



## Materials Science and Engineering

### TOPIC 5. METALLIC MATERIALS

#### 5.1 Types of steels: stainless, tool. Light alloys. Copper alloys.

#### Exercises

1. Distinguish between the following types of steels:

- a. Plain carbon low alloy steel
- b. Stainless steel
- c. High strength low alloy (HSLA) steel
- d. Tool steel

2. Describe the three basic heat-treatment stages to strengthen a wrought heat-treatable aluminium alloy.

Stage 1	
Stage 2	
Stage 3	

3. Describe the as-cast microstructure of the following cast irons:

- a. White cast iron
- b. Gray cast Iron
- c. Malleable cast Iron

4. List the main alloying elements for the following series of copper alloys:

C1xxxx	
C2xxxx	
C3xxxx	
C4xxxx	
C5xxxx	
C6xxxx	
C7xxxx	
C8xxxx	
C9xxxx	