BME 7850 – Lean Process Improvement for Engineers

Course Description
Introduction to the practical application of lean manufacturing and kaizen techniques in manufacturing and service/healthcare environments. Includes case studies and team projects based on real world problems and solutions.

Graduate level – 3 credit hours.
Offered both face-to-face and online

Course Learning Objectives
Students enrolled in this course will learn to:

- Implement practical applications of lean process improvement and Kaizen techniques in manufacturing and service/healthcare environments
- Solve real world problems using these applications.
- Improve efficiency for any process.

Course Learning Outcomes
Upon successful completion of this course, students can:

- Implement practical applications of lean process improvement and Kaizen techniques in manufacturing and service/healthcare environments
- Solve real world problems using these applications.
- Improve efficiency for any process.

Tentative Weekly Schedule

Whether taught in-person, online, or partially online, the course outline remains the same.

Week 1	Introduction to the course & grading criteria; Introduction to lean manufacturing
Week 2	Current manufacturing concept
Week 3	Lean manufacturing concept; Toyota production system
Week 4	In-Class Case study team presentations
Week 5	Manufacturing variability & value stream mapping; Lean manufacturing strategy
Week 6	Continuous improvement using kaizen; Just-in-time production
Week 7	Cellular manufacturing
Week 8	In-Class Case study team presentation
Week 9	Kanban and Pull system
Week 10	SPC and Poka-Yoke (mistake-proofing devices)
Week 11	Quick set-up techniques & Small lot production; Mini-presentations

Week 12	Mini-presentations
Week 13	Performance measurement for lean manufacturing; Transformation to lean manufacturing
Week 14	General Discussion; Final Review
Week 15	Final Exam Due