COMP 381/CHBE 381

ICT DESIGNS FOR A SUSTAINABLE WORLD

".. Not only is it real, it's here, and its effects are giving rise to a frighteningly new global phenomenon: the man-made natural disaster.."

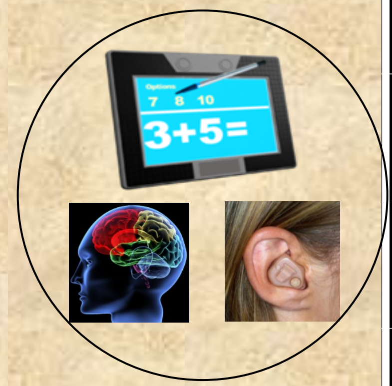
***Barack Obama** on Global Warming,*
(speech on April 3 2006, Chicago, IL)

Our society has been witnessing phenomenal growth in all sectors over the past few decades which has been largely spurred by Information and Communication Technologies (ICT). However, the relentless march of technology driving economic benefits is being achieved at an ever increasing societal cost with an increasing potential negative impact on the environment. Hence, one of the important challenges facing modern society is *Sustainability*.

With this viewpoint, this course will offer several design projects based on ICT at the nexus of Engineering, Sciences and Medicine, aimed at providing sustainable solutions for a better society. Students will be expected to work in groups of 2-4. Multidisciplinary projects will be encouraged, and extensive use will be made of the Oshman Engineerng Design Kitchen.

As a design example, a project that will be considered is the I-Slate, viewed as one of the "emerging technologies with a potential to change the world" by the premier association for technology, IEEE, at its 125th anniversary. This Rice-based project (http://www.cs.rice.edu/~kvp1/islate.htm) which also spans research groups at Caltech, IIIT-H (India), NTU (Singapore) and CSEM (Switzerland) uses technology for developing ultra low-energy and low-cost educational devices. To elaborate, some of the sample projects are:

- Design of low-cost, low-energy education devices
- ICT and virtual hospitals
- Sustainable hearing aids
- ICT design using principles of neuroscience
- Metrics for Sustainability in ICT



Highlight: Students will prepare a final report and present their findings to a panel of judges who will choose two of the projects as *winners*. The students participating in these projects will be offered internships during the Summer term of 2010. As an example, if a team working on the I-Slate project is chosen, the winning team would be working with our partners in India, Singapore and Switzerland as a part of this internship.

Pre-requisites: Sophomores and Juniors with a introduction background in Science and/or Engineering

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