Enabling graphic literacy education with Autodesk Inventor Professional and 3ds Max

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As one of the most prestigious educational institutions in Japan, the University of Tokyo has been producing talents across various disciplines since it was established in 1877. In order to continue this tradition, the faculty at the University have also been developing innovation curricular offerings to develop the skills of its students and drive academic excellence.

One example of this can be seen in the College of Arts and Sciences where an elective module, Graphic Science, was developed in 2000 with the aim of developing and enhancing the level of “graphic literacy education” amongst students to meet the demands of the design industry.

THE TURNING POINT FOR GRAPHIC SCIENCE AT THE UNIVERSITY OF TOKYO – THE SPREAD OF 3D CAD AND CG

The spread of 3D CAD and CG design has grown tremendously in recent years across a number of disciplines. Coupled with the proliferation of PCs and Internet access, made faculty at the University of Tokyo recognize the need to grow and enhance the level of computer and graphics literacy amongst its students.

This led to the development of the Graphic Science class by Professor Kenjiro Suzuki in 2000. The module forms part of the curriculum at the College of Arts and Science, where all University of Tokyo’s students spend the first two years of their tertiary education.
According to Professor Suzuki, “In the past, graphic representations were mainly primarily in the fields of mechanical engineering and architectural design and drawing. Today, the relevance and importance of graphic representations can be seen in the visualization of computer simulations in science, as well as in the media and entertainment industries. Therefore, literacy in geometric modelling and model-based visualization is necessary for all students.”

Based on a concept developed by Professor Suzuki, trial courses using CAD or CG started as early as 2000 with a small class of six voluntary students using AutoCAD 2000 and 3ds Max. With the growing popularity of the class and positive feedback from the student, 125 sets of Autodesk Inventor Professional and 3ds Max were installed in the Educational Campus-wide Computing System at the Information Technology Centre of the university in 2003. A year later, 20 students were enrolled in the Graphic Science class, and was enrolment grew by five times in 2005. As of 2007, the class has reached its maximum capacity with 1,000.

**AUTODESK SELECTED AS THE EDUCATION TOOL OF CHOICE DUE TO ITS GLOBAL REACH AND EASE OF USE**

In explaining the reasons why Autodesk Inventor was selected as the primary tool by the faculty, Professor Suzuki explained, “The objective of graphic literacy education is not to master the operation of software. In fact, the product used can come from any vendor. But if an education is expected to be useful and relevance after even 10 years, the most global tool should be selected. That was why we decided to adopt Autodesk software.”

Another major reason that led the faculty to choose Autodesk was the fact that Inventor comes packaged with sophisticated tutorials that make it easy for even beginners to use and understand.

The 90-minute Graphic Science is taught over 13 weeks, and students learn how to produce 2D sketches and 3D models and assembly function using Inventor, and how to create perspective views, render and animate using 3ds Max. Typical assignments include assembling and running simulations of Geneva gears and walk-throughs of animation creation. Since Inventor was adopted in 2003, the same curriculum can now be completed within approximately half the time compared to before the trial of AutoCAD software began.

“In Japan, we have a proverb that when literally translated means, ‘a hundred listening is not as good as one looking’. This tells us that in recognizing the world around us, "graphics" are as important as words,” added Professor Suzuki. “In the near future, 3D modelling and visualization may become the ‘common language’ for all professionals, and we will see the importance that this curriculum in Graphic Science plays in basic education.”
Product / Solution introduced
• To enhance the level of graphic literacy education amongst students at the University of Tokyo using Autodesk Inventor and 3ds Max.

Objective of introduction
• To enable students across any discipline to recognize the importance of graphic representations as a tool to understanding the world.

Points of introduction
• The need to select a product that is used globally so that the curriculums taught and skills learnt will be useful even after 10 years.
• To enable even beginners to start using the software within a short period of time thanks to the provision of sophisticated tutorials.

The practice: past, present and future
• 2000: AutoCAD 2000 and 3ds Max introduced with a trial course of 6 students
• 2003: 125 sets of Autodesk Inventor Professional and 3ds Max installed
• 2004: Trial course involving 20 students
• 2005: Trial course expanded to involve 100 students
• 2007: Launch of full-fledged Graphic Science course, with 1,000 students, the maximum capacity of the course
• 2008: Planning to upgrade and expand Autodesk Inventor (1,000 sets) and 3ds Max (300 sets)

University outline

The University of Tokyo,
Tokyo, Meguro-ku, Komaba 3-8-1 (College of Arts and Sciences)
Year established: 1877
Faculties: 10 faculties + 1 college, 50 departments
Number of student (undergraduates): 14,471 (2007)