

Part-III, SEC- III: Value Added Courses

Offering Department: Department of Chemistry

(From AY 2016-17 onwards)

16UCHVA01	Surface Coating Techniques	40 Hrs.	1 Credits
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Unit.1 Surface coating: (03 Hrs.)

Introduction, objectives & applications of coating (on metal & non-metals), classification of surface coatings (inorganic & organic), preliminary treatment of surfaces.

Unit.2 Organic surface coating: (03 Hrs.)

Chemistry, composition, characteristics, role and applications of oil paints, water paints (emulsion paints), varnishes, lacquers and wax polishes.

Unit.3 Inorganic surface coating - Electroplating: (03Hrs.)

Theory and electroplating techniques of copper, zinc, and chrome.

Unit.4 Inorganic surface coating - Non-electric coatings: (03 Hrs.)

Theory, characteristics, special applications, and working techniques of hot dipping, metal spraying, vacuum metalizing, vitreous coating.

Unit.5 Additive Agents for Surface Coatings: (03 Hrs.)

Introduction, role and classification of additives in surface coating processes. Additives - brighter, solvents, emulsifiers.

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List of Proposed Practical:**(25 Hrs.)**

1. To prepare electrolyte and bath for Copper Electroplating.
2. To prepare electrolyte and bath for Zinc Electroplating.
3. To prepare electrolyte and bath for Chrome Electroplating.
4. To perform electroplating of Copper metal on given standard sample.
5. To perform electroplating of Zinc metal on given standard sample.
6. Demonstrative Practical: To perform electroplating of Chrome metal on given sample.
7. To perform analysis of electrolyte for Copper Electroplating.
8. To perform analysis of electrolyte for Zinc Electroplating.
9. To perform analysis of electrolyte for Chrome Electroplating.

Books Recommended:

1. Coatings materials and surface coatings - Arthur A. Tracton (Editor), CRC Press, Taylor & Francis Group.
2. Engineering chemistry - R. Gopalan, D. Venkappayya, S. Nagarajan.
3. Chemistry in engineering and technology volume -1 & 2 – J.C. Kuriacose & J. Rajaram
4. Engineering chemistry – Jain & Jain
5. Industrial hygiene and chemical safety – M. K. Fulekar.