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
Available at Follett’s Bookstore
- Other materials will be posted on Blackboard

Highly recommended:
Quinlan School of Business Policies:

**University Grading Scale**

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>A</td>
<td>100-93%</td>
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<tr>
<td>A-</td>
<td>92-90</td>
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<tr>
<td>B+</td>
<td>89-88</td>
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<tr>
<td>B</td>
<td>87-83</td>
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<tr>
<td>B-</td>
<td>82-80</td>
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<tr>
<td>C+</td>
<td>79-77</td>
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<tr>
<td>C</td>
<td>76-73</td>
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<tr>
<td>C-</td>
<td>72-70</td>
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<tr>
<td>D+</td>
<td>69-67</td>
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<tr>
<td>D</td>
<td>66-60</td>
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<tr>
<td>F</td>
<td>59 and below</td>
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**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 Examinations**

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.

A make-up final examination may be scheduled only with the permission of the appropriate Quinlan Assistant or Associate Dean.

Student athletes may use the testing services of the Athletics Department to complete a make-up examination. For a student with a documented special testing need, please consult University policy concerning use of the testing center in Sullivan Center at Lake Shore Campus.
### Course Outline

<table>
<thead>
<tr>
<th>Week</th>
<th>Dates</th>
<th>Topic and Chapters in book</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>8/26</td>
<td>Introduction: Lean, JIT, TQM. Chp 1, Chp 4</td>
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<td></td>
<td>8/28</td>
<td>Continuous improvement. Chp 2; <strong>Movie (attendance required)</strong></td>
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<tr>
<td>2</td>
<td>9/2, 9/4</td>
<td>Assignment 1 due 9/2; Waste and value-added. Chp 3</td>
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<td></td>
<td></td>
<td>Improvement tools; Business Processes, Flow charting</td>
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<tr>
<td>3</td>
<td>9/9</td>
<td><strong>Deadline to inform instructor of your presentation topic</strong></td>
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<tr>
<td></td>
<td></td>
<td>Value stream mapping. Chp 2</td>
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<tr>
<td></td>
<td>9/11</td>
<td>Assignment 2 due; Workplace organization, kaizen, and 5S. Chp 3</td>
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<tr>
<td>4</td>
<td>9/16, 9/18</td>
<td>Small-lot production, Chp 5</td>
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<td></td>
<td></td>
<td>Setup reduction. Chp 6; Assignment 3 due; discuss HD case</td>
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<tr>
<td>5</td>
<td>9/23</td>
<td>Exam I</td>
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<tr>
<td></td>
<td>9/25</td>
<td>No class</td>
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<tr>
<td>6</td>
<td>9/30, 10/1</td>
<td>Presentations</td>
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<tr>
<td>7</td>
<td>10/7</td>
<td>Fall break, no class</td>
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<td></td>
<td>10/9</td>
<td>Presentations; Deadline to turn in report proposal</td>
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<tr>
<td>8</td>
<td>10/14</td>
<td>Presentations; Pull production systems. Chp 8</td>
</tr>
<tr>
<td></td>
<td>10/16</td>
<td>Pull production systems.</td>
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### 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.


### Instructor Policies

To minimize distractions:

- Laptops must be closed during class
- Cell phones must be turned off.
9  10/21, 10/23  Pull production systems. Chp 8
Work flow and layout, group technology, U-lines; Chp 9
Assignment 4 due 10/23; discuss GE case

10  10/28  Workcell design. Chp 10
10/30  Assignment 5 due, Spaghetti diagram

11  11/4  Integrating quality into operations. Chp 12
      Statistical process control
11/16  Process capability and pokayoke
Assignment 6 due; discuss EG&G case

12  11/11  Total productive maintenance. Chp 7
11/13  Standard operations. Chp 11
Assignment 7 due; discuss Johnson Controls case

13  11/18  Supplier partnerships. Chp 16; Lean organizations
11/20  Exam II

14  11/25  Oral presentations of final reports
11/27  Thanksgiving

15  12/2, 12/4  Oral presentations of final reports

Final  12/9  9:00-11:00  Oral presentations of final reports; turn in written final reports

Written Assignments

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

Assignments 1, 2 and 5 are individual assignments. Everyone must turn in these assignments.
- Assignment 1: Movie writeup, 12 pt. font, 1.5 spacing; 2 pages max, 1.5 pages min.
- Assignment 2: Flowchart a process you are familiar with. A business process is preferred.
- Assignment 5: Spaghetti diagram of a process you are familiar with. A business process is preferred.

Assignments 3, 4, 6, 7 are team assignments. Group write-ups must be 12 pt. font, 1.5 spacing, 2.5 pages maximum, 2 pages minimum. One team will be chosen for each case to give a 10 minute oral presentation.

Everyone is expected to be familiar with ALL of the case assignments. Everyone will be called upon in class to discuss the case assignments. You will receive “demerits” if you are called upon and are not familiar with the case.
Assignments

1. Road to Manufacturing Excellence movie       (individual)
2. Process flowchart                        (individual)
3. Harley Davidson case                     (team)
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.

1st Presentation

Every student must give a 10-12 min presentation addressing an application of LP/JIT/TPS to a company or an industry. Research sources: your own experience, magazine/newspaper articles, or the internet (Google!). Presentations will be given during weeks 6, 7, 8. Please inform the instructor in writing about your topic ASAP but no later than September 9!

Final Report

Proposal

On or before October 9 turn in a one-page typed proposal describing the topic of your report. Before turning in the proposal, you must speak to the instructor about the topic of your report. You are encouraged to work in groups of two or three.

The proposal MUST include

(1) Brief introductory statement about the topic of the report
(2) Methodology you will use (interview, observation, personal experience, library or internet research, etc.)
(3) What you hope to learn from preparing the report.

Poorly conceived proposals will be returned for rewrite.

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.
Format

Final written reports should be 7-10 pages per student, double spaced. You must hand in the written report on or before the final exam session of December 9. Oral presentations of the final report will be 25 to 45 minutes, TBD based upon number of reports.

References

All sources used in the final report must be referenced. Indicate which material, if any, is based upon interviews and which is based upon articles. Articles (printed or online) must be referenced giving the title, author, date, and publication or website. This must be an original work. Reports will be checked for plagiarism.

Final Exam Class
Tuesday December 9, 9-11 am

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