



**THE OHIO STATE UNIVERSITY**  
COLLEGE OF ENGINEERING

# Operational Excellence Master of Engineering Management Capstone

## ENGR 6240

**Credit Hours:**

3.00 - 3.00

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**Course Levels:**

Graduate

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**Course Components:**

Lecture

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**Course Description:**

We will focus on applying the principles of operational excellence, lean systems, and focus on value and creativity as engines for change. Students will demonstrate reflection, critical thinking, effective professional communication, and mastery of the principles and knowledge learned in MEM courses.

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**Prerequisites and Co-requisites:**

Prereq: Permission of instructor.

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### **Course Goals / Objectives:**

- Apply concepts presented to operating environments in which you work, regardless of industry, or in your community while recognizing the complexities between science, engineering, public policy, social psychology, and global trends
- Demonstrate intrapreneurship & entrepreneurship in selecting and analyzing work processes to understand their capability and capacity as well as to identify problems
- Develop creative and innovative solutions and apply them to improve the performance of those processes.
- Calculate the financial impact of a selected problem on the enterprise and apply the fundamentals of managerial accounting to manage a project to success while supporting the financial objectives of an organization.
- Solve a problem by employing a well-structured scientific problem-solving process and effective project management skills
- Design processes to improve productivity and enrich the working environment to make jobs more satisfying and engaging for employees
- Evaluate the characteristics of alternative solutions to select the best.
- Create effective project plans for implementing selected countermeasures in the workplace or community
- Develop visualization techniques to help managers analyze data to combat overload and aid sensemaking with engineering applications in business and financial decision-making
- Become a more effective member of a team, and whether serving in a formal leadership role or not, apply the principles, practices, tools, and techniques to lead diverse, high-performing teams in innovative directions
- Set and achieve clear and elevating goals for teams, whether in the public or private sector, including the implications of managing globally diverse and distributed virtual teams.

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### **Course Topics:**

- History of process improvement
- Mass production systems and conventional thinking
- Principles of Lean and the Toyota Way
- Problem Solving: Overview, Problem Statement, Current Conditions
- Waste versus Value & Goal setting for problems
- Understanding Current Conditions: Value Stream Mapping
- Standardized work
- Modern economy
- Problem Solving: Root Cause Analysis
- Problem Solving: Countermeasures, action plan and follow-up
- Flow and pull overview
- Creating and regulating flow
- Balance
- Leveling production
- Lean Leadership & Management I – Teams & Visual Boards
- Lean Leadership & Management II – Leader Standardized Work and Visual Boards
- Lean Leadership & Management IV - Servant Leadership

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### **Designation:**

Elective