

2021-2022	Mechanical Engineering	Year 3 - Sem. 6
MECA313	Metal Forming	Mandatory
ECTS: 2	<i>Coordinator:</i> Dr Jihad Sahili	<i>Language:</i> English/French
Total hours: 27h	<i>Lectures:</i> Dr Jihad Sahili, Dr Fadi Taychouri, Pr Marwan Azzi	

Description:

This course covers the following topics: Mechanical and physical properties of metals; metal casting; expendable mold processes; non-expendable mold processes; product design considerations in metal casting; metal forming using deformation; deformation processes and forming tools; product design considerations in metal forming.

Learning outcomes:

- Understand the fundamental mechanics of metal forming and casting processes.
- Learn the principle, classification, equipment used and applications of Rolling and Forging Processes.
- Learn the principle, classification, equipment used and applications of Extrusion and Drawing Processes.
- Understand the principle, procedure of various sheet metal forming and metal casting processes.
- Learn about the recent advances in technology for metal forming and casting.

Content:

- Fundamentals of Metal Casting.
- Metal Casting Processes.
- Shaping Processes for Plastics.
- Shaping Processes for Polymer Matrix Composites.
- Powder Metallurgy.
- Processing of Ceramics and Cermets.
- Fundamentals of Metal Forming.
- Bulk Deformation Processes in Metalworking.
- Sheet Metalworking.

References:

- G.R. Nagpal. Metal forming processes, Khanna publishers.
- S. Kalpakjian, S. R. Schmid. Manufacturing Process for Engineering Materials, 4th Edition, Pearson Education.
- P. N. Rao. Manufacturing Technology, TMH Ltd.

Evaluation Method:

Assessment in the following areas will be converted to points, to compute your final grade in this course:

- Mid-Term
- Final Exam
- Home Works

Description :

Ce cours couvre les sujets suivants : Propriétés mécaniques et physiques des métaux ; moulage des métaux ; procédés de moulage consommables ; procédés de moulage non consommables ; considérations de conception de produits dans le moulage des métaux ; formage des métaux à l'aide de déformation ; processus de déformation et outils de formage ; considérations de conception de produits dans le formage des métaux.