



AL IMAM MOHAMMAD IBN SAUD ISLAMIC UNIVERSITY  
COLLEGE OF ENGINEERING  
Department of Mechanical Engineering

Course Information	
Course Code and Name:	ME463 Metal Forming
Credit Hours:	3 (3 Lecture + 1 Tutorial)
Prerequisites:	ME 216 Mechanics of Materials, ME 363 Manufacturing Technology

Course Description
Yield criteria, Plastic stress- strain relation. Plane stress and plane strain problems. Determination of flow equation. Applications: instability in thin vessels, thick vessels subjected to internal pressure, and beam under pure bending. Classification of metal forming processes. Bulk deformation processes. Technique of analysis; slab method, upper bound method. Slip line field, application to indentation problem, Forging, rolling, extrusion, and Rod and wire drawing equipment and die.

Textbook			
Title	Metal Forming: Mechanics and Metallurgy		
Authors	William F. Hosford and Robert M. Caddell		
Publisher	PTR Prentice-Hall (USA)	Year and Edition	2011, 4 <sup>th</sup> Edition

Course Contents
Stress and Strain
Plasticity
Strain Hardening
Instability
Temperature and Strain-Rate Dependence
Work Balance
Slab Analysis and Friction
Upper-Bound Analysis
Formability
Bending
Cupping, Redrawing, and Ironing
Forming Limit Diagrams
Stamping

Academic Coordinator	Signature
Dr. Mahmoud Ahmadein	



Official Stamp