ACED ANNUAL Conference November 2019

An ethical foundation for the education of Civil Engineers

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An ethical foundation for the education of Civil Engineers

Aim of my talk

To share good practice from our experience of equipping engineering students to:

- **Identify**, **analyse** and **respond effectively** to ethical issues arising in their professional and personal lives, and be able to **justify their decisions**

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Who am I?

- Director OF IDEA Centre (CETL) for 15 years, professional philosopher
- With fellow IDEA ethicists worked in partnership with colleagues in the Faculty of Engineering at Leeds for 15 years developing ethics across the curriculum in five Schools including Civil Engineering – two Civil colleagues here today
- Would like also to introduce my colleague

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- Who is Kathryn Blythe?
- IDEA Centre manager for 15 years
- Has managed our partnership with Faculty of Engineering for 15 years
- Leading our work to develop a vision for the Engineering profession: **EngEthics2028**

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Inter-Disciplinary Ethics Applied Centre

- Launched in 2005
- Coincided with the launch of the first **Statement of Ethical Principles** of the Royal Academy of Engineering and the Engineering Council

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Why engineering ethics matters to engineering professionals?

- Accreditation of programmes
- Professional registration
- RAEng/Eng Council Statement of Ethical Principles
- The nature of a profession

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Why engineering ethics matters to engineering professionals 2

- Professionals 'profess' engineering as a way of life
- How one conducts oneself as an engineer is crucial to that way of life, and
- The profession provides a source of strength to individual engineers addressing ethical issues within particular firms.
- Professional formation begins at University
- Starting point: the potential of engineers to do great good and great harm

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Why engineering ethics matters to engineering professionals 3

- Think about the things that engineers can impact on for Good or Ill
- Ask your neighbour!

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Why engineering ethics matters to engineering professionals 4

- Sustainability and climate change
- Weapons development
- Water/Sanitation systems
- Built environment eg Grenfell Tower

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Our experience of developing engineering ethics in the curriculum

- Partnership -- genuinely inter-disciplinary –
  - Ethicists and Engineers working together in genuine partnership to bring it to life for students throughout the curriculum.
- Through integration
- Properly applied – case studies
- Supported by inter-disciplinary research, and consultancy and training

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Our experience of developing engineering ethics in the curriculum

- Why partnership?
- Engineers ensure it is properly grounded in the discipline
- Engineers are exemplars to the students
- Engineers ensure case studies are realistic
- Ethicists have thoroughgoing knowledge of ethical concepts and deep experience in developing ethical reasoning skills

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Our experience of developing engineering ethics in the curriculum 2

- The curriculum at Leeds
- All engineering students now receive:
  - Equivalent of 20 credit module spread over a four year curriculum
  - Roughly 5 credits a year
- A Leeds year is 120 credits

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Our experience of developing engineering ethics in the curriculum

Curriculum slides

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Year 1

Level 1	CIVE1665	Integrated Design Project 1	Core	1	**An Introduction to Engineering Ethics and Professionalism** (Lecture)
Level 1	CIVE1665	Integrated Design Project 1	Core	2	**Engineering in society** (Lecture)
Level 1	CIVE1665	Integrated Design Project 1	Core	3	**Teamwork and fairness** (Seminar x 3/4)

Year 2

Level 2	CIVE2660 / CIVE2860	Integrated Design Project 2 / Design Studio 2	Core	1	**Whistleblowing** (Lecture)
Level 2	CIVE2660 / CIVE2860	Integrated Design Project 2 / Design Studio 2	Core	2	**Sustainability: building** (Lecture)
Level 2	CIVE2660 / CIVE2860	Integrated Design Project 2 / Design Studio 2	Core	3	**Questioning and Challenging Authority** (Lecture)

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Year 3

Level 3	CIVE3750 /CIVE3870	Individual Research Project 1	**Research Ethics: confidentiality, consent and student projects** (Interactive Lecture)
Level 3	CIVE3860 /CIVE3870	Integrated Design Project 3 / Design Studio 3.1	**Goldmine Case Study (Bribery and Corruption)** (Lecture)
Level 3	CIVE3860 /CIVE3870	Integrated Design Project 3 / Design Studio 3.1	**Sustainability: Transport** (Lecture)
Level 3	CIVE3860 /CIVE3870	Integrated Design Project 3 / Design Studio 3.1	**Risk** (Lecture)

Year 4

Level 5	CIVE5755M / CIVE5840	Individual Research Project 2	**Research ethics: consent, confidentiality and other issues** (Lecture)
Level 5	CIVE5851M	Integrated Design Project 4	**Professions and collective action (previously known as Teamworking)** (Lecture)

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An ethical foundation for the education of Civil Engineers:

Getting engineering students to take ethics seriously:

- Credibility from Academic Engineering staff, and
- From Engineering practitioners
- The Assessment trap

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What can we offer? 1

- Facilitating/developing a community of practice
- Co-delivery; co-facilitation online;
- Materials:
  - RAEng Guide: Engineering Ethics in Practice
  - An Introduction to Ethical Thinking
  - Engineering in Society

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What can we offer? 2

Your views?

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ENGINEERING ETHICS 2028

EngEthics2028

- A plan to accelerate and focus the work of the UK engineering profession **in service of the public good**
- Four areas of focus:
  1. **Growing and strengthening the profession**
  2. **Ethical competence**
  3. **Responsible innovation**
  4. **Sustainability and climate change**

- Who is it for? **Engineering firms, professional and other industry bodies, and higher education institutions**
- Consultation now open: **www.leeds.ac.uk/engethics2028**
- *Prof Chris Megone and Kathryn Blythe are looking forward to talking to you*

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