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ISOM 482, 001 Lean Production Concepts and Practices

Spring Quarter, 2019

Wednesday 6 – 9 pm; Schreiber Center - Room 525

John Nicholas, instructor

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Office Hours, Mon, 10-4, Wed 10-5:30, Tue/Thu 2:30-4; other hours by appointment
<http://www.luc.edu/quinlan/faculty/johnnicholas/>

Catalog Description

Methods for managing operations in manufacturing and service organizations based upon the Toyota Production System. Topics include the principles lean production: employee empowerment, workplace organization, smooth process flow, pull production, setup reduction, TPM, cellular manufacturing, standard operations, visual management, and supplier partnerships.

Course Overview

The major topic of the course is the philosophy and practice of **lean production (LP)**, which is based on the Toyota Production System (TPS). The course shows how LP achieves competitive advantage through reduced cost and time in operations and improves quality and delivery of services and products. Lean production is exciting! It is perhaps the most revolutionary concept in management since Ford introduced mass production. Although LP was developed in manufacturing, it is being adopted in a wide variety of services such as health care. Applications in both service and manufacturing will be discussed.

Course Objectives and Learning Outcomes

By the end of this course you will

- Understand concepts and tools for reducing waste and continuously improving operations based upon lean production, Toyota's success-proven approach.
- Understand the competitive advantage for organizations that practice LP
- Learn how to apply at least a few of the tools of LP from personal experience
- Understand the issues and difficulties in implementing LP

Required Materials

- John Nicholas, *Lean Production for Competitive Advantage*. 2nd edition, Routledge, 2018. ISBN 131 978-1-4987-8088-9
- Other materials will be posted on Sakai

Highly recommended:

- Jeffrey Liker, *The Toyota Way*. McGraw-Hill, 2004. ISBN 0-07-139231-9
- James Womack and David Jones, *Lean Thinking*. Free Press 2003, ISBN 978-0-7432-4927-0
- Mary Walton, *The Deming Management Method*. Perigee, 1988.

Course Requirements and Grading Criteria

- 33% Written assignments, explained below
- 30% Exam
- 32% Written Report, explained below
- 5% Participation

University Grading Scale

A	100-93%
A-	92-90
B+	89-88
B	87-83
B-	82-80
C+	79-77
C	76-73
C-	72-70
D+	69-67
D	66-60
F	59 and below

Quinlan School of Business Policies:

Attendance

Class attendance and participation are fundamental components of learning, so punctual attendance at all classes, for the full class meeting period, is expected of Quinlan students. Faculty may set participation policies unique to their courses and use class participation as a component of the final grade. The student is responsible for any assignments or requirements missed during an absence.

Make-Up Examination

Loyola University academic policy provides that tests or examinations may be given during the semester or summer sessions as often as deemed advisable by the instructor. Quinlan faculty believe examinations represent a critical component of student learning and examinations should be taken during the regularly scheduled class period. **Make-up examinations are discouraged.** Exceptions may be granted only by the faculty member or department chair, and only for unavoidable circumstances (illness verified by a signed physician's note, participation in intercollegiate athletic events, subpoenas, jury duty, military service, bereavement, or religious observance). ***You must notify the instructor in advance via phone (312 915-7060) if you will miss an exam. Failure to notify the instructor in advance will result in a 0.***

Academic Integrity

All members of the Quinlan School shall refrain from academic dishonesty and misconduct in all forms, including plagiarism, cheating, misrepresentation, fabrication, and falsehood. . .Plagiarism or cheating on the part of the student in individual or group academic work or in examination behavior will result minimally in the instructor assigning the grade of "F" for the assignment or examination. In addition, all instances of academic dishonesty must be reported to the chairperson of the department involved.

For further information about expectations for academic integrity and sanctions for violations, consult the complete Quinlan School of Business Honor Code and Statement of Academic Integrity on the Quinlan website: <http://www.luc.edu/media/lucedu/quinlanschoolofbusiness/pdfs/Honor-Code-Quinlan-July2012.pdf>

Instructor Policies

To minimize distractions:

- Laptops must be closed during class
- Cell phones must be turned off.

Required Materials

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Course Outline

Session Topic and Chapters in text “Chps” = Nicholas book; W = Walton book; L = Liker book

- | | | |
|----|------|--|
| 1 | 2/20 | Introduction: LP, Just in time, TPS, Waste, TQM, Chps 1-4; W=1-4; L=17, 13, 20.
Movie “Road to Manufacturing Excellence”. |
| 2 | 2/27 | Continuous improvement, Business processes, Flowcharting, VSM; movie W=5-17
Assignment 1 due (Road to ...) |
| | 3/6 | Break |
| 3 | 3/13 | Workplace organization and 5S, Chp 3; W=18-20; L=13.
Small-lot production, Chp 5; L=8.
Setup reduction, Chp 6.
Assignment 2 due (Process flow chart) |
| 4 | 3/20 | Pull production systems. Chp 8; L= 9. Workflow and layout, Chp 9; L= 8.
Assignment 3 due (HD: Lean self-help) Discuss case and questions |
| 5 | 3/27 | Group technology, U-lines, Chp 9. Workcell design. Chp 10.
Assignment 4 due (GE: Pull) Discuss case and questions
Submit proposal for your report topic. |
| 6 | 4/3 | SPC and process capability, Supplement; W=25, 26, 27.
Exam
Assignment 5 due (Spaghetti diagram) |
| 7 | 4/10 | Total productive maintenance, Chp 7.
Pokayoke, Chp 12; L=11.
Assignment 6 due (EG&G Sealol: Workcells) Discuss case and questions |
| 8 | 4/17 | Uniform flow and MMP, Chp 14 (L= 10, 12). Standard operations, Chp 11; L=12.
Assignment 7 due (Johnson Controls: Lean/Pull) Discuss case and questions |
| 9 | 4/24 | Daily management, Chp 18 Supplier partnerships, Chp 17; L=17. Kaizen events L=21.
Lean organizations. L=14, 15, 16, 18, 19, 22. |
| 10 | 5/1 | Oral Presentations. Written reports due. |

Written Assignments

There are seven assignments. **Assignments will be discussed in class; hence, they must be handed in on time and will not be accepted late.**

Assignments and Topics

1. Road to Manufacturing Excellence movie	Individual assignment
2. Process flowchart	Individual
3. Harley Davidson case	Team assignment
4. General Electric (A) case	Team
5. Spaghetti diagram	Individual
6. EG&G Sealol case	Team
7. Johnson Controls/Pikeville case	Team

The lowest-grade assignment will be dropped.

Assignments 1, 2 and 5 are *individual* assignments. ***Everyone must turn these in.***

- **Assignment 1:** movie writeup. Refer to handout instructions.
- 12 pt. font, 1.5 spacing ; 2 pages max, 1.5 pages min.
- **Assignment 2:** Flowchart of a process you are familiar with. Refer to instructions in “*Business Processes*” Powerpoint.
- **Assignment 5:** Spaghetti diagram of a process you are familiar with. Refer to instructions in “*Focused Factory*” Powerpoint.

Assignments 3, 4, 6, 7 are *team* assignments. **Every team *must turn in assignment 3***; in addition, **each team must turn in *two other assignments***. ***Your team will be told which assignments to turn in.***

***** Team write-ups must be 12 pt. font, 1.5 spacing, 3 pages maximum, 2 pages minimum. Use these standards regardless of what may be stated on the individual cases.**

For each of the assigned case studies one team will be assigned to give a class Powerpoint presentation. The team giving the presentation is also required to do a write-up. The presentation must be prepared in Powerpoint. Plan on a 15 minute presentation followed by class discussion about the questions and other comments. The presentation should include the following:

- Brief background of the company in the case.
- Synopsis of the case (problem/situation facing the company)
- Responses to the questions in the case.

Everyone is expected to be familiar with ALL of the assignments, even the ones not written up. *Everyone will be called upon in class to discuss them. You will receive demerits if you are called upon and are not familiar with the case.*

Team Assignments

Team	Write-up and oral presentation	Write-up only
A	Assignment 3	Assignments 6 and 7
B	Assignment 4	Assignments 3 and 7
C	Assignment 6	Assignments 3 and 7
D	Assignment 7	Assignments 3 and 4

Final Report

On or before **March 27**, turn in a *one-page* proposal describing the topic of your report. Before turning in the proposal, you must speak to the instructor about your topic.

The proposal should be well thought out and include

- (1) brief introductory statement about the topic of the report
- (2) methodology you will use (interviews, observation, library or internet research, etc.)
- (3) results you expect.

Poorly conceived proposals will be returned for rewrite.

Possible report topics

1. Project: an actual application in a work setting of concepts and methodologies covered in this course. You can visit an organization that uses lean practices (many local companies do), or consider and propose how lean practices might be implemented in an organization you are familiar with (e.g., your place of work). If you are currently not working and don't have an organization to work with, you are encouraged to team up with someone who does. This topic is *much preferred* over the next.

2. Research: a report based upon a literature survey or interviews to explore in detail *a topic from this course*. Use this as an opportunity to discover how lean concepts are being applied in all kinds of companies and industries. All sources must be referenced; the report will be checked for originality.

You may work with 1 or 2 partners if your report is the first topic, i.e., a project. The written report should be about 7 pages **per student**, 12 pt. font, 1.5 spacing. Individual reports should be about 10 pages. The written report is to be handed in on or before the final class session, **May 1**.

Please note: This class may occasionally deviate from the course outline above. The instructor reserves the right to make changes as needed.