

The Impact of Cooperative Learning on Numerical Methods Course

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Abstract : Numerical Methods is a course that can be conducted using workshops and group discussion. This study has been implemented on undergraduate students of level two at the Faculty of Engineering, International Islamic University Malaysia. The Numerical Method course has been delivered to two Sections 1 and 2 with 44 and 22 students in each section, respectively. Systematic steps have been followed to apply the student centered learning approach in teaching Numerical Method course. Initially, the instructor has chosen the topic which was Euler's Method to solve Ordinary Differential Equations (ODE) to be learned. The students were then divided into groups with five members in each group. Initial instructions have been given to the group members to prepare their subtopics before meeting members from other groups to discuss the subtopics in an expert group inside the classroom. For the time assigned for the classroom discussion, the setting of the classroom was rearranged to accommodate the student centered learning approach. Teacher strength was by monitoring the process of learning inside and outside the class. The students have been assessed during the migrating to the expert groups, recording of a video explanation outside the classroom and during the final examination. Euler's Method to solve the ODE was set as part of Question 3(b) in the final exam. It is observed that none of the students from both sections obtained a zero grade in Q3(b), compared to Q3(a) and Q3(c). Also, for Section 1(44 students), 29 students obtained the full mark of 7/7, while only 10 obtained 7/7 for Q3(a) and no students obtained 6/6 for Q3(c). Finally, we can recommend that the Numerical Method course be moved toward more student-centered Learning classrooms where the students will be engaged in group discussion rather than having a teacher one man show.

Keywords : teacher centered learning, student centered learning, mathematic, numerical methods

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