot be carried into year 2, in order to be able to demonstrate the ability to learn and study in English.

In cases where a student has failed to meet a requirement to progress he or she will be required to withdraw from the course

a) Course transfers

Students not satisfying the UoL progression requirements may be allowed to transfer onto DUT programmes. Students satisfying the UoL progression requirements may be allowed to transfer to the University of Leicester campus-based degree programme, subject to capacity and physical resource limitations on the UoL campus.

11. Criteria for award and classification

This programme follows the standard scheme of undergraduate award and classification set out in Senate Regulations – see the version of *Senate Regulation 5 governing undergraduate programmes* relevant to the year of entry.

The following additional award requirements for this programme have been approved as conditions of professional body accreditation:

- Major individual or group project modules and/or those covering AHEP3 learning outcomes that are not assessed in other modules are designated as being required to be passed at Honours level and cannot be treated as compensated fails for the purpose of award. For BEng these are EG3005 and EG3008.

12. Special features

Programme delivered entirely in English, UK-style facilities provided on Panjin campus, Small group tutorials via video conferencing, group problem solving, research based projects, problem based learning, Reflect lecture capture.

13. Indications of programme quality

Normal University academic quality assurance processes are used to continuously review and improve the programmes. The last major review and re-structure of the programmes was during institutional Curriculum Transformation process, resulting in the current programmes structures being applied to students entering from academic year 2018/2019.

All of the current BEng courses delivered at the University of Leicester are accredited by the appropriate professional engineering institutions. It is our intention to seek accreditation from the EAB for this BEng Mechanical Engineering programme during the next accreditation review.

14. External Examiner(s) reports

The details of the External Examiner(s) for this programme and the most recent External Examiners' reports for this programme can be found at exampapers@Leicester [log-in required]

UNIVERSITY OF LEICESTER

Programme Specification (Undergraduate) FOR ENTRY YEAR: 2024/25

Date created: n/a **Last amended:** 06/03/2026 **Version no.** 3

Appendix 1: Programme structure (programme regulations)

The University regularly reviews its programmes and modules to ensure that they reflect the current status of the discipline and offer the best learning experience to students. On occasion, it may be necessary to alter particular aspects of a course or module.

Updates to the programme

Academic year affected	Module	Change
2025/26	EG1006 Engineering Design and Experimentation	30 credit core module deleted
2025/26	EG1201 Electrical and Electronic Engineering	30 credit core module deleted
2025/26	EG1101 Mechanical Engineering	30 credit core module deleted
2025/26	EG1203; EG1007; EG1102; EG1122; EG1031; EG1041	New 15 credit core modules added.

BEng Mechanical Engineering

Level Choose an item./**Year 1** **2024/25**

Credit breakdown

Status	**Year long**	**Semester 1**	**Semester 2**
Core	Choose an item.	60 credits	Choose an item.
Optional	Choose an item.	60 credits	Choose an item.

120 credits in total

Core modules

Delivery period	Code	Title	Credits
Sem 1	EL0002	UNIVERSITY ENGLISH 1: SPEAKING AND LISTENING	15 credits
Sem 1	EL0003	UNIVERSITY ENGLISH 2: READING AND WRITING	15 credits
Sem 1	EL0004	UNIVERSITY ENGLISH 3: PROJECT	15 credits
Sem 1	EG0280	ADVANCED MATHEMATICS I	15 credits
Sem 2	EL0005	ENGLISH FOR SPECIFIC ACADEMIC PURPOSES	15 credits
Sem 2	EG0281	ADVANCED MATHEMATICS II	15 credits
Sem 2	EG0282	MECHANICAL ENGINEERING FOUNDATION	15 credits
Sem 2	EG0283	ELECTRONIC AND ELECTRICAL ENGINEERING FOUNDATION	15 credits

Notes

Additional Non-Credit Bearing Modules

Delivery period	Code	Title	Credits
Sem 1		MORAL CULTIVATION AND BASIC LAW	n/a
Sem 1		PHYSICAL EDUCATION I	n/a
Sem 1		MILITARY THEORY AND TRAINING	N/A
Sem 2		CHINESE MODERN CONTEMPORARY HISTORY AND SITUATION POLICY	N/A
Sem 2		PHYSICAL EDUCATION II	N/A
Sem 2		DUT GENERAL OPTIONAL MODLE I	N/A
Sem 3		COLLEGE STUDENT MENTAL HEALTH AND HEALTH EDUCATION	N/A

Level 4/Year 2 2025/26

Credit breakdown

Status	Year long	Semester 1	Semester 2
Core	30 credits	45 credits	45 credits
Optional	n/a	n/a	n/a

120 credits in total

Core modules

Delivery period	Code	Title	Credits
Sem 1	EG1203	PRINCIPLES OF ELECTRICAL ENGINEERING	15 credits
Year long	EG1007	SUSTAINABLE ENGINEERING DESIGN	15 credits
Sem 2	EG1102	THERMODYNAMICS AND HEAT TRANSFER	15 credits
Year long	EG1122	DIGITAL ELECTRONICS, SENSORS AND COMMUNICATONS	15 credits
Sem 1	EG1280	ENGINEERING MATHEMATICS I	15 credits
Sem 1	EG1031	SOLID MECHANICS	15 credits
Sem 2	EG1041	FLUID MECHANICS	15 credits
Sem 2	EG1281	ENGINEERING MATHEMATICS II	15 credits

Notes
N/A

Additional Non-Credit Bearing Modules

Delivery period	Code	Title	Credits
Sem 1		PRINCIPLE OF MARXISM AND THEORY OF SOCIALISM	n/a
Sem 1		ENGINEERING TRAINING	n/a

Delivery period	Code	Title	Credits
Sem 2		DUT GENERAL OPTIONAL MODULE II	N/A
Sem 3		ON-SITE VISITING PRACTICE	N/A

Level 5/Year 3 2026/27

Credit breakdown

Status	Year long	Semester 1	Semester 2
Core	n/a	60 credits	60 credits
Optional	n/a	n/a	n/a

120 credits in total

Core modules

Delivery period	Code	Title	Credits
Sem 1	EG2111	MATERIALS & STRUCTURES	15 credits
Sem 1	EG2302	SYSTEM DYNAMICS AND CONTROL	15 credits
Sem 1	EG2121	MATERIALS PROCESSING	15 credits
Sem 2	EG2122	APPLIED ENGINEERING THERMODYNAMICS	15 credits
Sem 2	EG2006	INTERGRATED ENGINEERING DESIGN	15 credits
Sem 2	EG2008	ENGINEERING MANAGEMENT AND BUSINESS SIMULATION	15 credits
Sem 2	EG2132	FLUID DYNAMICS AND AERODYNAMICS	15 credits
Sem 1	EG2113	DYNAMICS AND VIBRATIONS	15 credits

Notes
N/A

Additional Non-Credit Bearing Modules

Delivery period	Code	Title	Credits
Sem 1		DUT GENERAL OPTIONAL MODULE III	n/a
Sem 2		PROCESS MACHINERY AND EQUIPMENT	n/a
Sem 2		PROCESS PRINCIPLE AND EXPERIMENT I	n/a
Sem 3		PRODUCTION PRACTICAL	n/a

Level 6/Year Final 2027/28

Credit breakdown

Status	Year long	Semester 1	Semester 2
Core	n/a	60 credits	45 credits
Optional	n/a	15 credits	n/a

120 credits in total

Core modules

Delivery period	Code	Title	Credits
Sem 1	EG3313	STATE VARIABLE CONTROL	15 credits
Sem 1	EG3125	RIGID BODY & STRUCTURAL DYNAMICS	15 credits
Sem 1	EG3112	HEAT TRANSFER AND ENERGY SYSTEMS	15 credits
Sem 1	EG3124	TRIBOLOGY IN ENGINEERING DESIGN	15 credits
Sem 2	EG3323	DIGITAL CONTROL & ACTUATORS	15 credits
Sem 2	EG3005	FINAL YEAR PROJECT	30 credits

Notes
n/a

Option modules

Delivery period	Code	Title	Credits
Sem 1	EG3111	FINITE ELEMENT ANALYSIS AND DESIGN	15 credits
Sem 1	EG3422	AEROSPACE MATERIALS & STRUCTURES	15 credits

Notes
This is an indicative list of option modules and not definitive of what will be available. Option module choice is also subject to availability, timetabling, student number restrictions and, where appropriate, students having taken appropriate pre-requisite modules.

Additional Non-Credit Bearing Modules

Delivery period	Code	Title	Credits
Sem 2		CAREER DEVELOPMENT	n/a

Appendix 2: Module specifications

See undergraduate module specification database [login required] (Note - modules are organized by year of delivery).