

Abstract 1.

Article Title: Elements of an Optimal Experience

This paper presents and assesses a framework for an engineering capstone design program. We explain how student preparation, project selection, and instructor mentorship are the three key elements that must be addressed before the capstone experience is ready for the students. Next, we describe a way to administer and execute the capstone design experience including design workshops and lead engineers. We describe the importance in assessing the capstone design experience and report recent assessment results of our framework. We comment specifically on what students thought were the most important aspects of their experience in engineering capstone design and provide quantitative insight into what parts of the framework are most important.

Abstract 2.

Article Title: Women Engineers in Kuwait: Perception of Gender Bias

The greatest obstacle to the development of policies for the curtailment of gender bias is lack of information on the scope and effects of the problem. This study represents an attempt to quantify attitudes toward gender bias among profession women engineers working in the State of Kuwait. The major findings that emerged were as follows: a) Since 1970, Kuwait has witnessed an enormous growth rate in the participation of women in higher education. b) With respect to the job-related factors of salary scale, professional treatment, responsibility, benefits, and vacation, a clear majority (68%) of the professional Kuwaiti women engineers surveyed expressed a feeling of equality with or even superiority to their male counterparts. c) The one job-related factor in which significant gender bias was found to be in operation was that of promotion to upper management positions. In this criterion, the women engineers surveyed felt "less than equal" to their male colleagues.

Abstract 3

Computer Assisted Learning (CAL) is an area which is rapidly expanding amongst Higher Education institutions as the power of available hardware rises facilitating new and innovative HE teaching and learning environments. The University Institute of recently allocated funds to stimulate a learning technology program which was generally intended to impinge on all 4 Faculties within the insitution. Each faculty was asked to bring forward, software development schemes and bids for equipment and other, necessary resources such as human resources, consumables, etc. The purpose of this paper is to describe the experience of a team of academics in the Department of French, School of Modern Languages within the Faculty of Arts, Humanities and Social Studies at the University Institute of in the development of a Computer-assisted learning software program. Funding was made available from a central source to develop and implement a software program to assist French language learners to acquire vocabulary in "an innovative and measurably effective manner". The software was implemented and tested on a cohort of level 2 students who had, in general, studied French for 8 years, and staff and students were consulted with regards to their reactions.

Abstract 4

Injecting CO₂ into deep geological strata is proposed as a safe and economically favourable means of storing CO₂ captured from industrial point sources. It is difficult, however, to assess the long-term consequences of CO₂ flooding in the subsurface from decadal observations of existing disposal sites. Both the site design and long-term safety modelling critically depend on how and where CO₂ will be stored in the site over its lifetime. Within a geological storage site, the injected CO₂ can dissolve in solution or precipitate as carbonate minerals. Here we identify and quantify the principal mechanism of CO₂ fluid phase removal in nine natural gas fields in North America, China and Europe, using noble gas and carbon isotope tracers. The natural gas fields investigated in our study are dominated by a CO₂ phase and provide a natural analogue for assessing the geological storage of anthropogenic CO₂ over millennial timescales. We find that in seven gas fields with siliciclastic or carbonate-dominated reservoir lithologies, dissolution in formation water at a pH of 5–5.8 is the sole major sink for CO₂. In two fields with siliciclastic reservoir lithologies, some CO₂ loss through precipitation as carbonate minerals cannot be ruled out, but can account for a maximum of 18 per cent of the loss of emplaced CO₂. In view of our findings that geological mineral fixation is a minor CO₂ trapping mechanism in natural gas fields, we suggest that long-term anthropogenic CO₂ storage models in similar geological systems should focus on the potential mobility of CO₂ dissolved in water.

ABSTRACT	
In this experiment, chromatography was used to analyse amino acids in solution. Standards were used to identify unknown amino acids in a mixture. Ascending layer chromatography with an isopropanol-based solvent was used to separate the amino acids, which were then detected with ninhydrin. The unknown mixture analysed was found to contain aspartate and histidine. It was observed that hydrophobic amino acids were most mobile. This technique was shown to be an effective way of analysing unknown mixtures of amino acids. A mechanism for ninhydrin binding to amino acids is proposed, based on observations from this experiment.	Description aim/ objective Method Results Conclusion Further conclusion