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Design Ambassador
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Institution of Engineering Designers



MY BACKGROUND

- MEng (Hons) Environmental Engineering
- Diverse experience in areas such as highway and drainage design, flood risk and transport planning
- Chair ICE SB G&S
- Recently became IEng MIED
- Design Ambassador for Institution of Engineering Designers (IED)



MY UNIVERSITY PROJECTS

- A lot of group projects
- A lot of presentations as groups
- Projects on real sites with history, previous studies and sometimes real proposals
- A week in the peak district surveying as a team



REALISTIC ELEMENTS

- Teamwork and everyone's strengths and weaknesses
- Multidisciplinary – reflects reality, and you learn about different disciplines
- Having to look at the bigger picture and fit with the associated constraints e.g. timing due to ecological constraints, network rail possessions
- Working on a real site, ideally with real proposals and previous studies to refer to e.g. IOW bridge



REALISTIC ELEMENTS

- Dealing with and taking responsibility for people who don't pull their weight
- Having to do presentations and defend your project
- A week of surveying – dealing with the weather, poor quality equipment, hungover peers etc
- Conflicting deadlines
- Constructionarium



UNREALISTIC ELEMENTS

- Limited opportunity for management of people, budget, resources etc
- Lack of hierarchy/variety of experience/specialisms
- No client relationship
- Level of detail, mostly concept design

WHAT WOULD MAKE PROJECTS MORE REAL?

- Moving goalposts:
 - Cost
 - Timescale
 - Design constraints
- Using real sites where possible, and enabling site visits
- More management opportunities
- Detailed elements

QUOTES

- *I thought the projects we did at UoS were pretty 'realistic'. I think the inclusion of the Constructionarium on many uni's courses is definitely a big positive as well, as it gives the students a real taste of what 'site' is like and how important programming and planning is. [AB]*
- *The big gap in between university projects and reality is that there was a lot of concept design in my university projects. That's not something I've got to do since graduation 5 years ago - any concept design that I know of has been done by company directors or architects. This is possibly more relevant to my chosen field (bridges) than civil engineering in general. I think it is important to have concept design in university projects though - possibly reality is what's at fault here! [AT]*

QUOTES

- *The other main thing I'd note is that in reality the devil is in the details, whereas the design calculations I had to undertake for university design projects were only e.g. main member sizing. Again I don't think this is necessarily something that needs changing in university projects - there wouldn't be sufficient time to sort out all the small details, and I would expect students to struggle with them without an experienced engineer within their design team. [AT]*
- *Teamwork - well, in reality, you have experienced people leading less experienced people leading inexperienced people. At university you're all inexperienced so there isn't really any hierarchy. Not sure that that could be made more realistic. [AT]*

QUOTES

- *In real multi-disciplinary projects each person is only likely to be working in one discipline (e.g. structural design). In university projects we all worked across disciplines, e.g. we all input into Environmental Assessments/Statements, we all had architectural input, we all did some structural design. Again, not something I'd want to change - university is an opportunity to get a feel for the other disciplines, which should help you in reality to understand what other people are doing. [AT]*

QUESTIONS?



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