Technology helps students understand complex processes

ONE click on the computer, and the student sees an image of the baby in the mother’s womb.

Click another time, and the image rotates to show exactly what position he is in and how he will travel down the birth canal.

The e-learning module, developed from scratch with obstetricians and gynaecologists from Imperial College London, helps students understand complex processes difficult to describe in real life.

Such technology will play a big role in helping medical students at the Lee Kong Chian School of Medicine here to learn, with applications ranging from treating virtual patients to working at a hospital in the popular 3-D virtual world Second Life.

“All this is not meant to replace lectures or practical experience in hospitals, but to add to them,” said Dr Maria Toro-Troconis, e-learning strategy and development manager at Imperial’s faculty of medicine.

E-learning at the school is far more sophisticated than simply reproducing lecture material online, she said. It features clinical skills simulations, game-based learning and interactive study modules that supplement traditional learning in the lecture theatre or hospital.

Research has shown that students find such e-learning more engaging and enjoyable, although results achieved through face-to-face lectures are similar.

“The beauty of e-learning is that you can do it any time, anywhere, and you can do it again and again,” she said.

To be successful, it is important for doctors to help develop the programmes.

The obstetrics and gynaecology (O&G) module, which has been available for several months, is a hit with students, said Dr Martin Lupton, consultant obstetrician and gynaecologist at the Chelsea and Westminster Hospital, and director of undergraduate education in O&G at Imperial.

“What is crucial is that educational material is delivered in ways that engage our population of young people, who are incredibly visually sophisticated,” he said.

“You need only to look at a pop video to see what they are accustomed to. The problem for educators is that unimaginative e-content can appear very dull in comparison.”

He spent 10 months with the school’s e-learning department developing the O&G module, and even appears on the website to give explanations.

Subjects available online range from clinical safety to diabetes control, and students can access medical lectures developed with broadcast journalists conducting radio and video interviews with medical lecturers via the college intranet.

In Second Life, medical students create their own avatars to diagnose and treat virtual patients in a virtual hospital designed to look like a real bricks and mortar facility.

Students can communicate with professors and other colleagues online, and procedures have to be followed as though in the real world.

If the doctor forgets to wash his hands, for example, he would not be allowed to continue his rounds until he does so.

Students also each have an “e-portfolio” which allows them to track their progress, record clinical experiences and contact patients. They can even access this on their iPhones by downloading the application.

Imperial’s e-learning programmes are also getting noticed internationally.

Ten universities from around the world are collaborating with the school’s virtual patients application tool to develop an international databank of patients with different diseases and symptoms, based on real cases.

Each virtual patient comes with information relevant to the case, ranging from medical histories and physical examination results to clinical histories, diagnoses and management plans.