ENGINEERING GEOLOGY LECTURE FOR 1st SEM ELECTRONICS ENGINEERING (2k19 batch)
NATIONAL INSTITUTE OF TECHNOLOGY, JAMSHEDPUR

(Department of ECE)

Autumn Semester 2019-20

Course Handout

31-07-2019

Course No. : MM-1101, Course Title: MAT.SC.,

Instructor-in-charge: Ranjit Prasad.

Class: B.Tech. (Hons.), 1st Semester, Session: 2018-19 (2K18 batch), CREDIT: 3

(To be taught up to Mid Sem)

Course description: Objective and Scope of Material Science (Crystallography)- Crystal Systems, Symmetry Elements of Crystals, Laws of Crystallography, Miller Indices, Bravias lattice, Void Spaces

LECTURE PLAN Material Science (Crystallography)

C.No.	Topic	Text/ Reference Book
1.	Crystallography: Elements of Crystal- Crystal Faces, Interfacial Angle; Laws of Symmetry-Plane of Symmetry, Axis of symmetry, Centre of Symmetry.	1
2.	Axial Ratio, Parameters, Indices, Symbols, Forms- Holohedral, Hemihedral, Hemimorphic, Enantiomorphous, Fundamental and Open & Closed Forms	1
3.	Crystal Classes and Systems- Isometric (Cubic), Tetragonal, Orthorhombic, Monoclinic, Triclinic, Hexagonal and Rhombohedral	2
4.	Crystal Structure:- Unit Cell and Space Lattice; Lattice Parameter and Crystallographic Planes; Lattice Parameter of a Unit Cell	1
5.	Crystal System, Bravais Lattices	1
6.	Crystal Structures for Metallic Elements- B.C.C., F.C.C., H.C.P.; Crystal Symmetry- Simple Form, Combination Form, Plane of Symmetry, Axis of symmetry, Centre of Symmetry.	1
7.	Co-ordination Number, Atomic Radius and Number of Atom per unit cell of S.C., B.C.C., F.C.C.;	1

8.	Atomic Packing Factor (A.P.F.) of S.C., B.C.C., F.C.C.; Hexagonal closed packed, Diamond cubic (D.C.) structure	1
9.	Comparison of Cell Properties of some Crystal structure; Miller Indices	1
10.	Numerical	1