IE 438 Engineering Reliability and Maintenance 3(3,1,1)

Textbook 10 1. An Introduction to Reliability and Maintainability Engineering, by C. E. Ebeling, McGraw-Hill (1997). 2. Planning and Control of Maintenance Systems: Modeling and Analysis, Duffuaa: A. Raouf and J. Campbell, John Wiley & Sons, (1999). 2. Planning and Control of Maintenance Systems: Modeling and Analysis, Duffuaa: A. Raouf and J. Campbell, John Wiley & Sons, (1999). 3. Maintenance Engineering: A Modern Approach, Burren, CRC press, (2004). 3. Maintenance Engineering: A Modern Approach, Burren, CRC press, (2004). 3. Maintenance function. The course intends to expose the students with the fundamental concepts, the necessary knowledge and the basic skills related to systems reliability and systems maintenance function. The course intends to expose the students to the concept of reliability and to help them learn the techniques of estimating reliability and related characteristics of components/ systems. Moreover, it exposes them to the necessary engineering techniques used for analyzing, planning and controlling maintenance systems Topics (classes)	Catalog Data	Introduction to maintenance function and types of maintenance, introduction to the concept of reliability, failure distributions, reliability characteristics, estimation of system reliability both for the independent and dependent cases, maintenance workload analysis and calculations; capacity planning of maintenance resources; maintenance work scheduling; maintenance audit and the measurement of maintenance work performance; and finally the computerized maintenance management systems (CMMS).				
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Learning outcomes	1) Understand the maintenance function and its objectives and know how to prepare report about the maintenance function [a]
	2) Gain the necessary knowledge about the types of maintenance and know how to use them when design maintenance systems [a]
	3) Gain the necessary knowledge about failure distributions and apply failure analysis techniques [a, k]
	4) Estimate components reliability both for the independent & dependent cases as well as related characteristics [k]
	5) Estimate systems reliability both for the independent & dependent cases as well as related characteristics and design systems for better reliability [c, k]
	6) Estimate systems maintainability as well as related characteristics and design systems for better maintainability [c, k]
	7) Understand and apply different methods of maintenance workload analysis [k]
	8) Gain the necessary knowledge about the maintenance resources planning and apply various planning techniques [a, k]
	9) Know different ways for scheduling maintenance works and know how to use them [k]
	10).Gain the necessary knowledge about maintenance performance measures and apply various maintenance performance techniques [k]
	11)Understand the computerized maintenance management systems and learn how to use MAXIMO Software by conducting term project [g, k]
Estimated Category Content	Engineering Analysis: 3 credit hour or 100%.
Prepared by	Dr. Basel Shadid , Dr. Adel Al-Shayea
Preparation Date	30/5/2012G