

Materials Science

Materials science has had a profound influence on the development of our technologically-advanced society. The availability of suitable materials has been critical to the realization of many new engineering concepts. For example, the mass-produced automobile would not have been possible without the availability of low-cost steel, made possible by the development of the Bessemer process for steel-making. The low-cost integrated circuit for electronics devices owes its existence to the availability of ultra-high purity silicon and the ability to modify the electrical properties of silicon by diffusion and ion implantation. The properties of these and many other materials can only be truly understood through correlation with the structure of the materials. Therefore, the role of the materials scientist is to understand the relationships between the microscopic structure and properties of materials.

Part of the Mechanical Engineering curriculum focuses on Materials Science. The only required course is ME 561, Introduction to Materials Science. This course has both a lecture and a laboratory component. However, there are a number of elective courses available: ME 730, Mechanical Behavior of Materials; ME 731, Fatigue and Fracture; ME 744, Corrosion; ME 760, Physical Metallurgy; ME 761, Diffraction and Imaging Methods in Materials Science; ME 762, Electronic Materials Science and ME 763, Thin Film Science & Technology. A minor is available for those students with a strong interest in Materials Science.