Introduction to material science and structural design

The first part of the course will describe the essential features of material science, from the atomistic and molecular mechanisms to the continuum description of properties of materials. Particular focus will be put on the mechanical behaviour of materials used in biomedical applications: elastic and plastic deformation, creep, and fracture of materials including crystalline and amorphous metals, ceramics, and (bio)polymers. The course will also address the design and processing of materials from the atomic to the macroscale to achieve a desired mechanical behaviour. Selection methods will be proposed based on both fundamental material science and processing of materials. The second part of the course will be dedicated to structural design with an introduction to the elastodynamic theory, and to the Euler-Bernoulli beam theory.

From:
https://wiki.centrale-med.fr/msct-cse/ -

Permanent link:
https://wiki.centrale-med.fr/msct-cse/imss

Last update: **2020/01/29 21:35**