



Innovation

Presentation at RAEng Visiting Professors' Meeting: 26 March 2009, Nottingham University

The 2009 Summer School for Teachers of Engineering Design



Integrating Innovation into the Engineering Curriculum

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Why?... are we doing it

Sharing experiences, enthusiasms and energy with colleagues

Learning

Networking

Fun!

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What are the aims? Extending part of the Royal Academy of Engineering's 'Innovation' initiative

- Assist with project-structuring tools that 'deal with uncertainty' in the definition, conduct and review of open-ended design projects
- Tie in project design with the competencies in engineering design required by UK-SPEC.
- Review engineering design teaching against changes in practice
- Demonstrate approaches that structure project experiences and deliver extended student competencies in engineering design

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When?... does it take place

... begins late afternoon on Sunday 6. September 09 - there are activities that evening...

... and closes mid afternoon on Wednesday 9. September.

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Where?... Right here!

The Department of Mechanical, Materials and
Manufacturing Engineering,
University of Nottingham

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What? ... are we going to be doing



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What? ... are we going to be doing

- ### Barriers to creativity
- Range of abilities
 - Creativity is self-learning
 - Current assessment methods
 - Individual engagement is difficult
 - Uncertainty - student desire for assessment certainty
 - ~~Learning~~ Learning by doing
 - Role of staff - change lecturer → Facilitator
 - "Minimise teaching content"
 - Existing discipline structure
 - Loosing control

- ### Barriers to creativity (in mass-education)
- Assessment : modularisation
 - R.A.E.! → Priorities
 - Class sizes
 - SSR Constraints/Resources
 - Tutor space
 - Workshop
 - Atmosphere
 - Specialist studio
 - Team Work - hiding in groups
 - Difficult
 - ↳ Group vs. Individual creativity
 - High student : staff ratio
 - Background of the students
 - Timetable issues
 - Perceptions
 - Individual differences

- ### Creativity / Environments
- capture aids - sketching / modelling
 - flexible seating / desks
 - books / Magazines / Posters / Material samples
 - Ownership
 - Integrated to lab / other areas
 - "NO RIGHT ANSWER TO QUESTION ASKED"
 - Chill out zones / Games area
 - Plants / A view
 - Circular tables / dedicated work-spaces
 - Space to match group size
 - Positive, non-threatening
 - ↳ Risk-taking / Healthy

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Who? ... will be the core team...



Geoff Kirk

Norman McNally



Simon Mosey

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Who? ... will be the participants

up to about 26 engineering lecturers who have responsibilities for structuring, giving feedback and assessing design projects



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How? ... do we aim to find the new participants

- Direct mailings to all the RAEng Visiting Professors
- Web publicity
- Word of mouth... starting with this audience, and right now!

Outline programme/registration forms available from
<http://www.nottingham.ac.uk/schoolm3/>

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How? ... do we aim to structure the school

- short- interactive- presentations
- discussion- working together, sharing experiences
- teamworking on a design development project
- 'industrial visit' to experience innovation in action
- presenting findings in a peer review context

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... and- finally- how much does it cost?

Fees:

Including accommodation for 3 nights, breakfasts, lunches, coffee/teas, evening meals including **Engineers' Dinner** with guest after-dinner speaker and coach transport for industrial/business visit.

Full residential fee: £450

Local visitor fee: £325

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Benefits!

- 👓 Course-specific issues addressed...
- 👓 Break-out sessions...
- 👓 Sharing experiences...
- 👓 Developing new tools...
- 👓 Networking...Socialising...
- 👓 No role-play... ***ALL GUARANTEED!***



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**Just because you have different ideas....
it doesn't mean they are better ideas**

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Thank You!

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