

# **First Course**

Engineering Material Properties

Class: Three Year

Theoretical 2 hr.

Experimental Test 2hr.

Units 3

## **Course syllabus**

- 1- Chapter one: Introduction: engineering material, classification, general properties, mechanical properties, impact and hardness test.
- 2- Chapter two: The creep phenomenon.
- 3- Chapter three: Tensile test and toughness.
- 4- Chapter four: Crystalline structure.
- 5- Chapter five : Ceramic material and composite materials.
- 6- Chapter six: iron, steel, aluminum, copper, lead and tin.
- 7- Chapter seven: Polymer material.
- 8- Chapter eight: Defect in crystalline structure and chemical bonding
- 9- Chapter nine: Phase and thermal equilibrium diagram.

## **Experimental work**

- 1- Tensile test
- 2- Impact test
- 3- Hardness test

References books

- 1-Fundamentals of Materials Science and Engineering, 9 edition  
William D. Callister, Jr.

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