Teaching LCA to Interdisciplinary Graduate Students

Joyce Cooper
University of Washington Design for Environment Laboratory, cooperjs@u.washington.edu

LCA has been taught to seniors and graduate students at the University of Washington as part of a Design for Environment course for six years. This year, LCA was offered as a stand-alone course to graduate students from engineering, forestry, business administration, and public policy. The course objectives were to analyze and apply the computational structure of environmental LCA and to understand the relationship between the product life cycle, environmental impact, resource conservation, and pollution prevention.

Course resources included a textbook to provide the computational structure of LCA, the ISO14040 standards, articles on each assessment phase and on streamlining methods, several LCA case studies, LCI and LCIA software (both publicly available and free), and a web-board to facilitate data exchange. Specifically, the students used a software tool called *Chain Management by Life Cycle Assessment* (CMLCA) developed at Leiden University to support inventory analysis as described in the course textbook. The students also used the *Tool for the Reduction and Assessment of Chemical Impacts* (TRACI) developed at the USEPA to support impact assessment. The web-board was a TWiki site which is an easy-to-use open communication environment that allows people on the Web or on an intranet to exchange and update text, documents or other files. Students used the LCA course web-board to exchange inventory data that they identified from publicly available sources or that they developed themselves.

For the course project, each student analyzed a product or process related to their thesis or dissertation, a personal interest, or from a list suggested by the instructor. Given the time constraints of a 10-week course, students prepared written and oral reports of their LCA that included at a minimum a goal and scope definition, a list and impact classification of material and energy use and waste for the life cycle, and an inventory and impact characterization of material and energy use and waste for at least two life cycle stages, most often representing manufacturing, use, and end-of-life.