

SUPPORTING SUMMATIVE SUSTAINABILITY ANALYSIS USING ONLINE FORMATIVE TESTS

KEYWORDS

**Assessment and
Feedback**

**Technology
Enhanced Learning**

Online Assessment



Suitable for learners of level



Investment time before session



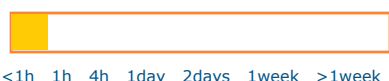
Investment time post session



Suitable for managing large groups



Duration of the act



DESCRIPTION

Online tests are used as formative assessment and feedback to scaffold learning of sustainability topics, prior to a summative case study analysis and report.

WHY IS IT INTERESTING ?

Design and analysis require a high level of cognitive skills, and particularly for year 1 students, this needs to be scaffolded by prior understanding of key concepts at a more fundamental level. In order to provide an opportunity for practice of concepts and break the learning process in smaller steps, before attempting a more comprehensive analysis, online tests were introduced in stage 1.

OUR ADVICES

- Ensure the online test questions cover the key concepts and Learning Outcomes;
- Chose good distractor answers that represent common misconceptions and provide feedback for mistakes.

ONLINE FORMATIVE TESTS

HOW TO DO IT ?

Sustainability is taught as an embedded topic along larger engineering practice modules. In the first year students are assessed with a design project case study at the end of the semester, in which they have to carry out a sustainability analysis of their designs.

Prior to that, online tests are released as formative tests. The tests are released half way through the lecture period before Easter, and cover a wide range of topics taught, focusing on practising understanding of key concepts, or simple application examples. Students are given until Easter to complete the tests. The validated learning is then applied after Easter to develop their sustainability analysis for the summative case study.

EXAMPLES OF USEAGE

CME1025 – Principles of Chemical Engineering, Stage 1, All Chemical Engineering Degrees, Newcastle University, UK.

WHAT TO BE CAREFUL OF ?

Setting a deadline for completion seems to help increasing the rate of completion, which leads to a better understanding of the sustainability concepts and to a higher number of students attempting a deeper analysis of their designs.

