Part IIA options offered in the Engineering Tripos

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Introduction

After Part IB of the Engineering Tripos students may, within the Faculty of Engineering, choose to study Part II of the Engineering Tripos or the Manufacturing Engineering Tripos. The opportunity also exists for a small number of CUED students reading for the Engineering Tripos to spend their third year at the National University of Singapore (NUS) or CentraleSupelec Paris(CSP), returning to Cambridge for their fourth year.

Much of the administration of the third and fourth-year courses within the Department is based on an on-line web/database system called COMET (Cambridge Online Management of Engineering Teaching). **In the Easter term, between Friday of week 4 and the end of Full Term, you must log on to COMET and make a provisional choice of your 3rd year course preference (Engineering IIA, MET IIA, or exchange). All students are required to make a provisional choice of Part IIA Engineering Area and modules – for MET and exchange students these are as a 'backup'.**

You will have the opportunity to update your modules during the long vacation, and again when you return in October. Module choices must be finalised by Wednesday of week 1 of the Michaelmas term for your Michaelmas modules, and Wednesday of week 1 of the Lent term for your Lent modules. COMET will check that your selection is valid and will offer suggestions if it is not.

Timetable of talks

To be given to second year students by the different subject groups on choices for the third and fourth years. All talks are in LT0. The Meet the MET's lunch will be in LR4.

Tuesday 11th February	1.00	**Options for Part II of the Engineering Tripos (Dr Claire Barlow,** Deputy Head of Department, Teaching)
	1.05 1.30	**Electrical Engineering** (**Prof Tim Wilkinson,** et al) A chance to meet module leaders/graduate students in Electrical & Electronic Engineering, light lunch provided.
Thursday 13th February	 1.00 1.20 1.25	**Manufacturing Engineering and "Meet the METs" lunch** **Manufacturing Engineering (Prof Tim Minshall, Dr R Daly)** **Views of current MET students**

		Lunch in LR4
Tuesday 18th February	2.00	**Information Engineering (Dr Fulvio Forni)**
	2.30	**Bioengineering (Dr Graham Treece)**
	3.00	**Engineering Management (Dr Matthew Jones)**
Tuesday 25th February	1.05 1.20	**Civil, Structural and Environmental Engineering (Prof Allan McRobie)** A chance to meet those involved in Civil, Structural & Environmental Engineering, light lunch provided.
	2.00	**Mechanical and Materials Engineering** (**Dr Hugh Shercliff**)
	2.30	**Fluid Mechanics, Thermodynamics and Energy** (**Prof Holger Babinsky)**

Engineering Tripos Part IIA

Lectures and exam papers

- Students choose **ten** modules from those on offer.
- **Five** modules are to be completed in each of the Michaelmas and Lent terms.
- Most third-year modules (preceded by numeral 3) have 16 lectures and 3 hours of small-group supervisions completed in one term (either Michaelmas or Lent). These are examined by an exam of 1.5 hour duration held early in the Easter term. However, some Group A courses are double modules that run throughout both the Michaelmas and Lent terms and are each examined by a 3 hour examination.
- Group S are Part IIB modules (thus preceded by numeral 4) available to Part IIA students.
  [Note 1: All modules shown here are provisional; confirmed list to be published in May.
  Note 2: There are no supervisions or separate coursework for fourth-year modules.]
- Group I modules are modules imported from departments outside CUED.
- No student may include more than two modules from the combination of Groups I and S in their total.

Modules

A list of modules currently offered to students should give you some indication of what will be on offer, but note that nothing is confirmed for the next academic year until the Faculty Board meeting in May.

Limitations on the choice of modules: Engineering Areas

If you wish to qualify in an Engineering Area, at least **six** modules from your total of ten must fall within one of the Engineering Areas as defined by the Faculty Board of Engineering. A definitive list for the coming year will be available to you in the Easter term prior to you making your provisional selection on COMET. You may choose to

qualify only in 'Engineering', which means that you may choose any combination of modules (subject to restrictions on sets described below and Groups I and S described above). It would also be sensible to discuss with your Director of Studies before choosing a very eclectic mix of courses, in case a lack of overlap makes the workload unusually high.

In both the third year and the fourth year, the list of modules available will be subdivided into approximately twenty sets. Lectures and examinations for each set will be timetabled at the same time. Details of clashing sets for both years will be published in the Easter term. You are not permitted to take more than one module from any clashing set.

The titles of all the Engineering Areas for which you are qualified will appear on each of your third and fourth-year transcripts. It is likely – although not essential – that some of your Engineering Areas at Part IIB will be the same as that at Part IIA.

You must also complete a Part IIA **Extension Activity** as part of your coursework programme; there is no restriction on your choice of activity. More details of these, and of the other elements of Part IIA coursework, both practicals and projects, will be issued at the start of the Michaelmas term.

The Easter term of your third year starts with module examinations. For the remainder of the term, you will undertake two projects selected from a wide range of topics, including Foreign Language projects (currently Chinese, French, German, Spanish and Japanese). A list of those offered for the current year is available on the Third-Year Undergraduate Teaching Homepage. These **Third-Year Projects** do *not* have to be in your Engineering Area.

Introduction to the Manufacturing Engineering Tripos (MET)

Overview

MET is an option for the final two years of the Cambridge Engineering degree that develops and applies engineering knowledge in a business context. MET aims to prepare students to operate professionally as broadly-based leaders for business and technology, by giving them a thorough grounding in management and manufacturing technology, together with an understanding of the full range of activities from market analysis through product design and production, to sales and distribution.

MET IIA

In **MET IIA**, students take ten modules covering the following areas:

- Materials processing technology
- Production machines and systems
- Design
- Operations management
- Industrial engineering
- Organisational behaviour
- Managing people and business
- Financial and management accounting
- Industrial economics, strategy and governance
- Contemporary issues in manufacturing

The modules are complemented by a structured set of industrial visits and a business skills development programme. In addition, students undertake three pieces of integrated coursework, which are a CAD/CAM exercise, a Production Game and the Major Project. Students work on the Major Project in small groups. They research the market for a product, prepare a design and manufacturing plan, and finally a business plan, for a company or division based on that product. The Major Project involves external consultants, and each group is advised on its business plan by a local bank manager.

MET IIB

The MET IIA programme provides the foundations for MET IIB, where the core topics of manufacturing and management are expanded and applied. MET IIB represents a substantial departure from the standard university timetable and approach. Modules and practical activities run in sequence, with a module typically lasting one week. Teaching in the modules is seminar based, to encourage interaction and participation. Industrial speakers supplement the theory, with examples from practice. Throughout the year, students get to apply the principles through company-based project work. MET IIB concludes with an Overseas Research Project, organised by the students.

How to find out more

The MET website contains full information about the course. There will also be an opportunity as part of the Lent term options talk program to 'Meet the METs' over lunch. Current MET students will act as hosts and will be around to answer any questions you may have regarding MET.

Advance notification: The MET group will hold an open afternoon in May at the Institute for Manufacturing to explain the course to interested students (and staff). Refreshments will be served and MET staff and current students will be on hand to answer any questions you may have.

How to apply

The number of places is limited to 40 p.a., and selection is based on interview and previous academic performance. Students who are interested in taking the Manufacturing Engineering Tripos for their third and fourth years should visit the MET website, download and complete the application form and email it to the MET Office deadlines given on the MET website. Interviews for MET will take place after the IB examinations.

Accreditation of the MEng

All students are encouraged to become student or affiliate members of one or more of the professional institutions.

Introduction

Most students reading Engineering at Cambridge will at some stage consider becoming professional engineers, and many will be firmly intending to do so. The engineering profession as a whole is currently supervised by the Engineering Council (UK). There are a number of chartered institutions or similar bodies, each concerned with a particular branch or type of engineering. Corporate membership of the appropriate institution is the professional qualification for that branch of engineering, and carries with it the title of Chartered Engineer.

A Cambridge Master of Engineering degree (MEng), with the appropriate choice of modules in Part II, provides exemption from part or all of the examination requirements at all the principal institutions (although a number of years of practical training and responsible experience are also required for corporate membership). See below for conditions of exemption for each institution.

The institutions welcome enquiries from engineering students and will supply, on request, information about careers and reading lists. Undergraduates may apply for student membership of any of the institutions listed below. Student membership is generally free and entitles the student to receive certain publications and to attend meetings organised in all parts of the country.

Accrediting bodies and CUED institutional liaison officers

All the four-year MEng courses offered by the Department of Engineering are accredited for the 2017-2021 student

intakes by one or more of the following institutions, depending on the engineering area studied. More details, including application forms, relating to membership of individual institutions can be obtained from the institutions' websites or from the appropriate liaison officer:

Acronym	Institution	Liaison officer
ICE	Institution of Civil Engineers Membership benefits	Dr D Liang
IStructE	Institution of Structural Engineers Membership benefits	Dr J Orr
IMechE	Institution of Mechanical Engineers Membership benefits	Dr DJ Cole
IET	Institution of Engineering and Technology Membership benefits	Prof TD Wilkinson
RAeS	Royal Aeronautical Society Membership benefits	Dr J P Jarrett
InstMC	Institute of Measurement and Control Membership benefits	Professor M C Smith
CIHT	Chartered Institution of Highways and Transportation Membership benefits	Dr D Liang
IHE	Institute of Highway Engineers Membership benefits	Dr D Liang
IPEM	Institute of Physics and Engineering in Medicine Membership benefits	Dr GM Treece

The MEng course is also recognised by the European Network for Accreditation of Engineering Education (ENAEE) as meeting the requirements of a “second cycle” European accredited engineering programme. In essence, this means that it meets the European standard for a Master’s degree.

Conditions of exemption

Institutions	Conditions of exemption
All Institutions:	Students must complete two management modules (which includes those in Group E plus '4I1: strategic valuation') during the final two years of the MEng course.
CIHT, IHE, ICE and IStructE:	The MEng is accredited as fully satisfying the educational base for a Chartered Engineer (CEng) with the same requirement of two management modules being taken in Part II.
RAeS, IMechE and IET:	The MEng is accredited for all engineering areas.

Institutions	Conditions of exemption
InstMC:	The MEng is accredited for the instrumentation and control engineering area. Other engineering areas are also accredited provided that at least two of the following modules are taken: • 3F1: signals and systems • 3F2: systems and control • 4F1: control systems design • 4F2: Robust and nonlinear systems and control • 4F3: An optimisation based approach to control
IPEM:	The MEng is accredited for students who take the bioengineering engineering area in both Part IIA and Part IIB.

The Engineering Council

Graduates in Engineering, who are Corporate Members of one of the Engineering institutions above are invited to register with the Engineering Council to achieve Chartered Engineer status (CEng). This is usually acquired by application through the particular institution at the time of acceptance as a Corporate Member.

Students may like to become involved with the various activities of the Engineering Council which promote engineering among young people.

European-Accredited Engineering Programme

The Engineering Tripos (MEng) has been designated as a second cycle European-accredited engineering programme within the EUR-ACE system

Source URL (modified on 11-01-18): https://teaching19-20.eng.cam.ac.uk/content/part-iia-options-offered-engineering-tripos