EGAD Project

EGAD National Snapshot

Survey

National Snapshot

National survey and results

Activity at UBC, Toronto, Guelph, Queen's, ETS

Active breakout session

EGAD National Snapshot

Survey

EGAD Group Goal

Support data-informed continuous program improvement

(which also meets CEAB requirements)

Take a sheet of paper (or electronic equivalent)

Going to do **SWOT** analysis:

Divide into four quadrants/sections

Strengths

Weaknesses

Opportunities

Threats

EGAD National Snapshot

Survey Development

Drawing inspiration & questions from:

- EGAD resources
- shared experiences
- NILOA Survey of US chief academic officers

EGAD National Snapshot

Survey Description

33

Questions

42

Schools

26

Responses

8

Demographic

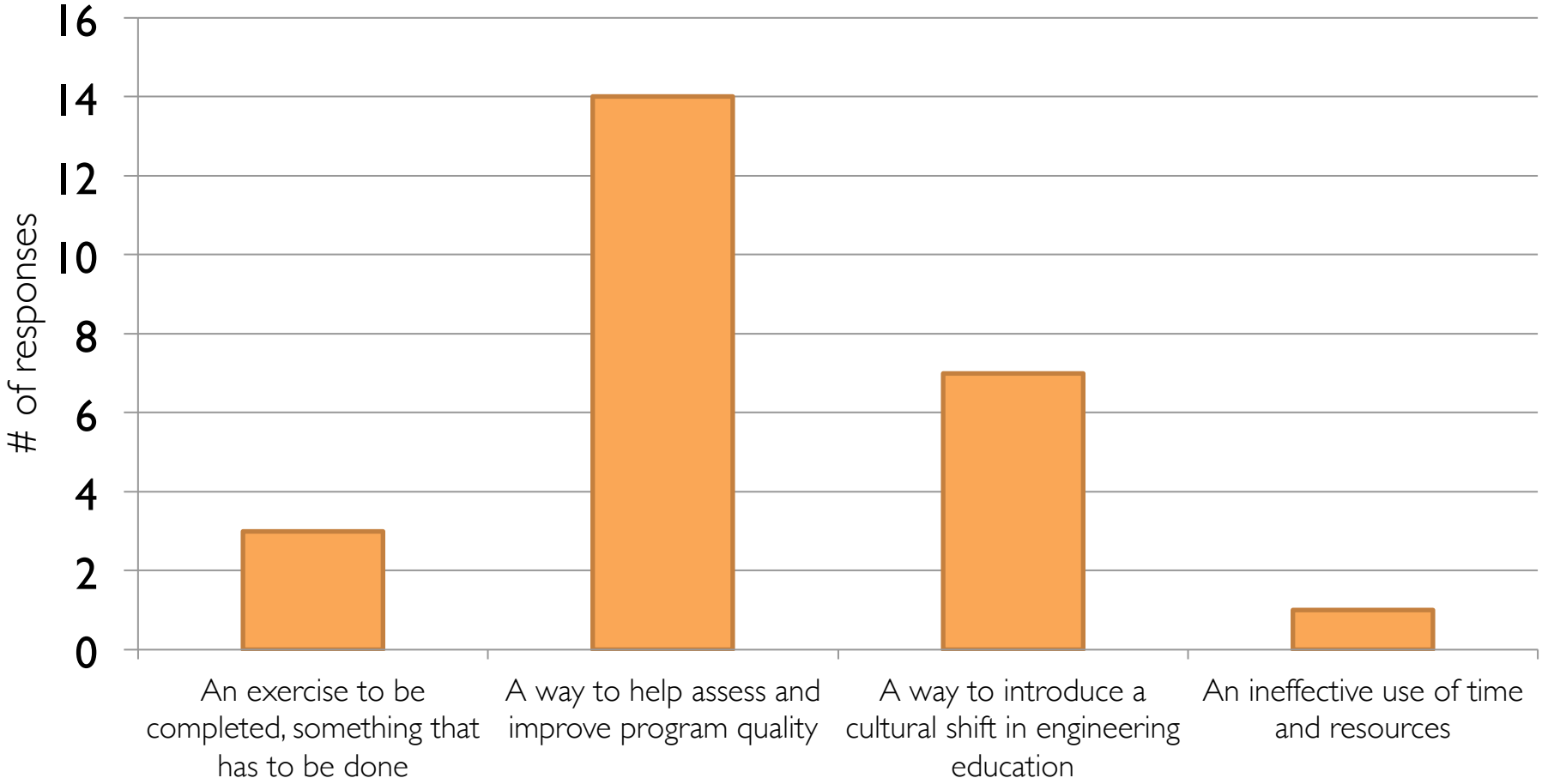
7

Open-response

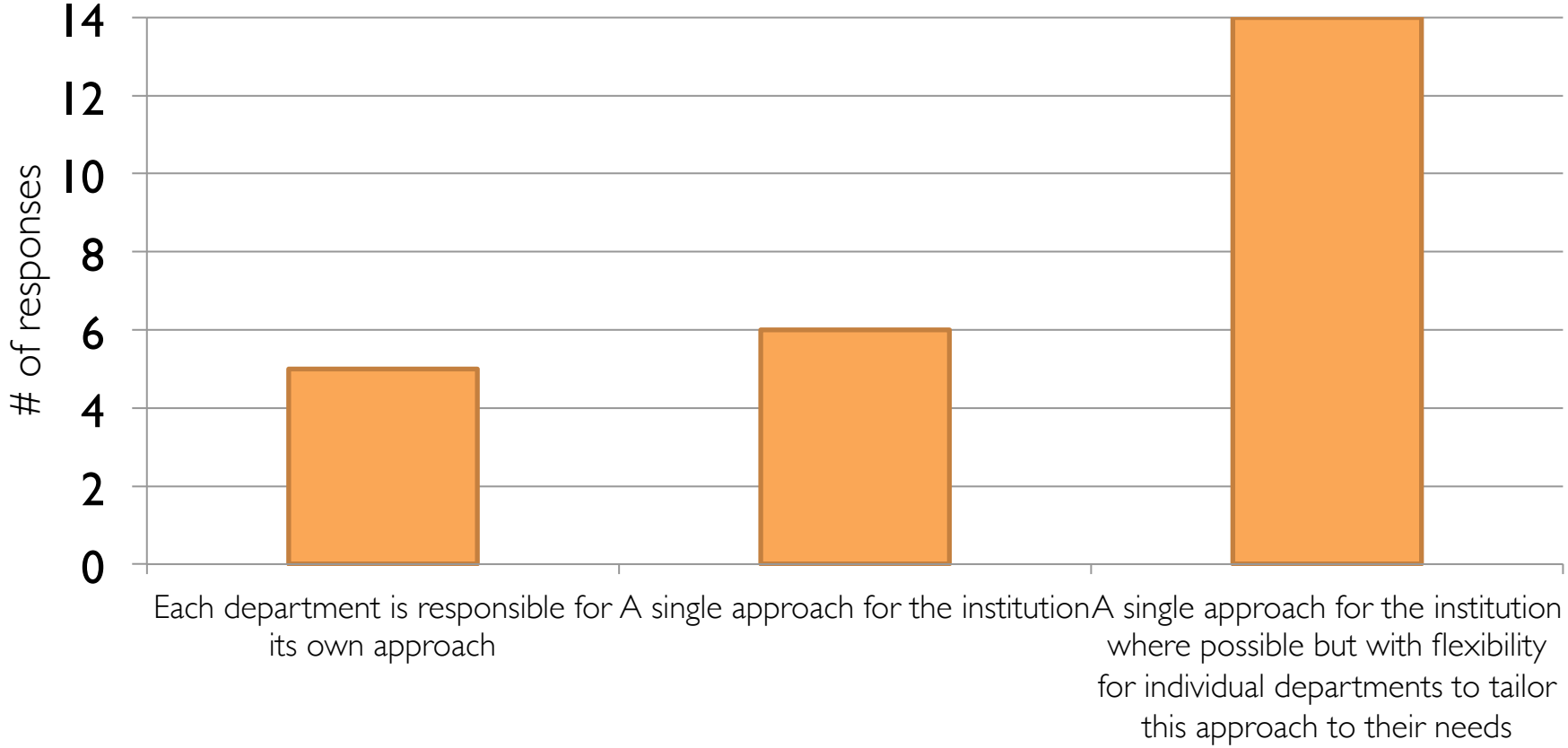
22

Multiple-choice

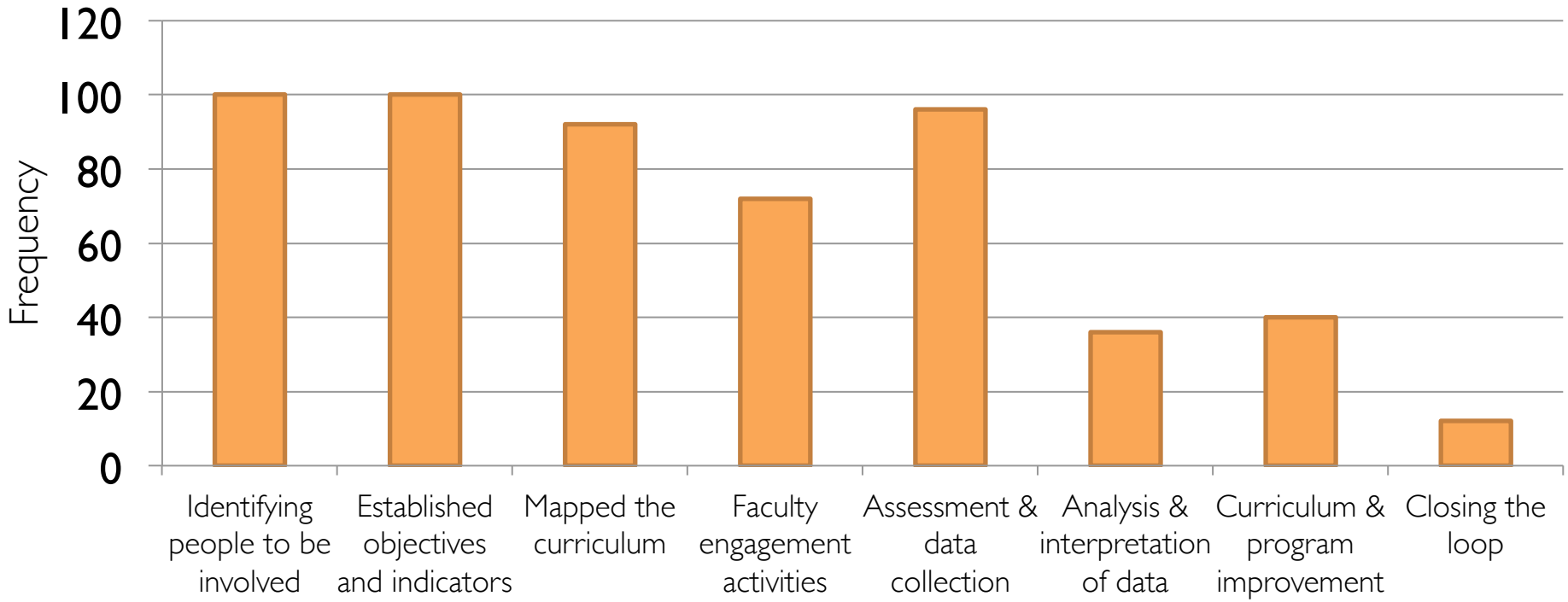
How we view **accreditation**



Commonality in approach



What we've done & still need to do



Engineering is a **team sport**

77%

Collaborated outside of their institution

82%
With their Centre of Teaching & Learning

59%
With other colleagues

47%
With EGAD Project members

Structures that **help**

1st Significant involvement of faculty in assessment

2nd Assessment committees

3rd Centres for Teaching & Learning

How **BEST** to **help**

1st Information on best practice

2nd More financial resources

3rd More faculty involvement in assessment

How we use technology

64% using off the shelf or open source **LMS**

17% using or developing an **assessment management system**

86% using or developing **Ad-hoc** systems or tools

66% turning to **in-house** tool **development**

Popular approach

1. **LMS** to collect **assessment data** of learning outcomes

2. **Ad-hoc** data **aggregation & management**

3. **Ad-hoc** reporting on **learning outcomes** data

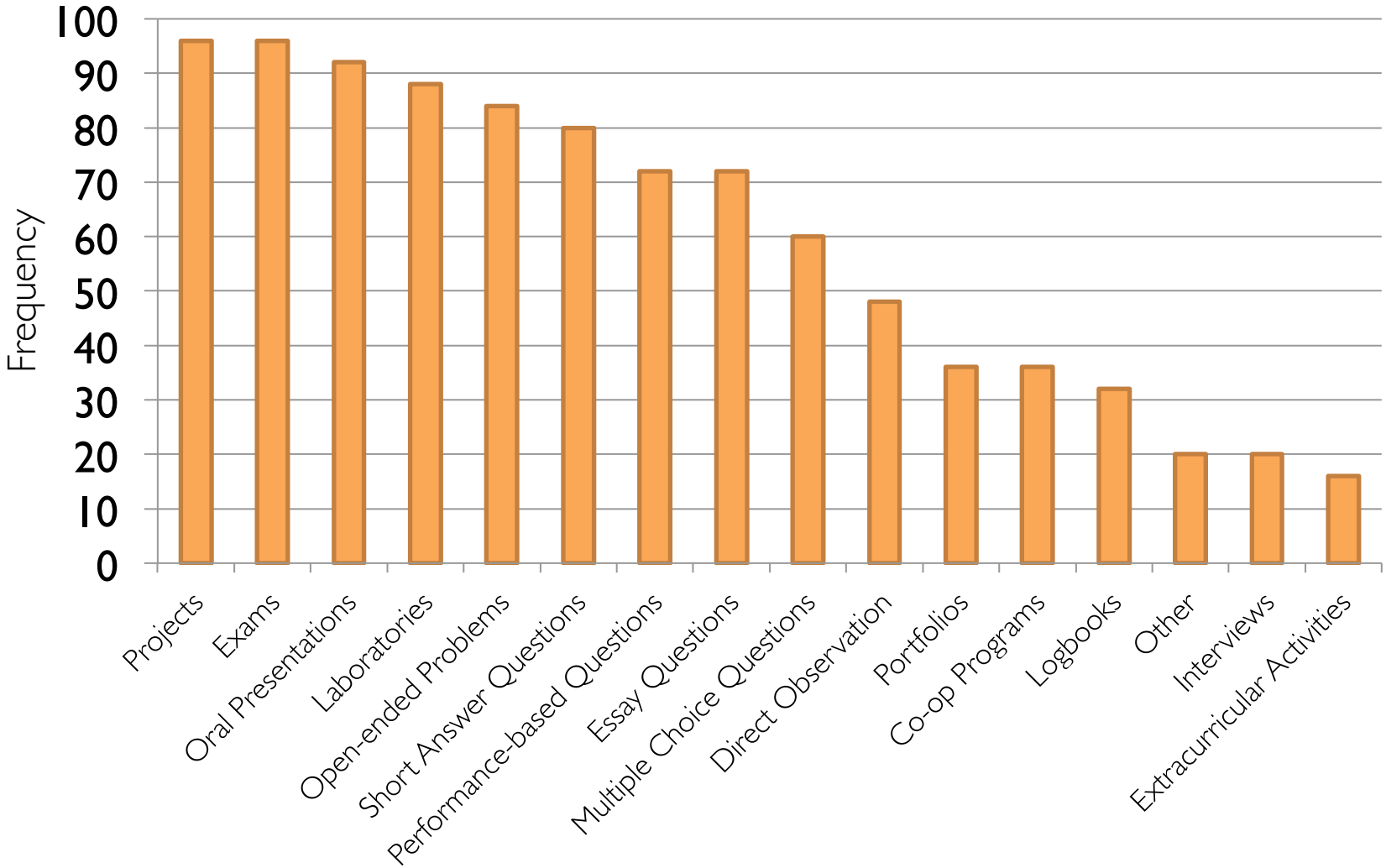
Popular tools

Desire2Learn

moodle

SPSS

Assessments used



Continuous improvements…

60+% engaging in **Continuous** Improvement Activities at the **program** & **course** level

Need improvement

82% have no **evidence** that **student outcomes** & **continuous improvement** activities have impacted student learning

Transparency

50+% share assessment **materials &** improvement activities with **stakeholders**

Long-term **Sustainability**

52%

Yes*

32%

Maybe

16%

No

* Nearly all responses in this category are contingent upon other factors

Key **Issues**

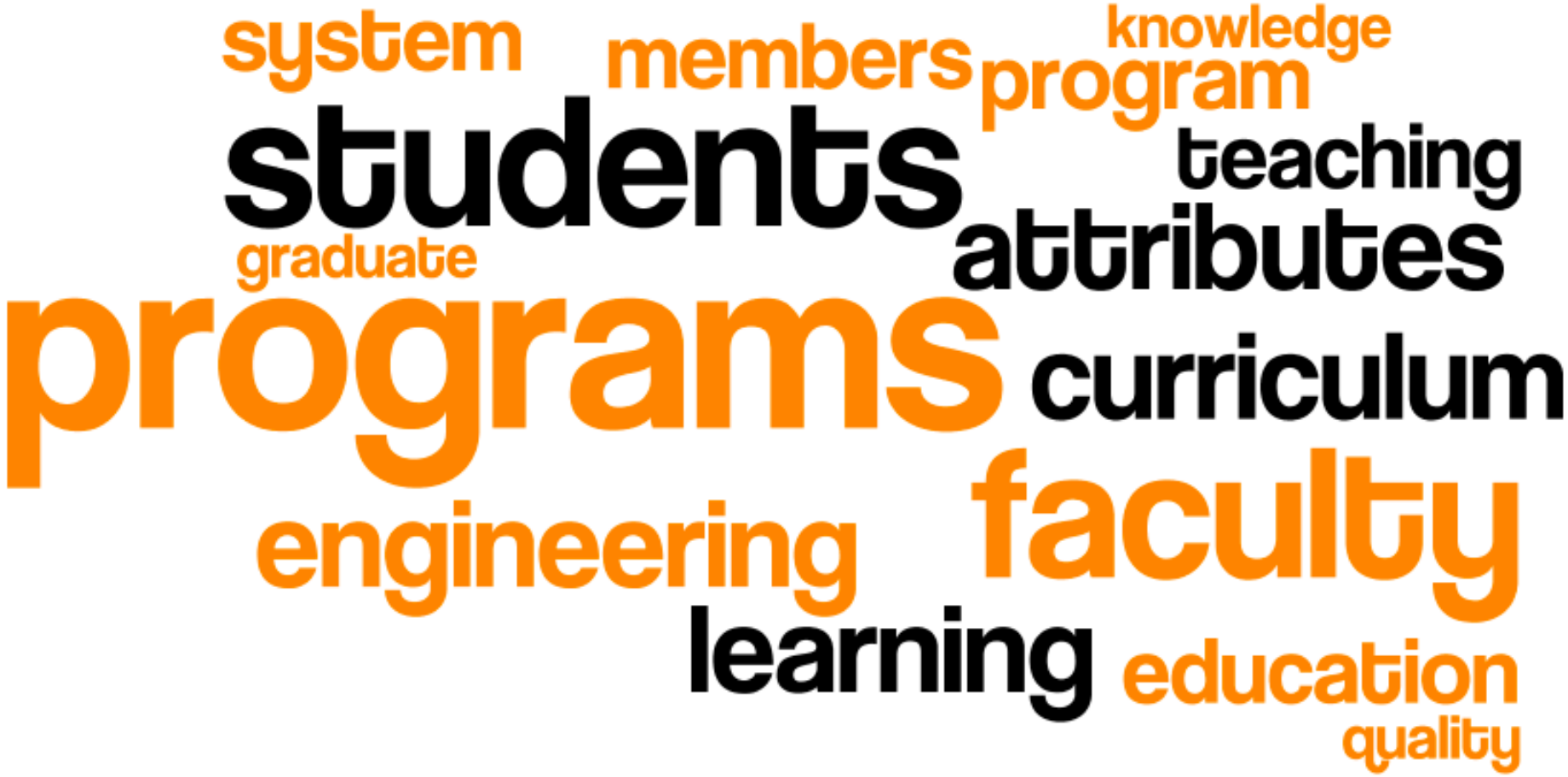
1. **Faculty** engagement & buy-in
2. Resources, **time** & workload
3. **Closing** the loop

Improving **Accreditation**

1. Increased support & communication from **CEAB**
2. Re-address **the** AU system
3. Faculty development, **best practises** & resources

What makes us **hopeful** ?

Improving:



What are we **worried about** ?

Changing culture & promoting faculty buy-in

That the above **will not change** and efforts become meaningless and laborious

The AU system unduly influencing the **GA system**

What do **you** think? (5 min)

At your table:

1. **Reaction: What do the results mean?**
2. **Action: SWOT analysis.** Key strengths, weaknesses, opportunities, and threats to the continuous program improvement process

Thoughts

- Are the attributes from CEAB well aligned
- SWOT analysis as mean to share strategies
- Faculty buy-in – getting faculty on board.
- Faculty education
- Each department approaching differently – courses sitting between departments

Case studies

UNIVERSITY OF
TORONTO

Plan

- Set global outcomes and indicators at the Faculty level – done
- Collect data on indicators using a cohort follow process in progress:
  - Years 1 and 4 in 2012/13
  - Year 2 in 2013/14
  - Year 3 in 2014/15
  - Years 1 and 4 in 2015/16

Next steps

- Data aggregation and analysis
- HEQCO project
  - Development of common rubrics to go with a compiled list of indicators
  - Validation of these rubrics across different courses

UNIVERSITY of GUELPH

Learning Outcomes at University of Guelph - Analytics

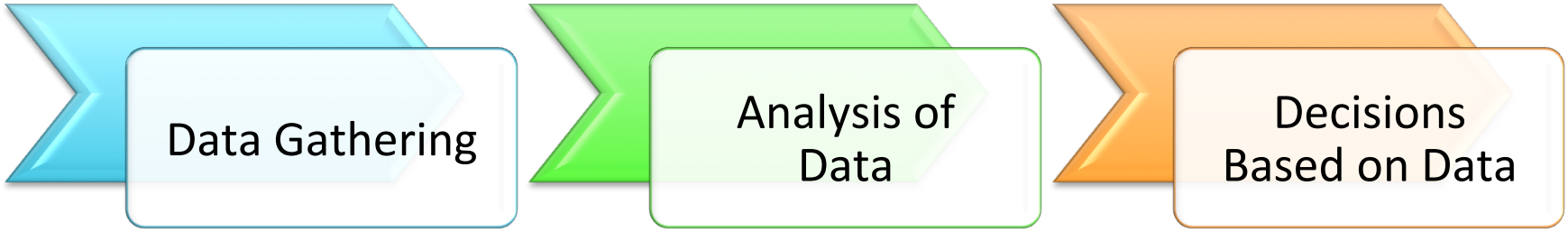
More than just collecting data

More than just analyzing data

Goal is:

Provide **deeper insights** to make **smarter decisions** based on **facts**!

Michael Ticknor, July 2012,
Teacher's College – Columbia University
https://www.youtube.com/watch?v=SEFmvaBTZ3I



University of Guelph - Analytics

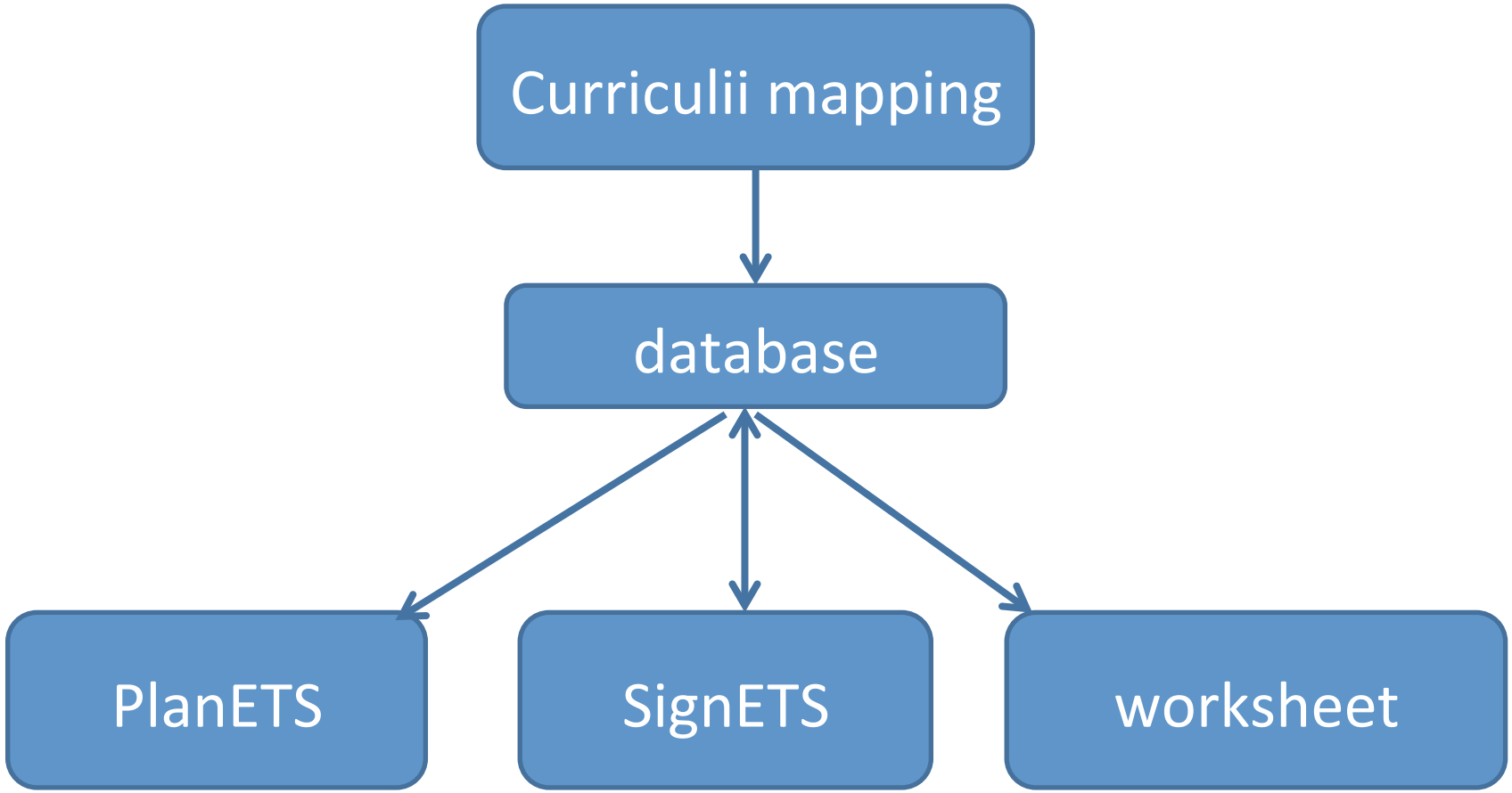
- School of Engineering
- Fall 2014 – Winter 2015 (start with 20 courses)
- 12 Graduate attributes and 41 Indicators
- 7 Majors

University of Guelph - ePortfolios

Fall 2014 – Begin integrating eportfolios into Design stream courses with the goals of:

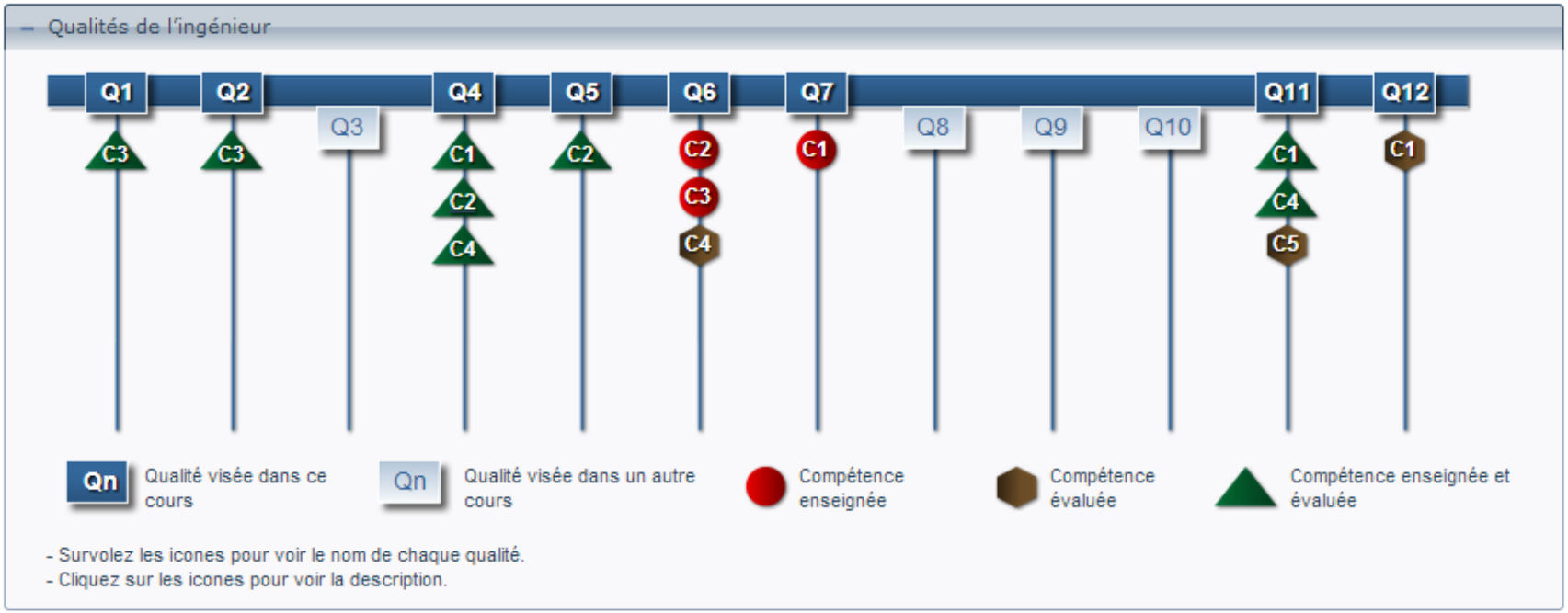
- Ensuring students have mechanisms to take responsibility for own attribute achievement
- Ensure students can represent, with confidence, their own attributes achievement upon graduation
- Compare points of learning from students to validate faculty curriculum mapping to better understand student development and key activities

CEAB progress - ETS



Data collection and dissemination

PlanETS


Qualités de l'ingénieur
Q1
Q2
Q3
Q4
Q5
Q6
Q7
Q8
Q9
Q10
Q11
Q12
C3
C3
C1
C2
C4
C2
C2
C3
C4
C1
C1
C4
C5
C1
Qn
Qualité visée dans ce cours
Qn
Qualité visée dans un autre cours
Compétence enseignée
Compétence évaluée
Compétence enseignée et évaluée
- Survolez les icones pour voir le nom de chaque qualité.
- Cliquez sur les icones pour voir la description.

SignETS

	Élément	Titre de l'élément	Corrigé sur	Points boni	Pondération	En équipe	Équipes solidaires	Date cible	Épreuve finale	Sous-éléments
	Exam01	intra	100,0	0	17,0					
	Exam02	final	100,0	0	33,0				✓	
	Quiz01	Quiz CATIA	100,0	0	10,0					
	Projet01	Modélisation individuelle	100,0	0	10,0					
	Projet02	Modélisation équipe	100,0	0	5,0					
	Dev01	Planification	5,0	0	5,0	✓				
	Dev02	Analyse du problème	100,0	0	8,0	✓				
	Dev03	Recherche et choix de solution	100,0	0	7,0	✓				
	Dev04	Solution finale et bilan	100,0	0	5,0	✓				

SignETS

Qualité	Nom de la qualité
Q4	Conception

Compétence	Nom de la compétence	Nombre
C1	Formuler le problème	1

Titre de l'élément	Corrigé sur
formuler un problème Q4-c1	25,0

Niveau de performance	Signification	Borne inférieure	B sup
0	Ne répond pas aux attentes	0,0	9,9
1	Répond minimalement aux attentes	10,0	11,9
2	Répond adéquatement aux attentes	12,0	17,9
3	Dépasse les attentes	18,0	20,0

Evaluation rubric

Analyse du problème → **Nom de l'équipe :** _____ → _____

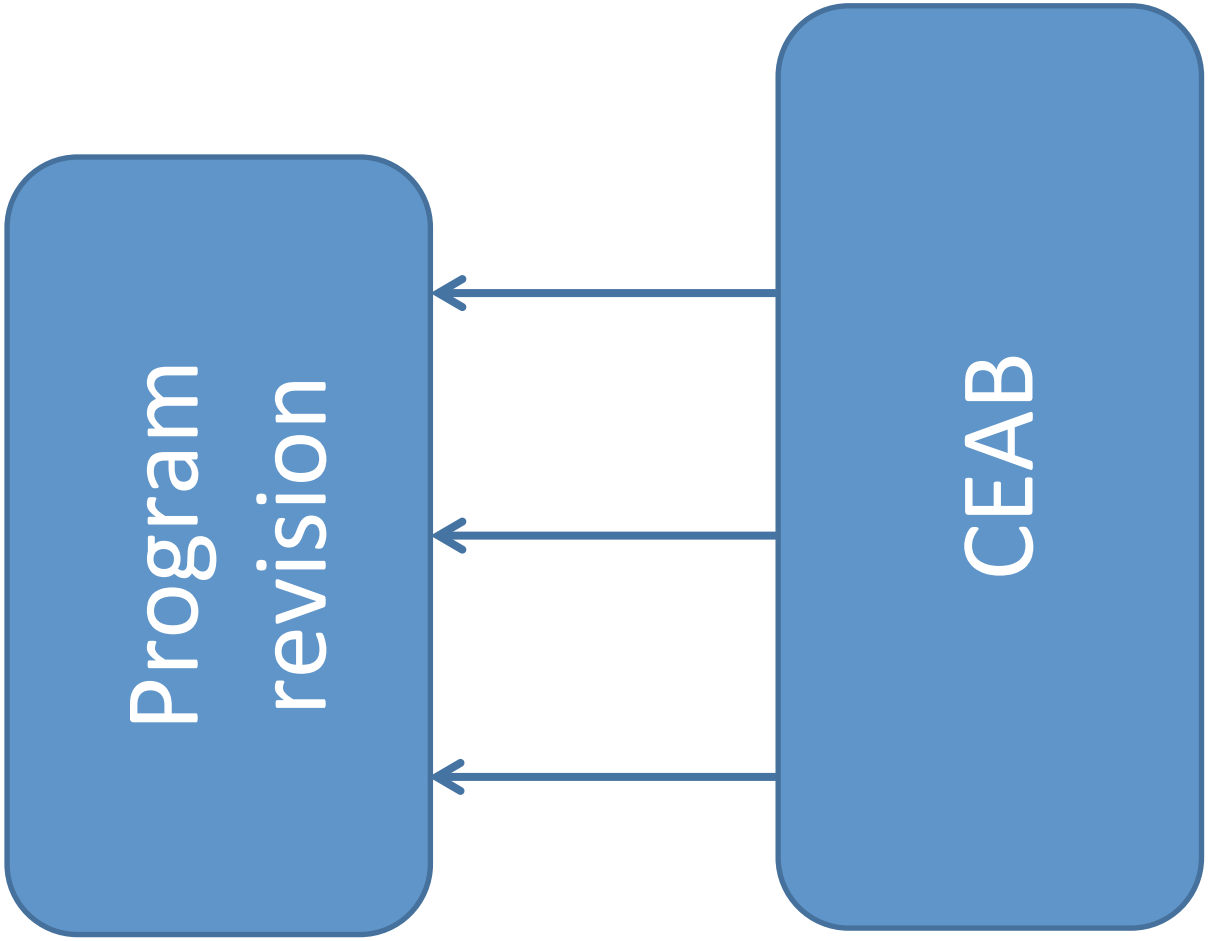
Pondération : 8 %

Q4 : Conception – C1 : Formuler le problème en tenant compte des besoins et des contraintes telles que les risques pour la santé et la sécurité publiques, les aspects législatifs et réglementaires, ainsi que des incidences économiques, environnementales, culturelles et sociales.

Critère/niveau	Non démontré	Marginal	Rencontre les attentes	Dépasse les attentes	Points
Définition du problème →	La définition du problème contient moins que 3 des éléments requis (description, objectif corporatif, marché, clients, besoins et contraintes); les éléments présents sont incomplets, non pertinents ou manquent de cohérence avec les autres éléments; les besoins ne sont pas formulés selon les règles. → /0	La définition du problème ne contient que la moitié des éléments requis (description, objectif corporatif, marché, clients, besoins et contraintes); les éléments présents sont complets mais manquent de pertinence ou de cohérence avec les autres éléments; les besoins ne sont pas formulés selon les règles. → /15	La définition du problème contient presque tous les éléments requis (description, objectif corporatif, marché, clients, besoins et contraintes); tous les éléments présents sont complets mais certains sont non pertinents ou manquent de cohérence avec les autres éléments; les besoins sont formulés selon les règles. → /25	La définition du problème contient tous les éléments requis (description, objectif corporatif, marché, clients, besoins et contraintes); tous les éléments sont complets, pertinents et cohérents avec les autres éléments; les besoins sont formulés selon les règles. → /35	

Spreadsheet

	Group	nb 0	nb 1	nb 2	nb 3	nb 4	Attribute	Name	Indicator	Name
MEC129	1	0	0	0	1	5	4	Conception	1	Formuler le problème
MEC129	2	0	1	0	4	12	4	Conception	1	Formuler le problème
MEC129	3	0	9	3	20	7	4	Conception	1	Formuler le problème
MEC129	4	0	5	2	27	12	4	Conception	1	Formuler le problème
MEC129	5	0	0	2	13	15	4	Conception	1	Formuler le problème
MEC129	6	46	0	0	0	0	4	Conception	1	Formuler le problème
MEC129	7	0	4	8	19	2	4	Conception	1	Formuler le problème



Mechanical Engineering

Mechanical Engineering

- Identify gaps and remediate quickly
- Increase design content
- Complete overhaul of capstone project
- Course descriptors
- Rubric development

UBC

Accreditation Activity at UBC 1/2

General process:

- Most programs had 2011 visit → piloted process
- Common strategy and indicators for all programs
- Now (mostly) divergent
- The hope: 80% convergence in time for next visit

Most programs working on:

- Refining indicators from last visit
- Collecting data (where possible)
- Refining / developing rubrics

Accreditation Activity at UBC 2/2

Early stages of a professional development (PD) experience and tracking system

- Directly linked to grad attributes; mimics APEGBC PD
- Includes 1st year to Capstone, Co-op, CBEL, tri-mentoring…
- How to track?

Example of current work from MECH

- Development of program-wide indicator rubrics
- 4th year descriptors are anchors
- 2nd and 3rd year on sliding scale

Queen's UNIVERSITY

Validating outcomes

FACULTY OF ENGINEERING AND APPLIED SCIENCE, QUEEN'S UNIVERSITY

1

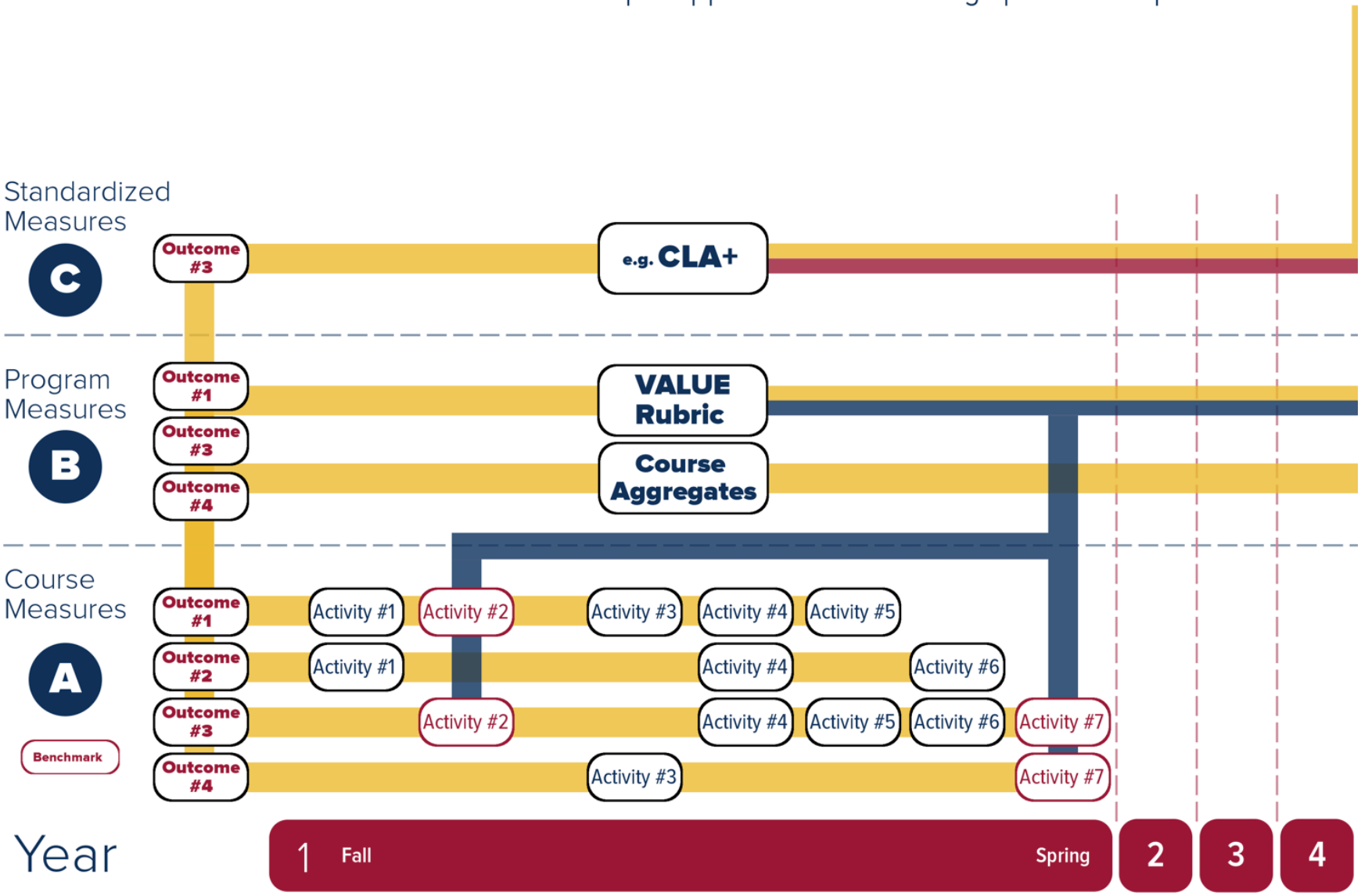
Validating assessment

2

Course measurements

1 Longitudinal Outcomes-based Assessment

A sample approach to measuring specific competencies



2 Working with course instructors

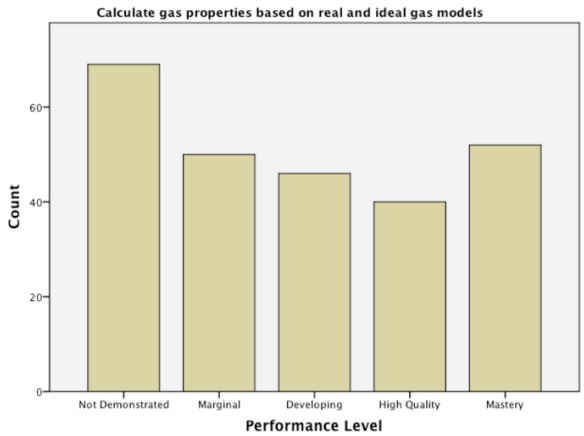
Course Objectives & Outcomes	This is an introductory course in thermodynamics that provides a solid background for further study in the thermo-fluids area. In the later sections of the course, there is some overlap with the 3rd year thermo-fluids course; topics that are introduced in this course are covered in greater detail in the 3rd year course offering.
CEAB Indicators	1. Calculate gas properties base on real and ideal gas models **(CEAB-KB-2-01)** 2. Calculate two phase mixture properties using thermodynamic tables **(CEAB-KB-2-02)** 3. Perform an energy analysis on a thermodynamic system **(CEAB-KB-2-03)** 4. Calculate turbine and compressor efficiencies knowing inlet and outlet conditions **(CEAB-KB-2-04)** 5. Calculate pressure or temperature changes in a closed system subject to an isentropic compression or expansion process **(CEAB-KB-2-05)** 6. Calculate the maximum efficiency of different thermodynamic power cycles (Rankine, Brayton, Diesel, Otto) **(CEAB-KB-2-06)**

	Teaching	Activity	Assessment
Week 1	Introduction to course and overview of syllabus	Lecture	N/A
Week 2	Energy and the laws of thermodynamics	Laboratory: Demonstration of 1st law Tutorial: Problem Set #1	
Week 3	Energy and the laws of thermodynamics #2	Laboratory: Demonstration of 2nd law Tutorial: Problem Set #2	Assignment #1
Week 4	Evaluating thermodynamic processes	Laboratory: Demonstration of 3rd law Tutorial: Problem Set #3	Assignment #2
…			
Week 12	Final Examination	Final Examination	Final Examination **(CEAB-KB-2-01, CEAB-KB-2-02, CEAB-KB-2-03, CEAB-KB-2-04, CEAB-KB-2-05, CEAB-KB-2-06)**

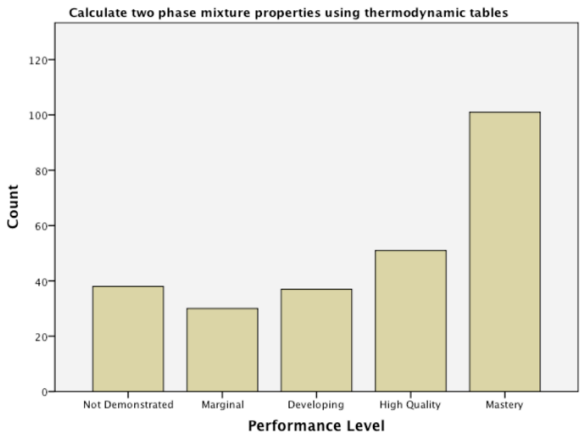
2

Assessment Data: Thermodynamics Course

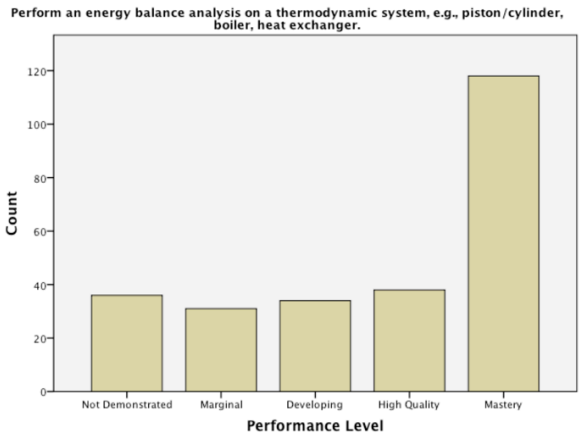
Indicator 1



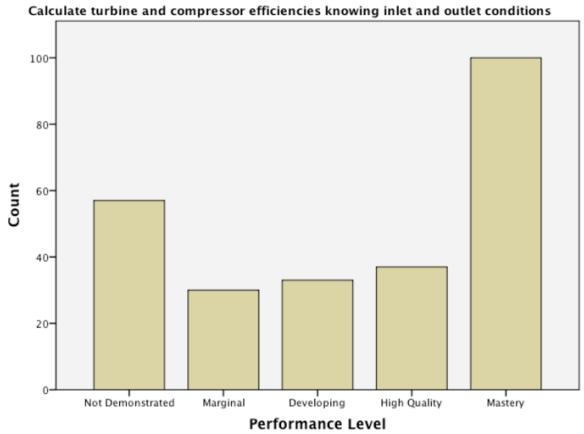
Indicator 2



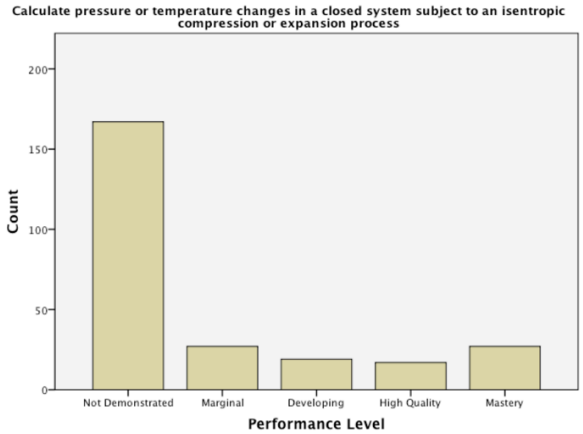
Indicator 3



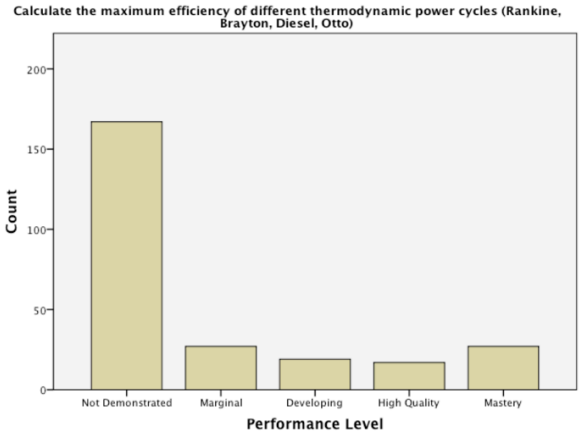
Indicator 4



Indicator 5



Indicator 6



What do **you** think? (10 min)

At your table, related to continuous program improvement, pick a topic:

- What I'd like to do at my institution is…
- I think that in order for the process to improve the quality of education, …
- Here's how I think the community could work together…
- I think the EGAD group should…
- I think that CEAB's role should…

Group **discussion**