



GOVERNMENTPOLYTECHNIC,DHENKANAL

Programme:DiplomainMechanicalEngineering

Course:EngineeringMaterials(Theory)

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Engineering materials and their properties

Introduction

- Materials science and engineering plays a vital role in this modern age of science and technology. Various kinds of materials are used in industry, housing, agriculture, transportation, etc. to meet the plant and individual requirements.
- The knowledge of materials and their properties is of great importance for a design engineer.
- A design engineer must be familiar with the effects which the manufacturing processes and heat treatment have on the properties of the materials.

The engineering materials are mainly classified as

- Metals and their alloys, such as iron, steel, copper, aluminium etc.
- Non-metals such as glass, rubber, plastic etc.

Metals may further be classified as-

- Ferrous metals-

The ferrous metals are those which have iron as their main constituent, such as cast iron, wrought iron etc.

- Non-ferrous metals.

The non-ferrous metals are those which have metal other

