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# Case Studies

## ⇒ Studies used

- Twyford Down
- Liverpool Airport
- Leavesdon
- Bluewater
- WessexWater HO

## ⇒ Studies Planned

- Three Gorges
- Glasgow
- Twyford Down

# Delivery to Students



- ⇒ Lectures
  - Fourth Years (MEng)
  - Third Years
  - First Years
- ⇒ Projects
  - Fourth Years (MEng)
- ⇒ Case Studies

# Lectures

## ⇒ Fourth Year (MEng) option module

- F14 – Engineering Design for Sustainable Development

## ⇒ Third Year modules

- G13 – Technology, Work and Environment
- G3 – Environmental Engineering

## ⇒ First Year compulsory class

- Engineers in the Society

# F14: Engineering Design for Sustainable Development

- ⇒ Sustainable Development
- ⇒ Energy and Climate Change
- ⇒ Waste and Material Use
- ⇒ Environmental Impact
- ⇒ Water
- ⇒ Sustainability Indicators
- ⇒ Organisational Change
- ⇒ Engineers' role



**F14 CD**

# G13: Technology, Work and the Environment

- ⇒ Technology & Environment (1/4 of course)
  - The origins and causes of environmental concerns
  - Technical, economic and social responses to environmentalism
  - Technology and Transport
  - Technology and Energy
  - Sustainable Development

# Technology and Environment

- ⇒ 4 x 2 hour sessions
- ⇒ Lecture
- ⇒ Participatory exercises
- ⇒ Emphasis on management of problems

# G3: Environmental Engineering

- ⇒ Integrated Water Resources Management (1/8 of course)
  - Impact of Climate Change on Surface Water Flow and Pollution
  - Integrated Computer Modelling for Sustainable Catchment Solutions
  - Innovative Practices for Sustainable Urban Drainage Solutions (SUDS)
  - Sustainable Solutions for Diffuse Pollution, and Surface and Groundwater Contamination

# Engineers in the Society

- ⇒ Introducing issues of sustainable development to first year engineering undergraduates (1/4 of course)
- ⇒ **Engineering and the Environment**
  - Environmental trends, assessing industrial impacts
- ⇒ **Sustainability**
  - Sustainable development, engineering sustainability

# Projects (Fourth Year MEng)

⇒ 2000-2001

- Sustainable energy strategy for Nepal
- Building materials out of waste for West Bengal
- Sustainable shelter choices for refugees
- Water supply for Ethiopia

# Projects (Fourth Year MEng)

⇒ 2001-2002

- Energy efficiency in commercial buildings
- Renewable energy in SW China
- Technology choice: solar lantern and Palm top computers
- Teaching of sustainable development at secondary school level
- Sustainable development design strategy for public swimming pool
- Use of forestry brush for treatment of soil contamination

# Outcomes to date

- ⇒ Progress so far
  - Involvement in other courses
- ⇒ Responses from students
  - Feedback on F14 module (2000-2001)
- ⇒ Response from teachers
  - Participation on working groups

# Progress so far

	2000-01	2001-02	2002-03
4 <sup>th</sup> Year	Original F14	Modified F14	Modified F14 and other modules?
3 <sup>rd</sup> Year	Part of a third year paper	Parts of third year papers	Involvement in many papers
2 <sup>nd</sup> Year	Introductory seminar	Introductory talk	Involvement in many papers
1 <sup>st</sup> Year		Involvement in introductory course	Involvement at start of degree

# Responses from students on F14

- ⇒ 'breath of fresh air' from other modules!
- ⇒ Keeps me awake
- ⇒ I enjoyed it enormously
- ⇒ I wish I'd had the opportunity to take a module like this 10 years ago!
- ⇒ there is room for improvement
- ⇒ People specialising in civil eng. had a clear advantage

# Responses from students on F14

- ⇒ This course has really made me think about a lot of issues that I had no interest in before. It will certainly have an impact on decisions I make in future
- ⇒ Keep up the good work

# Work for the future

- ⇒ “Keep up the good work”
- ⇒ Do ourselves out of our jobs!

