Abstract

The purpose of this project is to provide solutions to objectives that require an industrial engineering (IE) background for a multidisciplinary group senior project. The group is creating a portable winch pulley, dubbed the TK Ripper, which will be used for extreme water sports. The group is interested in creating a business using this product, and has forecasted demand for the next three years. The objectives that were assigned from the group were a flow process chart, the cost of producing the product themselves in their own facility, the cost of producing the product if outsourced to China, how many units needed to sell at a profit, and a theoretical layout for their machine shop they may acquire in the future. Each objective was delivered and the results were satisfactory.

Outsourcing the product to China leads to a savings of $448.68 per unit. However, the cost of the minimum amount of material required to be purchased from suppliers in China was nearly five times the cost in the U.S. If the group wishes to have a lower investment cost, it is recommended that they produce the product themselves in the United States.