

Embedding Authenticity in Assessments for Engineering Education

Parakram Pyakurel J.B. Souppez





• Authentic assessments simulate workplace tasks

 Can enhance employability skills and student engagement

 Broad concept encompassing Problem Based Learning, Conceive-Design-Implement-Operate, Contextual assessment etc.



Characterises authentic assessment for engineering education

 Provide a framework to design authentic assessments in engineering





- Objectives/Paradigms of authentic assessment as:
 - Assessment as a tool for learning and self-improvement
 - Improve self-awareness

- Two components of authentic assessments:
 - Employability component
 - Globally conscious component





Characteristics – Employability component [1]

Authentic assessment should enhance employability prospects

 Closed books exams replaced by regular assessments that mimic workplace tasks

 Assessments informed by industry/prospective employers



Characteristics – Employability component [2]

 Focus on supporting Knowledge, Skills and Behaviours required for employability

- Transferrable skills
 - Teamworking skills; project management skills; communication skills etc.

- Support development of behaviours
 - Growth mindset, adaptability, work attitude, concern for H§S etc.

Globally conscious component [1]

- Authenticity is deeply entangled with society and social practices
- Engineering has very strong societal impacts
- Engineers need to engage more with the public
- Help student:
 - reflect on their professional fields of interests and how that affect society at large

Globally conscious component [2]

 Complex problems and 'wicked problems' with many interacting components as assessment options

• Examples:

 Affordable housing solutions; efficient transportation; efficient community water purification systems; pollution mitigation solutions etc.



Conceptual framework [1]

• Framework to help design authentic assessments

- Assessments should
 - Support both employability and globally conscious components
 - Reduce the risks of academic misconduct due to inappropriate GenAl use (context based)
- Continuous and regular assessments as opposed to end point exams



Conceptual framework [2]

- Promote self-improvement and self-awareness
 - Self-evaluation report; reflective blogpost; logbooks
 - Self-progress report based on module learning outcomes

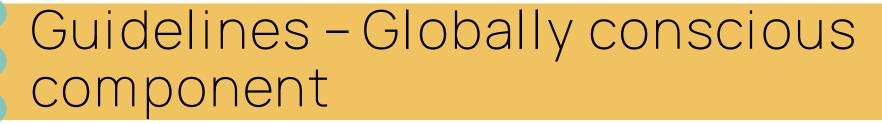
- If the class size permits
 - Interviews and Q§A; debates; role plays



Guidelines - Employability component

- Conventional assessments focuses heavily on the Knowledge aspect
- Focus on Knowledge, Skills and Behaviours
- Involve prospective employers in assessment setting
- Embed transferrable skills and behaviours relevant to the module
- Professional competency identified by national/ international professional engineering bodies (e.g. CEng)





 Embed elements of liberal studies in both engineering curricula and assessments

 Support student understanding of societal and global impacts of the engineering field

• Examples:

- How does culture and societal context affect a particular engineering design?
- What roles could engineering play in reducing global inequality by improving access (to infrastructure)?



Conclusions

- Authentic assessments have potential to:
 - Reduce the gap between workplace demands and capabilities of engineering graduates
 - Make engineering graduates more globally conscious
- More institutions should consider exploring authentic assessments

 Further research based on empirical evidences will help analyse effectiveness of authentic assessments



Thank You!

