



The University of Jordan
School of Engineering
Industrial Engineering Department
1st semester 2024/2025

Course name:	Lean and Agile Production System		
Course code:	0916506		
Credits hours	3 hr.		
Contact hours& room\office hours:	13:30-14:30 Sun., Tue., and Thursday Office hours: 12:30 – 13:30 (in person) Sunday, Tuesday, and Thursday.		
Course instructor's name, E-mail:	Dr Mohannad Jreissat		
	m.jreissat@ju.edu.jo		
Course Coordinator:	Dr Mohannad Jreissat		
Textbook:	<ul style="list-style-type: none"> • Askin, R. G. and Goldberg, J. B., 2002, Design and Analysis of Lean Production Systems, John Wiley & Sons Inc., New York • Recorded videos (by instructor) • Instructor nots and hand out papers • List texts, writing, computer software, Internet resources, video and audio files, visual media, and other means of support will be used during the teaching of the course. 		
Other reference(s):	<ul style="list-style-type: none"> • Pyzdek, T. (2003). The Six Sigma handbook: a complete guide for green belts, black belts, and managers at all levels (No. 23443). McGraw-Hill. • Charron, R., Harrington, H. J., Voehl, F., & Wiggin, H. (2014). The lean management systems handbook (Vol. 4). CRC Press. • Operations Management: Processes and Value Chains, L. J. Krajewski, L. P. Ritzman, and M. Malhotra, Prentice Hall, 2016, 10th edition • Daniel L. Babcock and Lucy C. Morse. Managing engineering and technology. 6th ed. Prentice Hall, Inc (text) 		
Course Description:	As stated in the approved study plan. Multidimensional lean thinking, the spirit of lean philosophy, agility and agile manufacturing, Toyota production system, waste elimination methodologies, lean and agile manufacturing principles, theories, methods, practices, and techniques in modern manufacturing enterprises; pull production systems, production smoothing, shop floor control policies, Kanban, Kaizen (continuous improvement), 5S, six-sigma, value stream mapping, DMAIC approach, Autonomation, mistake proofing etc., investigation and discussion of lean manufacturing case studies.		
Providing Department:	Industrial Engineering		
Prerequisite Course:	0916356		
Course type	Required (Mandatory)		
Assessment Methods:	Method	Weight %	Date
	General activities and Project	20	
	Mid Exam	30	
	Final Exam	50	Will be determined by Reg.
Course Learning Outcomes:	#	After successful completion of this course, the student will be able to	SO
	CLO1	Discover the of lean philosophy	7
	CLO2	Identify the type of waste and its sources in operations and production lines	7
	CLO3	Identify some variant lean tools and techniques	7
	CLO4	Explore the Six Sigma	7
	CLO5	Learn agility and agile manufacturing	7

	CLO6	Apply Supporting Decisions tools related to manufacturing strategy	7		
	CLO7	Apply lean/ agile tools and techniques on a real-life project.	7		

Topics		
	Week #	Topic
	1	Course orientation and syllabus discussion Introduction to production management and
	2	General Introduction to Production Engineering
	4 - 5	Introduction to lean management of production The spirit of lean philosophy
	6	Agility and the agile management of production Comparing lean production, agile manufacturing, and mass production attributes
	7 - 9	Designing lean systems
	10	Definitions of some lean tools: pull production systems, production smoothing, shop floor control policies, Kanban, Kaizen (continuous improvement), 5S, six-sigma, value stream mapping, DMAIC approach, Autonomation, mistake proofing etc.
	11 - 12	Six Sigma and DMAIC The Kanban System
	13 - 14	Manufacturing strategy: Improvements and dimensions of manufacturing strategy, Core competencies, Customer Markets and Distribution, and Vertical Integration
	14 - 15	Supporting Decisions: Make versus Buy Decision, Make-to-Stock versus Make-to Order, Selection of Technologies, and Equipment
	16	Final Examinations
Important Notes:		<ul style="list-style-type: none"> a. Do not hesitate to ask questions. b. You are required to bring a notebook and take notes in classes. c. Students are expected to attend every class session and they are responsible for all material, announcements, schedule changes, etc., discussed in class. d. Discuss the assignments among yourselves. e. Don't Cheat; direct copying of others work will NOT be allowed or tolerated and will result in a reduction of grade. If you are found to be cheating in any way, on an exam or assignment, even signing the roll sheet for another student, you will be given an "F" for the course. There will be no exceptions. f. All cases of academic dishonesty will be handled in accordance with university policies and regulations. JU policy requires the faculty member to assign ZERO grade (F) if a student misses 15% of the classes that are not excused, and 20% of the classes that are excused. g. Students are expected to be ready to take a quiz any time they have a class. There will be no make-up quizzes or homework. h. Any students with disabilities who need accommodations in this course are encouraged to speak with the instructor as soon as possible to make appropriate arrangements for these accommodations.

<i>The B.Sc. in industrial Engineering program enables students to achieve, by the time of graduation the following program learning outcome (SOs)</i>	
1	<i>an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics</i>
2	<i>an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors</i>
3	<i>an ability to communicate effectively with a range of audiences</i>

4	<i>an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts</i>
5	<i>an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives</i>
6	<i>an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions</i>
7	<i>an ability to acquire and apply new knowledge as needed, using appropriate learning strategies</i>