The University of Jordan
School of Engineering
Industrial Engineering Department
Second Semester 2018/2019

Course name:	**Reliability and Maintainability**			
Course code:	**936561**			
Credits hours	3			
Contact hours/room:	001 Industrial			
Course instructor's name, E-mail, and phone:	Prof. Abbas Al-Refaie abbas.alrefai@ju.edu.jo 22928			
Course Coordinator:	Prof. Abbas Al-Refaie			
Text book:	Practical Reliability Engineering, 5th Edition, Wiley and Sons, 2012.			
Other reference(s):	Handouts, book chapters.			
Course Description:	Statistical and analytical concepts of failures, failure and reliability models, life-cycle of machines and its relation with reliability and maintainability, reliability and quality, project etc.			
Providing Department:	Industrial Engineering			
Prerequisite Course:	Quality Control (906352)			
Course type	Elective			
Assessment Methods:	**Method**	**Weight %**	**Date**	
	First Exam	**30%**		
	Mid Exam	**30%**		
	Projects	0%-5%		
	Final Exam	**40%**		

Course Learning Outcomes:	#	**After successful completion of this course, the student will be able to**	**SO**	
	CLO1	To understand the theory and concepts of reliability and maintainability engineering, and maintenance	**1**	
	CLO2	Be able to estimate the reliability estimation for components and systems.	**1**	
	CLO3	Be able to perform analysis of reliability for static and dynamic systems	**1**	
	CLO4	Be able to design and conduct ACL, FMEA, FTA, QFD.	**1**	

Brief list of topics	**Week #**	**Topic**

	1-3	Probability distributions
	4	Reliability definition and importance
	5-8	Reliability estimation for components.
	9	Static reliability analysis
	10-13	Dynamic reliability analysis
	14	Reliability allocation for complex systems
	15-17	ACL, FMEA, FTA, QFD
	18	Maintenance techniques and maintainability analysis
Important Notes:	• Do not hesitate to ask questions • You are required to bring a notebook and take notes in classes. • Students are expected to attend every class session and they are responsible for all material, announcements, schedule changes, etc., discussed in class. • Discuss the assignments among yourselves • 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. • 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 • Students are expected to be ready to take a quiz any time they have a class. There will be no make-up quizzes or home works. • 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.	

	The B.Sc. in industrial Engineering program enables students to achieve, by the time of graduation the following program learning outcome (SOs)
1	An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2	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
3	An ability to communicate effectively with a range of audiences
4	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
5	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
6	An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7	An ability to acquire and apply new knowledge as needed, using appropriate learning strategies