

## Senior Capstone Projects

*Spring 2009*

**Project:** Improvement of Hospital Parking Wayfinding

**Contact:** Tammy Buyok, VP Support Services  
St. Peter's Hospital  
Helena, MT

**Description:** St. Peter's Hospital in Helena, Montana, has recently expanded its physical plant. The expansion involved moving the hospital's main entrance from one side of the complex to another, and relocating staff and patient/visitor parking. Hospital administration is now receiving large numbers of patient complaints about parking and wayfinding despite significant investment in signage. These items now score among the lowest on their patient satisfaction survey. This project will involve studying vehicular and pedestrian traffic patterns, researching patient perceptions and other human factors issues related to signage and wayfinding, and recommending changes to improve ease of wayfinding for visitors to the hospital.

**Faculty  
Advisor:** Dr. Laura Stanley

**Team  
Members:** Xavier Furlong  
Amanda Jorgenson

## Senior Capstone Projects

*Spring 2009*

**Project:** Relayout of Laser Diode Test Equipment Facility

**Contact:** Gene Kuntz, VP Operations  
ILX Lightwave  
Bozeman, MT 59715

**Description:** ILX Lightwave engineers and manufactures laser diode instrumentation and test systems, which are purchased by laser manufacturers. ILX is a low volume producer, but has experienced double-digit growth over the past 6-7 years and are reaching near full-capacity of their existing production system. The company would like to have a group of motivated IE seniors study their current operation, then recommend how the production system can be redesigned to handle the anticipated growth over the next 2-3 years without expanding the current facility.

**Faculty  
Advisor:** Dr. Durward Sobek

**Team  
Members:** Shawn Brown  
George Peck  
Jace Sullivan

## Senior Capstone Projects

*Spring 2009*

**Project:** Work Flow Study of an Emergency Department

**Contact:** Angela Jennings, Emergency Room Manager  
Bozeman Deaconess Hospital  
Bozeman, MT

**Description:** The emergency room at Bozeman Deaconess Hospital has seen increases in patient load commensurate with growth of the local population. In fact, patient demand has exceeded current capacity. They plan to expand their facility in the near future, and seek an analysis of their current work flow and recommendations for process improvement so that optimized processes can be incorporated into the new facility design.

**Faculty  
Advisor:** Dr. Nic Ward

**Team  
Members:** Adam Bacon  
Scott Eggenesperger  
Nick Venetz

## Senior Capstone Projects

*Spring 2009*

**Project:** Staff Scheduling of an Outpatient Services Dept.

**Contact:** Yvonne Kirk, VP Patient Care  
St. Peter's Hospital  
Helena, MT

**Description:** The Same Day Services department at St. Peter's Hospital in Helena is experiencing significant challenges in matching staff schedules to patient load. This is having a negative impact on the department's productivity. This project will involve assessing the demand for department services, work capacity of departmental staff, forecasting methods, and current scheduling methods among other factors to recommend improvements to improve the staff scheduling process.

**Faculty  
Advisor:** Dr. Durward Sobek

**Team  
Members:** Brenna Kindrick  
Susie Lenssen  
Sarah Ritland

## Senior Capstone Projects

*Spring 2009*

**Project:** Improving Finished Goods Flow, Storage and Staging in a Commercial Bakery

**Contact:** Paul Lambert, Director of Operations  
Wheat Montana Farms  
Three Forks, MT

**Description:** Wheat Montana runs a commercial bakery operation at their Three Forks plant. Packaged, baked goods that are destined for local customers are staged for next-day shipping. The other baked goods are flash frozen, then sent to a secondary packaging area before they are placed in a large walk-in freezer for temporary storage. Frozen goods are eventually shipped to various regional destinations in the western U.S. Wheat Montana desires a study of the current operation in light of forecasted sales growth, which will result in recommendations to improve material, information and people flow. The goal is to sufficiently improve operational efficiency to preclude unnecessary facility expansion.

**Faculty Advisor:** Dr. Durward Sobek

**Team Members:** Jacques Boiteau  
Becky Heyward  
Mike Lyons

## Senior Capstone Projects

*Spring 2009*

**Project:** Pet Products Manufacturing Facility Expansion

**Contact:** Seth Partain  
West Paw Design  
Bozeman MT

**Description:** West Paw Design designs and manufactures a variety of environmentally sustainable pet products in their Bozeman facility. They have experienced sustained growth in sales of their ever-increasing product line over the past few years, and are looking to expand their current facility. They would like to have a team of senior IE students conduct a capacity analysis given projected sales over the next 3 years, and recommend a production system layout that will minimize waste and maximize effectiveness of their operation. The project may also include an economic analysis of their outsourcing strategy to determine when it would make financial sense to bring certain value-adding processes in-house.

**Faculty  
Advisor:** Dr. Durward Sobek

**Team  
Members:** Andrew Halasi  
Mike Lang  
Rob Wudlick

## Senior Capstone Projects

*Spring 2009*

**Project:** Manufacturing Plan and Economic Analysis of SAE Formula Car

**Contact:** Robb Larson, MET faculty member  
M&IE Dept., MSU

**Description:** Work with the Formula SAE Team to create a manufacturing plan for the car they are designing, provide input on manufacturability to the design team, and conduct an economic analysis of the planned design. Possibility exists to go with the Team to Fontana, CA and participate in the competition. Competition rules can be downloaded from:  
<http://students.sae.org/competitions/formulaseries/rules>.

**Faculty  
Advisor:** Dr. Durward Sobek

**Team  
Members:** Penny Atkins  
Mike Chesrown  
Tawny Hoyt