No	Information of Engineering Materials I (2018-2019)	
1	Unit name:	Concept of Materials Science
2	Code:	Met- 31023
3	Classification:	Engineering subject
4	Credit value:	2.5
5	Semester/ Year Offered:	1/3
6	Pre-requisite:	
7	Mode of delivery:	Lecture, Tutorial, Assignment
8	Assessment system and breakdown of marks:	
	Test	30%
	Mid-term/ final Examination	70%
9	Academic staff teaching unit:	1
10	Course outcome of unit: In this course, students will be able to - explain main type of engineering materials (Metals, Ceramics, Polymer, Semiconductor and Composite) - explain Atomic Bonding (Metallic bonds, Covalent bond, Ionic bond and Vander Waals bonds) - explain and apply Lattice, Basis, Units Cells and Crystal Structures to calculate the problems.	
11	Synopsis of unit: The course describes Simple cubic, Body-centered cubic, Face-centered cubic andHexagonal Close-Packed structure diagrams. Type of diffusion problems(Fick's first Law and Fick' second Law.	

12	Topic: **Chapter 1** Classification of Materials Classification of Materials Based on Structure Environmental and Other Effects Materials Design and Selection **Chapter 2** The structure of the atoms Atomic Bonding Binding Energy and Interatomic spacing **Chapter 3** Lattice, Basis, unit Cells and Crystal Structures Points, Direction and Plane in the Unit Cell Crystal Structures of IonicMaterials **Chapter 4** Point Defects Other point Defect Dislocations Schmid'law **Chapter 5** Application of Diffusion Rate of Diffusion Mechanisms for Diffusion Applications of Diffusion Applications to Polymers
14	Main Reference; The Science and Engineering of Materials, Six Edition, Donald R. Askeland -
15	Additional references: - : Materials Science and Engineering An Introduction, Eight Edition, William D. Callister , Jr. David G. Rethwisch