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Experiments across the Atlantic

10 May 2004

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Chemical engineering students in Cambridge are gaining a new experience this week, as they run experiments in controlling a heat exchanger - 3,279 miles away at the Massachusetts Institute of Technology (MIT).

['Weblabs'](#)[Cambridge-MIT
Institute \(CMI\)](#)[MIT heat exchanger
iLab Project](#)

The 'Weblabs' experiments, conducted via the internet, are not only novel but relevant, says chemical engineering lecturer Dr Markus Kraft, as "the use of remotely controlled processes is widespread in the chemical industry".

The experiments are taking place thanks to the Cambridge-MIT Institute, which is supporting what Dr Kraft describes as "a fantastic co-operation" between the Departments of Chemical Engineering at the University of Cambridge and MIT. This collaboration on web-based teaching is giving first and second-year chemical engineering students at Cambridge a unique opportunity to use one of MIT's 'I-Labs' (remote online laboratory experiments) - a technology that has been available to MIT students for over two years.

In Massachusetts, Professor Clark Colton and his colleagues Sid Sen and Faye McNeill have set up the heat exchanger experiment for online use. So when the students at Cambridge University sit down in front of the computer screen, and connect via an internet interface, what they see is temperature data and information about hot and cold water flow rates inside the heat exchanger. This is graphically displayed on their screens by state-of-the-art software used in the process industry.

Working in groups of three or four, the students then have to use their knowledge of process design and control to manage and observe certain of the heat exchanger's operations.

"Understanding and knowing how to control heat transfer in technical systems is very important," says Dr Kraft. "Knowing how to calculate the rate of cooling is a fundamental skill needed for processes ranging from controlling a nuclear reactor to controlling the pasteurisation of milk".

After this week's experiments for first-year chemical engineering students, the next step will be to develop an experimental set-up, based at the University of Cambridge, to be used by students from both Cambridge and MIT.

For further information, please contact the University of Cambridge Office of Communications on 01223 332300

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