Part IB guide

The Engineering Tripos comprises a two-year Part I followed by a two-year Part II - together they comprise the MEng. All CUED undergraduates study the same subjects for their first five terms. There is an element of choice in the sixth term, and in Part II students specialise in a chosen engineering area.

NB. Throughout this guide 'week' refers to Thursday to Wednesday of the normal teaching term.

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Aims & objectives

Teaching aims

The aims of Part I of the Engineering Tripos are to encourage and enable students to:

- develop a sound understanding of the fundamentals of engineering science across a broad range of engineering disciplines;
- acquire basic skills in modelling and analysis and the ability to solve straightforward technical problems;
- acquire basic design skills and the ability to create simple engineering designs using a multi-disciplinary approach;
- develop an awareness of the responsibilities of engineers in economic, social and environmental matters;
- develop practical skills and the ability to conduct and evaluate experiments;
- learn to create, use and evaluate computer software;
- develop communication skills, both oral and written;
- develop cooperative skills through group and teamwork activities;
- acquire basic study skills and develop independence of learning;
- develop a responsible and professional attitude.

General objectives

At the end of the Part I course students should:

- by means of lecture courses, associated examples papers and appropriate reading have learnt the fundamental principles of engineering science;

- by means of laboratory courses have witnessed phenomena associated with the material in the lecture courses, have gained an understanding of experimental methods and have experience of experimental techniques;
- by means of practical computing courses be able to create and evaluate software;
- by means of projects have been introduced to research and design;
- by means of a course in exposition and subsequent practice have developed powers of presentation both orally and in writing;
- by means of lecture courses, occasional lectures, essay assignments and industrial experience have gained an introduction to manufacturing, management and the economic, environmental and social responsibilities of engineers.

The progress of each undergraduate is measured by Tripos examinations and by assessed coursework. Tripos classes and details of marks are notified to undergraduates through CamSIS or by their Colleges, and progress with coursework is communicated by staff marking individual coursework activities.

Achievement of the general objectives is dependent on an undergraduate reaching detailed objectives set for individual activities of the course. These are listed in the syllabuses for each series of lectures and the instruction sheets for coursework.

Part IB structure

Lectures

The 8 papers in Part IB are taken by all students. Papers 1-7 are of 2 hours' duration. Paper 8 is of 2.5 hours' duration, except for those students who have chosen to take either the Civil Engineering option or a foreign language assessment, where it is of 1.5 hours' duration. If a student chooses to do both the Civil and the foreign language option, then the paper is 30 mins duration. The 30 min section is the compulsory section on the Engineer in Business.

Paper 1	**Mechanics** (16 lectures)	
Paper 2	**Structures** (20 lectures)	
Paper 3	**Materials** (16 lectures)	
Paper 4	**Thermofluid mechanics** (26 lectures)	
Paper 5	**Electrical engineering:** Linear circuits and devices (8 lectures) Electrical machines (10 lectures) Electromagnetic fields and waves (6 lectures)	
Paper 6	**Information engineering:** Linear systems and control (14 lectures) Signal & data analysis (7 lectures) Communications (7 lectures)	
Paper 7	**Mathematical methods:** Vector calculus (14 lectures) Linear algebra (8 lectures) Probability (6 lectures)	
Paper 8	**Selected topics:** Electives (14 lectures)	
	Compulsory section: The Engineer in Business (8 lectures)	
	(i) Civil engineering	Floating offshore Wind turbines
	(ii) Mechanics, materials and	Mechanical engineering for

	design	renewable energy
	(iii) Aerothermal engineering	Design of a jet engine
	(iv) Electrical engineering	Micro- and nano-electronic devices
	(v) Information engineering	Photo editing and image searching
	(vi) Bioengineering	Engineering of the human eye
	(vii) Manufacturing, management and design	Bringing technology innovations to market

All lectures for Papers 1-7 are scheduled during the Michaelmas and Lent terms, and have associated experimental work and examples papers. Colleges arrange supervisions on these topics.

Paper 8 Overview

Paper 8 consists of engineering activities taught in the context of design, and is divided into seven electives with the topics shown above. Each course has 16 timetabled slots (4 per week), and all choices except the Civil Engineering elective are delivered via the equivalent of 14 lectures and 2 examples classes - although in some cases explanation of examples may be spread throughout the course. There will be the equivalent of two examples papers per topic with fully worked solutions being made available for students to see and they are assess via examination (further details below). There are no supervisions for these courses. The time commitment is 40 hours per elective, which is true for both examination and coursework based modes.

The Civil Engineering elective is assessed purely via coursework with four design tasks submitted by students in each of the four weeks the course runs. In each week there are two lectures and two design workshops where you will be able to come and talk with us about your design tasks prior to each mini-submission. These design tasks focus on discrete aspects of a hypothetical construction project, which is currently a floating offshore wind turbine.

The material in these selected topics is not a prerequisite for third-year courses, although some preliminary reading may be expected by those who have not taken a topic. The material in the electives is not considered prerequisite for Part IIA courses (although some preliminary reading may be expected by those who have not taken a particular elective).

Paper 8 Assessment

All choices except the Civil Engineering elective are assessed via examination. There are three potential circumstances for examinations:

1. Students not taking a foreign language or Civil Engineering for credit are required to answer questions from two electives.

2. Students who have chosen to take a foreign language or Civil Engineering for credit are required to answer questions from one elective.

3. Students who take both a foreign language and Civil Engineering are required to answer questions from only 'The Engineer in Business' section and no electives.

Unless students intend to take a foreign language or Civil Engineering, they will not be required to specify which topics they intend to follow and may attend more than two courses if they wish - this is particularly useful to help decide which courses to focus on the the examination. Students intending to take Civil Engineering are required to indicate this intention to the 2P8 Civil Elective Course Leader by the end of week 2 of Easter term in order that suitable provisions can be made to host the examinations.

In addition, all students are required to answer the multiple-choice compulsory section 'The Engineer in Business', lectures for which are given in the Lent term. Lectures for all the other sections are given during the first four weeks of the Easter term.

Language programme for engineers

Students who take the language programme for engineers in Part IB may offer this course as one of their two options in Paper 8. They will also be eligible to receive a Digital Badge that will record the level of the course (i.e. beginners', intermediate or advanced). The Digital Badge has replaced the paper certificate which is now only available on request.

Students who wish to offer the Language Option as one of their electives should inform the CLIC Administrator at https://forms.gle/sWecJ4udLGofvSA9A , as well as their Director of Studies, **no later than Monday of week 7 in the Lent term.** No applications to offer the language option will be accepted after this date.

Examples papers

One examples paper is issued for about every four lectures according to the termly schedule. The material is followed up in College supervisions.

The schedule for the examples paper release can be found on the Examples paper Moodle page. Solutions (cribs) of each examples paper will be made available to students online approximately three weeks after the paper has been released.

Coursework

See the Part IB coursework overview for an outline of the activities, together with the timetabled sessions allocated to them.

Part I labs & coursework: general info

Coursework credit

Coursework in Engineering includes lab work and projects, plus a number of other marked assignments.

In Parts IA and IB, all coursework is for standard credit, which means that once students achieve a satisfactory standard in the various groups of activities the associated marks are capped at the qualifying level. Students who fail to reach the qualifying marks, or who fail to attend or hand in certain coursework, will have the shortfall deducted from their total in the Tripos. The marks available and qualifying marks are shown in the Faculty Board Part IA and Part IB coursework and exam credit notices.

The standard credit scheme has been designed to encourage students to attend coursework sessions punctually, to complete each laboratory-based activity within an appropriate time to a satisfactory standard so as to achieve the main objectives of the activity, and to submit any written work for marking within a specified timescale.

The system aims to help students by discouraging them from spending an inordinately long time on any one coursework activity, at the expense of other aspects of their study. It also encourages innovation in design work, as there is not an undue loss of marks for a less successful outcome.

The majority of students are expected to gain the qualifying standard.

General guidelines

- **Charts** in the individual lab expand the lab/coursework schedule into particular activities. Check beforehand that you know the location of your next exercise.
- **Penalties** apply for students arriving late to labs.
- Be aware of the procedure for **rearranging** missed coursework sessions.

- Read the **lab safety instructions below** and observe any special instructions on safety in individual labs. You should bring safety glasses, issued at the start of the year, for all materials labs (in the Lent and Easter terms) and for the structural design course practical work. You may be excluded from labs if you do not bring them.
- Students are advised to read the handout for the experiment online before attending the lab session. Printed copies of the handout will be available at the start of each lab.
- For much of the Part I lab work in the Lent and Easter terms you will need to use your **lab book** for recording data and taking notes during laboratory experiments. You are encouraged to word-process lab reports, which should be glued or stapled into your lab book.
- Experiments are classified as either **short** or **long**:
    - A short experiment occupies a 2-hour period and is completed and signed-up in that time.
    - A long experiment occupies 2 hours in the lab and is then written up as a report.
- Any urgent **problems** with an experiment or exercise should be reported to a demonstrator or the lab leader in charge of the laboratory.
- The report for each long lab should be set out in the lab notebook provided at the start of the year. Your report, together with that of your partner, will be **marked** by a demonstrator at a signing session. This must take place within 15 days of the date of the experiment.
- **Signing** sessions should be booked during the blank periods on the lab schedule. Demonstrators will give guidance on the form and content of the report expected for a particular experiment. It is important that you bring your lab notebook with you to each long experiment.
- **Credit** for the satisfactory performance of a short experiment is 2 marks. Credit for a long experiment is on the scale 0-6, with 4 marks for completion of the experiment and minimally acceptable work, 5 marks for satisfactory work and 6 for exceptional work. Late submission of a report incurs a deduction of 1 mark for each week, or part of a week, after the due date.

Lab safety instructions

1. No eating, drinking or smoking is allowed in the labs or drawing or computing areas.
2. You should always comply with the safety instructions either issued by a demonstrator or displayed on notices alongside equipment.
3. You should bring your safety glasses to all labs and wear them when needed.
4. Do not put scarves, coats, etc., on the benches or stools; hang them up on the racks provided.
5. Do not put books, cases, etc., on top of electrical equipment; overheating with consequent damage may result.
6. Do not wear loose clothing or scarves near rotating machinery.
7. Do not take leads, components or equipment from other lab locations. All the apparatus you need should be present; if it is not ask a demonstrator.
8. At the conclusion of an experiment leave the apparatus as you found it. Report any faults in the equipment which you use. If all faults are speedily reported you should seldom find faulty equipment.
9. Observe special instructions on safety which are posted in the individual labs.
10. Finally, if you run into difficulties, don't waste time - ask a demonstrator for help.

The lab record and long report

It is essential that you bring your lab notebook with you whenever you are timetabled to perform a long experiment. The notebook should be used to record all the readings, observations and calculations that you make, unless the instruction sheet specifically states otherwise. Do not use loose sheets of paper: these are easily misplaced. Charts and other records should be glued or stapled into your notebook.

Your lab record should start on a new page for each experiment performed. It should follow good professional practice and be correctly headed and dated. When there are several readings to enter, arrange these in tabular form, and make sure that the column headings show the quantity measured and the units used. Decide on how many columns you need and set out the table before you start taking readings. Whenever feasible, plot graphs as the experiment proceeds so that serious divergence from the expected behaviour can be checked there and then. Label the axes of the graphs and, where appropriate, indicate the accuracy of the data points on the graph.

The “report writing guide” covers all aspects of report writing in the Engineering Tripos. Specific sections are introduced via IA Exposition classes. For experiments and reports in Part I, you are referred in particular to the following sections:

- Report writing in the Engineering Tripos: long lab records and reports
- Introduction to technical writing: integrity, record-keeping, plagiarism and referencing

Difficulties with the lab report

If you need advice on a particular aspect of your report or you are otherwise held up on some point, then seek help. You can obtain help from a demonstrator in the laboratory or your supervisor. Do this in good time and you will not be rushed into producing an unsatisfactory report.

Copying the work of others is unacceptable. However, discussing your work with colleagues, supervisors or demonstrators is encouraged and can bring about improvements to the standard of the report you submit. The report itself must be your work, written in your own words. Students who submit the work of others as their own will have their reports referred to the appropriate authorities.

Contact details of lab leaders and technicians are available online: IA, IB.

Feedback on labs & experiments

If you have comments about any experiment, please tell us about them using the fast feedback facility. Urgent problems with an experiment should be reported immediately to a demonstrator or senior technician in the lab, or contact the member of staff in charge of the lab. Please be constructive in your comments and suggestions.

You should be given 5 minutes during lab time to complete a short survey on each activity. Please do so as this gives us the information that we need to improve the activities in the future.

Part IB coursework & labs overview

Introduction

Outlines of the Part IB coursework activities and experiments are given below, together with the number of timetabled sessions allocated to them.

Also see the general information about Part I labs & coursework.

Integrated coursework

An integrated coursework activity links four of the short labs (in vibration, structures, soils and signal processing) together round the common topic of “earthquake-resistant structures”, with students choosing one extension activity to pursue in more depth, leading to a report and presentation.

It consists of:

1. an introductory lecture to set the scene and define the problems;
2. 4 short experiments in vibrations, soil mechanics, signal processing and structures including a risk assessment;
3. an extension exercise, in which you will design and conduct a follow-up to any aspect of the short experiments (taking 1-2 lab sessions);
4. a report and short presentation on your extension activity.

The integrated coursework runs over a four-week period, in the term in which you are not doing the IDP. The goals of this lab are to make the coursework open-ended and inter-disciplinary, to relate the labs more closely to Part IA and IB lectures, and to promote teamwork and presentation skills.

NOTE: All students will need their teaching system log in deetails (these are not the same as your email or Raven access).

Computing

The Michaelmas term computing course introduces students to microprocessor programming using C++ as the primary language.

Integrated design project

Students work in teams of six to design, build and test a mobile robot vehicle as an integrated design project (IDP). Various tasks, typical of those faced by the automated guided vehicles used in modern manufacturing plants, are set for the vehicles. Each team member is individually responsible for a particular sub-system, e.g. structure and drive train, power supply, sensors, electronic control or software integration, as well as contributing to the overall system design and optimisation. The project builds on Part IA teaching in electronics, computing, mechanics and structures, and aims to develop teamwork and communication skills. Students spend three two-hour sessions for four weeks working on this project. The resulting vehicles are tested in a competition to determine the best. Assessment is by quality of the robot vehicle and of team, sub-team and individual reports.

For further details see the IDP website on Moodle.

Sustainable engineering

In the Michaelmas term, a series of five lectures presents contemporary applications of the different disciplines to sustainable engineering. The lectures are delivered by a mixture of internal and external speakers and provide an opportunity to hear first-hand from some of the most influential workers in the field. Assessment is through a poster on a topic selected by the student, prepared over the Christmas vacation and presented to a small group of students in the Lent term.

For further details see the sustainable engineering Moodle page. Coursework instructions will be given during the lecture course.

Coursework activities

Term	Coursework	No. of timetabled 2-hour (morning) lab sessions + afternoons
Michaelmas and Lent	Experiments Computing Integrated coursework Integrated design project	16 plus sign-up for long labs Optional helpdesks (schedule on Moodle) 5 + 2 or 3 morning/afternoon 13 + 1 afternoon lecture
Christmas Vacation	Poster on 'sustainable engineering'	

Aims and purposes of Part IB labs

- To acquire practical skills from using different types of equipment and a variety of measuring techniques and to develop a critical approach to assessing the limitations and accuracy of the methods used.
- To learn to work to a sensible number of significant figures.
- To obtain direct experience of physical phenomena, such as the annealing of a metal or the reflection of an electric wave.
- To learn more deeply by doing. Lab work is designed to reinforce the treatment of topics covered in

lectures.
- To foster interest and understanding in the subject through practical work that demonstrates engineering applications.
- To gain experience of situations where practical experiments are better than mathematical methods for solving problems.
- To develop an awareness of the limitations of mathematical modelling by testing the validity of models and the assumptions on which they are based against physical observation and experiment; and to reject unsatisfactory models and assumptions if necessary.
- To acquire presentational skills through practice in (a) recording accurately and in a professional manner observations made in the laboratory and (b) writing concise accounts of what has been observed, the significance of the results and the conclusions that can be drawn.
- To develop skills in organisation and co-operation through working in pairs or in larger groups on a common task to meet a specified deadline.
- To develop an awareness of the safety of the individual and the group through the safe and careful operation of potentially hazardous equipment.

This is a long list of aims to be achieved, and others could be added to it. Remember that departures from expected behaviour can be more interesting and thought-provoking than results that fit the predictions exactly. Experiments are the physical reality: if you find that to within the accuracy of your measurements there are discrepancies within the theory, then it is the theory or more likely the assumptions on which it is based that are wrong. Respect your measurements and remain sceptical about theories until the physical evidence is convincing.

Experiments (Michaelmas/Lent terms)

All students undertake 20 experiments, as listed below. There is a mixture of long and short experiments.

Associated paper	Experiment number and title	Long or short
Integrated coursework: (interdisciplinary)	A1. Dynamic vibration absorber A2. Model structures A3. Soil mechanics A4. Fourier signal analysis	S S S S
Mechanics:	D1. Rotor dynamics	S
Structures:	S1. Plastic collapse	S
Materials:	M1. Materials characterisation M2. Heat treatment M3. Torsion testing	S + L S L
Thermofluid mechanics:	T1. Heat pump T3. Boundary layers T4. Heat transfer	S L S
Electrical engineering:	E1. Power amplifier E2. Synchronous machine E3. Induction motor E4. Wave transmission	S S S L
Information engineering:	I1. Spectrum analysis I2. Vehicle motion control I3. Position control	L S S

Lab handouts

All the introductory information regarding laboratories, as well as handouts for ALL of the experiments are available

on moodle.

It is important that you take the time to read through the documentation on that page and to consult the handout for each experiment PRIOR to the day of the laboratory. Hard copies of handouts will be available in each laboratory.

At your **first** laboratory, please ensure that you collect a copy of the handout for that experiment.

All lab leaders and technicians have been made aware of this procedure and will have the relevant materials ready for collection.

Lecture & lab start times

Lectures

Lectures run from five minutes past the hour to five minutes to the hour, with the following exception:

Part IA and IB lectures in the Constance Tipper Lecture Theatre will start promptly at 9am and 10am. Lecturers will start lecturing at precisely 9am in order to fit in the full 50 minutes of teaching that they need to deliver:

- First lecture 09.00-09.50 (non-standard)
- Second lecture 10.00-10.50 (non-standard)
- Third lecture 11.05-11.55
- Fourth lecture 12.05-12.55

This schedule allows the Constance Tipper Lecture Theatre to empty and refill at 11am. Students should leave the lecture theatre by the doors at the front and on the North side at the back (leading to the roadway), allowing students to enter from the foyer and the courtyard.

Labs

Morning laboratory/coursework sessions begin at 5 minutes past the hour.

Afternoon activities start on the hour.

Part IA & IB lateness penalties

Morning laboratory/coursework sessions begin at 5 minutes past the hour.

Afternoon activities start on the hour.

1. Students arriving up to 10 minutes late will be penalised 1 mark for late arrival, but may be excluded entirely at the discretion of the demonstrator in charge.
2. Students arriving more than 10 minutes late, will be automatically excluded from any laboratory experiment. For other coursework activities (e.g. computing, drawing etc.) the student may, at the discretion of the demonstrator, be allowed to take part in the activity, but will be penalised for late arrival.
3. Students who arrive late due to circumstances beyond their control should first try to rearrange the coursework activity. If this is not possible they may make an application for recovery of marks using the standard allowance procedure.

Rearranging coursework & obtaining extensions: general rules

Introduction

Although we expect students to attend all lab sessions and respect coursework deadlines, we understand there may be reasons why this may not always be possible. In such cases, students may be allowed to rearrange timetabled lab sessions or request deadline extensions for coursework submission. This document sets out the department's approach to this subject as agreed by the Faculty Board, in alignment with University Policy .

Extensions

Application form for a coursework deadline extension: Deadline Extension Application

Principles:

1. Students may obtain deadline extensions of 7 days on a self-declaration basis for the submission of coursework. No tutorial support or medical evidence is required and no reason need be given.
2. No more than **four individual coursework extensions** can be approved under this policy in any one academic year. Each of the four extensions will be for **7 days**.
3. No more than one self-declared extension may be requested for a specific piece of coursework.
4. Deadline extensions for coursework submissions: (a) Applications must be made **in advance** of the deadline. Applications submitted more than one week prior to the deadline will not be accepted. (b) Extensions may not be possible, or only be possible for a limited period of time, close to the end of a term or the academic year due to the timing of examiners meeting. (c) Extensions under the department policy are not possible in relation to IIA project interim and final reports due to the proximity of the final examiners meeting and very tight marking schedule. Students should refer to the detailed guidance on dealing with illness and disability with respect to IIA project deadlines. (d) Extensions under the department policy are not possible in relation to the IIB project final report deadline. Students should refer to the detailed guidance on dealing with illness and disability with respect to IIB project deadlines.
5. Individual self-declared extension requests cannot be combined to obtain an extension longer than 7 days for any piece of coursework. Extensions longer than 7 days must be applied for via the EAMC.
6. If the limit of four self-declared extensions is reached, further extension requests need to be made via the EAMC.
7. Students have the right to apply to the EAMC for allowances, where appropriate, in respect of marks lost or penalties for late submission.

Explanatory notes:

- Coursework penalties and deadline extensions will be checked before examiners meet in Easter term. If any extensions are found to be in breach of these principles, the extension will be removed and lateness penalties will be applied.
- The department policy is intended to reduce paperwork and complexity by removing the need for simple and straightforward issues to be submitted to the EAMC. It is not intended to deal with complex matters. The limits above are intended to ensure that complex situations are given appropriate and full consideration.
- Decisions under this policy are normally made by the Director of Undergraduate Education acting on behalf of the department. On request decisions can be reviewed by the Deputy Head (Teaching). As stated in the policy, students remain free to approach the EAMC if a deadline extension is not approved by the department.
- Approvals will be copied to the student's tutor.
- This policy can be used where students need to request flexibility with deadlines as specified in a Student Support Document. Any further allowances required for this purpose should be sought through the EAMC.

Rearrangements

Application form for rearrangement of a timetabled lab session: Rearrangement Application

Principles:

1. All timetabled coursework activities are compulsory parts of the course.
2. Students may also request re-arrangement of timetabled coursework activities. Due to limited resource the department has to limit the grounds on which a student can request the re-arrangement of a scheduled coursework activity. These are set out below.
3. Up to **7 instances of re-arrangement** may be requested under this policy in any one academic year.
4. Applications to rearrange a coursework activity **must be submitted in advance**.
5. Students are expected to pro-actively contact staff running coursework activities to re-arrange any missed activities. Staff will be informed once the Teaching Office has approved the request. The Teaching Office will assist if needed.
6. Re-arrangement of a coursework activity is not guaranteed, and may be subject to timetabling constraints, limitations on lab capacity and other practical considerations. If re-arrangement is not approved or not possible, and the activity is missed, the student will not be awarded the marks for the missed activity. The student will need to consult with their tutor regarding the possibility of an application to the EAMC in such cases.
7. If the limit of 7 coursework rearrangements is reached, further re-arrangement requests would need to be made to the Director of Undergraduate Education and would require College support.

Explanatory notes:

- If the request is approved by the Teaching Office, a copy of the approval will be sent to the student, the lab leader and / or the technician in charge.
- For Part I coursework sessions, once the teaching office has approved the re-arrangement request, students should identify an appropriate replacement slot in the timetable, in discussion with the appropriate lab technician or lab leader.
- "Re-arrangement" includes requesting to miss a session without penalty in activities that run over multiple days and where it may not be possible to re-schedule, such as Exposition, IA Structural Design, IB IDP or a compulsory IIA project session. In such cases, "re-arrangement" may consist of advice on catching up with the task, rather than a substitute session.
- Contact details of lab leaders and technicians are available online: IA, IB.

Acceptable reasons for seeking rearrangement of a timetable coursework activities (not that this does not apply to deadline extensions):

1. **Illness:** The department will accept self-certification of illness as a reason to re-arrange a practical session. Note that applications on this basis must still be submitted **in advance** of the lab session. Students who are too unwell to submit an application in advance of the lab should consult their Tutor about the possibility of an application to the EAMC. "Illness" includes medical appointments.
2. **Compassionate or religious grounds:** Examples of compassionate grounds includes attendance at a funeral of a close family member or a family or medical emergency. Attendance at a family event, such as a family holiday, wedding or graduation would not be considered compassionate grounds. Applications to rearrange timetabled coursework activities for religious observance that usually occurs over a restricted period (e.g. Eid al-Fitr, Shavuot, Pesach, Shivaratri, Vaisakhi) will be considered. Where observance extends over a significant period of time (e.g. Ramadan), and where it is normally expected that daily activities (including teaching) will continue as normal, applications would not be considered.
   Rearrangements for the purpose of holy visits, pilgrimages etc. cannot be approved. Retrospective requests will not be accepted.
3. **Interviews:** When applying for jobs, work placements or sponsorship, students may be invited for interview on days that conflict with coursework activities. Students should in the first instance seek to rearrange the interview rather than the coursework. If this proves impossible, then the student should try to rearrange the coursework. Such re-arrangements **must** be made in advance. Retrospective requests will not be accepted.
4. **Sporting commitments:** Coursework may not be rearranged to accommodate College sporting commitments or College or University training sessions. Students will, wherever practicable, be allowed to seek to rearrange coursework that conflicts with University sporting fixtures. Such re-arrangements **must** be made in advance. Retrospective requests will not be accepted.

What to do if things go wrong

We hope that your time in the Department goes smoothly, but there may be occasions when you need additional support for academic, personal, health-related or practical reasons. See the 'what to do if things go wrong' page for further information.

Good academic practice vs academic misconduct (including plagiarism)

The University provides guidance on Plagiarism and Academic Misconduct which can be found at https://www.plagiarism.admin.cam.ac.uk, where academic misconduct includes any practice that may unfairly advantage a student's academic assessment (which includes plagiarism).

Suspected cases of Plagiarism and Academic Misconduct will be handled by the Director of Undergraduate Education in conjunction with the relevant Chair of Examiners, which may result in the case being referred to the University's Office of Student Conduct, Complaints and Appeals for consideration under the disciplinary regulations.

You should read and ensure that you understand the Department's guidance on avoiding academic misconduct, which covers:

- definition of academic misconduct
- plagiarism avoidance: expectations of all students
- distinguishing between cooperation and cheating
- sources of guidance on academic integrity, record keeping & referencing

If you have any queries please speak to your DoS.

Exam information

See the practical exam information page for details of:

- the exam period, location & timetable
- preparing for exams
- documents & equipment allowed during exams
- the day of the exams
- after the exams

You may also be interested in:

- the Guidelines for Examiners and Assessors: Part IA, Part IB
- the Department's statement on assessment types for an explanation of the differences between formative and summative assessment activities and details of how you can expect to receive feedback on your performance throughout the course.

Intermission

Guidance notes

The Tripos regulations (16 (b) and 25(c) for Engineering and 2(b) and 5(c) for Manufacturing Engineering) allow students to apply to intermit between Part I and Part II (i.e. after Part IB), or between Part IIA and Part IIB, usually for a year in industry, by making 'a reasoned case' for consideration by the Faculty Board. This case should outline

your plans for the year and how these will contribute to your professional development and education. Typical examples of approved plans include internships with engineering firms, which will enhance the student's skills and knowledge for their Part II specialism.

Please note that as such a period of intermission for work experience is not an integral and assessed part of the course student route visa holders cannot work in the UK using their student visa during a period of intermission . Please see here for advice regarding placements and student visas. In addition a student's visa will become invalid during the period of work experience and a visa will need to be re-applied for.

*Consequently, if you are on a student visa, a period of intermission will have implications for the University's continued visa sponsorship. You **must** seek advice from the International Student Office before you make an application for intermission for purposes of a placement. Please also see information under 'Intermission' on notifying changes of circumstances .*

Application process

- Students complete Section A of the intermission application form and forward it, together with the offer letter from the organisation with which they have secured a placement/internship, to their Director of Studies **by 15 April**.
- The Director of Studies should complete Section B and return the completed form and offer letter to faculty-board-office@eng.cam.ac.uk **by 1 May**.

Faculty Board approval

The Faculty Board will consider intermission applications for the following academic year at its first meeting in Easter Term at the latest. Applicants and their Colleges will be notified of the outcome of the Faculty Board's decision by email.

Please note that the Faculty Board only considers applications for intermission for a normal academic year. It is not possible to intermit for the purpose of an intership for a shorter period or for a period that does not align with an academic year.

As these matters are, by regulation, a matter for the Engineering Faculty Board Colleges should not apply to the EAMC for intermission for the purpose of undertaking an internship for students on the Engineering Tripos.

Progression through the Tripos

A summary of the results that students must obtain to continue with the next part of the course is available at this link. Formal and detailed information about progression requirements is contained in Statutes and Ordinances.

Accreditation

At present the four-year MEng pathways with the exception of the 'Engineering Science' pathway offered by the Department of Engineering are accredited by one or more of the professional engineering institutions, depending on the engineering area studied.

Students are also strongly encouraged to become student or affiliate members of the professional institutions which particularly relate to their interests.

For further details of the accrediting bodies, membership benefits and contact officers within CUED see the Accreditation of the MEng.

How to give feedback on the course

Your feedback is **essential** for informing the development of the Tripos. Staff take it very seriously and every year it leads to real changes, for example:

- the introduction of the Dyson Centre
- the redesign of the Department's Library
- extending the Part IB exam period
- introducing more practical Part I lab sessions
- more staff training on supporting students with mental health difficulties.

We appreciate that it can feel like you are being bombarded with requests to complete surveys see **our page on student surveys and giving feedback on the course** for details of the feedback mechanisms which the Department particularly values. These include the fast feedback facility, course-specific and national surveys and the best lecturers awards.

Please ensure that all comments comply with the Department's code of conduct for survey respondents.

Inclusive teaching

The Department's approach

The Equality Act (2010) requires higher education institutions to take positive steps to make their education accessible to disabled students and to make 'reasonable adjustments' to provision to ensure that disabled students are not disadvantaged. Disabilities may include physical or mental impairments: the majority of these students have specific learning difficulty (SpLD) in the form of dyslexia. The University has a Code of Practice on Reasonable Adjustments for Disabled Students and the Accessibility and Resource Centre has some standard recommendations for appropriate academic support for such students. Further provision may be required in particular cases.

In an organisation of our size and complexity, individual variations in provision are potentially disruptive. However, many of the suggested adjustments are just good educational practice, so represent things we should be doing anyway as a Department that takes pride in the excellence of its teaching. Indeed, we already follow many of the recommendations (e.g. provision of cribs). The approach we have adopted is therefore to aim to have inclusive standard procedures for all teaching activities. Students are expected to make use of available resources to suit their needs, and to contact staff themselves (e.g. lecturers, lab leaders) if additional material is required.

The syllabus pages will give you lecturer details for part IA and part IB lecturers. Lab leader details can be found here for IA and IB.

Contact details of part II lecturers can be found on the relevant syllabus pages.

Any enquiries should be addressed to the Director of Undergraduate Education.

Facuty Board recommendations

- Electronic versions of handouts should be made available online 24 hours in advance of lectures or other teaching sessions (e.g. labs). [This allows students who do have special requirements to produce their own customised hard copy if they wish: e.g. single-sided; large format; non-white background].
- Filled-in versions of notes should be made available online after lectures, ideally within a week but certainly by the end of term.
- Recording lectures (audio) is often recommended to students as a learning aid. Students are permitted to use the recording only for their own personal study, and acknowledging IP and copyright. Lecturers are

asked to consent to their lectures being recorded under these conditions.
- In labs, instruction should be provided in both written and verbal form.
- Lecturers should remember to pay attention to 'signposting' e.g. statement a start of each lecture of what is being covered; tracking progression throughout lecture; summary of main teaching points at end.
- All staff should make particular effort to put new vocabulary into context and explain new concepts. It is helpful to provide some repetition.

Sensus Access

Sensus Access is a free self-service facility which is designed to allow diabled students and staff (or those supporting them) to create accessible alternative formats of inaccessible digital documents. Further information is available on the Accessibility and Resource Centre's website.

Course material on Moodle

Most of the Department's courses have a page on the University's Virtual Learning Environment Moodle.

These pages are maintained by course lecturers. Students registered to these courses are automatically enrolled at the start of the course and can engage in the course activities, including coursework submission when appropriate.

The department makes a self enrollment key available for most courses so that students choosing courses in IIA and IIB can make a decision on course choices without having to be fully enrolled. Self enrollment is at the discretion of the course leader and may not be available for every course. Where available the key may also be used by students to access courses they are following where there are delays or issues with auto-enrollment. This access is provided to students so that they can make an informed decision regarding their course selection. There might be copyright restrictions to the course material; any use of the course content that is not related to a student's education is not allowed. The material should not be redistributed by students in any circumstances.

Where there is evidence of access to moodle for purposes which are not reasonably linked to a student's personal study on the course the department reserves the right to withdraw this facility on an individual or course basis.

The department explicitly forbids the use of automated tools to "scrape" courses. Access patterns indicative of the use of such tools will result in the removal of access to courses.

The "Archive" moodle should be used by students to review material from earlier in their course, the self-enrollment key is not provided for this purpose.

A key is needed to self-enrol on any course. By using this key, you indicate that you agree with the conditions above.

Enrolment key: cued_moodle_access

You may wish to look at our 'getting started' guide.

Departmental facilities and rules

See the facilities and rules page for information about access to the Department, departmental rules and facilities such as the computer system and The Centre for Languages and Inter-Communication etc.

Dyson Centre

Private engineering project space, training and student team space

The Dyson Centre for Engineering Design (not to be confused with the James Dyson Building) is your space as Engineering Undergraduates, where you can undertake your own private engineering projects and experiments, and a space in which engineering students teams can operate.

The area offers training in use of a variety of machines including lathes, milling machines, laser cutters, and there are also selfservice 3D printers which you can learn how to use.

Various funding sources are available to help you kick start your project and the staff are on hand to offer help and advice with all aspects of engineering theory, development and design.

For more information see www.dysoncentre.eng.cam.ac.uk

Also of note is Engineering Stores, where a vast range of engineering materials and components are held in stock for immediate purchase, details are available on:

https://www.finance.eng.cam.ac.uk/finance-purchasing/stores