Electron Diffraction: Introduction, Theory of electron diffraction, Wierl equation and its significance (qualitatively), Elucidation of structure of simple gas molecules. Structure of surfaces - (Low and high Energy Electron Diffraction, Transmission electron microscopy (TEM), SEM. Theory and applications of Neutron diffraction. Comparison between X-ray, electron and Neutron diffractions. 3hrs .

REFERENCES:

1.Fundamentals of Molecular Spectroscopy, Banwell & McCash (Tata McGraw Hill, New Delhi) 2007.
2. Spectroscopy, H. Kaur (Pragathi Prakashana,Meerut), 2012.
3.Spectroscopy, Donald L.Pavia (Cengage learning India Pvt.Ltd., Delhi), 2007.
4.Spectroscopy, B.K.Sharma (Goel prakashan, Meerut), 2013.
5. A Basic Course in Crystallography, JAK Tareen and TRN Kutty, University Press, Hyderabad (2001).
6. Essentials of Crystallography, M.A. Waheb, Narosa Publishing House, New Delhi (2009),
7. X-ray methods, Clive Whiston, (John Wiley & Sons, New York) 1987.

CH P 407: INORGANIC CHEMISTRY PRACTICALS – I

COURSE OUTCOME:

- Students will have hands on experience on the analysis of Hematite Dolomite, Pyrolusite, Solder,
- Analysis of Halide Mixture, Colorimetric Determination, Gravimetric determinations and Statistical Analysis of Data.
- To understand Complexometric determination and hardness of water
- It enables the students to learn Statistical Analysis of Data.

1. Analysis of Hematite-insoluble residue by gravimetry and Iron by volumetry using Ce^{4+}.
2. Analysis of Dolomite - insoluble residue by gravimetry and Ca, Mg by complexometry.
3. Pyrolusite - Insoluble residue by gravimetry and Manganese content by oxalate method.
4. Analysis of solder - Pb and Sn by EDTA method.
5. Complexometric determination of Mn, Cu, Ni and Fe-Cr mixture
6. Hardness of water
7. Analysis of Halide Mixture - Iodide by KIO_3 and total halide by gravimetrically.
8. Colorimetric Determination of Iron by thiocyanate and Cu by aqueous ammonia.
9. Gravimetric Determinations of Mn, Ni, Mo, Pb/Cr, sulphide, thiocyanate.
10. Statistical Analysis of Data.

Reference :

1. Vogel's Text Book of Quantitative Chemical Analysis (5^{th} Ed), G.H. Jeffrey, J. Bassette, J. Mendham and R.C. Denny, Longman, 1999.