Communication: What is it and How Can we teach it to Engineering Students?

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Abstract *— In Australia, as well as internationally, Universities are looking to ensure the quality of their graduates through the development of graduate attributes. In the engineering domain there exists Professional Institution defined graduate at tributes, which graduates require to effectively participate in the engineering profession. One of the primary attributes is the ability to communicate effectively. This paper explores what this might mean in the context of engineering.*

The paper begins with a brief examination of the diversity of communication strategies needed to participate effectively in a design team. It then focuses on the ability to communicate through the development of graphic images.

The paper reports on the impact of a diffe rent approach to teaching graphical communications to first year university chemical engineering students. Freehand graphical representation was combined with Computer Assisted Design software (CAD) to develop a platform to improve 3D understanding as wel l as a means to prepare technical drawings. Central to the approach was the equal importance given to understanding and problem solving in both 2D and 3D environments. The study phase encouraged active learning and experimentation. None of the teaching was regarded as traditional as the emphasis was to contextualise learning and developing realistic solutions to real world problems. Graphic skills developed as a consequence rather than as a teacher -centred skills -based learning exercise.

This approach draw s on research from the fields of visualisation and spatial ability. This includes the use of modern software to improve learning experiences and providing learners with opportunities to actively participate and control their learning tasks. The 2D and 3D c onnection was examined and the importance of 2D problem solving to improving 3D understanding was a main focus.

Index Terms *— CAD, Core Skills, Curriculum Design,Graphics*