Part IIA options offered in the Engineering Tripos

Choosing IIA Options - Moodle page

Guide to IIA

Table of contents

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 for Q&A session

Timetable for the online question and answer session. To be given to second year students by the different subject groups on choices for the third and fourth years. Students are advised to watch the pre-recorded videos (available on Moodle) and bring any questions they may have to this session.

Date 25 February 2025

14.00	Options for Part II of the Engineering Tripos (Prof John Durrell, Deputy head of department, teaching)
14.05	Manufacturing Engineering (Prof Alexandra Brintrup and Dr Letizia Mortara)
14.20	Fluid Mechanics, Thermodynamics and Energy (Prof Holger Babinsky)
14.35	Mechanical and Materials Engineering (Prof Alexandre Kabla)
14.50	Civil Engineering (Prof Dongfang Liang & Prof Allan McRobie)
15.05	Electrical Engineering (Prof Andrew Flewitt and Prof Seb Savory)
15.20	Information Engineering (Prof Fulvio Forni)
15.35	Engineering Management (Prof Matthew Jones)
15.50	Bioengineering (Prof Graham Treece)

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.
- You ***must*** take at least one management, "E", module in IIA.
- If you take two "E" modules in IIA you do not need to take a management module in IIB.
- You cannot take more than two "E" modules in IIA.

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, the requirement to take a minimum number of management modules and restructions on 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.

You must take two management modules ("E" modules, 4D16 if you qulaify in Civil Engineering and 4I1 Strategic Management across IIA and IIB. You must take at least one management module in IIA.

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.

How to find out more

The MET website contains full information about the course. T

Advance notification: The MET group will hold MET recruitment 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. Full details can be found on the MET recuitment Moodle page.

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

The discussion on this page relates to the recgonition of the degree by specific engineering bodies for meeting Chartered Engineering exemption requirements. Exemption in this context refers to exemption from some of the requirements laid down by those bodies for gaining chartered status. While some Engineering Bodies require students to qualify in a particular Engineering Area of the course, it is important not to confuse Engineering Areas with exemption requirements.

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) in any Engineering Area, including "General Engineering" but excepting "Engineering Science" in IIB, provides exemption from part or all of the examination requirements at many of 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

The four year MEng courses (the Enginering Tripos and the Manufacturing Engineering Tripos) offered by the Department of Engineering are accredited for the 2021-26 student intakes by one or more of the following institutions, depending on the engineering area studied. Where the engineering area "Engineering Science" appears on a student transcript the MEng degree does not meet Engineering Council requirements. 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	Prof D Liang
	Membership benefits	
IStructE	Institution of Structural Engineers	Dr J Orr
	Membership benefits	
IMechE	Institution of Mechanical Engineers	Dr DJ Cole
	Membership benefits	
IET	Institution of Engineering and Technology	Prof TD Wilkinson

Acronym	Institution	Liaison officer
	Membership benefits	
RAeS	Royal Aeronautical Society	Dr J P Jarrett
	Membership benefits	
InstMC	Institute of Measurement and Control	Professor M C Smith
	Membership benefits	
CIHT	Chartered Institution of Highways and Transportation	Prof D Liang
	Membership benefits	
IHE	Institute of Highway Engineers	Prof D Liang
	Membership benefits	
IPEM	Institute of Physics and Engineering in Medicine	Dr GM Treece
	Membership benefits	

Conditions of exemption

Please see the Engineering Council Website

Institutions	Conditions of exemption
CIHT, IHE, ICE and IStructE:	The MEng is accredited as fully satisfying the educational base for a Chartered Engineer (CEng) by JBM bodies for the Civil Engineering area only. Module 4D16 may be taken and can be counted as one of the management modules for the purposes of accreditation by all Institutions covered by the JBM (IStructE, ICE & CIHT)
RAeS	Students must qualify in the Aerospace and Aerothermal Engineering area.
IMechE and IET:	The MEng is accredited for all engineering areas except students restruicted to IIB Engineering Science due to not meeting compensation and condonement requirements or having transferred into the course.
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.

Source URL (modified on 28-01-25): https://teaching.eng.cam.ac.uk/content/part-iia-options-offered-engineering-tripos