

UBC Teaching and Learning Enhancement Fund

Final Report

Project Name: Enhancing Student Learning through Next-Generation Digital Wood Fabrication

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Submitted by: Thomas Tannert

Year of Funding: 2014/2015

Summary of Work Accomplished

Two Work Study students and one graduate student were hired to work on this project. Jointly, they created a total of three detailed sets of tutorial materials on the use of: 1) the computer-numerically-controlled heavy timber processor (Hundegger® Robot-Drive); 2) a 3D printer that utilizes wood fibre filament, and 3) a laser cutting/engraving machine. The impact of this project will be felt considerably in future teaching terms. All three of the machines that were the focus of this project are highly complex, and without the tutorials we have been unable to give students access to their use due to concerns over safety and potential damage to the equipment. The Hundegger machine in particular is the only one of its kind in North America and has a price tag of over US\$600,000. By creating the detailed tutorials, instructors will be able to orient students on the correct and safe use of the equipment much more efficiently than was previously possible, and this will enable more of our students to gain experience using these advanced technologies. Ultimately, it will result in enrichment of the curriculum and enhanced student capabilities and co-op employment possibilities.

Evaluation of Project's Success

The tutorials have been used in several undergraduate and graduate-level classes (WOOD 482; WOOD 476; CIVL439, CIVL817 and students were able to use the equipment. In addition to enhancing the undergraduate learning experience the tutorials have enabled graduate students who need access to the equipment for their research to become more independent users of the machines, freeing up time our technical staff to further support undergraduate learning. As undergraduate and graduate students spend time experimenting with these machines, we have also seen new research questions and directed study topics being generated, with obvious spinoff effects for student learning and research programs. We feel that these creative outcomes are extremely important in fostering a culture of innovation that will allow our Centre for Advanced Wood Processing and the education programs we support to remain in a leading position.