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How much do first year physics students really understand? An entry-level test

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Abstract content
   (Max 300 words)

The intake of the first-year physics students in Higher Education Institutions (HEI) has grown considerably over the last four years, and there has been even greater increase in student diversity. In order to academically support these students effectively, and to ensure the subject they take remain relevant, the academic preparedness of these students must be determined. For these reasons, the lecturers in the first year physics introduced in 2012 a short diagnostic test at the beginning of their course to determine the level of understanding of basic mechanics concepts possessed by the incoming students. The test was given to two different groups of first year physics, that is, three year degree and four year degree programmes. This paper presents and discusses the main misconceptions that students have on the concepts assumed to be a prior knowledge as they enter their first year physics course. From this investigation some recommendations will be put forward as to the effective teaching approach to be employed for maximum throughput at the end of their first year course.

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