

Kennesaw State University
ME 6210 Advanced Manufacturing, 3-0-3

INSTRUCTORS: Dr Simin Nasseri

Mode of instruction: Online delivery

E-mails: snasser1@kennesaw.edu *Preferred method of contact

Email and Classroom Response Times:

Emails will be checked at least once a day, not including weekends or holidays. During the week, the instructor will respond to all emails within 24 hours. Over the weekend (starting Friday at 4 p.m.) he/she will respond to all emails within 48 hours. All assignments will be returned within 7 days.

PRE-REQUISITES:

Undergraduate materials science/engineering (ME3101 or equivalent)

COURSE DESCRIPTION:

This class provides advanced topics on a variety of manufacturing processes, new materials, and modern methods and innovative technologies of production. Quality systems and tools in manufacturing are introduced. Topics include lean manufacturing and simultaneous engineering, lean support processes, simultaneous manufacturing, design for manufacturing, assembly, environment, and standards.

OBJECTIVES: On completion of the course students should be able to:

- Classify some modern materials and innovative manufacturing processes.
- Categorize the six components of lean philosophy.
- Identify the eight ways in which manufacturing-oriented businesses can achieve their Simultaneous Engineering goals.
- Identify constraints of manufacturing processes that limit design possibilities with respect to cycle time, material handling, and other factory costs.
- Recognize design for manufacturing and assembly, environment and standards.
- Analyze and assess manufacturability and cost functions for specific projects.

TEXT:

Required:

Lean World Class Manufacturing, Davis, Selvidge and Waldrop. 2012. The textbook is available in bookstore(s).

Highly Recommended:

- The Toyota Way: 14 Management Principles from the World's Greatest Manufacturer, Jeffrey Liker, McGraw Hill Professional, Dec 17, 2003

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Other recommended books:

- “Design for Environment,” by Joseph Fiksel, 2nd Ed. McGrawHill Professional Publishing, 2011, ISBN-13: 9780071776226.
- “Lean QuickStart Guide: A Simplified Beginner's Guide to Lean,” by ClydeBank Business and Benjamin Sweeney. Publisher: ClydeBank Media LLC, May 5, 2015, ISBN-10: 0996366709.
- “Materials Selection in Mechanical Design,” by Michael F. Ashby, 4th Ed., Elsevier Science, 2010, ISBN-13: 9781856176637.
- The Lean Six Sigma Pocket Toolbook: A Quick Reference Guide to 100 Tools for Improving Quality and Speed, by Michael L. George *et al.* McGraw-Hill Education; 1 edition, 2004, ISBN-10: 0071441190.

Technical Requirements:

You will need to be able to open, read/view, and work with MS Word, PowerPoint, and Adobe Acrobat (the reader can be downloaded to your computer, free).

METHODS OF ASSESSMENT:

This class has two parts and the course grade will be assessed by the following methods for “each part:”

Projects, Tests, Weekly Assignments and/or Quizzes, and Discussions.

All assessments, and assignments, will be conducted online. All assessments are written in Calendar.

The second project or Design for manufacturing discussion requires that each student (or a group of students) perform an extensive literature review and submit a power-point presentation summarizing all the aspects of design for manufacturing. This can include Internet and library resources and also journal/conference papers, because they contain the latest improvements in science and engineering. This is in the form of discussion because students can read each others’ work and discuss what is written in the work of other students. The subsequent student’s work will be improved (by conducting further research) which will make the overall class work very complete. Students will be able to improve their ability of technical writing and also conducting a comprehensive literature review.

EVALUATION:

Your grade will be assigned based on your overall score, derived as follows:

GRADE CALCULATION

Assignments	= 35%
Discussions	= 20%
Tests	= 30%
Projects	= 15%

Total	= 100%

Grades will be assigned according to the following scale:

A: 90 – 100%; B: 80 – 89%; C: 70 – 79%; F: <70

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Course Outline

Week	Topic	Assessment(s)
1	Introduction to Lean Manufacturing	Assignment M1
2	Customer value-focused Lean World Class	Assignment M2, Test M2
3	Key principles of “Eliminate Waste” and “Produce One-At-A-Time” as Just-In-Time (JIT)	Assignment M3
4	“Continuous Improvement”, “Allow for No Contingencies”, and “Long-Term Emphasis” as Just-In-Time (JIT)	Assignment M4, Test M4
5	“Focused Factories”	Assignment M5
6	“Group Technology”	Assignment M6, Test M6
7	“Setup Reduction”	Assignment M7, Focused Factory Layout Project
8	“Setup Reduction”	Assignment M8
9	“Kanban Pull System” and Line Balancing	Assignment M9, Test M9
10	Total Quality Management (TQM)	Assignment M10
11	Statistical Process Control (SPC)	Assignment M11
12	“Poka-Yoke Mistake Proofing” and “Problem-Solving Methods“	Assignment M12, Test M12
13	Total Productive Maintenance (TPM)	Assignment M13
14	“5S” and “Predictive Maintenance“	Assignment M14, Test M14
15	Total Employee Involvement (TEI)	Assignment M15, Discussion on Design for Manufacturing
16	Design for Manufacturing	Test M16, Discussion on Design for Manufacturing

COURSE POLICIES:

(Expectation, Class participation and Communication rules)

Following policies are in effect for the course:

1. All communications between the students and the instructor(s) should be via D2L system.
2. Responses to all inquiries will be provided within 24 hours, except weekends and holidays.
3. All assignments must be completed by the deadlines.
4. Tests must be completed within the allowed window.
5. Late tests/assignments are not accepted except in special circumstances such as explained in the university handbook.
6. If exam/project/assignment schedule conflicts with university functions such as competition club activities, travel for athletes, student must provide, in advance, proof of participation and ask for accommodation. In this case the instructor will make alternate arrangements. However topics covered during the absence remains the responsibility of the students.
7. Tests and assignment grades will be entered into D2L system (after being graded) within 7 working days. Automatic graded assignments/tests are returned right away.

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8. Request for re-grading or complaints must be filed within 1 week of returning any grades. Once submitted, whole assignment/test is subject to re-grade. Re-grading or decisions thereof will be communicated to the student within 1 week of submission.

Tips for Effective Online Learning

For an online class, students can really enjoy the benefits of learning at your own pace and in whatever environment that you choose. Below are some tips for effective online learning:

- **Check the D2L course website regularly.** Always be aware of the current status of the course. It might be helpful to subscribe to the RSS feeds within the News Tool, sign up for text message alerts, or subscribe to your posts within the Discussion Tool. By taking advantage of the tools within the environment and the posted learning material, you can maintain an enhanced learning experience.
- **Work closely with your instructor.** If you have any questions, please contact me immediately. The best way to contact me is via email or text, and you will be guaranteed to have a reply within 12 hours.
- **Begin your work early.** If you can start a task early, don't start late. Assuming you spend the same amount of time completing the task, starting later will be much more stressful than starting early. Never wait until the last minute to begin an assignment! You'll have no turnaround time if you need help or something happens.

ACADEMIC HONESTY:

The high quality of education at Kennesaw State University is reflected in the credits and degrees its students earn. **All assignments must be your own work and original for this course.** The protection of these high standards is crucial since the validity and equity of the University's grades and degrees depend upon it. Any student found to have violated any KSU academic honesty regulation after a hearing before a university hearing panel or before the Vice President for Student Success and Enrollment Services (or his/her designee) shall be suspended for at least one semester, unless the student persuades the deciding body that the circumstances of his or her behavior substantially mitigate the gravity of the violation. These regulations are designed to assist students in (1) developing appropriate attitudes about, and (2) understanding and following the university's standards relating to academic honesty. The regulations protect students by helping them avoid committing infractions that may compromise the completion of their KSU degrees or damage their reputations.

Student Conduct Pledge/Statement: As a member of the Kennesaw State University community of scholars, I understand that my actions are not only a reflection on myself, but also a reflection on the University and the larger body of scholars of which it is a part. Acting unethically, no matter how minor the offense, will be detrimental to my academic progress and self-image. It will also adversely affect all students, faculty, staff, the reputation of this University, and the value of the degrees it awards. Whether on campus or online, I understand that it is not only my personal responsibility, but also a duty to the entire KSU community that I act in a manner consistent with the highest level of academic integrity. Therefore, I promise that as a member of the Kennesaw State University community, I will not participate in any form of academic misconduct.

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Types of Academic Misconduct:

1) **Cheating:** Receiving, attempting to receive, knowingly giving or attempting to give unauthorized assistance in the preparation of any work required to be submitted for credit (including examinations, laboratory reports, essays, themes, term papers, etc.) is considered cheating, as is engaging in any behavior that a professor prohibits as academic misconduct in the syllabus or class discussion. Unless specifically authorized, using and/or having access to electronic devices during an examination, quiz, test or other assessment is automatically considered cheating, regardless of the student's reason for using/accessing the device;

2) **Plagiarism:** Including direct quotations from other sources into work required to be submitted for credit without indicating them as such by quotation marks, block quotes or other appropriate formatting. Incorporating the work of someone (e.g. ideas, theories, data, figures, graphs, programs, electronic based information, illustrations, etc.) into a paper or project without due acknowledgement;

3) **Self-Plagiarism:** Submitting any work for credit which was not authored specifically and originally for the assignment in question without the prior permission of the professor receiving that assignment. Most commonly, this means submitting the same, or substantially the same, paper or other assignment for credit in more than one class;

4) **Misrepresentation and/or Falsification:** Knowingly providing false information in completing University forms or applications (including admissions forms, scholarship applications, time sheets, false or counterfeit transcripts, etc.) or in any work submitted for credit. This includes providing fabricated/altered documents to substantiate an excused absence (such as to meet attendance requirements or have the chance to make-up a missed exam). Signing in for another student or having another individual sign in on a student's behalf on an attendance sheet also constitutes a violation of this code section.

5) **Unauthorized Access to University Materials:** Taking, attempting to take, stealing or in any unauthorized manner otherwise procuring, gaining access to, altering or destroying any material pertaining to the conduct of a class (including tests, examinations, grade change forms, grade rolls, roll books, laboratory equipment, University grade records in written or computerized form, etc.).

6) **Malicious/Intentional Misuse of Computer Facilities/Services:** Maliciously or intentionally misusing university-controlled computer facilities and services. This includes violations of state and federal laws (e.g. copyright violations, unauthorized access to systems, alteration/damage/destruction, or attempted alteration/damage/destruction, use for profit, etc.) or a department's rules for computer usage (e.g. account violations, damage, or destruction of the system and/or its performance, unauthorized copying of electronic information, use of threatening or obscene language, etc.).

7) **Malicious Removal, Retention or Destruction of University Resource Materials:** Misplacing, taking, destroying any item or part of an item belonging to or in the protection of the University (or the attempt thereof) with the intention of bringing about an undue disadvantage in the academic pursuits of other Kennesaw State University students.

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These examples of academic dishonesty shall not be construed to be comprehensive, and infractions will be dealt with on an individual basis according to university policies and procedures. It is the obligation of each student to assist in the enforcement of academic standards.

See: **The KSU Student Code of Conduct** at [KSU Codes of Conduct-2015.pdf](#)

Enforcement: This policy is strictly enforced. Please note, **I reserve the right to select any paper and/or assignment that are turned in for a grade for plagiarism review. Plagiarism review consists of running your paper/assignment through various search engines and databases at my disposal in order to check for “borrowed” or “bought” information. Students will be required to use TurnItIn.Com to have their papers reviewed for plagiarism.** If you are found in violation of academic dishonesty, then you will be subject to the enforcement policies and procedures, as outlined by the University and the Department.

Turnitin

Students agree that by taking this course all required papers may be subject to submission for textual similarity review to Turnitin.com for the detection of plagiarism. All submitted papers will be included as source documents in the Turnitin.com reference database solely for the purpose of detecting plagiarism of such papers. Use of the Turnitin.com service is subject to the Terms and Conditions of Use posted on the Turnitin.com site.

WEB ACCESSIBILITY:

Kennesaw State University follows the guidelines of the Universal Design for Learning standard of web accessibility. Faculty use Word, PDF, and HTML formats when communicating electronic information to students whenever possible and appropriate in light of the goals of the course. Faculty are trained to use Web Accessibility Evaluation tools, e.g., WAVE (www.wave.webaim.org), and make adjustments as possible and appropriate in light of the goals of the course. For free resources available to students on web accessibility, please visit the Web Accessibility Resources page at the Distance Learning Center: <http://www.kennesaw.edu/dlc/facultyresources/index.php#>

Kennesaw State University provides program **accessibility** and reasonable accommodations for persons defined as disabled under Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990. Students with disabilities who require accommodations (academic adjustments and/or auxiliary aids or services) please contact the Office for Student Disability Services (SDS). Kennesaw Campus, 470-578-2666 or Marietta Campus, 678-915-7244. Please do not request accommodations directly from the professor or instructor without a letter of accommodation from the Office for Student Disability Services (SDS).

Also check Accessibility Statements for Technologies:

<https://softchalkcloud.com/lesson/serve/jV10GKPfztZwQn/html>

For additional information see:

<http://digitalcommons.kennesaw.edu/accessibility.html>

<http://commencement.kennesaw.edu/guests/accessibility.php>

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KSU SEXUAL MISCONDUCT POLICY:

Kennesaw State University adheres to KSU's policy prohibiting sexual misconduct both in and out of the classroom. Questions about this policy should be directed to the KSU Equal Employment Opportunity (EEO) and Title IX officer by telephone at (470) 578-2614. You may also visit the University's EEO website <http://www.kennesaw.edu/eoo/index.html> for more information.

COPYRIGHT LAW:

Kennesaw State University adheres to USG's policy to respect the right of copyright. Holders and comply with copyright laws as set forth in the United States Copyright act. For more information, see the following link to USG's policy: <http://www.usg.edu/copyright/>

STUDENT RECORDS/FERPA:

Kennesaw State University adheres to the Family Educational Rights & Privacy Act of 1974 – FERPA. See the following link for more information:

http://www.usg.edu/information_technology_handbook/section9/tech/9.5_privacy_and_security

Privacy Policies:

Desire 2 Learn - <https://www.d2l.com/legal/privacy/>

Blackboard Collaborate - <https://sas.illuminate.com/privacy.html>

ELECTRONIC RECORDING AND SOCIAL MEDIA:

Electronic recording performed without the consent of the people being recorded chills the free exchange of ideas. Academic freedom, free inquiry, and freedom of expression should not be limited by the fear that one's brainstorming, polemic discourse, speculative inquiry, or any other kind of expressed curiosity made within the space of a university classroom will be made public without one's consent. This fear is unacceptable regardless of whether one is in an online, hybrid, or face-to-face classroom setting. Accordingly, no person shall make public any electronically recorded class discussion without the written permission of the instructor. This policy is not intended to discourage electronic recording in the classroom or the use of social media when such actions are performed with the written consent of the instructor, and others as appropriate. Note: Faculty accommodate all reasonable requests to electronically record a class discussion; these requests must be documented by the Disabled Student Support Services available at: http://www.kennesaw.edu/stu_dev/dsss/prospect.shtml

DISRUPTION OF CAMPUS LIFE STATEMENT:

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It is the purpose of the institution to provide a campus environment, which encourages academic accomplishment, personal growth, and a spirit of understanding and cooperation. An important part of maintaining such an environment is the commitment to protect the health and safety of every member of the campus community. Belligerent, abusive, profane, threatening and/or inappropriate behavior on the part of students is a violation of the Kennesaw State University Student Conduct Regulations. Students who are found guilty of such misconduct may be subject to immediate dismissal from the institution. In addition, these violations of state law may also be subject to criminal action beyond the university disciplinary process.

COURSE ENROLLMENT POLICY:

Students are solely responsible for managing their enrollment status in a class; nonattendance does not constitute a withdrawal.

STUDENT SUPPORT RESOURCES

The following resources and policies are found under this link:

<http://learnonline.kennesaw.edu/resources/index.php>

DISABLED STUDENT SUPPORT SERVICES

In compliance with applicable disability law, qualified students with a disability may be entitled to reasonable accommodation. Any student with a documented disability (hidden or visible) needing academic adjustments, including classroom or test accommodations is requested to notify the instructor within the first two weeks of the course. **Verification from KSU Disabled Student Support Services is required. All discussions and documentation will remain confidential.**

Disabled Student Support Services

James V. Carmichael Student Center Addition – 2nd Floor, Suite 267

470.578.6443

http://www.kennesaw.edu/stu_dev/dsss/prospect.shtml

Please visit the following Student Disabilities Services website for more information.

[//www.kennesaw.edu/stu_dev/sds](http://www.kennesaw.edu/stu_dev/sds)

Student Rights and Responsibilities

Students of Kennesaw State University are entitled to an environment that is conducive to learning and individual growth. To this end, students enrolling at Kennesaw State University assume a responsibility to abide by the policies and regulations expressed in this section. By doing so, students may fulfill their responsibilities and enjoy the exercise of their own rights while also respecting the rights of others.

All rights and responsibilities may be found in the University Catalog at

[//catalog.kennesaw.edu](http://catalog.kennesaw.edu)

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Help Resources

Contacts to get Help

Student Help Desk studenthelpdesk@kennesaw.edu or call 470.578.3555

D2L FAQ's [click here](#)

D2L Student User's Guide [click here](#)

UITS Student Training Workshop Schedule [click here](#)

Additional Resources

Remote access to Library Resources: <http://library.kennesaw.edu/>

Student Support:

http://learnonline.kennesaw.edu/resources/student_support_resources.php

Tutoring and Academic Support:

http://learnonline.kennesaw.edu/resources/tutoring_academic_support.php

Advising: <http://learnonline.kennesaw.edu/resources/advising.php>

Bookstore: <http://bookstore.kennesaw.edu/home.aspx>