33rd Annual Conference of the Australasian Association for Engineering Education (AAEE 2022)
4 - 7 December 2022 – Sydney, NSW

Strategies to improve learning and teaching of software packages among undergraduate students

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ABSTRACT

CONTEXT

Engineering students need to learn different software packages and enhance their software skills to meet the emerging needs of the industry. Traditionally, face-to-face lectures and workshops provide an interactive environment for learning software packages where the students can test their skills and receive feedback. However, COVID has placed limitations on face-to-face learning and teaching environments. It is essential to introduce strategies to enhance the interaction among students and teachers in online and virtual environments and improve the learning and teaching of software packages.

PURPOSE OR GOAL

This study aims at presenting different strategies for teaching software packages in online and hybrid environments for undergraduate engineering students. The proposed strategies encourage students to practice their software skills, interact with the class and receive feedback on their performance.

APPROACH OR METHODOLOGY/METHODS

The proposed study evaluates the performance of students in using the software package as an authentic assignment. After learning the software packages based on different teaching strategies, the students' software learning will be assessed based on the submission of authentic assignment. To provide appropriate assessment of learning software package, two different scores will be provided, including 1) completeness score, which measures how thoroughly the student's assignment covers the problem, and 2) correctness score, which measures how correctly and efficiently the software has been used by the students.

ACTUAL OR ANTICIPATED OUTCOMES

The results are positive and show that students appreciate the practical benefits of the introduced strategies in online and blended teaching and learning environments. The introduced strategies successfully improve the completeness score and correctness score of authentic assignments among undergraduate engineering students.

CONCLUSIONS/RECOMMENDATIONS/SUMMARY

The proposed study introduces different strategies for teaching engineering software packages in online and hybrid environments for undergraduate students. The study evaluates the students' software skills by an authentic assignment. The proposed strategies are successful in improving the software learning and teaching experience among undergraduate engineering students.

KEYWORDS

Teaching software packages; undergraduate students; authentic assessment.