



İstanbul
GEDİK University

NON-DESTRUCTIVE TESTING PROGRAM



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NON-DESTRUCTIVE TESTING PROGRAM

INTRODUCTION

Non-destructive testing (NDT) is the process of inspecting, testing, or evaluating materials, components or assemblies for discontinuities, or differences in characteristics without destroying the serviceability of the part or system. In other words, when the inspection or test is completed the part can still be used.

The main objective of NDT Training courses is to develop human resources in NDT to meet the demand of the major industries such as Casting, Forging, Welding, Aerospace, Petrochemical and Refinery, Ship-building, Concrete structures and many other Construction and manufacturing industries.

The Level 1+2 training courses are aimed at providing participants with a fundamental knowledge of theory and practice of the NDT method to enable them to set-up and calibrate test equipment, develop and apply appropriate test procedures, evaluate the test results and judge the suitability of parts and welds according to given specifications and standards.

WHO SHOULD ATTEND

These training programs will be essential for NDT personnel, Quality Assurance and Quality Control Inspectors, Technicians, Welders, Trainees, Engineers and Surveyors in the industrial fields such as Casting, Forging, Welding and many other construction and manufacturing industries. Technical teachers and students of the technical faculties can also participate.

CERTIFICATE

Course participants will be entitled to receive a “Qualification Certificate of Level 1+2 NDT Personnel” if they are successful at the end of the exam according to ISO 9712 – (International Standard for Training and Certification of Non-Destructive Testing Personnel).

TYPES OF THE PROGRAMES AND CERTIFICATES

Module 1 : Visual Testing

Certificate : Qualification Certificate of NDT Personnel VT Level 1+2

Module 2 : Magnetic Particle Testing

Certificate : Qualification Certificate of NDT Personnel MT Level 1+2

Module 3 : Penetrant Testing

Certificate : Qualification Certificate of NDT Personnel PT Level 1+2

Module 4 : Ultrasonic Testing

Certificate : Qualification Certificate of NDT Personnel UT Level 1+2

Module 5 : Radiographic Testing

Certificate : Qualification Certificate of NDT Personnel RT Level 1+2

NON-DESTRUCTIVE TESTING PROGRAMME

MODULE 1 – VISUAL TESTING

LEVEL 1+2

INTRODUCTION

Visual inspection is one of the most common and most powerful means of non-destructive testing. It requires line-of-sight contact with the portion of the specimen to be inspected, adequate illumination of the test specimen, a thorough understanding of the nature and origin of discontinuities and potential defects within the test object, and familiarity with the specifications controlling the inspection process. It is also a fact that all defects found by other NDT methods ultimately must be substantiated by visual inspection.

OUTLINE OF LESSONS

1. Introduction to Terminology and History of NDT
2. Introduction to Materials
3. Physical Principles of Visual Testing
4. Test Methods and Equipments
5. Application of Visual Testing
6. Interpretation and Evaluation of Indications
7. Preparation of Test Report
8. Test Procedures and Related Standarts
9. Safety, Health and Disposal

DURATION

The minimum duration of training undertaken by the candidate for certification is 40 hours / 5 working days. Training hours include both practical and theoretical courses, not examination.

According to EN ISO 9712, for candidates who have graduated in a relevant subject from technical college or university, or have completed at least two years of relevant engineering or science study at college or university, the total required number of training hours may be reduced by up to 50% as 20 hours / 3 working days.

COURSE FEE

The certification programme costs 1650 USD/person. This fee includes the costs of the course documents, examination and certificates. The lunches and coffea/tea will be sponsored by the local partner institution/company.





NON-DESTRUCTIVE TESTING PROGRAMME MODULE 2 – MAGNETIC PARTICLE TESTING LEVEL 1+2

INTRODUCTION

Magnetic Particle Testing or Magnetic particle Inspection as conventionally called as Crack Detection, Magnetic flux testing, MPT or MPI testing is one of the most widely used Nondestructive testing NDT method to find surface and subsurface flaws using Magnetic flux leakage principle. It is fast and relatively easy to apply, and surface preparation is not as critical as it is for other NDT methods. The method is used to inspect a variety of product forms including castings, forgings, weld joints during manufacturing and in-service inspections. Underwater inspection is another area where magnetic particle inspection may be used to test items such as offshore structures and underwater pipelines.

OUTLINE OF LESSONS

1. Introduction to Terminology and History of NDT
2. Introduction to Materials
3. Physical Principles of Magnetic Particle Testing
4. Magnetic Flux Leakage
5. Magnetisation Techniques and Equipments
6. Current Types used in Magnetization
7. Application of Magnetic Particles Testing
8. Demagnetization
9. Preparation of Test Report
10. Test Procedures and Related Standarts
11. Safety, Health and Disposal

DURATION

The minimum duration of training undertaken by the candidate for certification is 40 hours / 5 working days. Training hours include both practical and theoretical courses, not examination.

According to EN ISO 9712, for candidates who have graduated in a relevant subject from technical college or university, or have completed at least two years of relevant engineering or science study at college or university, the total required number of training hours may be reduced by up to 50% as 20 hours / 3 working days.

COURSE FEE

The certification programme costs 1650 USD/person. This fee includes the costs of the course documents, examination and certificates. The lunches and coffea/tea will be sponsored by the local partner institution/company.

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MODULE 3 – LIQUID PENETRANT TESTING

LEVEL 1+2

INTRODUCTION

Liquid Penetrant Testing is also wide known as Penetrant testing, Dye Penetrant inspection or Fluorescent Inspection FPI Testing is one of the most widely used NDT method that is capable of detecting too small discontinuities that are open to the surface. In general, it is considered by some as an extension to Visual Inspection and used for inspection of Weld Joints, Castings, Forgings, in-service inspection of mechanical components at very economical cost.

OUTLINE OF LESSONS

1. Introduction to Terminology and History of NDT
2. Introduction to Material Science
3. Liquid Penetrant Test System
4. Application of Liquid Penetrant Testing
5. Inspection Methods
6. Inspection System and Process Control
7. Test Equipments
8. Preparation of Test Report
9. Test Procedures and Related Standarts
10. Safety, Health and Disposal

DURATION

The minimum duration of training undertaken by the candidate for certification is 40 hours / 5 working days. Training hours include both practical and theoretical courses, not examination.

According to EN ISO 9712, for candidates who have graduated in a relevant subject from technical college or university, or have completed at least two years of relevant engineering or science study at college or university, the total required number of training hours may be reduced by up to 50% as 20 hours / 3 working days.

COURSE FEE

The certification programme costs 1650 USD/person. This fee includes the costs of the course documents, examination and certificates. The lunches and coffea/tea will be sponsored by the local partner institution/company.





NON-DESTRUCTIVE TESTING PROGRAMME

MODULE 4 – ULTRASONIC TESTING

LEVEL 1+2

INTRODUCTION

Ultrasonic Testing or Ultrasonic Inspection as conventionally called as UT testing is one of the most widely used Nondestructive testing NDT method to find internal flaws using Ultrasonic waves to inspect Ingots, Castings, forgings, rolled plates, sheets, bars, rods, weld joints, shafts, gears, and other engineering components in cast, forged, machined condition, during manufacturing and in-service inspections. Ultrasonic thickness testing is also used for measuring remaining wall thickness using Ultrasonic principle.

OUTLINE OF LESSONS

1. Introduction to Terminology and History of NDT
2. Introduction to Materials
3. Physical Specifications
4. Introduction to Reference Reflectors
5. Ultrasonic Inspection Test System
6. Determination of the Location of Indications
7. Interpretation and Evaluation of Indications
8. Principle of Advance Ultrasonic Inspection Methods
9. Preparation of Test Report
10. Test Procedures and Related Standarts
11. Safety, Health and Disposal

DURATION

The minimum duration of training undertaken by the candidate for certification is 144 hours / 18 working days. Training hours include both practical and theoretical courses, not examination.

According to EN ISO 9712, for candidates who have graduated in a relevant subject from technical college or university, or have completed at least two years of relevant engineering or science study at college or university, the total required number of training hours may be reduced by up to 50% as 72 hours / 10 working days.

COURSE FEE

The certification programme costs 3150 USD/person. This fee includes the costs of the course documents, examination and certificates. The lunches and coffea/tea will be sponsored by the local partner institution/company.

NON-DESTRUCTIVE TESTING PROGRAMME

MODULE 5 – RADIOGRAPHIC TESTING

LEVEL 1+2

INTRODUCTION

Radiography is one of the most widely used and time proven NDT Method to test engineering components to find internal flaws in Castings, Weld Joints and Structures. The method is much suitable for finding volumetric discontinuities and also used to inspect materials for hidden flaws by using the capability of short wavelength electromagnetic radiation, x-rays and gamma radiation, to penetrate various materials.

OUTLINE OF LESSONS

1. Introduction to Terminology and History of NDT
2. Introduction to Materials
3. Physical Principles of Radiographic Testing
4. Radiographic Test Equipments & Films
5. Calculation of Exposure Time
6. Application of Radiographic Testing
7. Interpretation and Evaluation of Indications
8. Preparation of Test Report
9. Test Procedures and Related Standarts
10. Safety, Health and Disposal

DURATION

The minimum duration of training undertaken by the candidate for certification is 152 hours / 19 working days. Training hours include both practical and theoretical courses, not examination.

According to EN ISO 9712, for candidates who have graduated in a relevant subject from technical college or university, or have completed at least two years of relevant engineering or science study at college or university, the total required number of training hours may be reduced by up to 50% as 76 hours / 10 working days.

COURSE FEE

The certification programme costs 3150 USD/person. This fee includes the costs of the course documents, examination and certificates. The lunches and coffea/tea will be sponsored by the local partner institution/company.





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