The effectiveness of Individual Assignments

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ABSTRACT – In tertiary education in Malaysia, students are assessed throughout the semester. The first assessment is usually done in a period that allows improvement in student learning before sitting for the final exam. This paper proposes individual assignment as an approach to improve student understanding in the subject with mathematical solutions. Individual assignment means different problems are given to the students. This avoid pliagrism and forces students to seek for lecturer's help. The interaction between lecturer and students is the key to solve student problems. In this paper, the effectiveness of the individual assignment is presented by comparing the results between the first assessment (test) and the final assessment (final exam).

1. INTRODUCTION

The assessment of undergraduate studies in Malaysia mostly consists of coursework and final exam. The coursework includes quizzes, tests and assignments, which are assessed before the final exam and contributes 40% to 60% of the final marks. In the Faculty of Electrical Egineering, Universiti Teknikal Malaysia Melaka, coursework adds 40% of the marks with the common implementation of quizzes 5% - 10%, tests 20% and assignments 10% - 15%.

Most of the subjects in electrical engineering require mathematical solutions. To be good in mathematics, one should have a lot of practice. Tutorial sessions is one way to help the students [1-2]. However, with the limited time and large ratio of students per lecturer, tutorials might not be a big help.

Assignment is another way to enhance the mathematical skill of the students [3-4]. Individual assignment is better than group assignment especially when the tasks involve mathematical solutions. The assignment can be a practice that requires their independent learning time which also contributes to the final marks. However, with a hundreds of students, group assignment mostly is the choice of lecturer.

The first assessment is a very important indicator of the effectiveness of the teaching especially when it contributes high marks e.g. 20%. At this point, students that have problem with the subject should be identified and further actions should be taken to improve the students learning. In this paper, individual assignment was only given to the students who did not perform in their mid-term test. Students with higher marks were given a simpler task that requires different solution technique. In this way, pliagrism among students were avoided.

2. METHODOLOGY

Three classes were involved in this study, Class 1, 2 and 3. To implement the individual assignment, this paper proposes to streaming the students according to their results of the first assessment. The first assessment is mid-term test which contributes 20% of the final marks. This approach has been applied to Class 1 containing 66 students, for an electrical engineering subject that requires mathematical solution to solve for electrical quantities e.g. currents and voltages. Students that gained more than 50% of the full marks (Stream A) were asked to use softwares to solve the given problem hence no calculation needed. Meanwhile, students with less than 50% marks (Stream B) need to calculate the electrical quantities using four techniques they learnt from the lectures and tutorials.

Based on the mid-term test results, Stream A students have more understanding on the subject than the Stream B. Simpler task was given to Stream A to discourage Stream B from copying the solutions of Stream A's. This forces Stream B students to seeking help from lecturer. The interaction between lecturer and Stream B students helps the lecturer to improve his/her teaching and to solve the problems that the students faced in understanding the topic.

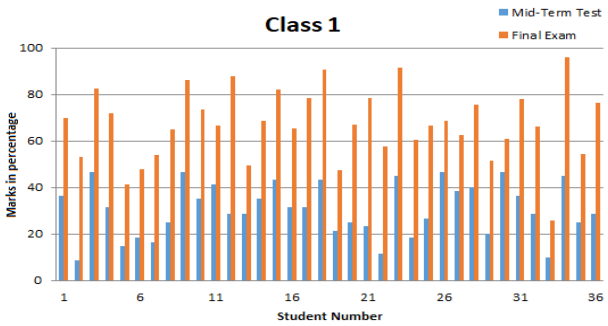
3. RESULTS AND DISCUSSION

This paper presents the results from three classes. Individual assignment approach was implemented only in Class 1 which has the highest percentage of Stream B students, 55%. Meanwhile, Class 2 and 3 implemented group assignment (each group was assigned the same question) with Stream B students 43% and 46% respectively. Figure 1 shows the mid-term test and final exam results of Stream B students for the three classes. Surprisingly, 7 students from Class 1 show a tremendous increment resulting more than 80% in the final exam but none from Class 2 and 3.

Figure 2 shows the marks difference between mid-term test and final exam of the students. The positive values indicate greater marks in final exam compared to mid-term test while the negative values are vice versa. Clearly, all Stream B students in Class 1 gained better marks in the final exam and the increment is far greater than the students in Class 2 and Class 3.

Although all Stream B students in Class 1 shows a good improvement, six students from Stream A however experience a slight decrement as shown in Figure 3. Streaming might increases the confident level of the Stream A students result in a not significant improvement

to some of the students.



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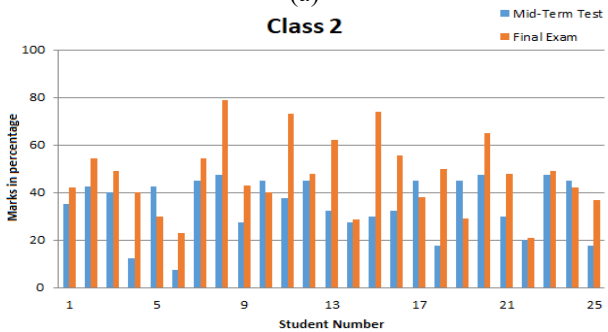

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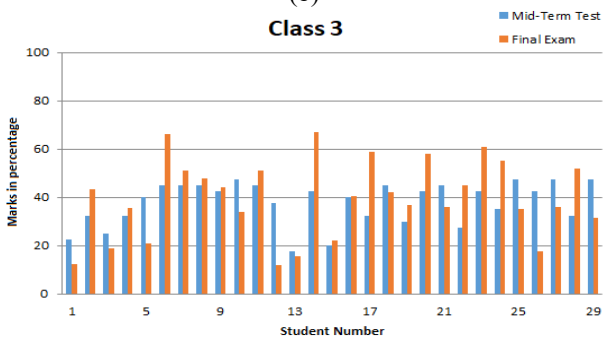

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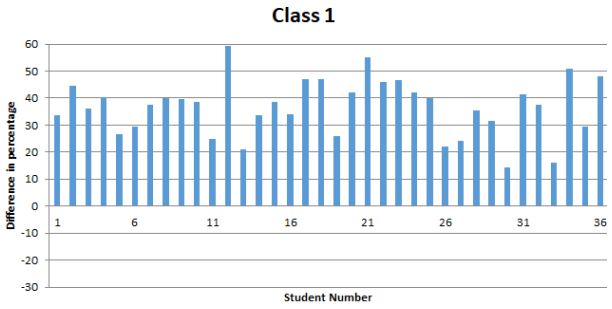
Figure 1 Marks for mid-term test and final exam of Stream B students.



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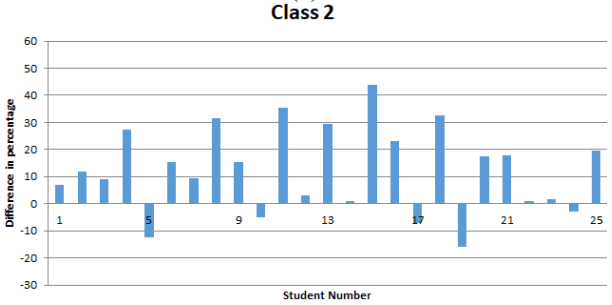

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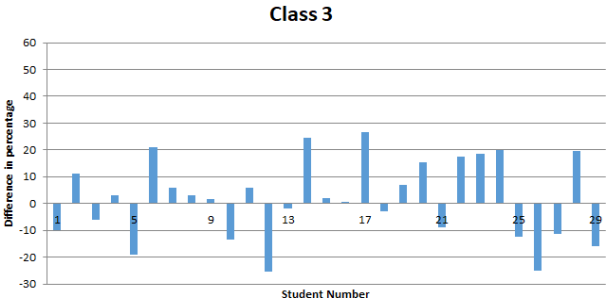

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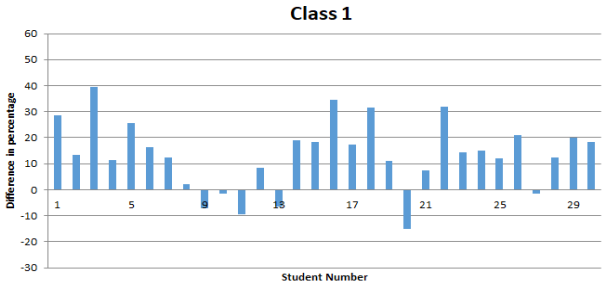
Figure 2 Marks difference between final exam and mid-term test of Stream B students.



(b)

Figure 3 Marks difference between final exam and mid-term test of Stream A students.

4. CONCLUSION

The vital step in improving student achievement is to identify the weak students and help them as soon as possible. Individual assignment is a promising approach that requires commitment from the students and the lecturers. Individual assignment encourages student to see lecturer and discuss the encountered problems. This two-way communication not only increases student performance but also the teaching and learning process.

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