

CC5005 METROLOGY AND NON DESTRUCTIVE TESTING

DETAILED SYLLABUS

OBJECTIVES

- Impart the knowledge of quality assurance and inspection techniques.
- Familiarize with the various inspection and measurement techniques like contact and noncontact measurement by adapting Computer Aided Inspection.
- Impart the knowledge of working principles and calibration of various Systems.

UNIT I MEASURING MACHINES

Tool Maker's microscope - Co-ordinate measuring machines - Universal measuring machine- Laser viewers for production profile checks - Image shearing microscope - Use of computers- Machine vision technology - Microprocessors in metrology.

UNIT II STATISTICAL QUALITY CONTROL

Data presentation - Statistical measures and tools - Process capability - Confidence and tolerance limits - Control charts for variables and for fraction defectives - Theory of probability- Sampling - ABC standard - Reliability and life testing.

UNIT III LIQUID PENETRANT AND MAGNETIC PARTICLE TESTS

Characteristics of liquid penetrants - different washable systems - Developers - applications - Methods of production of magnetic fields - Principles of operation of magnetic particle test - Applications - Advantages and limitations.

UNIT IV RADIOGRAPHY

Sources of ray-x-ray production - properties of d and x rays - film characteristics - exposure charts - contrasts - operational characteristics of x ray equipment - applications.

UNIT V ULTRASONIC AND ACOUSTIC EMISSION TECHNIQUES

Production of ultrasonic waves - different types of waves - general characteristics of waves – pulse echo method - A, B, C scans - Principles of acoustic emission techniques – Advantages and limitations - Instrumentation - applications.

REFERENCES

1. American Society for Metals, " Metals Hand Book ", Vol.II, 1976.
2. Barry Hull and Vernon John, " Non Destructive Testing ", MacMillan, 1988.

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Notes

Syllabus

Question Papers

Results and Many more...

Available @

www.AllAbtEngg.com

3. JAIN, R.K. " Engineering Metrology ", Khanna Publishers, 1997.
4. Progress in Acoustic Emission, " Proceedings of 10th International Acoustic Emission Symposium ", Japanese Society for NDI, 1990.