Offers

SHORT TERM COURSES

For

QA/ QC ENGINEERS / INSPECTORS

Suitable for Mechanical Engineers

Free Seminar on QA/QC and NDT

In every Month

NDT Training and Certification

Internship in NDT

QA/ QC Orientation Course

METALSCAN INSPECTION SERVICES

Metalscan Inspection Services, Tower B, 5th Floor, Mather Square, Town Railway Station Road, Kochin-682018, Kerala,
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E-mail: info@metalscan-kerala.com, metalscan_kerala@yahoo.co.in Web: http://www.metalscan-kerala.com
INTRODUCTION

METALSCAN INSPECTION SERVICES is an ISO certified organization which has registered under small scale industries act and established in 1998 at Chennai and is a corporate partner of American Society for Nondestructive Testing (ASNT). Metalscan Inspection Services exists as a Servicing, Consulting, Vendor Inspection, Training and Certifying organization in the field of Non-Destructive Testing. Metalscan Inspection Services is working under the leadership of multi-talented consultant who is qualified to ASNT Level III, NAS 410 Level III, Radiation Safety Officer (RSO) from BARC India and EN 473 / 4179.

Since its inception, METALSCAN INSPECTION SERVICES has provided quality services to its clients with a basic policy as “HIGHEST QUALITY SERVICES IN COMPETITIVE PRICE TO MEET THE SCHEDULE OF CUSTOMERS”

Metalscan Inspection Services team is lead by an NDT professional, who is
- 28 years experienced in India and abroad.
- Experienced as Technical Manager in a Multinational Inspection Company abroad.
- Experienced as a QA/QC Engineer in an ISO 9002 certified aerospace engineering company
- Certified RSO by BARC / AERB (One year Post-Graduate Diploma Course)
- Certified ASNT NDT Level III in RT, UT, MT, PT & VT
- Certified ACCP NDT Level III in RT, UT & MT
- Certified Aerospace Standard NAS410 Level-III in RT,UT,MT,PT & ET
- NADCAP NDT Consultant

We have our offices at Chennai, Tamil Nadu and Kochin, Kerala. NDT service division operates from our base in Chennai. This facility is approved by BARC / AERB (Bhabha Atomic Research Centre) for the use of X-ray equipment and Gamma ray equipment for radiographic testing. In addition to that our laboratory has NADCAP approval to conduct inspection of Aeronautical Component.

In Kerala, Metalscan Inspection Services focused in NDT training for QA/QC Engineers as an NDT Institute. Metalscan Inspections Services extend our support to fresh Mechanical, Automobile and Aerospace Engineers to develop their carrier. Our institute conducts training on various NDT methods which include Ultrasonic Testing, Radiographic Testing, Magnetic Particle Testing, Penetrant Testing, Visual Testing, Eddy Current Testing etc. We offer ASNT (American Society for Non-destructive Testing) Level I and Level II, NAS 410 (National Aerospace Standard), EN 473 (European National Standard) training and certification for candidates to meet your specific requirements.
In Kerala, Metalscan Inspection Services serves as a training institute for Quality Assurance and Quality Control professionals.

### Our Vision
Since long time, Kerala is one of the well known manpower resources for India as well as for the world especially in technical and industrial sectors. Availability of highly qualified, skilled and experienced professionals willing to work anywhere in the world earned this fame for us.

Now a day, fresh technical graduates require specialization and on-job experience to get better placement. Engineering works are also in the same track. Quality Control Department has a key role in engineering companies and NDT is an integral part of it. Unfortunately Engineers from Kerala have to depend industries in other states to develop their carrier in this sector because of inadequate opportunities in Kerala based Industries. We support candidates to overcome this limitation.

### Values
- Quality of product / component / construction ensures durability of the item and safety for the operators
- Trained professionals are well placed with attractive salary

### Our Mission
To offer our best service to various organizations involved in Mechanical Engineering, Aeronautical Engineering, Automobile Engineering and Production Engineering activities…

**By Services:** we conduct various NDT inspection services in accordance with relevant standards

**By Consultancy:** We assist organizations to establish quality assurance program through consultancy

**By training:** Our training makes job seekers as well as existing professionals competent for the post in Quality Control Department.

**By Internship:** Fresh engineers are supported with on job training. Engineering students are also supported with short term internship and assistance to submission of project report towards end of course.

### Goals
To provide quality services to our clients with basic policy as “Highest quality services in competitive price to meet the schedule of customers” and ensure our distinguished position in the service industry.

### Training Division in Kerala

#### Quality Assurance and Quality Control - Introduction
Quality Assurance and Quality Control is applicable in construction, production and servicing industries. Civil, Electrical, Electronics, Mechanical, Instrumentation, production, automobile and even other engineering branches also has QA/QC programs according to their requirement. Usually qualified and well experienced persons are working in quality control department of engineering companies.

As in the case of many other professional segments, specialization courses became essential for placement in QA/QC department. Accordingly we conduct specialization courses for QA/QC Engineers.

Usually fresh mechanical engineers do not have clear idea about the specialization courses and certifications necessary to get placement in QA/QC department of industrial construction companies. This condition became worse when candidates approach certain institutes, because they offer variety of certificates which may or may not be required for QA/QC Engineer. Hence this has to be clear at first.

Usually QA/QC Engineers working in construction projects have to do following activities at site.

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Specialization and Certification

Most of the above mentioned activities are performed by experienced engineers. However some segments require specialization courses and certification to perform that task. The image attached is a classified advertisement for selection of QA/QC Engineers by an engineering company. It clearly indicates the requirement of experience and additional qualifications for placement which are:

- Certification in Non Destructive Testing (NDT) : ASNT / PCN Level-II in RT, UT, MT and PT
- Certified Welding Inspector : AWS-CWI or CSWIP
- Coating Inspector : BGAS or NACE

Note: Courses of American Petroleum Institute (API) are also considered.

Candidates should note certain facts about qualification:

- The above certifications are either from USA or UK. Please understand, what is the reason behind this? Usually industrial construction (Oilfield Industries, refinery, power plant, petrochemical etc.) follows standards/ codes/ specifications for its quality and safety. Well established and recognized standards are from either of these countries (ASME, API, AWS, ANSI, BS etc.) and are mostly used in every regions of the world. Accordingly, qualifications should meet requirements of standards. This is to confirm that certificate holder is capable to follow standards at work.

- Usually American Standards has general usage of procedures specified in below standards in project activities:
  - NDT has to be performed in accordance with ASME Sec V
  - Welding Related Activities in Accordance with ASME Sec IX
  - Coating Activities in accordance with standards of SSPC

So engineers working with industrial construction should be familiar with procedures specified in above standards. Accordingly training and certification in these segments are important for QA/QC engineers. Other segments of Quality Control activities are usually done by experienced engineers.
Refrain from Non-Standard Certification

It is clear from the above explanations that certificates issued by other countries, organizations and institutions may not be considered for the post. There are several institutions which issues invalid certificates coupled with NDT certificate. Some prolonged courses are claimed as diploma too. In fact they charge a considerable amount as fee for these course and issues useless certificates. Few of the coupled certificates are:

- **Piping Certificate**: Process piping is part of industrial construction work which used to connect equipments within the plant for the flow of chemicals. This has to be done as per the drawings for the plant which is usually provided by the designer. Please note that drawings are done in accordance with the standards like ASME B 31.1, ASME B 31.3 etc. Familiarization of piping components (straight pipe, elbows, valves, Tee, reducers etc.) is required. Cutting of straight pipe pipes into segments, edge / bevel preparation as per WPS, fit up as per drawing and welding are the activities in piping. Quality control of the piping work is mainly the responsibility QA/QC engineers with relevant qualification. American Petroleum Institute (API) has introduced certification in segment. Hence a non-standard certificate is not useful in this sector.

- **Six Sigma Certificate**: Six sigma is a quality control method which follows statistical analysis of the defective products and components. Statistical assessment can be done with a sample size suitable for it and mostly used in production and service industry, but not in industrial construction where standards are followed for quality. This method was originally introduced by Motorola Company and improved by General Engineering Company. There is no specific certification body for this. Many consulting organizations conduct training and certification in this sector. Hence this certification is not necessary for QA/QC Engineers in construction industry which follows standards (ASME, API, AWS, ANSI, BS etc.) for quality.

- **Certificate named after “Quality”**: There are several X, Y, Z certificates named after “Quality Control” by different institution. A colorful certificate will be issued to the candidate at the end of course, which is designed as their own. The syllabus for training is also decided by that institution. Usually this syllabus may introduce some sectors of quality control. The amount charged for these courses and certificates are relatively high. Certificates will not be recognized by US or UK standards.

**Free Seminars**

In order to introduce scope of Quality Assurance, Quality Control and NDT to fresh engineers and Engineering students, we conduct a totally free half-day seminar on first Mondays of every month at 10 a.m. Topics covered are:

- Quality Assurance and Quality Control
- Application of NDT in QA/QC Activities
- Relevant courses for QA/QC
- Job Opportunities

Mechanical, Aeronautical, Automobile and Production engineering students may attend this seminar. Interested candidates are requested to contact us for booking. Please note that a maximum of 25 candidates will be entertained on every week.

In addition to monthly seminar at our premises we arrange free seminars and demonstrations at premises of Engineering Colleges and Poly Techniques in Kerala on request.
TRAINING AND CERTIFICATION PROGRAMME

Metalscan Inspection Services offers constructive courses at reasonable rates for the candidates and issues valid certificates. Engineers and Engineering students of below stream are beneficiaries of our training program:

- Mechanical Engineers
- Aeronautical Engineers
- Production Engineers
- Automobile Engineers
- 10th Pass – NDT Technician

**NDT Training and Certification:** NDT is a specialized branch of engineering science which uses noninvasive techniques to determine the integrity of a material, component or structure without impairing its usefulness and is an integral part of Quality Assurance and Quality Control. It confirms quality of materials such as structural beams, pipes, plates, valves, nozzles etc. used in construction of industrial equipments. It also confirms quality of fabrication and joining process where testing of welds is of major importance. General procedure for NDT has given in ASME Section V and engineers have to follow these procedures for each NDT methods. Hence NDT training and certification is a must for QA/QC Engineers.

We conduct NDT certification as per the requirements of ASNT - SNT TC 1A 2006 and other standards.

**Internship and Project Reporting in NDT (For Engineering Students):** Since Metalscan Inspection Services is a servicing company we offer opportunity for engineering students to complete industrial internship with us and we assist them in development of project report which is a requirement towards end of engineering course.

Internship in NDT will be highly supportive to engineering students looking forward to develop career as QA/QC Engineer. Principles, procedures and testing techniques of basic NDT methods are explained to candidates during this period. NDT certification will be an added advantage for engineering students who undergo internship with us.

Aeronautical Students from Vinayaka Missions University has already successfully completed their internship and project activities with us for the academic year 2012-2013.

Please contact us for more details in this regard.

**QA/QC Orientation Program (Fresh Engineers):** As mentioned earlier in this document that QA/QC Engineers have to do different activities quality control department. The major activities such as Welding Inspection, Non-Destructive Testing and Coating Inspection require specialization and valid certificate. Remaining sectors of quality control work are done by experienced engineers. Hence it will be ideal for a fresh engineer to have a basic understanding of construction projects and quality control work involved in project. This orientation course will be highly supportive to fresh engineers looking for entry to industrial construction.

Please note that this orientation course is not for the purpose of certification. Please see course content in the following pages. Syllabus and other details of course are given in the following pages.
Importance of NDT certification

As you may know, engineering companies where you are looking for placement are involved in construction and maintenance of industrial projects such as Oil Field Projects (RIG & GOSP), Refineries, Petrochemical Plants, Pipelines, Ship Building, Aircraft, Bridges, Power Plants, Nuclear Projects, Cement Plants, chemical plants, fertilizers etc. Usually these constructions are done in accordance with International Quality Standards such as ASME, API, ANSI, AWS, BS, JIS, BS, EN etc. Hence QA/QC engineers should meet qualifications recommended in these standards so that he will be able to follow these standards during work. ASNT Level II is considered as minimum qualification to perform NDT activities in the project.

Design Engineer requires Expertise in CAD

Production engineer requires Expertise in CNC

Similarly

QA / QC Engineer requires Expertise in NDT

In American standards general procedure of Non Destructive Testing has explained in ASME Sec V and QA/QC Engineers have to follow this standard at work site.

Radiographic Testing: ASME Sec V Article 2

Ultrasonic Testing: ASME Sec V Article 4 or 5

Penetrant testing: ASME Sec V Article 6

Magnetic Particle Testing: ASME Sec V Article 7

Hence engineers need training and certification in basic NDT methods (RT, UT, MT and PT) to get placement as QA/QC Engineer. Hence, qualified engineers with ASNT Level II certification will have great opportunity to work in QA/QC department of engineering companies with attractive salary. Job opportunities are not only limited in India and gulf but also in any part of the world.

NDT Responsibilities of QC Engineer in Project

- Coordination of NDT activities in the project: QC Engineer is the person responsible to control NDT in the project. Normally NDT is performed by technicians of NDT subcontractor and they are working as per the direction of project QC.

- Hence QC would require to prepare NDT request, (selection of components for NDT as per applicable standard), selection of suitable NDT method, arrange radiography work permit, locate and identify joints for NDT, arrange for lighting and scaffolding etc.

- Witness NDT: QC Engineer has responsibility to witness ultrasonic testing, penetrant testing, magnetic particle testing etc. at job site while technician performs NDT.

- Radiographic Test Film Interpretation: In the case of radiographic testing QC is responsible to interpret (RTFI) radiography film.

- Review of NDT Reports: QC Engineer is responsible to review NDT reports prepared by NDT technician.

- Documentation: QC Engineer is responsible to maintain test results of NDT in the project.
NDT training in Metalscan Inspection Services will give a different feeling to candidates because of high standard of training systems. Our faculties are highly qualified and well experienced in India as well as abroad. Our faculties are conversant with quality standards such as ASME, API, AWS, ANSI, British Standards etc.

**Radiographic Testing (RT)**
- Radiographic testing uses highly penetrating invisible electromagnetic radiations (X-ray or γ-ray) for testing. Please note that over exposure to these radiations to our body is harmful hence usage of these radiation sources in India is regulated by Bhabha Atomic Research Centre (BARC). Properly trained and licensed professionals are allowed to operate these sources in approved facilities.
  - Laboratory at our Chennai facility is approved by BARC. X-ray and Gamma ray equipment are available with us.
  - Safety classes for ASNT level II are handled by BARC certified Radiation Safety Officer (RSO) and Site-in-Charge.
- Similarly KACST (King Abdul-Aziz City for Science and Technology) is the regulatory authority in Kingdom of Saudi Arabia (KSA). Our faculties are RSO qualified from KACST, Saudi Arabia. RT work in Saudi ARAMCO, SABIC, SWCC etc. follows regulations of KACST.
- Radiographic Test Film Interpretation (RTFI) is another important segment in RT training. Accuracy of film interpretation is matter of knowledge and experience. A film interpreter should have sound knowledge about welding and casting process to interpret defects in it. RTFI training in Metalscan is very effective since training on welding defects will be handled by qualified welding inspector (AWS-CWI) and Interpretation will be guided by Saudi Aramco certified RTFI.
- Being a servicing company we keep 100s of radiographs with defect for interpretation practice.

**Ultrasonic Testing (UT)**
Ultrasonic testing uses ultrasound waves (greater than 20,000 Hz) to check integrity of materials. Sound waves are transmitted into the material and reflections are analyzed to detect defects. Accuracy of ultrasonic testing is purely skill of technician acquired through knowledge and experience. Practical of Ultrasonic testing is directly under the supervision of well experienced faculty which includes:
  - Thickness / Dimension measurement
  - Lamination Checking
  - Corrosion Scanning
  - Weld Scanning & Defect Identification
- NB: We keep digital and analogue UT equipment for training.

**Magnetic Particle Testing (MT)**
Magnetic Particle Testing applies magnetic flux into the ferromagnetic material being tested and indications are observed after application of magnetic powder. Surface and sub-surface defects can be identified using this method. There are different types of magnetic particle testing equipment and we provide training on below equipment:
  - DC and AC Electromagnet (Yoke)
  - Prodes
  - Bench Type Equipment
- NB: Both visible and fluorescent testing facility is available.

**Liquid Penetrant Testing (PT):**
Liquid Penetrant Testing applies principle of capillarity for detection of surface breaking defects.
- NB: Both visible and fluorescent testing facility is available.
# NDT Training and Certification

NDT has to be practiced so that tests can be conducted, witnessed or reviewed by the certificate holder as a QA/QC Engineer. Candidates trained by Metalscan NDT Institute will be conversant with NDT methods because we provide class room training as well as on-job training opportunity at our work sites in Chennai with latest equipments.

## Training

Metalscan NDT institute conducts training and certification on various NDT methods. Detailed theoretical lectures are taken by industry experts.

- Ultrasonic Testing
- Radiographic Testing
- Magnetic Particle Testing
- Penetrant Testing
- Radiographic Test Film Interpretation (RTFI)
- Visual Testing
- Eddy Current Testing

## Faculties

Our faculties are highly qualified and well experienced (India and Abroad).

- ASNT Level III
- NAS 410 Level III
- BARC certified Radiation Safety Officer (RSO)
- BARC certified Site-in-Charge
- AWS CWI – Welding Inspector
- RSO Saudi Arabia (KACST Certified)
- Saudi Aramco Certified RTFI

Faculties are conversant with ASME, API, AWS, ANSI, BS, EN, NAS standards which are most commonly used construction standards for power plants, oil field industries, pipelines, refineries, water treatment plants, chemical plants, Aeronautical Engineering etc.

## Practical Facility

We keep latest equipment for practical.

- UT equipment – Digital and Analogue
- MPI Yoke, Prods, bench type
- Penetrant Testing Chemicals
- 100s of films for RTFI practice
- Defective Test Plates and Pipes

Practical sessions are in detail under immediate supervision of experienced faculties. For example ultrasonic testing practical includes thickness / dimensional measurement, corrosion scanning, lamination checking, weld scanning etc.

## Schedule

Please contact us for upcoming schedule. Usually schedules are available in website.

## Fee

Please contact us for latest fee structure for relevant certification. In the case group joining we offer fees reduction from normal fee structure.

## Placement

Being a servicing company, Metalscan Inspection Services absorbs many candidates as our employee at our head office at Chennai. Remaining candidates shall be provided with placement assistance.

## On Job Training

Candidate trained at Metalscan Institute has opportunity for on-job training in NDT at our head office in Chennai with latest equipment. Please find equipment listing provided towards this document.

## Job Opportunity

Usually candidates have placement opportunities in engineering companies and NDT servicing companies.

- QA/QC Engineer
- QA/QC Inspector
- Materials Engineers
- Purchase Engineer
- QA/QC Supervisor
- NDT Technician (10 Pass Minimum)

## Hostel

Third party hostel facilities shall be arranged for candidates.

## Renewal / Recertification

NDT personnel are recertified (certificate renewal) by us on reasonable rates based on continuous satisfactory performance in the respective method.
In addition to training on Non Destructive Testing, Metalscan Inspection Services is happy to impart more knowledge to fresh engineers through below specified orientation courses which will enable them to understand project work. Usually engineers gain most of this knowledge from work experience, however these courses will be supportive to fresh engineers looking for entry to industrial construction. Please note that there are recognized courses in some of the below sectors and our courses are not for the purpose of certification.

### QA/QC ORIENTATION COURSES

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<th>Fundamentals of Quality Control</th>
<th>Welding Engineering</th>
<th>Piping Engineering:</th>
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<tr>
<td>A Codes and Standard can be defined as a set of technical definitions and guidelines that function as instructions for designers, manufacturers, operators, or users of equipment. Fabrications of tank, pressure vessel, heat exchanger, reactors, piping, pipeline etc. for industrial projects are done strictly in accordance with standards. Hence QA/QC engineers should be familiar with the relevant codes and standards. Accordingly we have defined this course which will be a great support to fresh engineers looking forward develop carrier as QA/QC Engineer or QA/QC Inspector.</td>
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<td>This syllabus is designed in such a way that it will give a clear idea about Inspection and Test Plan (ITP) for the project. Moreover it explains below duties and responsibilities of a QC engineer.</td>
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<td>- Pre-Inspection Meeting</td>
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<td>- Review of Drawings</td>
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<td>- Review of Procedures &amp; Operator Qualification for Welding and NDT</td>
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<td>- Fit up inspection of spools</td>
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<td>- Monitoring of Welds</td>
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<td>- Coating Inspection</td>
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<td>Welding is the joining process used in the fabrication of steel components such as pipes, plates, structural, valves, tanks, pressure vessel etc. In American Standards welding should be done in accordance with ASME Sec IX. QA/QC Engineers must have a solid knowledge about various welding process. Accordingly this course will be highly supportive for candidates. Syllabus of the course is as follows.</td>
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<td>- Welding Metallurgy</td>
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<td>- Welding processes</td>
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<td>- Welding Consumables Type of Joints</td>
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<td>- Welding positions</td>
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<td>- Welding Procedure &amp; Welder qualification (PQR , WPS , WPQ)</td>
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<td>- Welding Symbol</td>
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<td>- PWHT</td>
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<td>- Welding Defects (Causes &amp; Remedies)</td>
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<td>- Welding Documentation</td>
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<td>Process piping interconnected various instruments in the projects and intended for the flow chemicals through it. Piping system uses different types of pipe fittings such as valves, tees, flanges, reducers, elbows, gaskets etc. in its fabrication. Hence engineers should be familiar with those fittings and its quality control.</td>
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<tr>
<td>- Introduction to Piping design (ASME B31.1/B31.3)</td>
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<td>- Classification of straight pipes</td>
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<td>- Classification of Pipe Fittings</td>
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Course is designed as a preparatory class for candidates who wish to attend approved welding inspector courses AWS - CWI or CSWIP.

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E-mail: info@metalscan-kerala.com, metalscan_kerala@yahoo.co.in Web: http://www.metalscan-kerala.com
Job Opportunities

Engineers qualified as QA/QC engineers / inspectors with relevant certification and experience are placed in engineering companies with attractive salary. Well experienced QA/QC engineers have better opportunity with Third Party Inspection companies and Vendor Inspection Companies as well. Industries of interest are as follows:

- RIG
- Gas Oil Separation Plant (GOSP)
- Pipelines (oil, gas, water etc.)
- Refinery
- Aeronautical Companies
- Petrochemical Plants
- Offshore Platforms
- Water treatment plants
- Nuclear Plants
- Automobile Companies
- Power plant construction
- Ship building
- Heat Exchangers
- Storage Tanks
- Pressure Vessels
- Process Piping
- Storage Tanks
- Water Treatment Plants
- Steel Plants
- Fertilizers
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<th>Penetrant Testing:</th>
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<td>Principle of magnetic Particle Testing</td>
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<td>Magnetic Field</td>
<td>Methods of Pre-cleaning</td>
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<td>Permanent magnets and electromagnets</td>
<td>Properties of penetrant</td>
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<td>Hysteresis Loop</td>
<td>Types of penetrant</td>
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<td>Circular and longitudinal magnetization</td>
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<td>Principle of magnetic Particle Testing</td>
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### Syllabus for NDT Training

#### Radiographic Testing:

- Introduction
- Structure of Atom
- Production of X-ray and Gamma Ray
- Radiation Safety and work permit system
- Interaction of radiation with matter
- Radiation detection and measurement
- Biological Effects of Radiation
- Regulations on use of radiography sources
- Elements of industrial radiography  
  - Geometrical principles in image quality
  - Selection of radiation source
  - Control of scattered radiation
  - Use of Image quality Indicators
  - Selection of radiography films
  - Film Processing

- Radiographic Techniques
  - Plate Radiography
  - Structure Radiography
  - Pipe Radiography
  - Pipeline Radiography
  - Radiography of castings
  - Radiography of tanks and vessels
  - Calculation of exposure time

- Special Radiographic Techniques
- Codes, standards and specification
- Radiographic Test Film Interpretation
  - Welding
  - Castings
- Preparation of test reports

#### Ultrasonic Testing:

- Introduction
- Theory on Sound  
  - Wave theory
  - Types of sound waves
  - Velocity of sound in material
  - Amplitude of sound
  - Modes of sound waves
  - Reflection
  - Transmission
  - Refraction
  - Diffraction
  - Absorption
  - Scattering
  - Attenuation
  - Mode conversion

- Familiarization of common ultrasonic equipments
- Familiarization of ultrasonic testing probes
- Familiarization of Calibration Standards

- Training on A Scan Equipment
  - What is A scan display?
  - Production of ultrasound
  - Types of probes
  - Features of probes
  - Profile of sound (Near field, far field and Dead Zone)
  - Selection of probe diameter
  - Selection of probe frequency
  - Sensitivity

- Practical:
  - Calibration of equipment
  - Setting up of test sensitivity
  - Thickness / dimensional measurement
  - Corrosion Scan
  - Lamination Check
  - Weld Scan on plate and pipe
  - Defect Identification
  - Defect Sizing

- Codes, standards and specification
- Evaluation of Defects
- Preparation of test reports
## LIST OF EQUIPMENT

<table>
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<tr>
<th>Sl. No.</th>
<th>DESCRIPTION</th>
<th>Qty.</th>
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<td>1.</td>
<td>Remote Operated Radiography Camera (Iridium-192)</td>
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<td>2.</td>
<td>X-Ray Machine (200 KV, 10mA, 1.5mmX1.5mm Focal Spot)</td>
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<tr>
<td>3.</td>
<td><strong>Ultrasonic Flaw Detector</strong>&lt;br&gt;Electronic Engineering Corporation Make EEC&lt;br&gt;Modsonic Einstein II&lt;br&gt;Krautkramer, Model USM-35</td>
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<td>4.</td>
<td><strong>Ultrasonic Thickness Meter</strong>&lt;br&gt;Modsonic, Model: Edision-1P, Resolution:0.01mm&lt;br&gt;Krautkramer, DM3&lt;br&gt;Stresstel T Mike</td>
<td>2</td>
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<tr>
<td>5.</td>
<td><strong>Magnetic Particle Testing Equipment</strong>&lt;br&gt;Horizontal Magnetic Unit, Three Phase, FWDC, 3500 Amperes&lt;br&gt;AC/DC Prod Type Equipment, 2000 Amperes&lt;br&gt;AC/HWDC Magnetic Yoke</td>
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<tr>
<td>6.</td>
<td><strong>Fluorescent Penetrant Inspection system</strong>&lt;br&gt;Type I, Method A - Water Washable System (S2 &amp; S3)&lt;br&gt;Type I, Method D – Post Emulsifiable System (S2 &amp; S3)</td>
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<td>7.</td>
<td>Black Light Unit</td>
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<td>8.</td>
<td>UV/LUX Meters</td>
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</tr>
<tr>
<td>9.</td>
<td>Portable Hardness Tester</td>
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<td>Eddy Current Material Sorting Equipment</td>
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