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# RADIOGRAPHIC TESTING – SYLLABUS

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## Introduction

- History of Radiographic Testing
- Principle of Radiographic Testing
- Types of Radiographic Testing
- Advantages and Disadvantages of Radiographic Testing
- Principle of Radiographic Testing
- Nature of X-ray & gamma rays
- Principles of Shadow Formation
  - Image Size
  - Image Shape and Spatial

## Atomic Structure

- Neutron number
- Mass number
- Atomic number
- Radioactive decay
- Half Life
- Artificial Radioisotopes
- Specific Activity
- Properties of Radioactive Isotopes

## Radiographic Film Exposures

- Radiographic Sharpness / Unsharpness
- Geometrical Factors Affecting -Unsharpness
- Exposure for Gamma rays
- Exposure for X-rays
- Exposure
  - Exposure Calculations
  - Exposure Factor
  - Inverse Square Law
  - Radiographic Equivalence Factor
  - Exposure Charts

## Type of Penetrating Radiation

- Gamma Ray's
  - Radiation Energy
  - Source Activity
  - Specific Activity
  - Radiation Intensity
  - Equipment & Setups details
- X-rays
  - Electron Source
  - Electron Target
  - Electron Acceleration
  - X-ray Production
  - Equipment & Setups details
  - Different types of X-ray tubes
- Interactions of Radiation with Matter

## **Radiographic Sensitivity**

- Geometric Definition
- Subject Contrast
- Film Contrast
- Characteristic curves
- Film Density
- Film Density Measurement

## **Film Composition**

- Film Composition
- Types of film
- Effect of Scatter Radiation
- Types of Screen
- Film Cassette
- Image Quality Indicators

## **Image Quality Indicators (IQI)**

- Types of IQI
- Material of IQI
- Size of IQI
- Placement of IQI
- IQI Selection
- Thickness, intensity, Distance, and time
- Variations in Object Thickness
- Identification Markers

## **Radiographic Techniques**

- Single Wall Single Image
- Single Wall Single Image- Panoramic shot
- Double Wall Single Image
- Double Wall Double Image
- Double Wall Double Image – Elliptical shot

## **Radiographic Film Processing**

- Film Processing Steps
- Film Handling and Storage
- Film and Film Handling
- Darkrooms
- Visual Acuity and Dark Adaptation
- Manual Processing
- Automatic Processing
- Film Graininess
- Film Selection
- Film Density Measurement

## **Film Artifacts**

- Different Types of Film Artifacts

## **Film Defects**

- Different Types of Film Defects

- Identifying Discontinuities
- Sources of Discontinuities
- Film Interpretation

## **Radiation Safety**

- Importance of Radiation safety
- Shielding Techniques
  - Half value layer (HVL)
  - Tenth value layer (TVL)
- Radiation Monitoring Devices
- Survey meter
- Personal Devices
- Different type of badge
- Importance of Radiation Sign board
- Alarm system
- Biological effects of radiation

