Creative touch to physics

Hands-on experience for students

By D. Maheshwari

CAN one combine science and creativity for a learning experience? Physics students at the Canadian International Matriculation Programme at Sunway College believed it can be done.

Creativity in physics may be a difficult concept but the students successfully undertook the task when they displayed their results to the rest of the college.

As part of their physics course, the students were asked to design Rube Goldberg Machines — an extremely complicated machine designed to perform a simple task.

Scott Patterson, the lecturer in charge, asked his students to design a machine that would lift a flag representing a country of their choice up to one-metre flag pole. But before the flag is lifted, the machines are required to complete 15 to 20 independent steps.

The students worked in groups of four for three months before completing their task. The results were simply amazing. Balloons exploding, boats sailing through narrow canals, candles burning and earth flying through the air.

In addition, to presenting their machines, the students had to hand in reports describing step-by-step the forces and energy transformations involved in each creation.

As to why such a project was held, Patterson explained that upon graduation, the students head to university programmes all over the world and most of his physics students continue to pursue either engineering, medicine, computer science or even business.

"As I planned for a term project this semester, I was looking for something that would serve the students well in their future studies and career — a project requiring a lot of hands-on learning, group problem and creativity. One way for achieving this was by asking them to produce their own Rube Goldberg machines," he added.

The CIMP is a pre-university programme which allows students to gain entry into universities worldwide. The one-year programme is identical to those offered in Ontario, Canada, and is approved by the Ministry of Education.

The programme taught mainly by Ontario-qualified teachers is also approved, supervised and inspected by the Ministry of Education and Training in Ontario, Canada.

Students are eligible to receive the Ontario Secondary School Diploma upon completion of six Ontario Academic Courses' subjects.

The programme offers two types of courses which are OAC subjects and pre-OAC subjects.

The former includes Accounting, English, History, Biology, Physics, Computer Science, Geography (world issues), Algebra and Geometry, Finite Mathematics, Families in Society, Economics, Law, Calculus and Chemistry.

The pre-OAC subjects offered are English Second Language, Computer Fundamentals and Mathematics.