

1. Programme Title(s) and UCAS code(s):

The Engineering Department offers degree programmes in four different disciplines: Aerospace Engineering, Electronic & Electrical Engineering, General Engineering and Mechanical Engineering. Each programme has six different variants, either MEng or BEng, with or without a year in industry, and with or without a year abroad. There is a foundation year option nominally for the General Engineering programme which gives students the option to switch to the other programmes. The UCAS codes for the resulting 25 degree programmes are shown in the table below.

| Course title | Aerospace Engineering | Electronic & Electrical Engineering | General Engineering | Mechanical Engineering |
|------------------------------|-----------------------|-------------------------------------|---------------------|------------------------|
| MEng (4yrs) | H401 | H606 | H105 | H305 |
| MEng with industry (5yrs) | H405 | H607 | H107 | H306 |
| MEng with Year Abroad (5yrs) | H402 | H603 | H104 | H307 |
| BEng (3yrs) | H400 | H604 | H100 | H300 |
| BEng with industry (4yrs) | H404 | H609 | H102 | H302 |
| BEng with Year Abroad (4yrs) | H403 | H600 | H103 | H301 |
| BEng (with Foundation Year) | | | H199 | |

2. Awarding body or institution:

University of Leicester

3.

a) Mode of study:

Full-time

b) Type of study:

Campus-based

4. Registration periods:

MEng

Full-time

The normal period of registration for is 4 years

The maximum period of registration is 6 years

BEng

Full-time

The normal period of registration is 3 years

The maximum period of registration is 5 years

The 'with a Year in Industry' and 'with a Year Abroad' options of each degree would add one year to the normal and maximum periods of registration listed above.

For Foundation Year Variant:

The normal period of registration is four years (one year for the Foundation Year, with three years for the BEng)

The maximum period of registration is six years (one year for the Foundation Year, and five years for the BEng)

5. Typical entry requirements:

MEng. Typical offer: AAB normally including Mathematics and a physical science or equivalent non- A- level qualifications.

BEng. Typical offer: ABB normally including Mathematics and a Physical science or equivalent non- A- level qualifications.

For Foundation Year Variant:

A level: BBB or points equivalent from best three A levels. Typically in subjects outside of the 'usual' A levels expected by the department.

BTEC Diploma: DDM in appropriate subject area.

Access to HE courses in Science and Engineering: 45 L3 credits, including 30 at Distinction and remaining L3 credits at least at Merit.

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.

For Foundation Year Variant:

n/a

7. Programme aims:

All the degree programmes aim to satisfy the criteria of the accrediting engineering institutions. These are based on the Engineering Council's UKSPEC which defines a common specification for all engineering degrees. The individual degrees therefore share common aims and outcomes and differ only at the level of module content. The specific information for the individual degree programmes is therefore given in the outline programme structures in Appendix 1 and the detailed specifications for each module given in Appendix 3.

The BEng programmes aim 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 electrical and electronic, software and mechanical engineering obtainable through working in a general engineering department;
3. develop students' knowledge and understanding of the tools and techniques used for modelling, analysis, design and control of complex 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.

In addition to aims 1-6 above, the MEng programmes aim to:

- meet the needs of the appropriate professional institutions and satisfy the educational requirements for registration by the Engineering Council at CEng level;
- enable students to develop and demonstrate a range of subject specific and transferable skills necessary for the study of engineering including team-working, leadership, use of ICT, management and planning; and
- provide flexibility and variety so that students can explore specific areas of engineering they find particularly interesting and stimulating;

In addition to the MEng/BEng aims above, the “with a Year in Industry” programmes aim to:

- enable first-hand experience of the requirements, opportunities and modes of operation of engineering industry in the UK;
- place students on challenging and relevant industrial placements;
- enable students to use and develop the knowledge and skills gained during the first two or three years of their degree programme, depending on when they take their year in industry;
- develop students’ career management and development skills.

In addition to the MEng/BEng aims above, the “with a Year Abroad” degree programmes aim to:

- provide students with the opportunity to spend one year studying out of the UK.

For Foundation Year variant, see Foundation Year Programme Specification

8. Reference points used to inform the programme specification:

- Industrial Consultative Committee
- Student representatives
- Alumni
- UK-SPEC (UK Standard for Professional Engineering Competence) – Third Edition
- Accreditation of Higher Education Programmes (AHEP) – [Third Edition](#)
- AHEP [Collated Learning Outcomes](#)
- QAA Frameworks for Higher Education Qualifications in England Wales and Northern Ireland
- QAA Master’s Degree Characteristics
- QAA Benchmarking Statement Engineering (2015)
- PDR report (May 2015)
- [University Learning Strategy](#)
- University Employability Strategy
- NSS Survey (2014)
- First Destination Survey
- External Examiner’s Reports

9. Programme Outcomes:

| Intended Learning Outcomes | Teaching and Learning Methods | How Demonstrated? |
|--|--|---|
| (a) Discipline specific knowledge and competencies | | |
| (i) Mastery of an appropriate body of knowledge | | |
| Demonstrate knowledge of the principles of general engineering. | Lectures, tutorials, seminars, laboratory practicals, directed reading, independent research, resource-based learning. | Examinations, laboratory reports, seminar presentations, contributions to discussions, problem-based exercises, design tasks, simulation exercises, group projects, independent projects. |
| (ii) Understanding and application of key concepts and techniques | | |
| Demonstrate knowledge, understanding and application of appropriate mathematical, computational techniques and scientific principles and methods for modelling and analysing engineering problems. | 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. | Lectures, tutorials, surgeries problem solving classes, independent research, project supervision. | As above |
| Demonstrate knowledge and understanding of management, business practices and industrial standards that influence an engineer's work. | Lectures, tutorials, independent research, project supervision, work placement. | As above plus work placement reports. |
| Demonstrate knowledge and understanding of manufacturing and/or operational practice. | Lectures, tutorials, independent research, project supervision, work placement. | As above plus work placement reports. |
| Work as an engineer in an industrial (with Industry) or international setting (with Year Abroad) | Work/International placement | Work placement report/International Year Assessments. |
| (iii) Critical analysis of key issues | | |
| Apply scientific principles to model and analyse engineering systems, processes and products. | 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. | As above | |
| Awareness of statistical methods to handle uncertainty. | Problem solving exercises, independent research projects, group projects. | |
| Evaluate commercial risks and technical risks in unfamiliar circumstances. | | |

| (iv) Clear and concise presentation of material | | |
|---|---|--|
| 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. | Lectures, seminars, masterclasses. | Written assignments, exhibitions, poster displays, reports, independent research projects. |
| (v) Critical appraisal of evidence with appropriate insight | | |
| Select and apply appropriate computer-based methods for modelling and analysing engineering problems. | Computer practical classes, lectures, surgeries. | Computer-based exercises, simulation exercises, research projects. |
| Evaluate customer and user needs taking into account the wider engineering context | Design tasks, laboratory practicals, simulation exercises, group projects, work placement | Problem solving exercises, simulations, exhibitions, independent research. |
| Create and design new processes or products to fulfil a specified requirement through synthesis of ideas from a wide range of sources. | Design tasks, laboratory practicals, simulation exercises, group projects, work placement | Problem solving exercises, simulations, exhibitions, independent research. |
| (vi) Other discipline specific competencies | | |
| Select and use appropriate test and measurement instrumentation. | Laboratory practicals, group research projects, independent research projects. | Laboratory reports, examinations, projects reports. |
| Select and conduct appropriate experimental procedures. | Laboratory practicals, design tasks, independent research. | Laboratory reports, examinations, project reports. |
| Demonstrate knowledge and understanding of manufacturing and/or operational practice. | Lectures, simulation, 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. | Laboratory practicals, design tasks, independent research. | Laboratory reports, written assignments, work placement report. |
| (b) Transferable skills | | |
| (i) Oral communication | | |
| Present technical and business information orally, in an appropriate form for a given audience. | Tutorials, group projects, independent research, project supervision. | Oral presentations, portfolio. |
| (ii) Written communication | | |
| Communicate business and technical information in an appropriate written form for a given audience. | 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. | As above | As above |

| (iii) Information technology | | |
|---|--|--|
| Use standard and specialist engineering IT software confidently to conduct and report on engineering analysis and projects. | Lectures, group projects, independent research, project supervision. | Written assignments, laboratory reports, essays, independent project reports. |
| (iv) Numeracy | | |
| Manipulate and sort data to generate new data sets. Manipulate and present data in alternative formats to create deeper understanding or greater impact. | Problem-solving classes, research projects. Problem-solving classes, research projects. | Computer-based exercises, written assignments, poster displays, oral presentations. |
| (v) Team working | | |
| Work collaboratively as part of a team undertaking a range of different team roles. | Tutorials, masterclasses, project supervision, induction programmes. | Learning logs/diaries, learning portfolios, group projects, simulation exercises. |
| (vi) Problem solving | | |
| Solve problems through the integration of knowledge of mathematics, science, information technology, design, business context and engineering practice. Select and analyse appropriate evidence to solve non-routine problems. Use systematic analysis and design methods to solve problems in unfamiliar situations. Use creativity and innovation to solve problems. Apply standard management techniques to plan and allocate resources to projects. | Project supervision, lectures, tutorials, example sheets, simulation exercises, laboratory based exercises, computer-based exercises, independent research projects, group projects. As above As above As above As above | Individual research projects, oral presentations, project reports, problem-based examinations, practical demonstrations. |

| (vii) Information handling | | |
|---|---|--|
| Select and apply scientific evidence based methods in the solution of problems. | 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. | As above | As above |
| Plan and manage the design process, including cost drivers and evaluate outcomes | As above | As above |
| Work with limited, incomplete, or contradictory information. | As above | As above |
| (viii) Skills for lifelong learning | | |
| Demonstrate knowledge and understanding of the professional and ethical conduct of an engineer and legal requirements | Work placement, simulation exercises, independent research. | Work placement report, simulation exercises, reports, independent projects. |
| Learn independently and understand new concepts in the discipline readily. | Independent research projects, group research projects, work placement. | Work placement report, independent project report, learning logs/diaries, learning portfolios. |
| Develop and implement personal plan of work to meet a deadline and identify the critical activities. | Independent research projects, group research projects, work placement. | 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. | Independent research projects, group research projects, work placement. | Work placement report, independent project report, learning logs/diaries, learning portfolios. |
| Explore career development opportunities. | Masterclasses, learning portfolios, work placement. | Learning portfolios |

10. Progression points:

For BEng students, progression at the end of each year is dependent on the procedures outlined in the [Senate Regulation 5](#) with the exception that EG2006 has no resit option so must be passed at the first attempt.

For MEng students, in addition to the standard regulations governing undergraduate programmes, for progression from 2nd year to 3rd year a credit weighted average mark of 55% or more is required and EG3005 Individual Project must be passed. Failure to progress will result in a change in programme from MEng to the equivalent BEng programme. For progression from 3rd year to 4th year, a credit weighted average of 55% or more is required. Failure to meet this progression requirement will result in consideration under the scheme of

assessment for three year degrees and, where appropriate under the scheme, graduation with the equivalent BEng degree.

In cases where a student has failed to meet a standard requirement to progress as stated in the Regulations governing undergraduate programmes he or she will be required to withdraw from the course.

For Foundation Year Variant:

Progression from Year 0 to year 1: In cases where a student has failed to meet a requirement to progress he or she will be required to withdraw from the course.

Students will be required to pass Foundation Year in order to progress to Year 1 with an average module mark of at least 60%. Students are required to have a mark of at least 60% in N0023, NS0031 and NS0032 to progress onto the BEng in General Engineering.

11. Scheme of Assessment

The programme follows the standard scheme of award and classification set out in [Senate Regulation 5](#) with the following exceptions:

- EG2006, EG4007 and EG4009 have no resit option so must be passed at the first attempt because to provide one is impractical given the combination of practical and team-working in these modules.
- EG3005 Individual Project must be passed for BEng (Hons) as a condition of professional body accreditation.
- EG4007 Group Project must be passed for MEng (Hons) as a condition of professional body accreditation.

For CEng accreditation a grade of 2.2 (50%) or above is required (or a Pass for unclassified degrees).

12. Special features:

Students receive a broad education in engineering which also provides the flexibility for more specialist focus later in the degree. Opportunities are available to undertake industrial placement with a sponsoring company (with Industry). Students following “with a Year Abroad” programmes study for year out of the UK. The year abroad does not replace any of the Leicester course material, rather it provides an opportunity for the students’ to broaden their experience.

There are two possible sets of first year modules. Aerospace, Mechanical and General degree programmes share common first year modules. This derives from the General Engineering ethos of the Department that these engineering students benefit from a solid foundation in the fundamentals of all engineering disciplines. In the Electronic and Electrical Engineering degree programme the EG1101 Mechanical Engineering module is replaced by EG1202 Computer Engineering. The common EG1006 Engineering Design & Experimentation module ensures that basic mechanical engineering principles and computer engineering principles are covered by all students in the Department, in keeping with the interdisciplinary ethos that is so important to modern professional engineering careers.

13. Indications of programme quality

All of the current programmes are accredited by the appropriate professional engineering institutions (PEIs) and the MEng programmes offer direct route to Chartered Engineer status (CEng) (further learning following graduation is required to obtain CEng with a BEng degree).

Existing programmes within the Department of Engineering are accredited by the Institution of Mechanical Engineers (IMechE), Institute of Engineering and Technology (IET) and Institute of Measurement and Control (InstMC) up until and including the final intake academic year 2018/19.

The Department is in the process of making an Initial Submission to the Engineering Accreditation Board (EAB) who will coordinate the accreditation visit by the IMechE, IET and InstMC for May 2018 (AY 17/18) or Oct/Nov. 2018 (AY 18/19). The preliminary indication from the EAB is that a visit during AY 18/19 would make a stronger submission to allow the accreditation panel to see the new programmes operating - assuming they launch that year. However, the EAB will provide a formal response to the best date in response to the Initial Submission after consulting the PEIs.

Proceeding with either accreditation visit date should not result in a gap in accreditation, assuming that the new programmes are successfully accredited. The recommendation for a visit early in the academic year 18/19 at the latest should allow contingency for any issues arising from the visit to be addressed within academic year 18/19 to ensure continuity of accreditation for the 2019/20 intake.

Items from the Action Plan that came out of the 2014 accreditation visit have been considered in the structuring of the programmes. Any conditions imposed by each PEI on the new programmes will need to be checked and this programme specification and any relevant module specifications updated accordingly.

14. External Examiners

The details of the External Examiner(s) for this programme and the most recent External Examiners' reports can be found [here](#).

Appendix 1: Programme structure (programme regulations) (overleaf)

Appendix 1: Programme Structure

FIRST YEAR MODULES FOR BEng/MEng AEROSPACE, MECHANICAL AND GENERAL ENGINEERING DEGREES

| YEAR LONG | | Credits |
|------------|---------------------------------------|---------|
| EG1006* | ENGINEERING DESIGN & EXPERIMENTATION | 30 |
| EG1101 | MECHANICAL ENGINEERING | 30 |
| EG1201* | ELECTRICAL AND ELECTRONIC ENGINEERING | 30 |
| SEMESTER 1 | | Credits |
| EG1016* | ENGINEERING MATHEMATICS 1 | 15 |
| SEMESTER 2 | | Credits |
| EG1026* | ENGINEERING MATHEMATICS 2 | 15 |

FIRST YEAR MODULES FOR BEng/MEng ELECTRONIC AND ELECTRICAL ENGINEERING DEGREES

| YEAR LONG | | Credits |
|------------|---------------------------------------|---------|
| EG1006* | ENGINEERING DESIGN & EXPERIMENTATION | 30 |
| EG1201* | ELECTRICAL AND ELECTRONIC ENGINEERING | 30 |
| EG1202 | COMPUTER ENGINEERING | 30 |
| SEMESTER 1 | | Credits |
| EG1016* | ENGINEERING MATHEMATICS 1 | 15 |
| SEMESTER 2 | | Credits |
| EG1026* | ENGINEERING MATHEMATICS 2 | 15 |

Notes: Modules marked with an asterisk are common to all programmes

BEng AEROSPACE ENGINEERING

SECOND YEAR MODULES

| | | Credits |
|-------------------|--|----------------|
| YEAR LONG | | |
| EG2004* | ENGINEERING EXPERIMENTATION & ANALYSIS | 15 |
| EG2006* | INTEGRATED ENGINEERING DESIGN | 30 |
| EG2302* | SYSTEM DYNAMICS & CONTROL | 15 |
| SEMESTER 1 | | |
| | | Credits |
| EG2111 | MATERIALS & STRUCTURES | 15 |
| EG2112 | DYNAMICS & THERMOFLUIDS | 15 |
| SEMESTER 2 | | |
| | | Credits |
| EG2421 | AIRCRAFT PERFORMANCE & NAVIGATION | 15 |
| EG2422 | AERODYNAMICS & AIRCRAFT SYSTEMS | 15 |

Notes: Modules marked with an asterisk are common to all programmes

THIRD YEAR MODULES

| | | Credits |
|---|---|----------------|
| YEAR LONG | | |
| EG3005* | INDIVIDUAL PROJECT | 30 |
| EG3008* | ENGINEERING MANAGEMENT | 15 |
| SEMESTER 1 | | |
| | | Credits |
| EG3111 | FINITE ELEMENT ANALYSIS & DESIGN | 15 |
| EG3313 | STATE VARIABLE CONTROL | 15 |
| EG3411 | COMPRESSIBLE & APPLIED AERODYNAMICS | 15 |
| SEMESTER 2 | | |
| | | Credits |
| <i>Choose 30 credits of options, including at least one of the <u>underlined</u> aerospace specialist options</i> | | |
| <i>EG3125</i> | <i>RIGID-BODY & STRUCTURAL DYNAMICS</i> | <i>15</i> |
| <i>EG3323</i> | <i>DIGITAL CONTROL & ACTUATORS</i> | <i>15</i> |
| <u><i>EG3421</i></u> | <u><i>FLIGHT DYNAMICS, CONTROL & AVIONICS</i></u> | <i>15</i> |
| <u><i>EG3422</i></u> | <u><i>AEROSPACE MATERIALS & STRUCTURES</i></u> | <i>15</i> |

Notes: Modules marked with an asterisk are common to all programmes

Student effort on EG3005 and EG3008 is split approximately 15:30 credits sem1:sem 2 to give even loading.

Modules in italics are optional modules

MEng AEROSPACE ENGINEERING

FIRST, SECOND and THIRD YEAR MODULES

As for the BEng Aerospace Engineering programme

FOURTH YEAR MODULES

| | | YEAR LONG | Credits |
|---|---|-------------------|----------------|
| EG4007* | GROUP PROJECT | | 30 |
| EG4009* | LEADERSHIP & PROJECT MANAGEMENT | | 30 |
| | | SEMESTER 1 | Credits |
| EG4413 | SPACECRAFT SYSTEMS ENGINEERING | | 15 |
| <i>Choose 15 credits of options from:</i> | | | |
| <i>EG4115</i> | <i>FLUID INSTABILITY, TRANSITION & TURBULENCE</i> | | 15 |
| <i>EG4116</i> | <i>ADVANCED SOLID MECHANICS</i> | | 15 |
| <i>EG4313</i> | <i>ROBUST CONTROL</i> | | 15 |
| | | SEMESTER 2 | Credits |
| EG4422 | ADVANCED GAS TURBINES | | 15 |
| <i>Choose 15 credits of options from:</i> | | | |
| <i>EG4125</i> | <i>COMPUTATIONAL FLUID DYNAMICS</i> | | 15 |
| <i>EG4126</i> | <i>ADVANCED COMPOSITE MATERIALS</i> | | 15 |
| <i>EG4323</i> | <i>NON-LINEAR CONTROL</i> | | 15 |
| <i>EG4324</i> | <i>SIGNAL PROCESSING</i> | | 15 |

Notes: Modules marked with an asterisk are common to all programmes

Modules in italics are optional modules

BEng MECHANICAL ENGINEERING

SECOND YEAR MODULES

| YEAR LONG | | Credits |
|-------------------|--|----------------|
| EG2004* | ENGINEERING EXPERIMENTATION & ANALYSIS | 15 |
| EG2006* | INTEGRATED ENGINEERING DESIGN | 30 |
| EG2302* | SYSTEM DYNAMICS & CONTROL | 15 |
| SEMESTER 1 | | Credits |
| EG2111 | MATERIALS & STRUCTURES | 15 |
| EG2112 | DYNAMICS & THERMOFLUIDS | 15 |
| SEMESTER 2 | | Credits |
| EG2121 | MATERIALS PROCESSING | 15 |
| EG2122 | APPLIED ENGINEERING THERMODYNAMICS | 15 |

Notes: Modules marked with an asterisk are common to all programmes

THIRD YEAR MODULES

| YEAR LONG | | Credits |
|--|--|----------------|
| EG3005* | INDIVIDUAL PROJECT | 30 |
| EG3008* | ENGINEERING MANAGEMENT | 15 |
| SEMESTER 1 | | Credits |
| EG3111 | FINITE ELEMENT ANALYSIS & DESIGN | 15 |
| EG3112 | HEAT TRANSFER & ENERGY SYSTEMS | 15 |
| EG3313 | STATE VARIABLE CONTROL | 15 |
| SEMESTER 2 | | Credits |
| <i>Choose 30 credits of options, including at least one of the <u>underlined</u> mechanical specialist options</i> | | |
| <i><u>EG3124</u></i> | <i><u>TRIBOLOGY IN ENGINEERING DESIGN</u></i> | <i>15</i> |
| <i><u>EG3125</u></i> | <i><u>RIGID-BODY & STRUCTURAL DYNAMICS</u></i> | <i>15</i> |
| <i>EG3323</i> | <i>DIGITAL CONTROL & ACTUATORS</i> | <i>15</i> |
| <i>EG3422</i> | <i>AEROSPACE MATERIALS & STRUCTURES</i> | <i>15</i> |

Notes: Modules marked with an asterisk are common to all programmes

Student effort on EG3005 and EG3008 is split approximately 15:30 credits sem1: sem2 to give even loading.

Modules in italics are optional modules

MEng MECHANICAL ENGINEERING

FIRST, SECOND and THIRD YEAR MODULES

As for the BEng Mechanical Engineering programme

FOURTH YEAR MODULES

| | | YEAR LONG | Credits |
|---|---|-------------------|----------------|
| EG4007* | GROUP PROJECT | | 30 |
| EG4009* | LEADERSHIP & PROJECT MANAGEMENT | | 30 |
| | | SEMESTER 1 | Credits |
| <i>Choose 30 credits of options from:</i> | | | |
| <i>EG4115</i> | <i>FLUID INSTABILITY, TRANSITION & TURBULENCE</i> | | 15 |
| <i>EG4116</i> | <i>ADVANCED SOLID MECHANICS</i> | | 15 |
| <i>EG4313</i> | <i>ROBUST CONTROL</i> | | 15 |
| <i>EG4413</i> | <i>SPACECRAFT SYSTEMS ENGINEERING</i> | | 15 |
| | | SEMESTER 2 | Credits |
| <i>Choose 30 credits of options from:</i> | | | |
| <i>EG4125</i> | <i>COMPUTATIONAL FLUID DYNAMICS</i> | | 15 |
| <i>EG4126</i> | <i>ADVANCED COMPOSITE MATERIALS</i> | | 15 |
| <i>EG4323</i> | <i>NON-LINEAR CONTROL</i> | | 15 |
| <i>EG4324</i> | <i>SIGNAL PROCESSING</i> | | 15 |
| <i>EG4422</i> | <i>ADVANCED GAS TURBINES</i> | | 15 |

Notes: Modules marked with an asterisk are common to all programmes

Modules in italics are optional modules

BEng GENERAL ENGINEERING

SECOND YEAR MODULES

| YEAR LONG | | Credits |
|--------------------------|---|----------------|
| EG2004* | ENGINEERING EXPERIMENTATION & ANALYSIS | 15 |
| EG2006* | INTEGRATED ENGINEERING DESIGN | 30 |
| EG2302* | SYSTEM DYNAMICS & CONTROL | 15 |
| SEMESTERS 1 AND 2 | | Credits |
| <i>Choose EITHER:</i> | | |
| EG2111 | <i>MATERIALS & STRUCTURES (sem 1)</i> | 15 |
| EG2121 | <i>MATERIALS PROCESSING (sem 2)</i> | 15 |
| <i>OR</i> | | |
| EG2112 | <i>DYNAMICS & THERMOFLUIDS (sem 1)</i> | 15 |
| EG2122 | <i>APPLIED ENGINEERING THERMODYNAMICS (sem 2)</i> | 15 |
| <i>Choose EITHER:</i> | | |
| EG2211 | <i>ANALOGUE & DIGITAL ELECTRONICS (sem 1)</i> | 15 |
| EG2221 | <i>ELECTRICAL ENGINEERING (sem 2)</i> | 15 |
| <i>OR</i> | | |
| EG2212 | <i>COMMUNICATIONS (sem 1)</i> | 15 |
| EG2222 | <i>EMBEDDED SYSTEMS (sem 2)</i> | 15 |

Notes: Modules marked with an asterisk are common to all programmes

Modules in italics are optional modules. General students must be aware of the implications of pre-requisites on module choice.

THIRD YEAR MODULES

| YEAR LONG | | Credits |
|---|---|----------------|
| EG3005* | INDIVIDUAL PROJECT | 30 |
| EG3008* | ENGINEERING MANAGEMENT | 15 |
| SEMESTER 1 | | Credits |
| EG3313 | STATE VARIABLE CONTROL | 15 |
| <i>Choose EITHER:</i> | | |
| EG3111 | <i>FINITE ELEMENT ANALYSIS & DESIGN</i> | 15 |
| <i>OR</i> | | |
| EG3112 | <i>HEAT TRANSFER & ENERGY SYSTEMS</i> | 15 |
| <i>Choose EITHER:</i> | | |
| EG3211 | <i>POWER ELECTRONICS</i> | 15 |
| <i>OR</i> | | |
| EG3212 | <i>INTRODUCTION TO RADIO SYSTEMS</i> | 15 |
| <i>OR</i> | | |
| EG3213 | <i>DIGITAL DESIGN</i> | 15 |
| SEMESTER 2 | | Credits |
| <i>Choose 30 credits of options from:</i> | | |
| EG3124 | <i>TRIBOLOGY IN ENGINEERING DESIGN</i> | 15 |
| EG3125 | <i>RIGID-BODY & STRUCTURAL DYNAMICS</i> | 15 |
| EG3221 | <i>POWER SYSTEMS</i> | 15 |
| EG3222 | <i>SIGNAL PROCESSING FOR RADIO COMMUNICATIONS</i> | 15 |

| | | |
|--------|-------------------------------------|----|
| EG3223 | PARALLEL PROCESSING AND CONCURRENCY | 15 |
| EG3323 | DIGITAL CONTROL & ACTUATORS | 15 |
| EG3422 | AEROSPACE MATERIALS & STRUCTURES | 15 |

Notes: Modules marked with an asterisk are common to all programmes

Student effort on EG3005 and EG3008 is split approximately 15:30 credits sem1: sem2 to give even loading.

Modules in italics are optional modules. General students must be aware of the implications of pre-requisites on module choice

MEng GENERAL ENGINEERING

FIRST, SECOND and THIRD YEAR MODULES

As for the BEng General Engineering programme

FOURTH YEAR MODULES

| YEAR LONG | | Credits |
|------------------|---------------------------------|----------------|
| EG4007* | GROUP PROJECT | 30 |
| EG4009* | LEADERSHIP & PROJECT MANAGEMENT | 30 |

| SEMESTER 1 | | Credits |
|---|---|----------------|
| <i>Choose 30 credits of options from:</i> | | |
| EG4115 | <i>FLUID INSTABILITY, TRANSITION & TURBULENCE</i> | 15 |
| EG4116 | <i>ADVANCED SOLID MECHANICS</i> | 15 |
| EG4213 | <i>ADVANCED ELECTRONICALLY CONTROLLED DRIVES</i> | 15 |
| EG4215 | <i>RADIO SYSTEMS</i> | 15 |
| EG4313 | <i>ROBUST CONTROL</i> | 15 |
| EG4413 | <i>SPACECRAFT SYSTEMS ENGINEERING</i> | 15 |

| SEMESTER 2 | | Credits |
|---|-------------------------------------|----------------|
| <i>Choose 30 credits of options from:</i> | | |
| EG4125 | <i>COMPUTATIONAL FLUID DYNAMICS</i> | 15 |
| EG4126 | <i>ADVANCED COMPOSITE MATERIALS</i> | 15 |
| EG4225 | <i>RADIO COMMUNICATIONS</i> | 15 |
| EG4226 | <i>DIGITAL COMMUNICATIONS</i> | 15 |
| EG4323 | <i>NON-LINEAR CONTROL</i> | 15 |
| EG4324 | <i>SIGNAL PROCESSING</i> | 15 |
| EG4422 | <i>ADVANCED GAS TURBINES</i> | 15 |

Notes: Modules marked with an asterisk are common to all programmes

Modules in italics are optional modules. General students must be aware of the implications of pre-requisites on module choice

BEng ELECTRONIC & ELECTRICAL ENGINEERING

SECOND YEAR MODULES

| | | YEAR LONG | Credits |
|---------|--|-------------------|----------------|
| EG2004* | ENGINEERING EXPERIMENTATION & ANALYSIS | | 15 |
| EG2006* | INTEGRATED ENGINEERING DESIGN | | 30 |
| EG2302* | SYSTEM DYNAMICS & CONTROL | | 15 |
| | | SEMESTER 1 | Credits |
| EG2211 | ANALOGUE & DIGITAL ELECTRONICS | | 15 |
| EG2212 | COMMUNICATIONS | | 15 |
| | | SEMESTER 2 | Credits |
| EG2221 | ELECTRICAL ENGINEERING | | 15 |
| EG2222 | EMBEDDED SYSTEMS | | 15 |

Notes: Modules marked with an asterisk are common to all programmes

THIRD YEAR MODULES

| | | YEAR LONG | Credits |
|---|--|-------------------|----------------|
| EG3005* | INDIVIDUAL PROJECT | | 30 |
| EG3008* | ENGINEERING MANAGEMENT | | 15 |
| | | SEMESTER 1 | Credits |
| <i>Choose 45 credits of options from:</i> | | | |
| EG3313 | STATE VARIABLE CONTROL | | 15 |
| EG3211 | POWER ELECTRONICS | | 15 |
| EG3212 | INTRODUCTION TO RADIO SYSTEMS | | 15 |
| EG3213 | DIGITAL DESIGN | | 15 |
| | | SEMESTER 2 | Credits |
| <i>Choose 30 credits of options from:</i> | | | |
| EG3221 | POWER SYSTEMS | | 15 |
| EG3222 | SIGNAL PROCESSING FOR RADIO COMMUNICATIONS | | 15 |
| EG3223 | PARALLEL PROCESSING AND CONCURRENCY | | 15 |
| EG3323 | DIGITAL CONTROL & ACTUATORS | | 15 |

Notes: Modules marked with an asterisk are common to all programmes

Student effort on EG3005 and EG3008 is split approximately 15:30 credits sem1: sem2 to give even loading.

Modules in italics are optional modules. Modules in italics are optional modules. Electronic & Electrical students must be aware that some 4th year modules require EG3313 as a pre-requisite.

MEng ELECTRONIC & ELECTRICAL ENGINEERING

FIRST, SECOND and THIRD YEAR MODULES

As for the BEng Electronic & Electrical Engineering programme

FOURTH YEAR MODULES

| | | YEAR LONG | Credits |
|---|--|-------------------|----------------|
| EG4007* | GROUP PROJECT | | 30 |
| EG4009* | LEADERSHIP & PROJECT MANAGEMENT | | 30 |
| | | SEMESTER 1 | Credits |
| <i>Choose 30 credits of options from:</i> | | | |
| <i>EG4213</i> | <i>ADVANCED ELECTRONICALLY CONTROLLED DRIVES</i> | | 15 |
| <i>EG4215</i> | <i>RADIO SYSTEMS</i> | | 15 |
| <i>EG4313</i> | <i>ROBUST CONTROL</i> | | 15 |
| | | SEMESTER 2 | Credits |
| <i>Choose 30 credits of options from:</i> | | | |
| <i>EG4225</i> | <i>RADIO COMMUNICATIONS</i> | | 15 |
| <i>EG4226</i> | <i>DIGITAL COMMUNICATIONS</i> | | 15 |
| <i>EG4323</i> | <i>NON-LINEAR CONTROL</i> | | 15 |
| <i>EG4324</i> | <i>SIGNAL PROCESSING</i> | | 15 |

Notes: Modules marked with an asterisk are common to all programmes

Modules in italics are optional modules

BEng/MEng degrees WITH A YEAR IN INDUSTRY

BEng/MEng Aerospace Engineering with a Year in Industry
BEng/MEng Electronic and Electrical Engineering with a Year in Industry
BEng/MEng General Engineering with a Year in Industry
BEng/MEng Mechanical Engineering with a Year in Industry.

For BEng students, the year in industry must be taken in the third year of their course. The schedule for this programme is given below.

For MEng students, a single year in industry can be taken either in the third year or the fourth year of their course. The schedule for MEng students taking a year in industry in their third year is given below. The schedule is similar for MEng students taking the year in industry in their fourth year, with the third year and fourth years interchanged.

FIRST AND SECOND YEAR MODULES

As for the first and second years of BEng Aerospace Engineering/ BEng Electronic and Electrical Engineering/ BEng General Engineering/ BEng Mechanical Engineering respectively.

Students are required to attend additional zero-credit modules run by the College Industrial Placement Office and/or Careers Service covering placement preparation.

THIRD YEAR MODULES (In Industry Year)

- 1) Students will work within the sponsoring company for one year between 1 July of the second year of the course and the start of the following academic year.
- 2) During their one year placement students will undertake a programme of training and practical experience which will be agreed by the sponsoring company and the University.
- 3) Students will be expected to maintain a record of their training and experience which is to be presented for approval to the sponsoring company and the University.
- 4) Students will be issued with a 'Certificate of Industrial Studies' indicating successful completion of their industrial placement.

BEng: Students who do not satisfactorily complete their industrial placement will be transferred to the BEng variant of their respective degree strand (e.g. BEng Aerospace, BEng General etc.).

MEng: Students who do not satisfactorily complete their industrial placement will be transferred to the MEng variant of their respective degree strand (e.g. MEng Aerospace, MEng General etc.).

FOURTH YEAR MODULES

BEng: As 3rd year of the BEng Aerospace Engineering/ BEng Electronic and Electrical Engineering/ BEng General Engineering/ BEng Mechanical Engineering respectively.

MEng: As 3rd year of the MEng Aerospace Engineering/ MEng Electronic and Electrical Engineering/ MEng General Engineering/ MEng Mechanical Engineering respectively.

FIFTH YEAR MODULES (MEng degrees with a Year in Industry only)

MEng: As 4th year of the MEng Aerospace Engineering/ MEng Electronic and Electrical Engineering/ MEng General Engineering/ MEng Mechanical Engineering respectively.

BEng/MEng degrees WITH A YEAR ABROAD

BEng/MEng Aerospace Engineering with a Year Abroad
BEng/MEng Electronic and Electrical Engineering with a Year Abroad
BEng/MEng General Engineering with a Year Abroad
BEng/MEng Mechanical Engineering with a Year Abroad

FIRST AND SECOND YEAR MODULES

As for the first and second years of BEng Aerospace Engineering/ BEng Electronic and Electrical Engineering/ BEng General Engineering/ BEng Mechanical Engineering respectively.

THIRD YEAR MODULES (Year Abroad)

Students spend the third year taking approved modules at one of the North American institutions associated with the Department of Engineering. Students will normally be assessed according to the criteria of the host institution, but if it is not practicable to retake failed modules there, they may be allowed to submit a report demonstrating how they have nevertheless achieved the learning outcomes for the year. Marks from the year will not count towards the degree class.

BEng: Students who do not satisfactorily complete the year will be transferred to the standard BEng of their respective degree strand (e.g. BEng Aerospace Engineering, BEng General Engineering etc.).

MEng: Students who do not satisfactorily complete the year will be transferred to the standard MEng of their respective degree strand (e.g. MEng Aerospace Engineering, MEng General Engineering etc.).

FOURTH YEAR MODULES

BEng: As 3rd year of the BEng Aerospace Engineering/ BEng Electronic and Electrical Engineering/ BEng General Engineering/ BEng Mechanical Engineering respectively.

MEng: As 3rd year of the MEng Aerospace Engineering/ MEng Electronic and Electrical Engineering/ MEng General Engineering/ MEng Mechanical Engineering respectively.

FIFTH YEAR MODULES (MEng degrees with a Year Abroad only)

MEng: As 4th year of the MEng Aerospace Engineering/ MEng Electronic and Electrical Engineering/ MEng General Engineering/ MEng Mechanical Engineering respectively.

Appendix 2: Module specifications

See module specification database <http://www.le.ac.uk/sas/courses/documentation>

Appendix 3: Skills Matrix