

CADETS

Science Centre projects enhance cadets' management skills

IN DECEMBER TWO teams of first year BlueScope Steel cadets presented their major projects to an audience of forty, including representatives from BlueScope, the Wollongong Science Centre, the University of Ballarat and the Steelhaven Skills Centre, at the Science Centre.

The Science Centre project is a compulsory component for Mechatronics, Mechanical and Electrical cadets who are attending university and TAFE and aims to develop project management skills.

"These skills are essential for the creation and implementation of large-scale capital developments – which we hope to be part of one-day," said Aaron Vogel, Mechatronics Engineering cadet

The first team consisted of Bayan Mohebbati, Ryan Shoard, Josh Haxell, Brad Honey, Tim Cantle, Chad Walsdorf and Aaron Vogel.

The aim of their project was to use superconductivity to demonstrate the principle of magnetic levitation. The team decided to illustrate this principal by creating a model of a Magnetically Levitating (Maglev) train.

Levitation was achieved by using two superconductors in the train, when cooled to -180°C the superconductor loses all of its electrical and magnetic resistance and becomes a perfect conductor. The team achieved this temperature by using liquid nitrogen to initially cool the superconductors.

The MagLev train is a well-known concept in Wollongong, but a working model has never been built here before. Visitors to the Science Centre are now able to see an operating model of a MagLev on display.

The second project team consisted of Henrik Dux, Matt Dunstan, Jake Mawn, Raymond Li and Luke Angove.

Their project interactively demonstrates the thermoelectric effect (how electricity can be used to provide a temperature change). Visitors to the Science Centre display can feel a temperature difference between a copper plate construction – one side of the display gets cool whilst the other heats up.

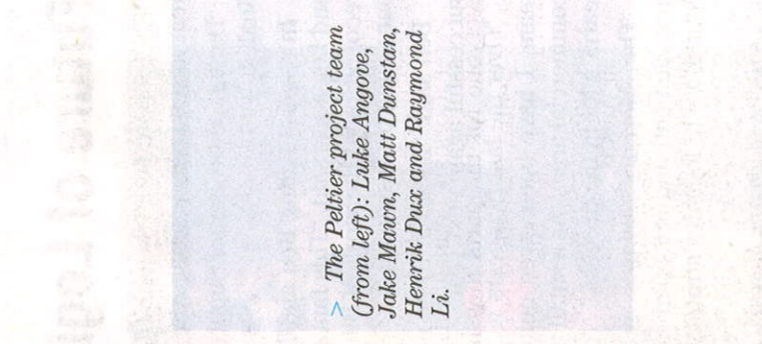
Peltier modules were wired between two copper plates to achieve this difference then set in a wooden frame. Peltier modules are commonly used in such products as computers and satellites.

BlueScope provides a budget for the projects each year and Glen Moore, Director of the Science Centre, proposes a number of projects, which are then donated to the Science Centre as demonstration models.

The cadets developed a number of core competencies through working on these projects, including, project management, teamwork, communication, timekeeping, designing, contingency planning, budgeting, topical research and the importance of safety in any aspects of project work.



> The MagLev project team (from left): Tim Cantle, Chad Walsdorf, Josh Haxell, Ryan Shoard, Baz Mohebbati, Brad Honey and Aaron Vogel.



> The Peltier project team (from left): Luke Angove, Jake Mawn, Matt Dunstan, Henrik Dux and Raymond Li.

