Advanced Materials

Code	Credit Hours
MSE-464	3-0

Pre-requisites: None

Course Contents

1. Biomaterials, Basic chemical and physical properties of biomaterials including metals, ceramics and polymers, Role of microstructural properties in the choice of biomaterials and design of artificial organs, implants and prostheses.heat resistant materials, refractory metals and alloys, intermetallics, Nanostructured materials, fuel cell materials, materials for hydrogen storage, shape memory alloys. Smart materials and functional materials,

2. Text Books and Reference Books

a. S.C. Guelcher and O.J. Hollinger, An Introduction to Biomaterials, *Latest Available Edition* .Taylor and Francis
b. P.P. Charles, F.J. Owens, Introduction to Nanotechnology, Wiley-interscience, *Latest Available Edition*
c. M.H. Van de Voorde, G.W. Meetham, Materials for High Temperature Engineering applications, Springer, *Latest Available Edition*
d. A.S. Edelstein, R.C. Cammarata, Nanomaterials: Synthesis, properties and applications, IoP, *Latest Available Edition*
e. M. Donachie, S. Donachie, Superalloys: A Technical Guide, HIS, *Latest Available Edition*