Lean Enterprise Systems Program – Summer 2020

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Welcome to the Lean Enterprise Systems Program – Summer 2020! This document contains important information, so please read it carefully. The program will run from June 22nd through July 30th (six weeks), and it will be structured as follows:

a) An online portion
   • The fundamentals of Lean and Project Management will be delivered via video. You will watch 10 hours of lectures and do 6 hours of written work based on the material taught. You will have access to the printed material and recorded lectures via Canvas, the Learning Management System UT uses.
   • You will work on your English and communication skills through videos from the LinkedIn Training platform. Written work will also be assigned via Canvas. (please refer to the Language Component Syllabus attached)

b) Program core activities
   • 70 hours of in-class instruction at UTK (please refer to the program calendar)
   • 92 hours of in-company observation / data collection
   • 45 hours of homework / written assignments

c) Supporting activities
   • 12 hours for fieldtrips (Toyota and Amazon)
   • 21 hours for culture-related activities (Smokey Mountains, Dollywood, and Rock City)

The table below reflects the distribution of hours throughout the six weeks the course in the U.S. lasts.

<table>
<thead>
<tr>
<th>Activity</th>
<th># Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classroom</td>
<td>70</td>
</tr>
<tr>
<td>Homework</td>
<td>45</td>
</tr>
<tr>
<td>Fieldtrip</td>
<td>12</td>
</tr>
<tr>
<td>Company</td>
<td>92</td>
</tr>
<tr>
<td>Cultural</td>
<td>21</td>
</tr>
<tr>
<td>TOTAL</td>
<td>240</td>
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</tbody>
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OBJECTIVES

• Students will be able to apply the methodology they have learned to successfully diagnose or confirm a problem in a company’s systems and processes. They will also be able to develop a project that presents a solution to the problem and its sustainability, focusing on enhancing shareholder value through customer satisfaction and establishing a high quality of life for the workforce.

• Students will be able to navigate cultural and linguistic competence differences to successfully develop a project as a team.

LECTURES ON CORE SUBJECT

• Introduction to Lean and the Toyota Production System
  o Background of Lean and TPS
  o Overview of the sequential implementation phases of TPS and their associated tools.
    ▪ Phase 1: Understanding your system
    ▪ Phase 2: Fundamental workplace design
    ▪ Phase 3: The role of standard operating procedures
    ▪ Phase 4: Reducing setup times to allow lot/size reduction
    ▪ Phase 5: Cell design
    ▪ Phase 6: Scheduling and flowing through system
  o Understanding the relevance of systems design and how closely linked it is to the well-being of people involved.
  o Introduction to The Sawhney Model.
  o Effects of TPS on people’s well-being.

• Developing Critical Problem Solving: UT DRIVES model
  o Defining a Systems-Based Problem
    ▪ Systems Thinking, Theory of Constraints, Network Analysis
  o Developing an Operational Excellence Solution
    ▪ The Sawhney Model
  o Sustaining the Solution
    ▪ Via Design, Via Behavior Change

• The Sawhney Model Framework: A UT Approach
  o Aligning Organizational Initiatives to The Sawhney Model Methodology and Tools
    ▪ Methodology Alignment Mechanism Based on Little’s Law
    ▪ Designing Hierarchy of KPI’s Based on Leading and Lagging Indicators
    ▪ Connecting Process/System Throughput to Tool Set
      • Flow Based
      • Variation Based
      • Disruption Based
- UT Categorizing Processes Based on Uncertainty
  - Categories
    - Deterministic Processes and Initial Approach
    - Stochastic Processes and Initial Approach
    - Bayesian Processes and Initial Approach
  - Process/System Mapping
    - Value Stream Mapping and its Limitations
    - Simulation Modeling
- UT Reliability of Lean Systems
  - Developing a Reliability Based Support Structure Analysis
    - Material
    - People
    - Equipment
    - Schedules/Information
  - Known and Equivalent Reliability Structures
  - Reliability Calculations
    - Exponential Distribution
    - Weibull Distribution
- Designing People-Based Processes/Systems
  - Systems-Based Alignment of People-Oriented Stock
  - Introduction to UT Engagement Model
  - Analyzing the Impact of Culture on Lean Design - a UT Model

**NOTE:** Activities involving third parties (cultural, educational and recreational) are subject to change.

**AMBASSADORSHIP ASPECT OF THE PROGRAM**

We invite you embrace the multicultural make-up of the Lean Enterprise Systems Program. You will live in a Residence Hall at UT for over a month, and you will share a room with other students. See yourself as an ambassador of your country in Tennessee.

We challenge you to leave your prior way of thinking at the airport and bring with you just the openness to look at people, companies, problems, and solutions from a different standpoint and with different lenses.

We look forward to exchanging knowledge and experiences with you.
GRADE BREAKDOWN

- Online Module (Intro) ................................................................. 5%
- Attendance and Team Leader Evaluation........................................ 5%
- Project
  - Midterm .................................................................................. 10%
  - UT Presentation* ................................................................. 10%
  - In-Company Presentation** .................................................. 30%
  - Final Report for Company .................................................... 10%
- Language Component ................................................................. 10%
- Self and peer evaluation ............................................................. 20%

* When presenting at UT, students must:
  a) demonstrate their ability to approach a problem critically
  b) support their findings and solutions with technical accuracy

** When presenting at the company, students must:
  a) convince the sponsor of the feasibility of the project
  b) show what the impact of the project will be in terms of financial gain, customer satisfaction, and improvement of quality of life of employees