

MS4631 Corrosion Engineering

[Lectures: 26 hours; Tutorials: 13 hours; Pre-requisites: MS3013; Academic Unit: 3.0]

Learning Objective

The main objectives are:

1. To understand the aspects of practical corrosion problems and solutions, the corrosion behaviour of engineering materials, and the methods and techniques for testing and monitoring of corrosion.
2. To learn the basic principles of non-destructive methods and their similarities difference, capabilities, limitations and applications in the detection of corrosion-related defects.

Content

Corrosion in various materials; Corrosion in various environments; Corrosion prevention technologies; Corrosion Testing and Monitoring Techniques – Destructive and Non-destructive testing

Learning Outcome

On completion of this course, the students should be able to:

- Understand and differentiate different non-destructive methods
- Select an appropriate non-destructive method for a particular requirement.
- Analyze corrosion problems of industry
- Apply appropriate techniques for testing and monitoring corrosion
- Select appropriate material and technology for a given application

Textbooks/References

1. Pierre R. Roberge, Corrosion engineering: principles and practice, McGraw Hill, c2008.
2. Paul E. Mix, Introduction to Nondestructive Testing – A Training Guide, John Wiley & Sons, 2005.
3. D. A. Jones, Principles and Prevention of Corrosion, 2nd Edition, Prentice-Hall, 1996
4. R. Halmshaw, Non-Destructive Testing, 2nd edition, Edward Arnold, 1991
5. Barry Hull & Vernon John, Non-Destructive Testing, English Language Book Society, 1988
6. M. G. Fontana, Corrosion Engineering, 3rd edition, McGraw-Hill, 1987. Barry Hull & Vernon John, Non-Destructive Testing, English Language Book Society, 1988.