



Functional Plating Short Course

This tutored course is designed to give students an understanding of the subject from basic principles to in-depth advanced information needed by experienced applicators. It will benefit electroplaters, technicians, process engineers and also specifiers of deposits. Students do not require a knowledge of science to take this course. Selected units from the Foundation course are used followed by two new sessions which include comprehensive information on the most common types of functional plating deposits used for engineering applications in many manufacturing sectors. The course is delivered in four, tutored sessions, each of about 3 hours duration and has a marked assignment and a short multi-choice style examination is held at the end of the course.

Session 1

Covers Foundation units:

- 1 (Surface Finishing)
- 5 (Cleaning and Pretreatment)
- 9 (Principles and Use of Electroplating)

Session 2

Covers Foundation units:

- 9 continued
- 4 (Health & Safety)
- 5 (The Environment and Surface Finishing)
- Also REACH

Session 3

Chromium Deposition.

Material tailored for functional plating including:

- Surface preparation – mechanical and chemical, fixturing
- Functional chromium plating – major solution types, conventional and modern high efficiency – composition, effects of process variables, characteristics of the different deposits produced
- Anodes and anode to cathode relationships
- Grinding of chromium deposits
- Stripping techniques
- Deposit properties and their evaluation
- Common problems and troubleshooting

Session 4

Electrolytic Nickel and Electroless Nickel Deposition

Applications, properties and features.

Electrolytic nickel plating

- Watts and sulphamate solutions, composition and control
- Anodes
- Deposit properties and their evaluation
- Common problems and trouble shooting

Electroless nickel /phosphorus alloy plating



Immersion and electroless plating – features and differences

- Key facts and deposit types – low, medium and high phosphorus
- Substrates
- Components of electroless plating solutions
- Equipment, bath loading
- Housekeeping, replenishment and process control
- Common problems and trouble shooting

Students will receive copies of the above Foundation units and copies of the teaching material from sessions 3 and 4 for study purposes. Additional information will be provided in the form of the Foundation units for electroless plating, nickel plating and chromium plating for background reading.

Candidates completing this course successfully may treat this as a stand-alone qualification or proceed to complete the Foundation course by study of sufficient further Foundation units and due assessment by marked assignment and examination.