

Senior Capstone Projects

Spring 2010

Project: Improving Patient Turnaround Time of Laboratory Outpatients

Contact: Jerry Crisp, Manager of Laboratory Services
Bozeman Deaconess Hospital

Description: Laboratory Services gathers patient specimens from four service centers (3 in the medical complex on Highland Boulevard, and 1 at their 19th Street clinic). Patient turnaround time currently does not meet their standard of 15 minutes consistently. The department manager would like an engineering assessment of patient flow, service center workflow, and demand volumes, with recommendations on how to more consistently achieve the standard turnaround time. Time permitting, the manager would also like to pilot promising solutions and evaluate their effectiveness.

Team Members: Kaela Kittridge
Adam Lundstrom
Alan Worrest

Project: Design for One-Piece Flow in Holster Assembly

Contact: Darrin Stevens, Production Manager
BlackHawk Manufacturing
Bozeman, MT 59715

Description: BlackHawk Manufacturing produces some 700 varieties of plastic injected pistol holsters and accessories at their Bozeman facility. They've experienced strong growth since opening the facility in 2005. This project focuses on the assembly operations in which workers assemble and package approximately 18,000 products per week. The objective is to assess then propose a new design for the assembly and packaging area to implement one-piece flow and increase capacity to 25,000 products per week without the need for additional floor space.

Team Members: Robert Busch
Peter Girardi
Jeremiah Harris
Justin Mito

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Project C: Economic Enhancement of Small-Scale Goat Cheese Production

Contact: Melvyn and Sue Brown, Owners
Amaltheia Organic Dairy
Belgrade, MT

Description: Amaltheia Organic Dairy is a family owned and operated goat dairy that produces chevre, ricotta and feta cheeses. They supply restaurants with bulk product as well as sell individually packaged retail quantities to grocers. The goal of this project is to analyze the farming and cheese production operations, and propose ways to enhance the economic viability of small-scale cheese production through low-cost efficiency and capacity increases. Improvements could include, but are not limited to: milking station workflow design, re-design of existing pasteurizing and packaging work areas, inventory and cooler capacity analysis and re-sizing, equipment specification for new hard cheese production capability, cheese-making facility re-layout, and/or product costing model.

Team Adam Green
Members: Katy Hansen
Kelly Vogel

Project D: Evaluation and Redesign of Production Flow in an Industrial Sewing Operation

Contact: Nikki Tuss
Mystery Ranch
Bozeman, MT 59715

Description: Mystery Ranch designs and manufactures high performance backpacks at their Bozeman facility. Mystery Ranch management desires an evaluation of production flow through their sewing operations, and a set of improvements to increase overall efficiency and predictability of throughput. Production flow management is challenging due to product mix, large variation in processing times, and dynamic volumes. Hence, they have a need for a production planning tool to help balance the work allocation and level production as production requirements change and continue to grow. Additionally, a new workspace arrangement and work allocation scheme may be needed to achieve the objective.

Team Dylan Dibb
Members: Keir Johnson
Jeff Waller

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Project E: Value Stream Improvement of a Commercial Printing Operation

Contact: Bill Schell, VP Strategy & Development
PrintingForLess.com
Livingston, MT

Description: PrintingForLess.com is the first and largest online full-color commercial printing service provider. Customized online orders are printed at their Livingston, MT facility, and shipped directly to the customer. The primary objective of this project is a full-scale value stream analysis of the manufacturing process from raw paper, ink and plates to finished product shipped out the door. The team will identify all waste and value added steps along the process, and make documented recommendations for workflow improvements backed by economic analysis. PFL management desires special focus be placed on press-to-bindery workflow and on press productivity.

Team
Members: Lance Brekke
Rachel Elsberry
Ryan Krogstad
En Yee Ng