

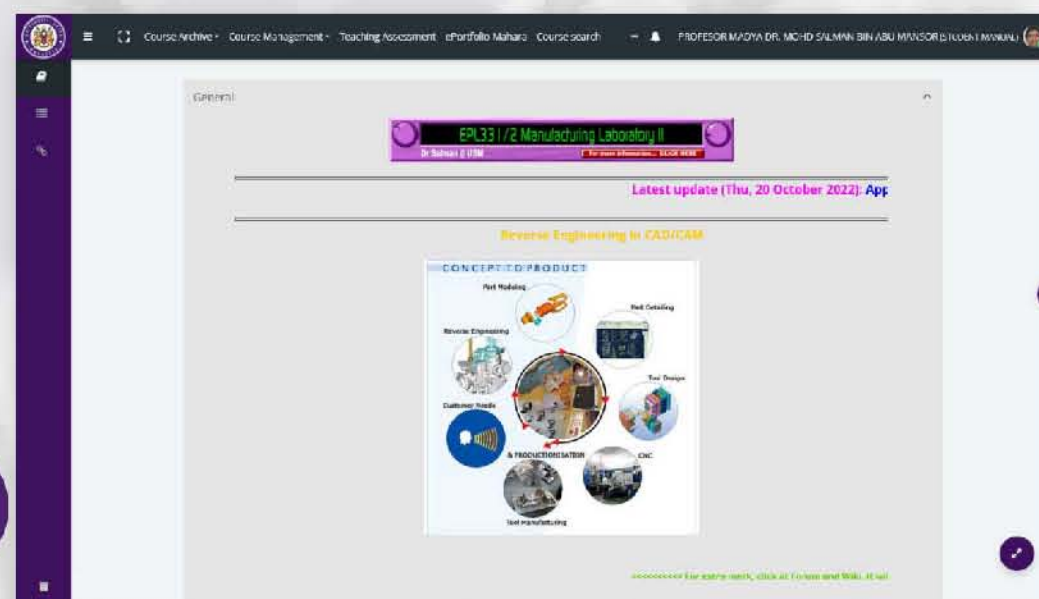
# INTELEC2023

## INNOVATIONS IN TEACHING & LEARNING COMPETITION

### i-OEL Reverse Engineering for A Transformative Teaching



#### ABSTRACT



In the era of Industrial Revolution (IR) 4.0, previous teaching method for laboratory course is no longer adequate for the learning process since it is in the form of fully guided experiment. Consequently, learners have no opportunities to explore their own Reverse Engineering experimental work which have limiting their creativity to analyse and develop new products. In order to enhance creativity and independent learning cultures among the learners, therefore an Open Ended Laboratory (OEL) for Reverse Engineering experiment is developed in a sustainable environment.

#### OBJECTIVES



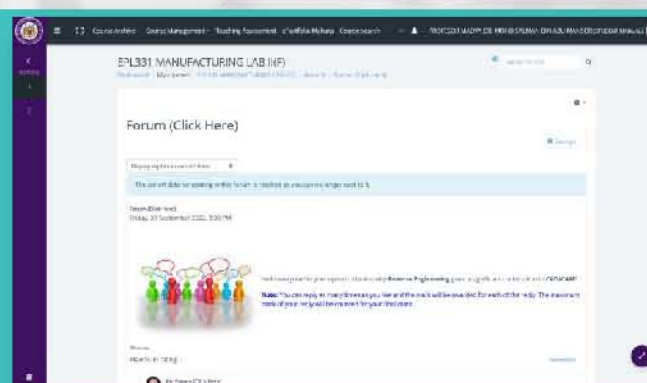
On top of that, **i-OEL Reverse Engineering** is introduced for improving the teaching method and learning process on OEL for Reverse Engineering experiment via eLearn@USM. **i-OEL Reverse Engineering** is designed to attain these two objectives:

- To provide a platform by giving opportunities for the learners to explore their own Reverse Engineering experimental work.
- To enhance learners' creativity for new product development via Reverse Engineering experiment.

#### ADDED VALUES

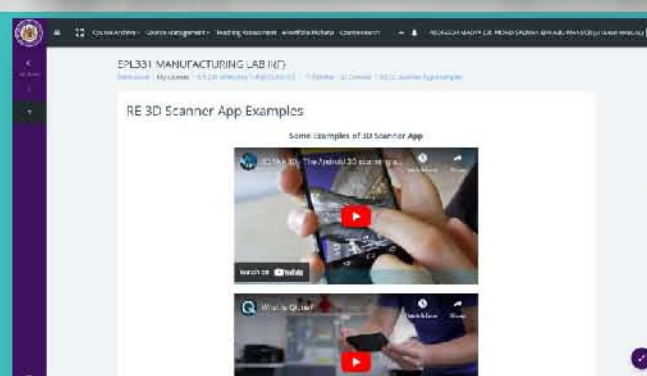
##### 1. Scenario-Based Learning

- Forum on Reverse Engineering gives a significant contribution to CAD/CAM
- C: Cognitive skill by research



##### • Multimedia for Reverse Engineering Applications

- A: Interpersonal skill by individual and team work



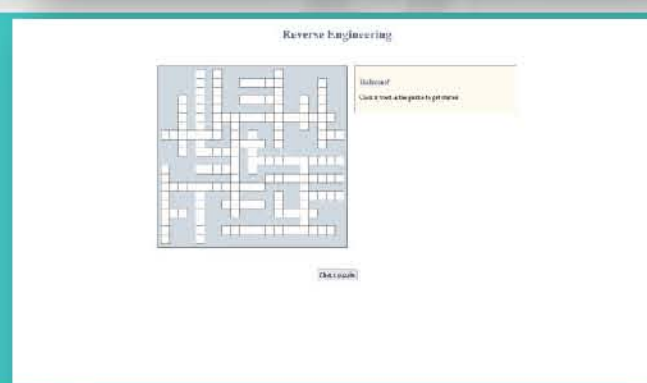
##### 2. Game-Based Learning

- Quiz Based on online reading material
- C: Critical thinking skill by problem analysis



##### • Crossword for Reverse Engineering

- C: Problem-solving skill by investigation



- Hands on Reverse Engineering with Computer & 3D Scanner

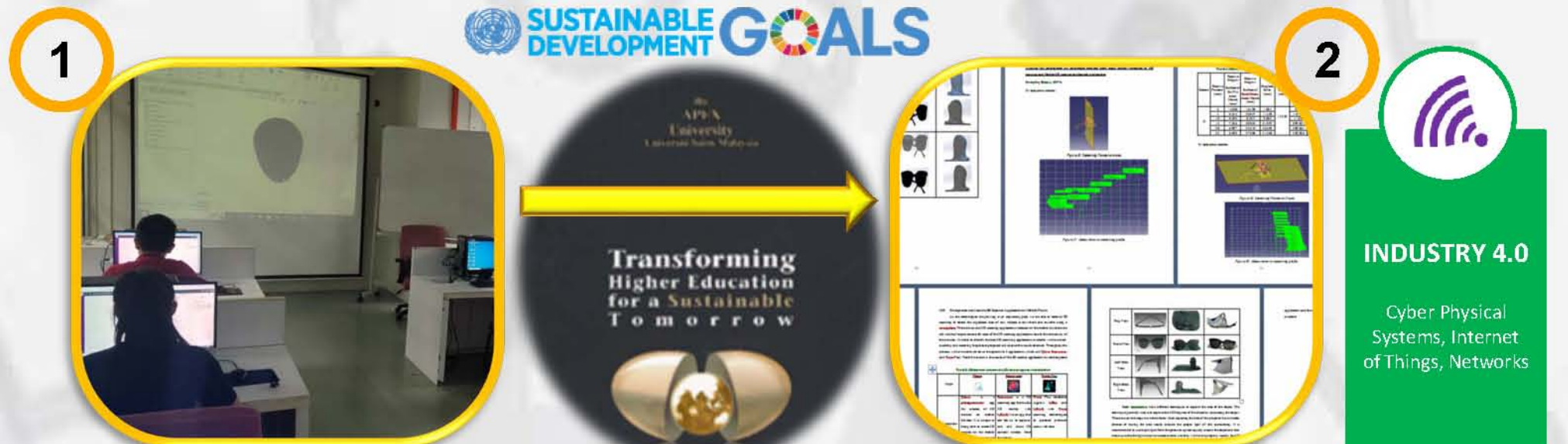
- P: Practical skill by modern tool usage for engineering design



NOTE: C=Cognitive P=Psychomotor A=Affective

#### USEFULNESS

- 1 Expanding learners' skill to create 3D models from existing products
- 2 Encouraging teamwork in development of new products
- 3 Exploring latest knowledge by transformative teaching



#### COMMERCIALIZATION POTENTIAL

- 1 Flexible Education
- 2 Higher Learning Institutions
- 3 Training Centres
- 4 Manufacturing Industries

#### ACKNOWLEDGEMENT

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#### INNOVATOR DETAILS

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#### RECOGNITION

