

**San José State University**  
**Department of Aviation and Technology**  
**TECH/ISE 145 – Lean Manufacturing**  
**Spring 2014 - Section 01**

**Contact Information**

<b>Instructor:</b>	Dianne Hall
<b>Office Location:</b>	IS 107
<b>Telephone:</b>	(408) 924-3204 (checked infrequently – use Canvas email)
<b>Email:</b>	Dianne Hall in Canvas (checked 1-2 times a week)
<b>Alternate Email</b>	<a href="mailto:Dianne.Hall@sjsu.edu">Dianne.Hall@sjsu.edu</a> (checked rarely – use if Canvas issues only)
<b>Office Hours:</b>	Thursday 3:45 pm – 5:45 pm or by appointment
<b>Class Days/Time:</b>	Thursday 6:00 pm – 8:45 pm
<b>Classroom:</b>	IS 216
<b>Prerequisites:</b>	BUS 140 or BUS 145 or ISE 140
<b>Course Number</b>	TECH: 27711 ISE: 28956

**Faculty Web Page and MYSJSU Messaging**

Copies of the syllabus may be found on my faculty web page accessible through the Quick Links>Faculty Web Page links on the SJSU home page.

<http://www.sjsu.edu/people/dianne.hall/>

You are responsible for regularly checking with the messaging system through MySJSU.

All course materials may be found in the Canvas Learning Management System. Once you are registered for the course, you will be automatically added to the Canvas course shell. See details below for accessing Canvas. You should regularly check Canvas for updates or set the notifications feature in Canvas to notify you of changes.

**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, Just-in-Time, TPM, Kaizen. Prerequisite: BUS 140 or BUS 145 or ISE 140.

## Purpose of the Course

This course is designed to introduce the student to the Lean Manufacturing Method; a production methodology based on the Toyota Production System. This course has both a web-based component and in-class lectures to illustrate key learning points. There is a significant hands-on learning project outside of the classroom as lean manufacturing is best learned by doing. Both production processes and transactional processes will be explored.

## Course Goals and Course Learning Outcomes (CLO)

At the successful completion of the course, the student will be able to:

CLO	Description	How Achieved
1	Define Lean Manufacturing/Production and other Lean terms demonstrating an understanding of the language of lean	Textbook Chapter Quizzes
2	Determine the personal attributes required to be a successful change agent and the cultural factors required for successfully implementing change.	5S Project
3	Create a Value Stream Map for a process and then identify the 7 Wastes in that Value Stream	7 Wastes, Value Stream Mapping Assignments,
4	Use several lean tools such as 5S, Visual Management, Quick Change Over (QCO/SMED) and Mistake Proofing (poka-yoke) to eliminate waste and improve a value stream	5S Project, Poka Yoke assignment
5	Understand the material flow on a Lean Production Line, in particular the difference between push and pull systems, and kanban use for material flow	JIT simulation, Kanban exercise
6	Understand the importance of communication and employee involvement in a lean manufacturing system.	5S Project
7	Use the 7 Tools of Quality to help improve the quality and reliability of a Value Stream	5S Project
8	Understand the relationship between Lean Manufacturing and 6 Sigma – 2 powerful improvement methodologies.	7-Tools Quiz / Assignment
9	Use key business metrics to determine the level of lean manufacturing implementation at select companies.	5S Project, Metrics Exercise
10	Compare and contrast Lean implementations in both manufacturing and service environments to determine the similarities and differences.	Lean Service Assignment
11	Apply the principles of continuous process improvement to a value stream.	5S Project, Value Stream assignments
12	Understand the impact of Total Productive Maintenance (TPM) and Standard Work on quality of outputs of a value stream.	TPM Quiz / Assignment

## Library Liaison

Mengxiong Liu, Ph.D.

Email: [mengxiong.liu@sjsu.edu](mailto:mengxiong.liu@sjsu.edu)

Dr. Liu has developed a library [subject guide](#) that may be found at [http://libguides.sjsu.edu/aviation\\_technology?hs=a](http://libguides.sjsu.edu/aviation_technology?hs=a)

## Textbooks

Required	
Lean Production Simplified (LPS) Dennis, Pascal. (2007) Productivity Press. ISBN 978-1563273568 Previous editions of this text are acceptable.	Value Stream Management Tapping, Don; Luyster, Tom; Shuker, Tom Productivity Press 978-1563272455
Lean Speak (LS) Junewick, Mary A. (ed) (2002) Productivity Press. ISBN 978-1563272752	
Recommended	
Gemba Kaizen (GK) Imai, Masaaki (2012) McGraw Hill ISBN 978-0071790352 Previous editions of this text are acceptable.	Lean Thinking (LT) Womak, Jim, Jones, Daniel T.(2003) Simon and Shuster ISBN 978-0743249270

## Course Requirements and Assignments

SJSU classes are designed such that in order to be successful, it is expected that students will spend a minimum of forty-five hours for each unit of credit (normally three hours per unit per week), including 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](#) at <http://www.sjsu.edu/senate/docs/S12-3.pdf>.

Detailed instructions for each assignment will be provided in Canvas (the current on line course management tool). Generally, assignments are due right before class however, please refer to Canvas for assignment due dates and times. All assignments must be submitted through Canvas. NO assignments will be accepted late.

All work completed must be in proper English. Your grade will be lowered if excessive grammatical and spelling errors are made. Work that is not in an acceptable manner will not receive credit.

## **Assignments**

There are both group activities and individual activities in this course. Group activities are identified with a (G) on the course schedule. Individual assignments are identified with an (I) on the course schedule. 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 in groups.

## **Project Work**

There is significant project work in this class. This project may include specific activities at a customer site. This project work may require time during normal business hours in addition to the class meeting time. The student must sign a non-disclosure agreement, release of liability agreement and a safety policy before being allowed to complete the project portion of this assignment. Any violations of the non-disclosure agreement or the safety policies will result in immediate withdrawal from the class and an assignment of a grade of F for the course. Students violating a non-disclosure agreement may also be subject to civil litigation by the customer. Make sure you understand and follow these policies and agreements.

## **Canvas Component**

This course uses Canvas, a web based course management tool. See the SJSU academic technologies ecampus main website <http://www.sjsu.edu/at/ec/> for instructions and the location of the course management tool. Computers with high-speed internet connections are available throughout campus and at the King Library. All students must also have an active email address.

## **TurnItIn / Plagiarism Avoidance**

This course uses the plagiarism checking service of TurnItIn. TurnItIn is an integral part of Canvas and assignments that need to be submitted to TurnItIn will be done so automatically. No further action is required by the student. Students will have access to the TurnItIn reports. If you have concerns about plagiarism, you should submit your assignment early. This will allow you to see the areas of concern, fix them and then resubmit the assignment before the due date.

There is a Plagiarism Avoidance module in Canvas that gives you some guidance. Please refer to it if you have any questions or concerns.

## **Blackboard Collaborate/WebEx**

Occasionally, we may have on-line lectures using the on-line meeting tool Blackboard Collaborate or WebEx. Some lectures have been recorded in Blackboard Collaborate and will be available for review at your convenience. Instructions on how to use the Blackboard Collaborate and WebEx tools will be covered in class and will be available in Canvas.

## **Grading Policy**

Please see below to determine the weighting of the assignment groups and the grade distribution.

## Activity Grade Distribution

Within each assignment group there are several activities. Each of these activities has been assigned points. Some assignments are worth more points than others. Since not all assignments have the same points, some assignments are more heavily weighted than others. Please pay careful attention to the assignment weighting when completing your work.

Activity	Percentage Weight
Individual Activities / Homework	Total: 20
Group Activities / Homework	Total: 20
Group Project	Total: 30
Final (Individual)	Total: 30

## Grade Distribution

The final course grade distribution will be as follows:

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 NOT available for this course.

I do NOT grade on a curve for any assignment or for the final course grade.

Please do not expect that falling slightly below a grade-break means you will receive the next highest grade. Emails requesting this increase in grade will be ignored. Grading is per the schedule listed above. The grades are final once they are posted. However, if you feel there is a transcription or recording error in calculating or recording the grade, please bring this to my attention so that I may investigate and correct it if required.

Please keep in mind that the grade you receive is strongly correlated to the effort you put into the class. You earn your grades - professors do not give grades. If you expect a certain grade, then please put in the required effort from day one.

## Classroom Protocol

Please consult Canvas for the prework required for each class. There will be readings, quizzes, research or some other form or preparation required for each class. You must come prepared in order to receive the full benefit of attending class.

I prefer that you arrive on time but would rather that you come late than not at all. Try to minimize the disturbance to the class if you do plan on arriving late. Cell phones should be turned to silent mode and emergency calls handled outside of the classroom so as to minimize disruptions to the class. There are no grade points awarded for attendance and I do not require you to attend each class;

however you are paying for the class and for my “pearls of wisdom” so I encourage your attendance to help your learning of the subject matter. Many of the topics appear deceptively simple. Also, some assignments will be completed and handed in during the class period.

Since this is an evening class, I will allow you to have food and drink in the classroom. You are responsible for keeping the classroom clean and spill free. Absolutely no food or drink is allowed near the electronic equipment in the classroom. If the classroom becomes dirty due to the food or drink brought in by students in this class, I will disallow food or drink from that point on and we will spend class time cleaning the classroom.

### **Computer Use**

In the classroom, faculty members allow students to use computers only for class-related activities. These include activities such as taking notes on the lecture underway, following the lecture information that the instructor has posted, and finding Web sites to which the instructor directs students at the time of the lecture. Students who use their computers for other activities or who abuse the equipment in any way, at a minimum, will be asked to leave the class and may be referred to the Office of Student Conduct and Ethical Development for disrupting the course.

### **SME Certification Test**

As a part of this course, and if there is sufficient interest, you may be afforded the opportunity to take the SME Lean Bronze Certification examination. This is optional and is not a part of the class but could be a part of your career. Passing this test does not give you a SME Lean Certification. This is just the first portion of the certification process. There is a practical portion to the certification process that must be completed during employment. Details of the complete certification process may be found at the SME Lean Certification website at <http://www.sme.org/lean-certification.aspx>. There is a cost associated with this examination. In the past the exam has cost \$125. Prices are subject to change.

### **University Policies**

#### **Dropping and Adding**

Students are responsible for understanding the policies and procedures about add/drop, grade forgiveness, etc. Refer to the current semester’s [Catalog Policies](http://info.sjsu.edu/static/catalog/policies.html) section at <http://info.sjsu.edu/static/catalog/policies.html>. Add/drop deadlines can be found on the current academic year calendars document on the [Academic Calendars webpage](http://www.sjsu.edu/provost/services/academic_calendars/) at [http://www.sjsu.edu/provost/services/academic\\_calendars/](http://www.sjsu.edu/provost/services/academic_calendars/). The [Late Drop Policy](http://www.sjsu.edu/aars/policies/latedrops/policy/) is available at <http://www.sjsu.edu/aars/policies/latedrops/policy/>. Students should be aware of the current deadlines and penalties for dropping classes.

Information about the latest changes and news is available at the [Advising Hub](http://www.sjsu.edu/advising/) at <http://www.sjsu.edu/advising/>.

## **Consent for Recording of Class and Public Sharing of Instructor Material**

[University Policy S12-7](http://www.sjsu.edu/senate/docs/S12-7.pdf), <http://www.sjsu.edu/senate/docs/S12-7.pdf>, requires students to obtain instructor's permission to record the course.

- “Common courtesy and professional behavior dictate that you notify someone when you are recording him/her. You must obtain the instructor's permission to make audio or video recordings in this class. Such permission allows the recordings to be used for your private, study purposes only. The recordings are the intellectual property of the instructor; you have not been given any rights to reproduce or distribute the material.”
- “Course material developed by the instructor is the intellectual property of the instructor and cannot be shared publicly without his/her approval. You may not publicly share or upload instructor generated material for this course such as exam questions, lecture notes, or homework solutions without instructor consent”

In compliance with this policy, please verbally request permission to record classes if you would like to do so. In almost all cases this will be granted. In many cases I will be recording the class myself to be posted to Canvas.

## **Academic Integrity**

Your commitment as a student to learning is evidenced by your enrollment at San Jose State University. The [University Academic Integrity Policy S07-2](http://www.sjsu.edu/senate/docs/S07-2.pdf) at <http://www.sjsu.edu/senate/docs/S07-2.pdf> requires you to be honest in all your academic course work. Faculty members are required to report all infractions to the office of Student Conduct and Ethical Development. The [Student Conduct and Ethical Development website](http://www.sjsu.edu/studentconduct/) is available at <http://www.sjsu.edu/studentconduct/>.

Instances of academic dishonesty will not be tolerated. Cheating on exams or plagiarism (presenting the work of another as your own, or the use of another person's ideas without giving proper credit) will result in a failing grade and sanctions by the University. For this class, all assignments are to be completed by the individual student unless otherwise specified. If you would like to include your assignment or any material you have submitted, or plan to submit for another class, please note that SJSU's Academic Integrity Policy S07-2 requires approval of instructors.

Please make sure you understand the difference between citing and quoting. If you use material directly from a source and do not use quote marks this is plagiarism even if you cite the source.

## **Campus Policy in Compliance with the American Disabilities Act**

If you need course adaptations or accommodations because of a disability, or if you need to make special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible, or see me during office hours. [Presidential Directive 97-03](http://www.sjsu.edu/president/docs/directives/PD_1997-03.pdf) at [http://www.sjsu.edu/president/docs/directives/PD\\_1997-03.pdf](http://www.sjsu.edu/president/docs/directives/PD_1997-03.pdf) requires that students with disabilities requesting accommodations must register with the

[Accessible Education Center](http://www.drc.sjsu.edu/) (AEC) at <http://www.drc.sjsu.edu/> to establish a record of their disability.

### **Student Technology Resources**

Computer labs for student use are available in the [Academic Success Center](http://www.sjsu.edu/at/asc/) at <http://www.sjsu.edu/at/asc/> located on the 1st floor of Clark Hall and in the Associated Students Lab on the 2nd floor of the Student Union. Additional computer labs may be available in your department/college. Computers are also available in the Martin Luther King Library.

A wide variety of audio-visual equipment is available for student checkout from Media Services located in IRC 112. These items include DV and HD digital camcorders; digital still cameras; video, slide and overhead projectors; DVD, CD, and audiotape players; sound systems, wireless microphones, projection screens and monitors.

### **Computer Systems Help Desk**

Contact the help desk of any issues with Canvas. Do not contact ecampus directly. The help desk has all the answers! (Really!)

Clark 102, 1st Floor

Phone: 408.924.2377

<http://www.sjsu.edu/helpdesk/>

### **Aviation and Technology Study Room**

The Department of Aviation and Technology has a student study room located in IS132. There are study tables and limited computer resources available for students. The room is generally available during normal business hours. If you need access after hours, please contact me.

### **SJSU Peer Connections**

Peer Connections, a campus-wide resource for mentoring and tutoring, strives to inspire students to develop their potential as independent learners while they learn to successfully navigate through their university experience. You are encouraged to take advantage of their services which include course-content based tutoring, enhanced study and time management skills, more effective critical thinking strategies, decision making and problem-solving abilities, and campus resource referrals.

In addition to offering small group, individual, and drop-in tutoring for a number of undergraduate courses, consultation with mentors is available on a drop-in or by appointment basis. Workshops are offered on a wide variety of topics including preparing for the Writing Skills Test (WST), improving your learning and memory, alleviating procrastination, surviving your first semester at SJSU, and other related topics. A computer lab and study space are also available for student use in Room 600 of Student Services Center (SSC).

Peer Connections is located in three locations: SSC, Room 600 (10th Street Garage on the corner of 10<sup>th</sup> and San Fernando Street), at the 1st floor entrance of Clark Hall, and in the Living Learning Center (LLC) in Campus Village Housing Building B. Visit [Peer Connections website](http://peerconnections.sjsu.edu) at <http://peerconnections.sjsu.edu> for more information.

### **SJSU Writing Center**

The SJSU Writing Center is located in Clark Hall, Suite 126. All Writing Specialists have gone through a rigorous hiring process, and they are well trained to assist all students at all levels within all disciplines to become better writers. In addition to one-on-one tutoring services, the Writing Center also offers workshops every semester on a variety of writing topics. To make an appointment or to refer to the numerous online resources offered through the Writing Center, visit the [Writing Center website](http://www.sjsu.edu/writingcenter) at <http://www.sjsu.edu/writingcenter>. For additional resources and updated information, follow the Writing Center on Twitter and become a fan of the SJSU Writing Center on Facebook. (Note: You need to have a QR Reader to scan this



code.)

### **SJSU Counseling Services**

The SJSU Counseling Services is located on the corner of 7<sup>th</sup> Street and San Fernando Street, in Room 201, Administration Building. Professional psychologists, social workers, and counselors are available to provide consultations on issues of student mental health, campus climate or psychological and academic issues on an individual, couple, or group basis. To schedule an appointment or learn more information, visit [Counseling Services website](http://www.sjsu.edu/counseling) at <http://www.sjsu.edu/counseling>.

**San José State University - Department of Aviation and Technology**  
**TECH/ISE 145 Section 01 – Lean Manufacturing**  
**Preliminary Schedule of Topics – Spring 2014**

Week	Day	Date	BOK Section	Topic(s)	Related Text Readings	Associated Assignment(s) Check Canvas for due dates and times
1	THUR	JAN23		*Course Introduction *Course Logistics *Canvas setup *Introduction to the Lean Production System *History of Lean Production *House of Lean	LPS: vii – 12 VSM: 1 – 4 LPS: 159 – 165 VSM: 149 – 152	<ul style="list-style-type: none"> <li>• Course Introduction (I)</li> <li>• LPS Chapter 1 Quiz (I)</li> </ul>
2	THUR	JAN30	1.2 2.1.2	*Introduction to Change Management *7 Deadly Wastes	VSM: 5 – 24 LPS: 13 – 27	<ul style="list-style-type: none"> <li>• LPS Chapter 2 Quiz (I)</li> <li>• 7 Wastes Preliminary/Final (I)</li> </ul>
	TUE	FEB4	Last Day to Drop Course without a W			
3	THUR	FEB6		*5S Technique *Visual Management *Total Productive Maintenance (TPM) *5S Project Brief	LPS: 29 – 47	<ul style="list-style-type: none"> <li>• LPS Chapter 3A Quiz (I)</li> <li>• LPS Chapter 3B Quiz (I)</li> <li>• Visual Management (I)</li> </ul>
	TUE	FEB11	Last Day to Add Course			
4	THUR	FEB13	2.1.2 2.1.4 2.2.1 2.2.5	*Portfolio Brief *SMED/QCO *Standardized Work *Work Flow Analysis	LPS: 49 – 66	<ul style="list-style-type: none"> <li>• LPS Chapter 4 Quiz (I)</li> <li>• Standard Work (G)</li> </ul>

Week	Day	Date	BOK Section	Topic(s)	Related Text Readings	Associated Assignment(s) Check Canvas for due dates and times
5	THUR	FEB20 <b>Offsite</b>	2.2.6	5S Project Start		<ul style="list-style-type: none"> <li>• Company Research (G)</li> <li>• 5S Project Portfolio (I)</li> <li>• 5S Presentation (G)</li> <li>• 5S Project Plan (G)</li> <li>• Safety Training (I)</li> <li>• Nondisclosure Agreement (I)</li> <li>• Student Travel Info (I)</li> <li>• Liability Waiver (I)</li> <li>• Group Member Evaluation (I)</li> </ul>
6	THUR	FEB27	2.3	*Employee Involvement *Kaizen Activities	LPS: 107 – 119	<ul style="list-style-type: none"> <li>• LPS Chapter 7 Quiz (I)</li> </ul>
7	THUR	MAR6	2.3.8 2.3.9	*Data Collection and Presentation *Identify Root Cause *Presenting Variation Data *Flexible Employees *Countermeasures *Jidoka *Poka Yoke *Inspection Systems	LPS: 95 – 106	<ul style="list-style-type: none"> <li>• LPS Chapter 6 Quiz (I)</li> <li>• 7 Tools Quiz (I)</li> <li>• Poka Yoka (G)</li> </ul>
8	THUR	MAR13 <b>Offsite</b>		5S Project Work Session		<ul style="list-style-type: none"> <li>• 5S Progress Report (G)</li> </ul>
9	THUR	MAR20	2.3.1.3	*Poka Yoke Demo *Hoshin Planning	LPS: 121 – 143	<ul style="list-style-type: none"> <li>• LPS Chapter 8 Quiz (I)</li> </ul>
10	THUR	MAR27	Spring Break – No class			
11	THUR	APR3 Online	2.1.5 2.3.7	*MRP vs JIT *Customer Satisfaction results *Business Results *Lean Metrics	VSM: 93 – 104	<ul style="list-style-type: none"> <li>• Project Metrics (G/I)</li> <li>• Metrics Quiz (I)</li> </ul>

Week	Day	Date	BOK Section	Topic(s)	Related Text Readings	Associated Assignment(s) Check Canvas for due dates and times	
12	THUR	APR10 Online	4	*Introduction to Value Stream Mapping *Value Stream Mapping - Current State  *Takt Time	VSM: 46 – 73 Lean Thinking VSM: 77 – 91  APICS MRP Handout	<ul style="list-style-type: none"> <li>• VSP Current (I)</li> <li>• VSP Quiz (I)</li> <li>• Takt Time Written (G)</li> <li>• Takt Time Quiz (I)</li> </ul>	
13	THUR	APR17		*JIT Simulation	LPS: 67 – 93	<ul style="list-style-type: none"> <li>• JIT Simulation (G)</li> <li>• LPS Chapter 5 Quiz (I)</li> </ul>	
14	THUR	APR24 <b>Offsite</b>	2.1.7 2.3	5S Project Presentations			
15	THUR	MAY1	2.3.5 3	*Value Stream Mapping – Future State	VSM: 105 – 148		
16	THUR	MAY8		*Culture of Lean Production *Product and Service Design	LPS: 145 - 157	<ul style="list-style-type: none"> <li>• Chapter 9 Quiz (I)</li> <li>• Lean in Service (G)</li> </ul>	
	THUR	MAY15	<b>Final Exam: 17:15 – 19:30 (Note earlier than normal class time)</b>				
	THUR	MAY22	All	Lean Bronze Examination 9am – 12noon		<ul style="list-style-type: none"> <li>• SME Practice Test #1 (I)</li> <li>• SME Practice Test #2 (I)</li> <li>• SME Practice Test #3 (I)</li> </ul>	

Please note: There is a potential for two Saturday work days for the 5S project.  
Subject to change with notice