LEAN ENTERPRISE SYSTEMS PROGRAM - ONLINE

2021

THE UNIVERSITY OF TENNESSEE
KNOXVILLE
BIG ORANGE. BIG IDEAS.
BACKGROUND OF LEAN ENTERPRISE SYSTEMS PROGRAM

Lean Enterprise Systems Program is a multicultural experience, with participants from diverse institutions that already graduated more than 900 students and had 50 undergraduate students from Mexico, Brazil, China and U.S. in the last edition. The in-person program lasts five weeks: the first week is held via distance education with the help of communication technologies. This approach minimizes the distance barriers around the world. The remaining four weeks were held at UT Knoxville campus. Due to the currently COVID situation, the program will be entirely held online. The academic content teaches the concept of Lean, a methodology that helps use available resources wisely and a new approach of Lean, which focuses on improving people’s quality of life. The program also includes a well-rounded experience as participants work in industrial projects for companies, with solutions to real issues.

The different settings, such as classes, projects, and virtual meetings, provided a learning experience as well for instructors and representatives from the different participant organizations. To mention a few examples, in the classroom, students learned from the instructional methodologies followed in the U.S., and professors were impressed by the preparation, dedication and formality students demonstrated through their work and presentations. Within the projects, students raised high expectations from the organizations, by the way they worked and interacted with people with several differences in language, education, and culture, demonstrating efficiency and effectiveness addressing the issues they were requested to solve.

GLOBAL CITIZENS

The program adopted the strategy of having the project teams comprised of members and leaders from multiple nationalities, Americans as well, which enhanced the experience of education and problem solving from a multicultural perspective to everyone. This program has helped both students, as well as organizations, to embrace different cultural perspectives by this mentioned exposure that generated a win/win relationship academically, culturally, and professionally.

At the beginning of the program, students are asked what they think about Americans and about each other through a survey during the class time. After the program, they are asked the same questions. The results showed that the acceptance, respect and appreciation of the US and for each other have increased substantially. Furthermore, the US companies also showed a greater appreciation of the foreign nations’ students and cultures.

This generates a change of paradigm with an “eye-opener” experience, by working and studying with people from different nationalities, that represented with dignity the role of ambassadors of their home countries in East Tennessee.
AMBASSADORSHIP PROGRAM

The value that the program brings to all participants is based on exposure, as it not only provides an opportunity to develop communication skills with individuals from other nations, but also provides a change on the way of thinking, addressing problems differently, by considering a global perspective. It creates an environment of coexistence, based on the principles of civility and community.

Utilizing program’s current structure (classes, projects, and social interactions) we can develop an intense Ambassadorship Program, which will further reduce the barriers of communication and interaction between different nations and cultures.

SCHEDULE

The program will be structured as follows:

I. An introduction 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. (subject to change)

II. Program core activities:
   - 70 hours of class instruction via Zoom (please refer to the program calendar)
   - 100 hours of company observation (videos) / data collection / interviews / design of manufacturing, healthcare, and government processes
   - 50 hours of homework / written assignments

III. Supporting activities:
   - 20 hours of sessions with industry leaders (operational excellence)

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>50</td>
</tr>
<tr>
<td>Speeches</td>
<td>20</td>
</tr>
<tr>
<td>Industry Practice</td>
<td>100</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>240</strong></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

- **Introduction to Lean and the Toyota Production System**
  - Background of Lean and TPS
  - 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
  - Understanding the relevance of systems design and how closely linked it is to the well-being of people involved.
  - Introduction to The Sawhney Model.
  - Effects of TPS on people’s well-being.

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

- **The Sawhney Model Framework: A UT Approach**
  - 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

INVESTMENT

The total cost of the program is $975.00 and includes:

- Course Materials (Lectures and Papers)
- Instructional Fees
- Use of Information System (CANVAS)
- Certificate of Completion

If you have further questions, you can email Guilherme Zuccolotto, the program coordinator, at gzuccolo@vols.utk.edu or our team at utlean@utk.edu. You may also call us at (865) 974-3333 (8:00 a.m. to 5:00 p.m. ET).

We look forward to exchanging knowledge and experiences with you.
**Tennessee Tradition Fact:** “Every Saturday, just before the Vols (football team) go out to the tunnel, and run thru the T, they touch the Vols sign that says: I will give my all for Tennessee today! The sign is just over the doorway in the dressing room at Neyland Stadium.”

*Excerpted from: http://smokeys-trail.com/TN/traditions.html*

Sincerely,

Dr. Rapinder S. Sawhney  
Heath fellow of Business and Engineering, Professor  
Executive Director,  
Center for Advanced Systems Research and Education