Faculty Panels: Enabling Learning Outcomes Assessment

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Outline

Introduction

Engineering context

School of Engineering (SOE) process

Review Panel assessment activity

Engineering Context

Engineering is a professional program

- All undergrad programs undergo accreditation
- Canadian Engineering Accreditation Board (CEAB)

Accreditation issues

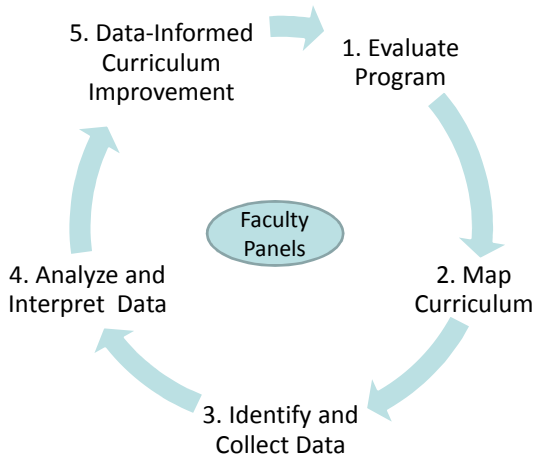
- Data-informed curriculum improvement process
- CEAB defined 12 Graduate Attributes

Engineering Context

*"There must be **processes** in place that demonstrate that **program outcomes** are being **assessed** in the context of the graduate attributes, and that the **results are applied** to the further development of the program." **

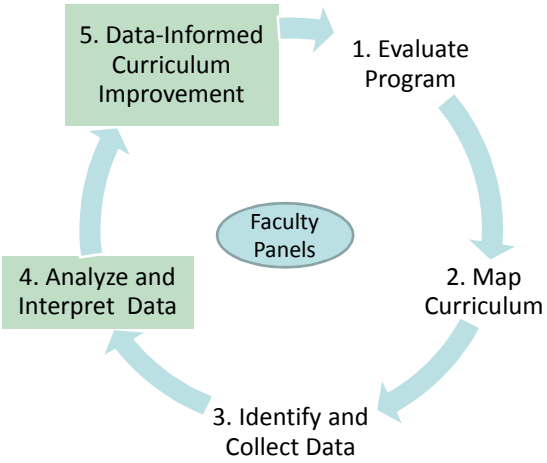
**2013 Canadian Engineering Accreditation Board – Accreditation Criteria and Procedures*

Engineering Context



Adapted from Engineering Graduate Attribute Development (EGAD) Project (http://egad.engineering.queensu.ca/?page_id=857)

Engineering Context



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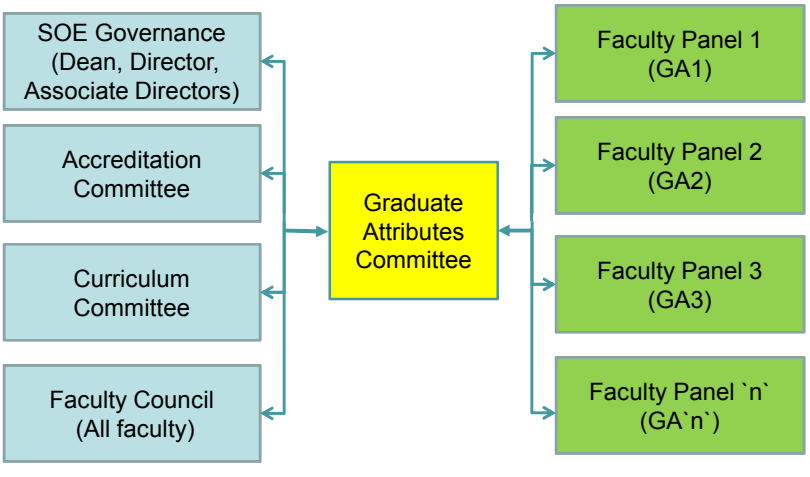
SOE Process



Governance and GA Review Panels

SOE Process

Engineering programs "*must demonstrate that the graduates of a program possess the graduate attributes under the following headings*" *

1. A knowledge base for engineering	*7. Communication skills*
2. Problem analysis	*8. Professionalism*
3. Investigation	*9. Impact of engineering on society and the environment*
4. Design	*10. Ethics and equity*
5. Use of engineering tools	*11. Economics and project management*
6. Individual and team work	*12. Life-long learning*

**2012 Canadian Engineering Accreditation Board – Accreditation Criteria and Procedures*

SOE Process

Defining Measurable Learning Outcomes

Graduate Attribute 2 - PROBLEM ANALYSIS

*"An ability to use appropriate knowledge and skills to identify, formulate, analyze, and solve complex engineering problems in order to reach substantiated conclusions."**

**2012 Canadian Engineering Accreditation Board – Accreditation Criteria and Procedures*

SOE Process

Defining Measurable Learning Outcomes

What does PROBLEM ANALYSIS mean in our Engineering Programs?

- Define "Indicators" for each attribute to articulate the meaning
- 41 indicators total
- 5 indicators developed by SOE faculty for Problem Analysis

*Problem Analysis **Indicators** for the SOE:*

Graduates of the program will have demonstrated the ability to:

2.1 Formulate a problem statement in engineering and non-engineering terminology
2.2 Construct a conceptual framework
2.3 Identify, organize and justify appropriate information
2.4 Execute an engineering solution
2.5 Critique and appraise results

Review Panel Activity

Materials

Background
- Problem analysis indicator statements

Course Data – Student Performance
- Engineering Design IV (ENGG*41x0) – Rubric - Mastery
- Thermodynamics (ENGG*3260) – Grades - Mastery
- Fluid Mechanics (ENGG*2230) – Grades - Reinforce
- Mechanics 1 (ENGG*1210) – Grades – Introduce
- Assessment Instruments

Student Exit Survey Data
- Survey Results

Review Panel Activity

Faculty Panel Review – Example Questions

1. Comment on the performance of the students from the introductory through to the mastery level.
2. Consider recommendations for curriculum improvement based on review of the presented data.
3. Comment on the Student Survey Responses
4. Comment on the quality of the data used. What additional data could be helpful?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