Course Syllabi

1. INDU-00015 LEAN MANUFACTURING AND SIX SIGMA II (I1)
2. 144 credits hours.
3. Bibliography
   - Ten Commandments of Lean Six Sigma: A Guide for Practitioners, Jiju, Sunder, 2019
   - The Certified Six Sigma Green Belt Handbook, Munro, Govindarajan, and Zrymiak, 2015
   - The Toyota way: 14 management principles from the world's greatest manufacturer, Liker, Jeffrey K., 2004
4. Specific Course Information
   a. Lean Manufacturing (Slender Manufacturing, LM) involves continuous efforts to eliminate or reduce waste or any activity that does not add value, while allowing employees to discover and solve problems. While Six Sigma is a methodology to reduce process variability. Together these currents complement positively and form Lean and Six Sigma (LSS). LSS is the combination of customer-centered efforts and Lean waste disposal with the ana. Quantitative analysis and Six Sigma's structured D-M-A-I-C methodology. LSS requires the simplification of all tasks and efforts to eliminate process variation and improve flow. The subject contributes to ABET's learning achievements: RA1. Problem solving. It identifies, formulates and solves complex engineering problems by applying engineering, science and mathematics principles. RA2. Design. It applies engineering design to produce solutions that meet specific needs. taking into account public health, safety and well-being, as well as global, cultural, social, environmental and economic factors. RA6. Experimentation. Develops and conducts appropriate experimentation, analyzes and interprets the data and uses engineering criteria to draw conclusions.
   b. Prerequisites:
      - INGE-00017 INSTRUMENTATION AND CONTROL
      - EDCA-00229 FINANCIAL MANAGEMENT
      - EDCA-00232 STRATEGIC INFORMATION SYSTEMS
      - PPFS-00066 PROFESSIONAL PRACTICUM IV
      - TTIT-00051 CAPSTONE DESIGN II
      - INDU-00014 LEAN MANUFACTURING AND SIX SIGMA I (I1)
      - MAES-00086 EXPERIMENTAL DESIGN
5. Learning Objectives of the Course
   a. To acquire the necessary tools to design, compare and analyze an improvement strategy using the Six Sigma methodology at a Green Belt level, which is consistent with an organization's needs, so that tangible benefits can be obtained in quality, cost and optimization of resources.
      - Understand and apply DMAIC (Define, Measure, Analyze, Improve, Control) in an improvement project that has a quantifiable impact within the organization.
      - Understand and analyze Six Sigma Tool s according to the characteristics of the process or product to be improved.
      - Compare the different statistical tools and not statistics for the development of improvement projects.
   b. Learning Outcomes
      - Ra1. learn about the generalities of lean six sigma (lss) systems.
      - Ra2. proposes process improvements from the lean six sigma approach to produce solutions that

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- Ra2. proposes process improvements from the lean six sigma approach to produce solutions that meet specific needs.
- Ra2. i built a project charter using the concepts and tools that the lean six sigma methodology. apply the dmaic methodology to understand the relationship between lean six sigma and process performance.
- Ra6. it proposes improvements in production processes of an organizational system where it analyses and interprets data using the dmaic methodology to obtain conclusions.
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6. Course Topics

- Unit 1: introduction
- Unity 2: defines and measure
- Unity 3: analysis and improve
- Unity 4: control
- Unity 5: project