

**San José State University**  
**Department of Aviation and Technology**  
**TECH/ISE 145 – Lean Manufacturing**  
**Spring 2015 - Sections 02 & 03**

**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>	Thursdays 3:00 pm – 4:00 pm Thursdays 5:00 pm – 6:00pm or by appointment (via Canvas email)
<b>Class Days/Time:</b>	Thursday noon – 2:45 pm (Section 02) Thursday 6:00pm – 8:45 pm (Section 03)
<b>Classroom:</b>	IS 216
<b>Prerequisites:</b>	BUS 140 or BUS 145 or ISE 140
<b>Course Number</b>	TECH: 29686 ISE: 29687 (Section 02) TECH: 29999 ISE: 30000 (Section 03)

**Course Format**

TECH/ISE 145 is a flipped course. As such, the students will review the material in detail at home before the class meeting and then conduct exercises in class to apply the learning. Think of it as doing traditional “class work” at home, such as reviewing PowerPoint, and then doing the traditional “homework” at school with the assistance of the instructor. Students must have access to high speed internet, a computer, Canvas - the learning management system, and basic word processing software.

**Faculty Web Page and**

Initial course materials such as syllabus and the first class instructions, can be found on my faculty web page at <http://www.sjsu.edu/people/Dianne.Hall> and on the Canvas learning management system course website. After the first class, all materials will be on Canvas. Once you are registered for the course, you will be automatically added to the Canvas course shell. See details below for accessing Canvas.

**Information Communication Methods with Students**

**MySJSU Messaging**

You are responsible for regularly checking with the messaging system through MySJSU to learn of University updates. Log onto my.sjsu.edu and check “My Messages”.

Generally you will receive an email at your preferred email address notifying you when you have a new message.

### **Department Messages**

All Department messages will be communicated only through your sjsu.edu email. Check the [San Jose One webpage \(http://its.sjsu.edu/services/sjsuone/\)](http://its.sjsu.edu/services/sjsuone/) for instructions to access this account and for instructions to forward all emails to a preferred email if you choose.

### **Course Updates**

All course updates will be communicated through Canvas Announcements or email so you must either leave the default announcement notification setting as "immediate notification" or you must log in to Canvas to check every day.

### **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 Lean Manufacturing: a production methodology based on the Toyota Production System. Lean Manufacturing is best learned by doing so there is a significant hands-on learning project outside of the classroom in addition to the traditional classroom component.

### **Course Learning Outcomes (CLO)**

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

<b>CLO</b>	<b>Description</b>	<b>How Achieved</b>
1	Define Lean Manufacturing/Production and other Lean terms thus demonstrating an understanding of the language of lean.	Textbook Chapter Quizzes
2	Determine the personal attributes required to be a successful change agent.	Cheese Exercise, 5S Project
3	Determine the cultural factors required to successfully implement change	5S Project
4	Create a Value Stream Map for a current process	Value Stream Current State Mapping Assignment(s)
5	Identify the 7 Wastes in a Value Stream	7 Wastes, Value Stream Future State Mapping Assignment(s)
6	Use several lean tools such as 5S, Visual Management, Quick Change Over (QCO/SMED) and Mistake Proofing	5S Project, Poka

	(poka-yoke) to eliminate waste and improve a value stream	Yoke assignment
7	Understand the material flow on a Lean Production Line, in particular the difference between push and pull systems.	JIT simulation, Kanban exercise
8	Identify the mechanism to initiate material flow in both push and pull systems.	JIT simulation, Kanban exercise
9	Understand the importance of employee involvement in a lean manufacturing system and the techniques used to ensure involvement such as suggestion systems and Kaizen circles.	5S Project
10	Understand when to use the 7 Tools of Quality to improve the quality and reliability of a Value Stream	7-tools Quiz
11	Use key financial statements to calculate lean metrics and thus determine if a company is 'lean'.	5S Project, Metrics Exercise
12	Compare and contrast Lean implementations in both manufacturing and service environments to determine the similarities and differences.	Lean Service Assignment
13	Apply the principles of continuous process improvement (Deming Circle) to a value stream.	5S Project,
14	Understand the impact of Total Productive Maintenance (TPM) and Standard Work on outputs of a value stream.	TPM Quiz / Assignment, Standard Work Assignment
15	Determine Takt time for a given process and then use the takt time to analyze the production process.	Takt time quiz, Takt time assignment(s)

### Library Liaison

Yiping Wang

Email: [yiping.wang@sjsu.edu](mailto:yiping.wang@sjsu.edu)

Ms. Wang 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

<b>Required</b>	
Lean Production Simplified (LPS) Dennis, Pascal. (2007) Productivity Press. ISBN 978-1563273568 <i>Previous editions of this text are acceptable. Also available as an ebook.</i>	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	
<b>Recommended (Required if you are going to take the SME Lean Certification exam)</b>	
Gemba Kaizen (GK) Imai, Masaaki (2012) McGraw Hill ISBN 978-0071790352 <i>Previous editions of this text are acceptable.</i>	Lean Thinking (LT) Womak, Jim, Jones, Daniel T.(2003) Simon and Shuster ISBN 978-0743249270 <i>Previous editions of this text are acceptable</i>

## 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. 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>. This approximates to 9 hours a week for a 3-unit class, 3 hours in the classroom and 6 hours outside the classroom. Plan your time accordingly.

Detailed instructions for each assignment will be provided in Canvas (the learning management system). 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 unless otherwise specified in Canvas. NO assignments will be accepted late and unsubmitted assignments will receive a grade of zero (0).

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 completed 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 course. 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. Details may be found in Canvas.

## **Midterm**

There will be a midterm / learning progress check around the 8<sup>th</sup> week of the semester. It will cover the material completed up to the week prior to the midterm. Please consult the schedule of classes for the exact date and time.

## **Final Examination**

The final examination will be held during the final examination period for the semester. It will be comprehensive. The exam format will be a combination of multiple choice and/or essay questions. Please consult the schedule of classes for the exact date and time.

## **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 and breaks down the penalties for plagiarism. Please refer to this module if you have any questions or concerns.

## **Blackboard Collaborate/WebEx**

Occasionally, we may have on-line lectures using the on-line meeting tools Blackboard Collaborate or WebEx. If necessary, instructions on how to use the Blackboard Collaborate and WebEx tools will be covered in class and will be available in Canvas.

## **i>Clicker**

We will be using the i>clicker student response system in class. i>clicker helps me to understand what you know and gives everyone a chance to participate in class. I will not use i>clicker to keep track of attendance; please see the attendance policy in the Classroom Protocol section of the syllabus. To receive credit for the responses you submit with i>clicker, you must register by the add deadline, Feb 10, 2015. Students who register after this time will not receive credit.

### i>Clicker Device Options:

You will have several options available to participate in iClicker sessions:

- I>Clicker GO (FREE): Allows you to use your smart phone, tablet, or even laptop in class as a clicker to participate. Please visit <http://tinyurl.com/l8yk5ns> and fill out the request form for i>Clicker GO. You will be contacted by eCampus with further instructions
- I>Clicker Remote (\$6.99): You can request to borrow an i>Clicker remote from eCampus ([eCampus@sjsu.edu](mailto:eCampus@sjsu.edu)) but must pay a \$6.99 registration fee to iClicker for the semester. Remotes are to be returned to eCampus at the end of the semester. Send an email to [eCampus@sjsu.edu](mailto:eCampus@sjsu.edu) and request to loan an iClicker remote. Further instructions will be provided to you by the department on how to pay the \$6.99 registration fee.

### i>Clicker Device use and Cheating

I consider bringing a fellow student's i>Clicker to class or using a fellow student's i>Clicker GO app to be cheating and a violation of the University Honor Code. If you are caught with a remote other than your own or have responses in a class that you did not attend, you will forfeit all clicker points and may face additional disciplinary action.

## Grading Policy

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

### Activity Grade Distribution

Assignments are distributed within the groups as shown below. 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.

Note that "All students have the right, within a reasonable time, to know their academic scores, to review their grade-dependent work, and to be provided with explanations for the determination of their course grades." See [University Policy F13-1](http://www.sjsu.edu/senate/docs/F13-1.pdf) at <http://www.sjsu.edu/senate/docs/F13-1.pdf> for more details. For this course, all grading and feedback will be available in Canvas. Each assignment in Canvas will have a grading rubric. Students should carefully review this rubric and any instructor feedback comments when the assignment is returned in Canvas. Instructions on how to review instructor feedback are in Canvas.

<b>Activity</b>	<b>Percentage Weight</b>
Individual Activities / Homework/ i>clicker	Total: 20
Group Activities / Homework	Total: 25
Group Project	Total: 25
Exams:	Total: 30
• Midterm (Individual)	• 5
• Final (Individual)	• 25

## 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 generally not available for this course. Please do the work when it is assigned and you will not need extra credit. Occasionally, extra credit points may be awarded if the student finds an error in the course material and brings it to the instructor's attention with a correction for the error.

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 for the course. Emails requesting this increase in grade will be ignored. Grading is per the schedule listed above and grades are final when posted in Canvas. However, since I am human and do occasionally make mistakes, if you feel there is a transcription or recording error in calculating 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. If you expect a certain grade, then please put in the required effort from day one. Fortunately, in this class, it is very straightforward to do well – simply do the work required from the beginning of the class and make sure to read and follow all the assignment instructions.

## Classroom Protocol

Please consult Canvas for the prework required for each class. Since this is a flipped 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 and their true characteristics are not revealed until you try to apply them. There are several in-class assignments that apply the newly acquired knowledge to ensure correct understanding.

Since this is a lunchtime (Section 02) / evening (Section 03) 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. 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. This will result in more work to cover outside of the class on your own time.

## **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. Laptop computers will be useful for many of the classes. I will let you know in advance for which classes a computer will be required.

## **SME Certification Test**

As a part of this course 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 Bronze 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 that is not covered by the University. In the past the exam has cost \$125. Prices are subject to change.

## **University Policies**

### **General Expectations, Rights and Responsibilities of the Student**

As members of the academic community, students accept both the rights and responsibilities incumbent upon all members of the institution. Students are encouraged to familiarize themselves with SJSU's policies and practices pertaining to the procedures to follow if and when questions or concerns about a class arises. See University Policy S90-5 at <http://www.sjsu.edu/senate/docs/S90-5.pdf>. More detailed information on a variety of related topics is available in the [SJSU catalog](#), at <http://info.sjsu.edu/web-dbggen/narr/catalog/rec-12234.12506.html>. In general, it is recommended that students begin by seeking clarification or discussing concerns with their instructor. If such conversation is not possible, or if it does not serve to address the issue, it is recommended that the student contact the Department Chair as a next step.

### **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](#) 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](#) at [http://www.sjsu.edu/provost/services/academic\\_calendars/](http://www.sjsu.edu/provost/services/academic_calendars/). The [Late Drop 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](#) 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 and the following items to be included in the syllabus:

- “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 both 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. There is a module in Canvas that discusses how to avoid plagiarism. You are strongly encouraged to review this module.

## **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.

## **Accommodation to Students' Religious Holidays**

San José State University shall provide accommodation on any graded class work or activities for students wishing to observe religious holidays when such observances

require students to be absent from class. It is the responsibility of the student to inform the instructor, in writing, about such holidays before the add deadline at the start of each semester. If such holidays occur before the add deadline, the student must notify the instructor, in writing, at least three days before the date that he/she will be absent. It is the responsibility of the instructor to make every reasonable effort to honor the student request without penalty, and of the student to make up the work missed. See [University Policy S14-7](http://www.sjsu.edu/senate/docs/S14-7.pdf) at <http://www.sjsu.edu/senate/docs/S14-7.pdf>.

### **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!) Phone: 408.924.1530  
<http://its.sjsu.edu/support/index.html>

### **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 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>.