



Ray C. Anderson Foundation: Dell Packaging Project

THE PROBLEM The current parts fulfillment and packaging process for tech companies wastes significant packaging materials. Due to the vast number of parts, achieving a best fit packaging solution is complex. As much as 50% of shipments is air. Can this problem and others like it be alleviated by inclusion of sustainability principles in the engineering curriculum?

THE PARTNERS Ray C. Anderson Foundation and Dell

THE SERVICE Trans-disciplinary education incorporating sustainability principles into an engineering project to create innovative and sustainable packaging design

THE SOLUTION Curriculum was created that integrated sustainability into the engineering design process and sustainability students were added to engineering teams. The course became a “real world” learning experience, which could later be applied to other engineering courses and other manufacturers’ challenges.

Two project teams worked on a sustainable packaging challenge for Dell. A computer algorithm team developed a much-improved algorithm for more efficiently packing parts into a container, thus saving packaging material and money. A systems team re-conceptualized the parts fulfillment process with a “box on demand” laser cutting machine at its core; modeling shows significant savings in energy, water and materials.

THE OUTLOOK Pre and post surveys were done to assess shifts in engineering student attitudes toward sustainability. The post surveys revealed that students, as a result of the class, agreed more strongly that sustainability must be more integral to the engineering design process. Dell is considering implementing a version of the new computer algorithm.

“Both teams developed innovative solutions for addressing our parts packaging challenges. The improved algorithm can result in immediate material savings, while the box-on-demand concept is a unique approach that could ultimately change the way the industry packages parts orders.”

Mr. Jim Quirke, Global Packaging Design Engineer, Dell