

The only way is Ethics: Embedding ethics teaching in technical modules

Credits: Useful ideas:

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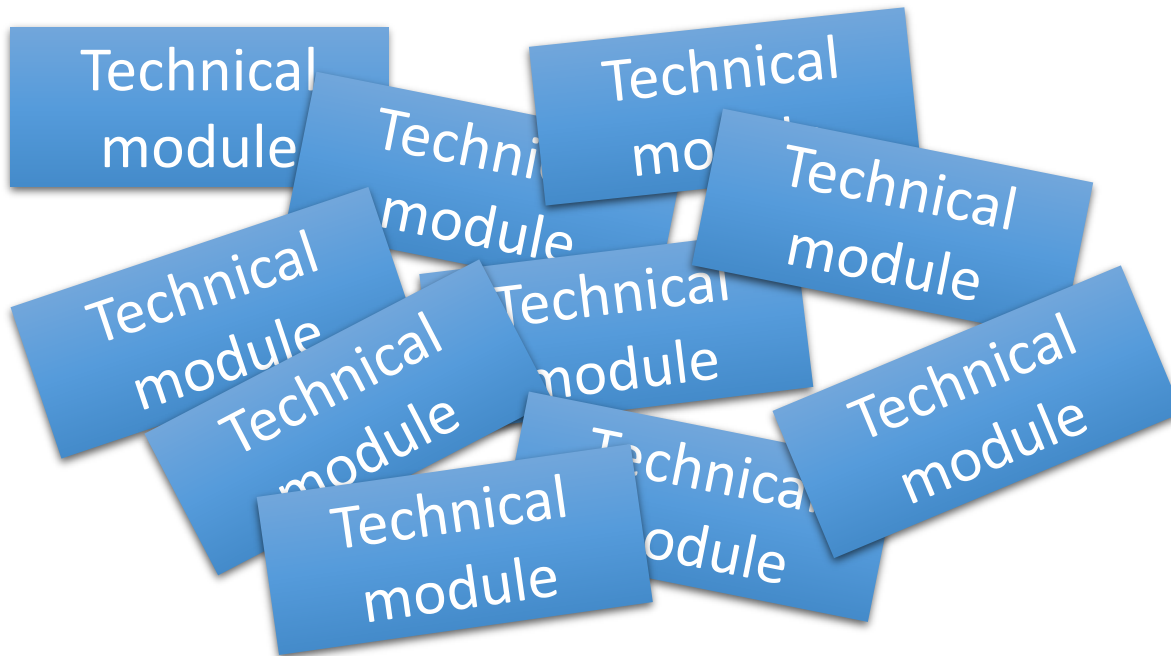
Mona Jaber (QMUL)

Any mistakes:

Richard G. Clegg (QMUL)

How teaching discussions sometimes feel

- “Ethics is tremendously important”
 - “It’s vital students learn sustainability”
 - “We need to teach \$non_technical_thing”
- Why not put them all here?



That one “weird”
module they do in
the first year

Different approach

- Can we embed ethics teaching **within** technical modules (full lecture in context of topic).
- Advantages:
 - Teaches ethics is relevant to technical subjects.
 - Taught within context of a technical discipline.
- Disadvantages:
 - Turns out nobody else does this (unless you know better – **please** tell me you know better).
 - It's a massive pain in the curriculum.

Context and history

- Joint Programme Beijing/Queen Mary (4 degree streams).
- Originates as Institutional Advisory Board recommendation: embed ethics and sustainability content in all modules.
- Modules are (mostly) technical and large, (150-600 students).
- Richard thinks “how hard can it be, I will copy others who surely do this”.



Want to avoid: banal generalities



Is being good?

- a) Good
- b) Not good
- c) Unknown

Want to avoid: Being patronising.

Ethics?
Let a white
Englishman
explain



Approach (Internet Protocols module)

- 45 minute lecture (one slot from 40 in module).
- Motivate ethics (beyond “being good is good”).
- Motivate within context of Internet Protocols.
- Two case studies within technical context with issues.
- Similar approaches for other modules chosen.

Why are we discussing this?

- You may go on to do Internet measurement research
 - Need to be aware of the ethical dimensions of measurements you take.
- You may become an Internet engineer
 - You will want to monitor/measure your systems.
 - What are the ethical aspects of data collection?
- You may work on networked applications that collect data.
 - What data collection can cause harm?
- This matters to industry.
 - When we asked companies like Samsung, Fujitsu, BBC, Cisco what are we **not** teaching all said “ethics”.

Data is the new oil (is that good?)



- Data is valuable:
 - Collect/store more data – better research + more value
 - Researchers want to distribute/download data.
- Data is dangerous:
 - The data could contain things you don't expect.
 - Could harm individuals. Could breach privacy in unexpected ways.
- Consider: you collect a trace of internet traffic from your university for research.
 - You can see what websites are being browsed.
 - Maybe you can see what they search for.
 - Would you be comfortable with your classmates seeing this?



Case I: Facebook happiness study



- “Experimental evidence of massive-scale emotional contagion through social networks” – Proc. National Academy of Science 2014
- Study – can social network make you happy/sad:
 - 689,003 users of social network Facebook.
 - Facebook users “post” to their friends and the public and FB algorithmically selects which to show to users.
 - What happens if people see more “happy” or “sad” things in their news feed?
 - FB showed some users posts with more “positive” words and some posts with more “negative” words.
 - Users in the positive group became more positive and less negative and vice versa (effect sizes small).

Case II: “Encore” paper

- “Encore: Lightweight measurement of web censorship with cross-origin requests”, ACM SIGCOMM 2015
- Study: how do different countries censor www.
 - Authors create a censorship measurement tool.
 - They install the tool on several websites.
 - Users browsing those websites will (without their knowledge) attempt to connect to other websites that may be censored.
 - The researchers now know if those websites are censored for those users.
 - Researchers collect data of country of origin and which sites were censored.

What works or does not?

- Works:
 - Students are engaged.
 - Feedback was positive (students often over generous).
- Doesn't work:
 - Assessment at scale difficult (generic exam questions answered badly). Can't mark 300 student essay questions.
 - Most teaching "lecture" style. Seminar style hard at scale.
 - Coverage does not progress year on year.
- Should have done:
 - Phased introduction with progressive content in year one, two, three modules not "Modules X, Y, Z add ethics, GO!"

Why am I telling you this?

- Is anyone else doing this at their institution? HELP
- Does anyone else feel like trying? I can help.
- Discussion is useful.

