

Process Plant Reliability and Maintainability



Unit Code: CPE 6250

Time and money are wasted by the ineffective running of process plants. This course gives you the toolbox you need to help you make sure your plant is reliable, available and efficiently maintained.

The basic concepts, techniques and potential of reliability engineering are introduced. The module covers the theory and practice of availability and reliability assessment.

Frequency analysis based on systems analysis and assessment is covered. Fault tree analysis is applied to practical engineering systems and chemical processes.

Other reliability techniques, including reliability block diagrams and failure mode and effects analysis [FMEA] are also covered.

Course Content

- **Availability** — determine availability requirements and translate them into specific needs for reliability and maintainability
- **Reliability block diagrams**
- **Reliability, Availability and Maintainability (RAM) improvement** — improve the performance of existing designs to reduce costs and increase efficiency
- **RAM requirements** — basic RAM requirements and how to communicate them both internally and to suppliers
- **Tools that can be used to improve RAM** — Fault Tree Analysis (FTA), Failure Modes and Effects Analysis (FMEA)
- **Failure distributions** — the most common failure distributions and when and how they are used
- **How to analyse and interpret failure data**
- **Maintainability** — introduces maintainability and its various measures.
- **Fault detection & failure location** — how systems are designed so that faults can be identified and failures located as accurately and as quickly as possible.

