

Redeveloping a Signature Pedagogy for Engineering: Responding to new spaces and new technologies

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Within disciplines, characteristic pedagogical approaches have developed that reflect the particular nature of those disciplines. Engineering, with its strong mathematical foundation, is dependent on developing problem solving methods using symbolic mathematical and diagrammatic processes. Traditional approaches featured step-by-step handwritten expositions with oral commentary delivered in spaces equipped with technology (blackboards) that supported these distinctive approaches.

Over time, the design of learning spaces and their installed technologies has changed, often under pressure for institutional efficiency gains. A generic institutionally-timetabled teaching space equipped with a computer connected to digital display projector as the primary visual interface has emerged as a standard learning and teaching environment. In these environments, computing technologies with primarily keyboard and mouse based input encourage a dependence on pre-prepared static PowerPoint slides, leading to a focus on ‘a solution’, rather than emphasising the process. In engineering, the immediacy and responsiveness of the traditional approach, with its free flowing mathematics, diagrams and sketches, is lost. However, developments in pen-enabled tablets and monitors, by providing support for handwriting and sketching input, may facilitate the reclamation of the benefits of traditional engineering approaches, while also enabling the development of new innovative, collaborative approaches that are not constrained by physical spaces. This showcase will discuss our initial experiences with implementing the use of pen-enabled technology in the School of Engineering at AUT, and explore the possibilities it offers for developing a new signature pedagogy for Engineering.