A one year taught Masters programme

MPhil in Engineering for Sustainable Development

For details see: www-esdmphil.eng.cam.ac.uk/

UNIVERSITY OF CAMBRIDGE
Department of Engineering

Department of Engineering
Centre for Sustainable Development

"Engineering for Sustainable Development is about recognising that engineers have to operate within an increasing complex set of constraints, and therefore must be capable of dealing with a range of challenges.

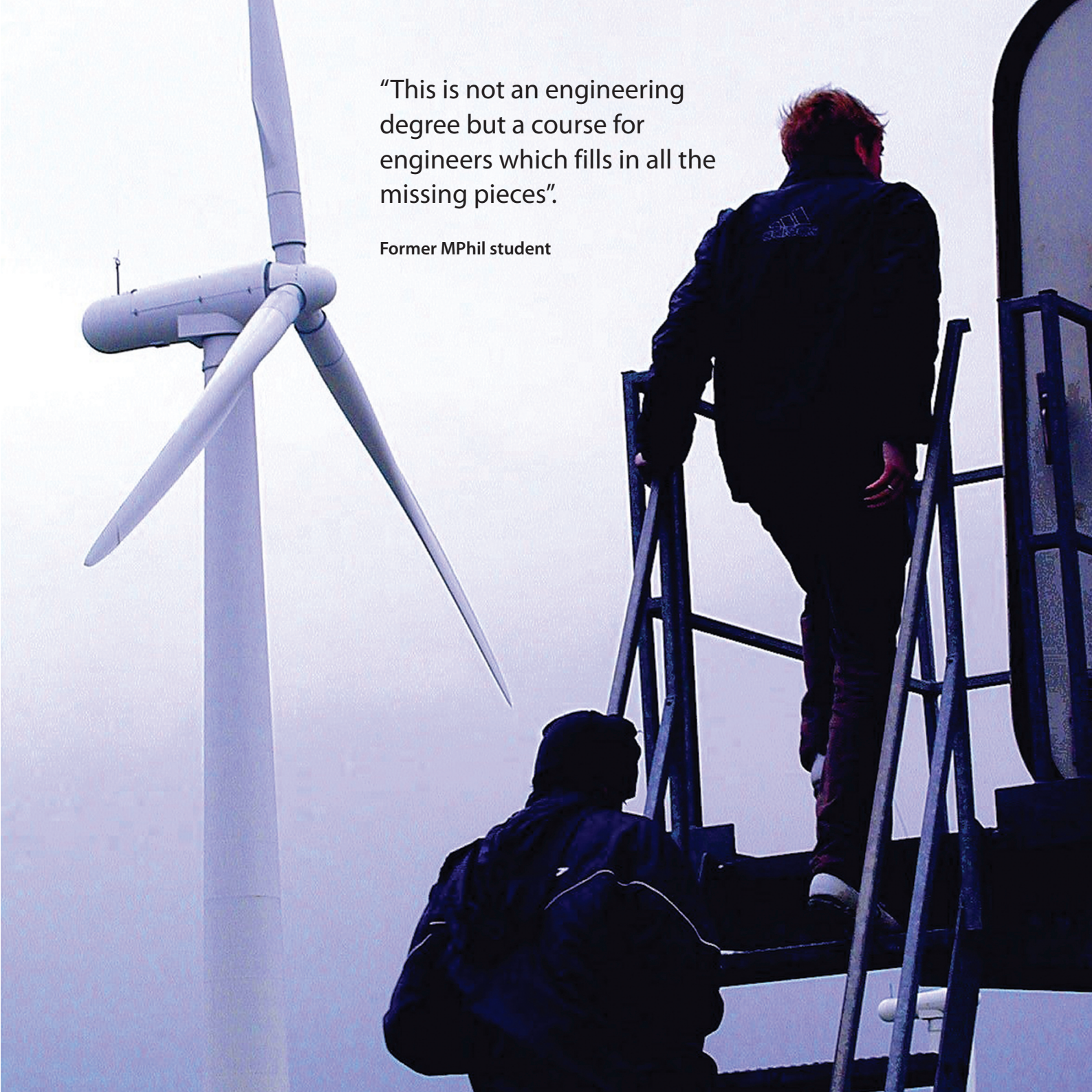
The subject is based on some very straightforward principles. It is about living within Earth's finite limits and resources, helping everyone on the planet to achieve an acceptable quality of life, acting as stewards of the environment for future generations, and dealing with complexity and handling the many trade-offs which have to be made".

Dr Dick Fenner
Course Director

"Our students are drawn from all over the world and bring with them a wealth of experiences and ideas. A key benefit of joining the course is the opportunity to collaborate, now and in the future, with this group. We aim to give you the chance to explore the many dimensions of sustainable development through a range of various activities.

Cambridge is a very special place and many people find their time here turns out to be truly a life changing experience often in ways they had not anticipated, so be ready for new experiences".

Dr Heather Cruickshank
Deputy Course Director



"This is not an engineering degree but a course for engineers which fills in all the missing pieces".

Former MPhil student

MPhil Programme Structure

See: www-esdmphil.eng.cam.ac.uk/about-the-programme/structure

Core Modules

All Students study two core modules in Michaelmas term which deal respectively with qualitative and quantitative aspects of engineering sustainability.

The first module explores **Concepts, Values and Change Processes** and investigates the ideas behind sustainable development which are relevant to engineers, including ethical issues, managing change within the industry and dealing with multiple stakeholders.

The second focuses on **Sustainability Methods and Metrics** and introduces such tools as life cycle analysis, systems dynamics, multi criteria analysis, ecosystem service valuation , environmental economics and social science research methods.

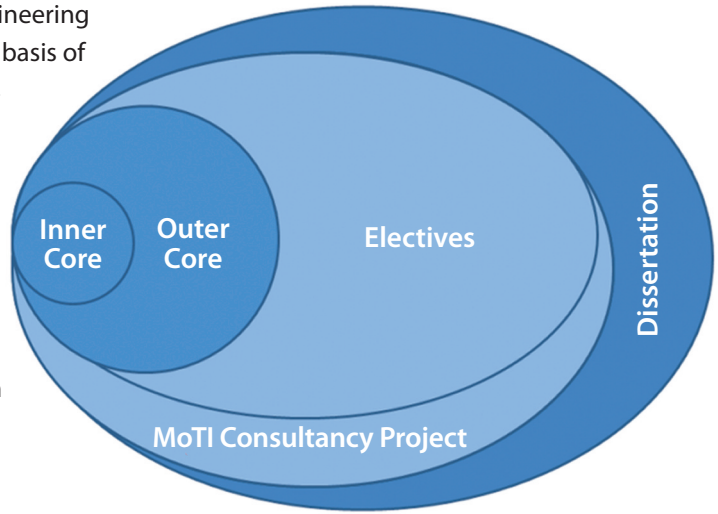
Outer Core Modules

Students choose two modules from a list of four topics which go deeper into specific aspects of the sustainability agenda.

These range from approaches to assessing the **Sustainability of Large Infrastructure Projects** such as dams and airports, to the way **Policy, Legislation and Government** sets the framework within which engineering solutions must be delivered. Principles which can be used to guide **Sustainable Design and Implementation** in the manufacturing and process engineering sectors form the basis of another module, whilst for those interested in international aid and work in developing countries there is a module which deals with **Development Engineering.**

MOTI
Management of Technology and Innovation

Delivered by the Judge Business School this module provides features of an embedded MBA, and offers practical engagement on live industrial problems through the Client Consultancy project in the 2nd Term.



Elective Modules

Students choose four of the following

From the Centre for Sustainable Development

- Sustainable Water Engineering
- Environmental Engineering

From the Engineering Department

- Solar Electronic Power: Generation and Distribution
- Renewable Electrical Power
- Architectural Engineering
- Contaminated Land and Waste Containment
- Accounting and Finance
- Electricity and the Environment
- Sustainable Energy
- Present and Future Energy Systems
- International Business Economics
- Strategic Management
- Biomimetics
- Environmental Fluid Mechanics
- Management of Technology
- Advanced Building Physics

From the Judge Business School

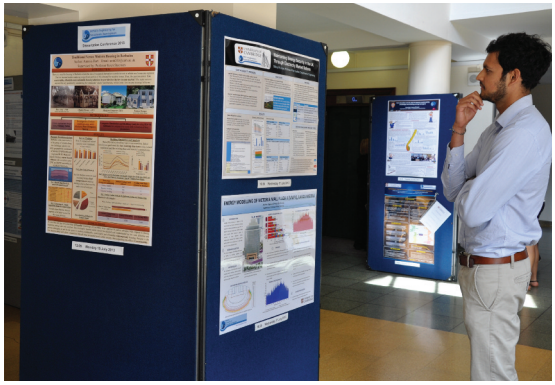
- Introduction to Technology Policy
- Uncertainty and Real Options in System Design
- Negotiation Skills
- System Dynamics
- Political Economy of Technology Policy
- Environment and Sustainability
- Management of the Innovation Process
- Project Management

From other University Departments

- Sustainable Architecture and Urban Design
- Sustainability and Chemical Engineering
- Climate Change Policy and Land Development
- Politics, Society and Nature

Individual Research Dissertation

For abstracts of previous dissertations see:
www-esdmphil.eng.cam.ac.uk/about-the-programme/dissertations



The MPhil Dissertation takes place between May and August and provides an opportunity to study in depth a topic of individual interest to each student.

A progress report on the research is presented at the Dissertation Conference in mid July, which is followed by the Annual Course Dinner in a Cambridge College. This event also welcomes alumni of the programme back to Cambridge.

Other Features of the Mphil

Role plays

Residential field course

Weekly seminar discussions

Change challenges

Site visits

Distinguished lectures

Past speakers include:
Bill McDonough
Jared Diamond
Jorgen Randers
Vandana Shiva
Fritjof Capra
Jonathon Porritt
Goran Carstedt
(7 events per year in Lent term)

How to Apply

Details of how to apply can be found at:
www-esdmphil.eng.cam.ac.uk/prospective-students/how-to-apply

The course is a Professional Practice Programme designed for students from an engineering background, and preferably with some post graduate work experience in the engineering industry.

Applicants are required to have a first or upper second class honours UK degree in an engineering or science discipline, or an equivalent standard from an overseas university.

For full programme details see: www-esdmphil.eng.cam.ac.uk/

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