

San José State University
DEPARTMENT OF AVIATION AND TECHNOLOGY
COLLEGE OF ENGINEERING
TECH 145 – LEAN MANUFACTURING
Fall 2018 – Section 01

Course and Contact Information

Instructor:	Karim Suleman
Office Location:	By Appointment
Telephone:	(408) 896-9569 (Text Preferred)
Email:	karim.suleman@sjsu.edu
Office Hours:	by appointments only
Class Days/Time:	Tuesdays & Thursdays 7:30pm to 8:45pm
Classroom:	Aviation & Technology Bldg. Room IS 216
Prerequisites:	BUS 140 or BUS 145

Course Format

TECH 145 is a flipped course. The students are expected to review the material in detail at home before class meeting and then conduct exercise in class to apply the learning. The course will require access to computer with MS Office application or basic word processing software to submit homework, take home activities and final project submissions. Students must have access to high speed internet and a Canvas –the management system.

Course Description

Exploration and practice of techniques for reducing waste to optimize the value stream in both manufacturing and non-manufacturing environments. Toyota Production System, Value Stream Mapping, 7 Wastes, 5S/6S, Just-in-Time, TPM, Kaizen.

Course Learning Outcomes (CLO). Upon successful completion of this course, students will be able to:

CLO	Description	How Achieved
1	Define Lean Manufacturing through Toyota Production system and other Lean terms thus demonstrating an understanding of the Language of Lean	Textbook Chapter Birth of Lean pdf Class Assignment / Homework
2	Determine the personal attributes required to be a successfully change	Who Moved my Cheese
3	Determine the cultural factors required to be successfully implement change	Class Presentation Class Assignment / Homework
4	Customer, Suppliers, Sub-tier suppliers: Roles & Product type Define, 7-Wastes	Class Presentation Class Assignment / Homework
5	Root Cause Analysis - Simplified Tools and Techniques	Class Presentation Class Assignment / Homework
6	Decision Matrix & its Application	Class Presentation Class Assignment / Homework
7	Pareto charts & its Application Introduction to Root Cause Corrective Actions (RCCA) and its Application	Text Book Chapter Class Presentation Class Assignment / Homework
8	Inventory & Variation / Kanbans	JIT Simulation and Kanban Exercise
9	Overall Equipment Effectiveness Total Productive Maintenance (TPM) / 7 Pillars of TPM	Class Presentation Class Assignment / Homework
10	Lean Manufacturing Simplified 6S Methodology 8-Discipline Reports, SPC / OCAP / GR&R / Process Capabilities / MSA / Medical Device Regulations & Compliance + Documentations DHF, RMA / PFMEA	Lean 6 Sigma Class Presentation 8D Project / Group Project Class Assignment / Homework
11	Introduction to six Sigma Methodology as applied to Lean Manufacturing and 8 Discipline Report Writing Introduction to Lean Six Sigma Methods of using SPC / OCAP / GR&R / Process Capabilities / Measurement System Analysis Introduction of Lean Six Sigma to Medical Device Regulations & Compliance + Documentations DHF, RMA / PFMEA	Class Presentation Class Assignment / Homework

Course Learning Outcomes (CLO). - Continues

CLO	Description	How Achieved
12	The significance of Lead Time	Class Presentation Class Assignment / Homework
13	How to do Lean - Culture Change Fundamentals	Text Book Chapter Class Presentation Class Assignment / Homework
14	How to do Lean - The Four Strategies to become Lean (Takt Time, Tine Study, Balancing Study, Spaghetti Diagram and Value Stream Mapping)	Text Book Chapter Class Presentation Class Assignment / Homework
15	How to Implement Lean - The Prescription for the Lean Project	Text Book Chapter Class Presentation Class Assignment / Homework
16	Planning and Goals in Lean Manufacturing Hoshin-Kanri Planning Lean Leadership Goal Development	Text Book Chapter Class Presentation Class Assignment / Homework
17	Sustaining the Gains in Lean Manufacturing	Text Book Chapter Class Presentation Class Assignment / Homework

Textbook

Students are required to purchase “How to Implement Lean Manufacturing: ISBN # 9781309060148 from SPARTAN Bookstore

Course Requirements and Assignments

Assignments

Lean approach involves both team and individual activities in this course. All members of the group will receive the same grade for group assignments. A key part of Lean implementations is working in groups, so please make sure to use this opportunity to enhance your ability to work collectively.

Speakers

There will be two or more guest speakers - industry leaders in the area of Lean Manufacturing, who will be addressing the class in areas of their expertise. Speakers will be from the areas of Semiconductor, Information Technology and Biomedical. Students are encouraged to ask questions at the end of the session. There will be assignments given out at the end of the each session on the material covered by a guest speaker.

Project Work / Presentation

There are 2 projects assigned in this class. Both projects will be completed in groups. The project work will manufacturing or non-manufacturing environments. The projects will cover 8-Discipline Report writing and Lean Six sigma that should cover all Lean Manufacturing techniques described in this Course Learning Outcomes (CLO). The project work should be distributed equally amongst all team members. Each team should have a team leader (Champion). The champion will be responsible to define his/her specific team project to the class. Other responsibilities include assigning project tasks to each member and monitoring progress and completion of tasks from the team members. Each team will have an opportunity to present their project, two weeks prior to final exam. Your Professor will give you in-depth details for both these projects.

Class / Homework Assignments

There will be group assignments and group homework after every other chapter covered in the class. Deadlines to submit each assignment will be announced by your professor.

Midterm

There will be one midterm exam / learning progress and revision questions will be provided by your professor. The midterm exam covering chapter 1 to 5 is scheduled for **Tuesday October 16 at 7:30pm to 8:45pm**. You are required to check Canvas class announcement for any changes to midterm exam date and time changes prior to October 16. The exam format will be combination of multiple choice, short answer questions and questions requiring graphing and use of mathematical formulas, covered in chapters 1 to 5 and all material covered in class presentations.

Final Exam

The final exam will be comprehensive. The exam format will be combination of multiple choice, short answer questions and questions requiring graphing and use of mathematical formulas, covered in chapters 1 to 10 and all material covered in class presentations. This will include Lean dictionary words, material from the class and homework assignments. Final Exam schedule will on **Tuesday December 18, 2018. Time 7:30 pm to 9pm**. Location: Room IS 216

SJSU classes are designated such that in order to be successful in this course, it is expected that student spend, for each unit, a minimum of 45 hours over the length of the course. This includes preparing for class, participating in course activities, completing assignments, and so on. More details about student workload can be found in [University Policy S12-3](http://www.sjsu.edu/senate/docs/S12-3.pdf) at <http://www.sjsu.edu/senate/docs/S12-3.pdf>

Grading Information

Group Assignments	20
1 Midterm Exam	20
8D / Six Sigma Group Project	15
Final Project	15
Final Exam (Comprehensive)	30
Attendance / Participation	Required 

Determination of Grades

A+	100	A	93-99	A-	90-92
B+	88-89	B	83-87	B-	80-82
C+	78-79	C	73-77	C-	70-72
D+	69	D	65-68	F	Below 65

Extra Credit assignments are generally not available for this course. Please do the work when it is assigned and submit your work in time. I do not grade on curve for any assignment or for the final course grade. Grading is per the schedule listed above and grades are final when posted in Canvas.

Classroom Protocol

I prefer that you arrive on time but would rather that you come late than not all. Try to minimize disturbance. Since this is a late evening class. I will allow you to have food and drink in the portion of the classroom for lectures. You are responsible for keeping the classroom clean and spill free.

Classroom Ethics

Tech 145 classroom will be a place where diversity is accepted and valued. Different culture and ethnical background is to be respected. Language that degrades an individual or group because of gender, ethnicity, nationality, socioeconomic status, religious preference, sexual orientation, intellectual ability, or physical ability will not be tolerated.

Policies

Turnitin / Plagiarism Avoidance

This course uses the plagiarism checking services of Turnitin.com. Your project, homework and assignments will be required to be submitted through Turnitin, which is integral part of Canvas. There is a plagiarism module in Canvas that gives you some guidance and breakdowns on penalties for plagiarism. Please refer to this module if you have any questions or concerns.

Academic Integrity:

Plagiarism on your assigned classwork / homework assignments, cheating on exams, quizzes will not be tolerated. You cannot copy any part of another person's / student's work and call it your own. You are not allowed to use any electronic devices during quizzes, midterm and final exams, these items must be turned off and placed in your backpack. Cheating in quizzes, midterm and exam will result in a zero and reported to the Dean / Department Chairperson. Please consult the University policies. SJSU Policies:

http://www.sjsu.edu/senate/policies/pol_chron/