Purdue Manufacturing Extension Partnership

The Purdue Manufacturing Extension Partnership (MEP) provides high value, affordable solutions to help businesses increase profitability. As advocates for Indiana’s thousands of manufacturers, our staff leverages resources in both the public and private sectors to help identify areas of improvement, streamline processes, and ultimately increase competitiveness.

Providing high value, affordable solutions for manufacturing challenges, Indiana MEP offers the following services through on-site training/analysis projects and workshops:
- Energy Efficiency & Sustainability
- Faculty Projects
- Leadership Development
- Lean Manufacturing
- Lean Office
- Quality Improvement
- Quality Systems (ISO)
- Six Sigma
- Supply Chain Services
- Top Line Business Growth Solutions
- Training Within Industry (TWI)

Our professionally trained staff includes experts from a variety of business and manufacturing sectors. We serve businesses throughout the state with offices in Anderson, Evansville, Fishers, Fort Wayne, Jasper, New Albany, South Bend, and West Lafayette.
"I would highly recommend any Indiana-based manufacturer to investigate the Purdue MEP program. BPI’s ability to meet our growth goals has been substantially improved thru our relationship with this high caliber team." Len Weber, President and COO

SCHEDULING MODEL SUBSTANTIALLY IMPROVES FOUNDRY PRODUCTIVITY

ABOUT. Batesville Products Inc. (BPI) is an aluminum/zinc foundry, polishing, and machine shop based in Lawrenceburg, Indiana. The family-owned business has close to 80 employees, including second- and third-generation family members. The company supplies complex castings complete and ready to assemble into its customers’ production lines, and is known for its family-oriented values and high-quality craftsmanship.

THE CHALLENGE. After implementing a new ERP system and establishing a sales growth target of 18 percent, BPI identified a bottleneck in the scheduling of permanent mold casting operations. Through Purdue’s Manufacturing Extension Partnership (MEP) program, part of the MEP National Network, BPI invited a Purdue Industrial Engineering graduate student to lead a project to develop a more optimal schedule for the foundry.

MEP’S ROLE. After modeling the operations, its processes, and the associated cost, the Purdue engineering student developed a multi-objective heuristic algorithm to produce a scheduling tool for BPI. The tool initially applied to the most common foundry processes. However, the effectiveness of the model led BPI to consider alternative applications, and the Purdue student built flexibility into the design to allow for expansion to other areas. The technology factors in the routing of material/semi-products, setup times, cycle times, resource utilization, temperature, and gas level to identify the best scheduling method.

“The Purdue Industrial Engineering graduate student who led the project was a sharp mind, quick study, and very intuitive,” said Len Weber, BPI President and COO. “He was able to understand the constraints of our process and the objectives we were seeking to achieve. Because of this understanding he was able to build features into the tool that we did not initially know we needed.”

Through the utilization of this "scheduling model optimizer" and its proposed schedule, BPI increased pounds poured by worker hours and decreased the completion time to meet due dates. The process has allowed for better labor and inventory management, and more organized production scheduling has improved equipment uptime and maintenance. Greater casting availability has minimized production interruptions for secondary operations, and BPI reduced the number of foundry rejects by half. The economic impact of these improvements has been positive. The company greatly reduced the time spent on scheduling and achieved its targeted growth goal.

RESULTS

Achieved sales growth target of 18%

Improved productivity by 30%

Reduced foundry rejects by 50%

Minimized the completion time to meet due dates

Improved labor and inventory management, equipment uptime and maintenance