

	National University of Sciences and Technology	
	Course Description	
Course Title Smart Manufacturing and IoT	Course Code DME 817	Credit Hours 3 – 0

Textbook:

- “Smart Manufacturing - Concepts and Methods”, Soroush, Masoud; Michael Baldea, McKetta; Edgar, Thomas F, Elsevier, 2020

Reference Books:

- “Smart manufacturing: applications and case studies”, DongdongGu, Springer Publisher, 2014 Soroush, Masoud; Michael Baldea, McKetta; Edgar, Thomas F, Elsevier, 2020

Course Objective:

- Introduction to the 4th Industrial Revolution
- Industry 4.0 the historical perspective and its Future-Industry 5.0
- Introduction to the concept of Internet of Things and Industrial Internet of Things
- Concepts of Digital Manufacturing, Intelligent Manufacturing and Smart Manufacturing
- Design for Industry 4.0
- Concept of Digital Twins

Course Outline:

Introduction and Basic Principles, Digital vs Intelligent vs Smart manufacturing, Internet of things, Industry 4.0 Implementing smart manufacturing across an industrial organization, Industry 4.0 and international perspective - the German-driven initiative Industry 4.0, Cyberinfrastructure for smart manufacturing, The role of hardware and software in smart manufacturing, The role of advanced process modeling in smart manufacturing, The role of digital twins in modelling physical assets and supporting decision-making activities in decentralized and distributed manufacturing.

ASSESSMENTS

Description	Percentage Weightage (%)
Assignments	10%
Quizzes	15%
Project	10%
Mid Semester Exams	20%
End Semester Exam	40%