



ARSD College, University of Delhi

Model Course Handout/Lesson Plan

| Course Name : B.Sc. (H) Chemistry | | | | | | |
|--|-------------|--|-------------|--------------|---------------|------------|
| Semester | Course Code | Course Title | Lecture (L) | Tutorial (T) | Practical (P) | Credit (C) |
| IV | 32171401 | Inorganic Chemistry III: Coordination Chemistry | | | 4 | 2 |
| Teacher/Instructor(s) | | Dr. Naorem Premjit Singh, Dr. Jaya Tomar | | | | |
| Session | | 2021-2022 | | | | |

Course Description:

The course introduces the students to coordination compounds which find manifold applications in diverse areas like qualitative and quantitative analysis, metallurgy, as catalysts in industrial processes as medicines, paints and pigments as well as in life. The student is also familiarized with the d and f block elements and gets an idea about horizontal similarity in a period in addition to vertical similarity in a group.

List of Experiments:

| Details of the Lab Course | | |
|---------------------------|---|-----------------------------|
| Session | Name of Experiment | Contact Hours |
| 1 | Estimation of Ni(II) using dimethylglyoxime (DMG). | 4 |
| 2 | Estimation of copper as CuSCN. | 4 |
| 3 | Estimation of iron as Fe ₂ O ₃ by precipitating iron as Fe(OH) ₃ . | 8 |
| 4 | Estimation of Al(III) by precipitating with oxine and weighing as Al(oxine) ₃ (aluminium oxinate). | 4 |
| 5 | Tetraamminecopper (II) sulphate, [Cu(NH ₃) ₄]SO ₄ .H ₂ O | 4 |
| 6 | Acetylacetonate complexes of Cu ²⁺ /Fe ³⁺ | 4 |
| 7 | Potassium tri(oxalato)ferrate(III) | 4 |
| 8 | Measurement of 10Dq/ Δo by spectrophotometric method. | 4 |
| 9 | Verification of spectrochemical series. | 4 |
| 10 | Synthesis of ammine complexes of Ni(II) and its ligand exchange reactions (e.g. bidentate ligands like acetylacetonate, DMG, glycine) by substitution method. | 8 |
| 12 | Revision | 8 |
| 13 | Mock Test | 4 |
| Total | | 60 |
| Suggested Books: | | |
| Sl. No. | Name of Authors/Books/Publishers | Year of Publication/Reprint |
| 1. | Jeffery, G. H.; Bassett, J.; Mendham, J.; Denney, R.C. (1989), Vogel's Textbook of Quantitative Chemical Analysis, John Wiley and Sons. | 1989 |

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| 2. | Marr, G.; Rockett, B.W. (1972), Practical Inorganic Chemistry, Van Nostrand Reinhold. | 1972 |
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Evaluation Scheme:

| No. | Component | Duration | Marks |
|-----|--------------------------|----------|-------|
| 1. | Internal Assessment | | 25 |
| | • Quiz/Viva | | |
| | • Observation & Record | | |
| | • Attendance | | |
| | • Model Exam | | |
| 2. | End Semester Examination | 5 hr | 25 |