



**Jordan University of Science and Technology**  
**Faculty of Engineering**  
**Industrial Engineering Department**

IE757 Product Realization

Second Semester 2023-2024

**Course Catalog**

3 Credit Hours. The product development process, Product development teams, Concurrent engineering, Product function and architecture. Design Axioms, Design concept development, QFD and Product benchmarking, TRIZ Theory, Design for Manufacturing and Assembly, Design for the environment, Robust design, Physical and mathematical modeling, Product prototyping, Packaging design, Human factors in product design.

**Teaching Method:** On Campus

**Text Book**

<b>Title</b>	Engineering Design Methods: Strategies for Product Design
<b>Author(s)</b>	Cross Nigel
<b>Edition</b>	5th Edition
<b>Short Name</b>	Reference #1
<b>Other Information</b>	John Wiley & sons 2021

**Course References**

Short name	Book name	Author(s)	Edition	Other Information
Reference #2	Product Lifecycle Management, 21st Century Paradigm for Product Realization	John Stark	4th Edition	Springer, 2020
Reference #3	Lean TRIZ: How to Dramatically Reduce Product-Development Costs with This Innovative Problem-Solving Tool	H. James Harrington	1st Edition	CRC Press Taylor & Francis Group, 2017.
Reference #4	Innovation Management and New Product Development	Paul Trott	6th Edition	Prentice Hall 2017
Reference #5	Deconstructing Product Design: Commercial success of 100 amazing products	Lidwell William and Manacsa Gerry	1st Edition	Rockport Publishers, Inc., 2011.

Instructor	
Name	Dr. Abdallah Al-Dwairi
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Office Hours	
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Class Schedule & Room
Section 1: Lecture Time: Wed : 14:30 - 17:30 Room: M5124

Tentative List of Topics Covered		
Weeks	Topic	References
Week 1	Introduction to Product Realization	
Week 2	Product development teams and Concurrent Engineering concepts	
Week 3	Design Axioms: Form and Function, Minimum-Information content and shortest production path.	
Week 4	Product concept development: Product morphology and morph charts.	
Week 5	Quality Function deployment (QFD) and product benchmarking	
Week 6	TRIZ Theory and systematic innovation	
Week 7	Decision making methods in product design	
Week 8	Design for manufacturing and assembly (DFMA)	
Week 9	Midterm Exam	
Week 10	Design for the Environment (DFE)	
Week 11	Robust Design	
Week 12	Physical and mathematical modeling	
Week 13	Product prototyping techniques	
Week 14	Packaging design	
Week 15	The human factor in product design	
Week 16	Final Exam	

**Relationship to Program Student Outcomes (Out of 100%)**

SO1	SO2	SO3	SO4	SO5	SO6	SO7

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