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Type: Oral Presentation

Teaching and Learning Approach - Concepts and Quantitative Tools

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Over a number of decades, different versions of the textbook: Fundamentals of Physics by Halliday and Resnick with built-in concepts was utilised for the Physics I Major introductory calculus course. Since 2016, a new textbook: Principles and Practise of Physics by Eric Mazur [1] centred on conceptual understanding and quantitative skills was implemented as a new teaching and learning approach for lecturers and also to students whom have been exposed to conventional methods and structured curricula in particular at first year level. The organization of the contents in the text-book by Mazur uses a range of research-based instructional techniques different from other textbooks. The supplementary features include Mastering Physics and an Interactive eText with an integrated, conceptual understanding of physics with problem solving activities ranging from on-line tutorial exercises with hints and feedback, assignments and quizzes.

In order to probe the effectiveness of the textbook, the teaching approach and students experiences, and a course evaluation was administered to ~200 students comprising of the following survey questions:

- The course was extensive in its coverage of subject matter.
- The course is well structured.
- The course was pitched at the correct level.
- Problem solving exercises reinforce the material presented.
- The textbook is easy to read and understand.
- I found that the pace of the work is appropriate.
- Student participation during lectures should be increased.

The data obtained from this survey will be presented and discussed to provide insights into the new approach of teaching and learning adopted for the above mentioned course. In addition, selected examples of concepts and quantitative tools will be highlighted.

References

[1] <https://www.pearson.com/us/higher-education/program/Mazur-Principles-Practice-of-Physics-Plus-Mastering-Physics-with-e-Text-Access-Card-Package/PGM198896.html>.

Apply to be considered for a student award (Yes / No)?

No

Level for award (Hons, MSc, PhD, N/A)?

N/A

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