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MENT102 Proposing an Impact Analysis of Teaching Engineering Technology

ECTS Value: 5 ECTS

Overall Objectives and Outcomes

This module gives the skills and knowledge to propose the research and analytical techniques to understand improved students' learning experience. First general review on three main traditional and contemporary techniques such as modelling and prototyping the traditional hand-on activity-based laboratory in Engineering Technology is reviewed and then compared with simulation-based labs which has gain popularity in the field of engineering and technology. Finally, the module will assist in building up the framework to assess a proposed plan to identify the effectiveness of one or more pedagogy techniques in engineering technology.

By the end of this module, the learner will be able to:

Competences:

a. apply and develop the necessary analytical and critically focussed interpretive approaches towards Engineering Technology pedagogy identified field of research enquiry;
b. identify and plan within agreed timescales and using relevant methodology and evidence, an acceptable evidence review and research design proposal which address and critically explore a research question and a specific learning environment;
c. recommend and justify for enhanced experience and class room discourse.

Knowledge:

a. formulate research questions and describe and critically evaluate differing teaching methodologies and relevant assessment approaches for Engineering Technology;
b. formulate paradigms and justify the selection and use of specific research methodologies to assess a set of unit delivery in Engineering Technology;
c. communicate effectively the planning and origination contexts for a self-evaluation project in Engineering Technology Teaching.

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Skills:

a. provide a proposal for self-evaluation in Engineering Technology Teaching.
b. select the use of appropriate methods for self-evaluation in engineering technology teaching depending on different scenarios and timing of the course.
c. select the appropriate tools for evaluation
d. use of qualitative and quantitative approaches to an on-going self-evaluation process

Assessment Methods

This module will be assessed through: Assignment

Suggested Readings

Core Reading List:

1. Goodhew, P.J. (2010). Teaching Engineering: All you need to know about engineering education but were afraid to ask. UK: The Higher Education Academy. Available from: http://core.materials.ac.uk/repository/teachingengineering/teaching_engineering_goodhew.pdf
2. Felder, R.M. and Brent, R. (1999). How to improve teaching quality.Quality Management Journal, 6(2), 9-21.
3. Lucas, B., Spencer, E., & Claxton, G. (2012). How to Teach Vocational Education: A Theory of Vocational Pedagogy. London: City & Guilds Centre for Skills Development.

Supplementary Reading List

1. NSPE (2013). Professional Enginering Body of Knowledge: Prepared by the Licensure and Qualifications for Practice Committee of the National Society of Professional Engineers.Available at: https://www.nspe.org/sites/default/files/resources/nspe-body-of-knowledge.pdf
2. Effective Adult Learning: A Toolkit fir Teaching Adults. Available at: http://www.nwcphp.org/training/opportunities/toolkits-guides/effective-adult-learning-a-toolkit-for-teaching-adults;
3. Lang, J.M. (2016). Small Teaching: Everyday Lessons from the Science of Learning. Jossey-Bass.
4. Oakley, B. (2014). A Mind for Numbers: How to Excel at Maths and Science. TarcherPerigee.