

BLENDED LEARNING FOR ENGINEERING PHYSICS

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ABSTRACT

The University of Western Sydney is undertaking a major project of introducing blended learning into the undergraduate curricula. As a result of this, and as part of the renewal process of the Engineering curriculum, the Engineering group at the University is reviewing the present curriculum with the intention of introducing blended learning in its first year units in 2014. It is intended to introduce blended learning into the first year Engineering Physics unit, in the first instance in the form of online lectures, online tutorials, discussion board, and recorded lectures. In this paper, we have chosen to explore how effective online tutorials are in the teaching and learning of Engineering Physics. We used the Mastering Physics online tutorial system that comes with the book University Physics (by Hugh Young, Roger Freedman and Ragbir Bhathal) to test this out because it has the necessary sophistication and flexibility to assign tutorial problems both for practice and assignments. The software also provides feedback in a timely manner and informs students of concepts they poorly understand. Preliminary results from a random survey of 100 students from a cohort of 450 engineering students revealed a number of positive outcomes in the introduction of the Mastering Physics online tutorial system. Over 60% of students felt that the questions were relevant to their engineering studies, while over 65% felt that it helped them in the learning and understanding of the subject. With respect to acquiring analytical skills for the solution of the problems, over 65% of the cohort agreed that the online system was useful. About 55% of the students felt that the online tutorial system assisted them in the learning process and in developing a conceptual understanding of the subject matter. However, a fairly large number (75%) of the students felt that, although the online tutorial system was useful, they would prefer face-to-face sessions as it allows them to ask questions that were bothering them in their studies of the unit directly with the tutor present. The online system was not sufficiently individualised for them. The project will investigate the other online methods of teaching and learning that have been planned for the study of Engineering Physics.

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