

NCDEAS Report to Engineers Canada

Sept. 26, 2016 – G. F. Naterer (NCDEAS Chair)

- NCDEAS / NSERC liaison committee for topics of national importance to Canadian engineering research community.
- EGAD (Engineering Graduate Attributes Development) project – workshops, resources, collaborative hub for educators, etc.
- Engineering Change Lab (ECL) project working with industry to address systemic challenges, e.g., ethics, diversity, innovation.
- Priority issue for NCDEAS is a shift of emphasis in accreditation to outcomes based assessment.

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Shift of emphasis to outcomes based assessment

- This is a positive and beneficial change to focus on what students have learned not what they are taught.
- Employers need graduates who have broader skillsets in the graduate attributes as well as technical competence, e.g., a broader knowledge of the world, more well-rounded individuals, integrators of complex systems, multi-disciplinary.
- Slow progress on outcomes based assessment was a criticism of our system in the recent Washington Accord review.

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HEIs need flexibility for educational innovation and alternate modes of program delivery

- AU's and K-factors were not designed, and cannot be readily used, for various new educational methodologies – flipped classrooms, active independent learning, experiential learning, open ended design project learning, MOOCS, international experiences, extracurricular student teams, co-op work terms.
- Need room to complement technology-focused studies with management, social sciences, entrepreneurship and projects to better prepare students for the workplace.
- Blended classroom structures (combination of online, face to face, self-study material): AU's are a square peg in a round hole.

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Workload associated with accreditation

- Chantal Guay, CEO of Engineers Canada, Fall 2008, NCDEAS meeting: *“Engineers Canada is committed to working with the NCDEAS during the transition into the new accreditation criteria, which is not intended to add more work, but to streamline the accreditation process”*. This has not happened.
- Excessive workload with accreditation (two system model – AU's and graduate outcomes) has greatly increased efforts to prepare for a visit, with no clear benefit to program quality.
- 2008 CEAB commitment that outcomes would replace some or all input measures (AU's) once graduate attributes were introduced.

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Accreditation Forum in Toronto

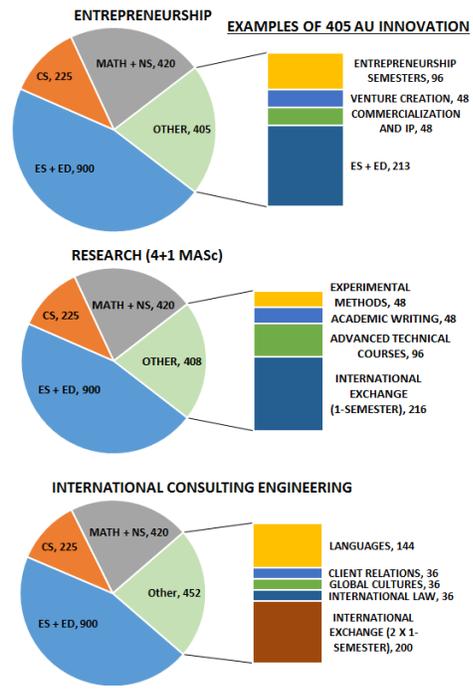
- NCDEAS Vision – in order to provide graduates with a range of enabling skillsets needed to succeed in the modern workplace, beyond only technical proficiency, the HEIs need more flexibility in two areas – 1) educational innovation; and 2) alternative modes of teaching and learning.
- Does Engineers Canada support our vision?
- NCDEAS consensus: 1) 1950 AU based accreditation model does not provide this needed flexibility; 2) the status quo is not acceptable; 3) programs need to move away from AU’s to learning outcomes and qualitative input measures.

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Benefits to stakeholders

- Regulators: enhanced program quality, graduates better prepared for job market, address interests of the general public.
- Employers: broader skillsets of graduates, more well-rounded, integrators of complex systems, multi-disciplinary.
- Students: more opportunities for international, project based, experiential, and other learning.

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Accreditation Forum in Toronto

- Opposing views: 1) flexibility and alternate program delivery can already be achieved, e.g., K-factor; 2) 405 AU's currently provide flexibility for additional relevant learning material; 3) proposed changes lead to watering down of programs; and 4) the present system has worked well for many years.
- Dissenting views by some members of HEIs against the NCDEAS position, however voting by all HEIs at past meeting was unanimous in support of the NCDEAS position.
- Gap exists between two sides due to AU's and K-factors – how they work, what they can accomplish, and their limitations.

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Next steps

- Engineers Canada President (Chris Roney) and CEAB Chair (Wayne MacQuarrie) stated several times at the accreditation forum: *"the status quo is not acceptable"*.
- Reaffirm this position: several people at the forum maintained that the existence of a problem has not been proven – a major impediment to the NCDEAS vision of moving forward.
- One of the highest priority items identified at the forum – create and assess one or more alternate model prototypes for a selected program within one year by a working group of accreditors, regulators and deans.

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