



**KEEPSAKE WELDING RESEARCH AND
SKILL DEVELOPMENT CENTRE**



Mission

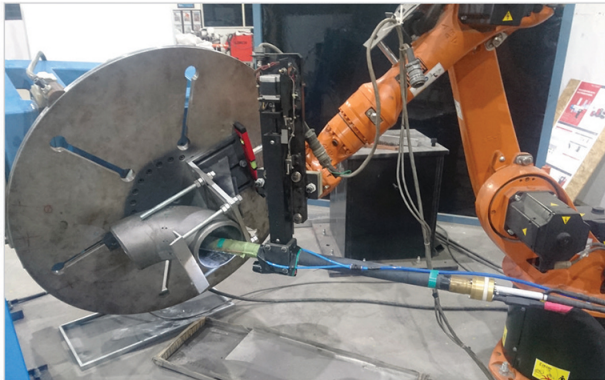
“A Global institution for developing and enhancing knowledge of individuals and organisations with emphasis on training, research, safety and skill upgradation. Our field of focus would be specific to welding both manually and automated.

The goal is to fulfil the industrial requirements of a skilled individual starting from work force to managerial level. We would also be engaging for guiding the industry in defining and developing the process as per their requirements. In house research projects in combination with students and industry would be carried out in parallel.”

Introduction

A high-tech training centre in the field of welding with capital outlay of about 00.321 lakhs in the name of “**Keepsake Welding Research And Skill Development Centre**- Centre of Excellence Welding” has been set up jointly by **Keepsake Engineering Consultancy Private Limited** (Keepsake- Industry Partner), Centre for Entrepreneurship **Development (CED) & Gujarat Technological University (GTU) at LD College of Engineering**, Ahmedabad under the Skill Development Program of Government of Gujarat with an aim to upgrade skill of students and industry persons and to make them employable. L D College of Engineering is a host institute. The knowledge centre is equipped with facilities to make education fun & informative.

The Centre is a brainchild of **Mr. Ragesh N Bateriwala**, a 1983 Alumni of LD College of Engineering, and Managing Director of Keepsake Engineering Consultancy Private Limited.



Facilities

The centre is equipped with latest communication aids, air-conditioned lecture hall and workshop with modern facilities for classroom & actual hands-on-training in Welding & Non-Destructive Testing (NDT).

The Centre has Manual, Semiautomatic and Automatic Welding equipment's including eight axis articulated arm robot with positioner to operate Plasma transferred arc pulsed 350-amp power source, TIG, MMA & MIG coupled to data loggers for real time weld monitoring. The Centre has low cost accurate manipulators for improved productivity and all position welding capability.

The Centre has purchased “Augmented Welding Simulator” from Soldamatic Spain by which participants can have a feel of virtual welding practice and learn about influence of parameters in actual condition.

Workshop is equipped with Welding Equipment's for hands-on training for SMAW, GTAW, GMAW, and PAW.

- 2-Axis Rotator
- Lorch V50 DC TIG
- Lorch MicorMIG 350
- Lorch MicorMIG 400
- Lorch S5RoboMIG XT
- Lorch HWT 220DC Control-Pro
- Kuka Robot (6 & 9 Axis)
- Welding Simulator (Virtual Welding)
- Real time welding data logger for monitoring welding parameters like Ampere, Voltage and wire feed speed & gas.

Faculty

In-house lecturers and hand-on experts from Keepsake having long industry experience in welding, leading industry consultants and renowned lecturers from the LD college of Engineering to suit industry needs. For NDT we have LEVEL 3 qualified AWS inspector with more than 30 years practical experience.

Other Information

- Courses are designed as per suitability of industry.
- On-site training facility is available.
- Study Material is provided in soft copy.
- Certificate of attendance duly signed by LDCE and Keepsake is given.
- On line test is conducted for self-assessment.
- On line feedback is obtained for further improvement.
- The facilities are made available to students for undertaking their projects at UG as well as PG level.



Curriculum

The course packages have been adopted to ensure high standards of education and training from both theory & practical point of view so that qualifying candidates can seek the best opportunities not only in the country but even abroad. Welding is both an art and science, Education enhances both skills. Science of how much heat, Art where to focus the heat.

Several specific courses are offered targeting personnel at various levels: students, welders, technicians, supervisors, inspectors, engineers and managers. While every course fulfils the broad need to enhance knowledge and provide updates in Welding Technology and Non-Destructive Testing.

While skills enhancement is the focus of our course for welders, students, engineers and supervisors to gain hands-on-insight into the latest developments in welding and NDT. During the 4 years at college, students can obtain additional qualification & improve their competitiveness.



Course Content

1 WELDING SKILL TRAINING

- Welding Programs
- Course Description
- Equipment List

2 TECHNICAL TRAINING

- Technical Course Descriptions
- Technical Course Schedule
- Non-Destructive Testing (NDT) Certification/Qualification

3 CORPORATE SERVICES

- In-plant And Specialized Training
- Welding & NDT Solutions

Foundation Course in Welding Technology

- Welding means fusion. Perfect fusion is a requirement while depth of penetration is design.
- Welding is both an art and science where, Art = where to focus the energy to achieve perfect fusion Science=Optimizing Penetration

Objectives:

- Welding is multidisciplinary requiring knowledge of mechanical, metallurgy, electric, electronic to name a few.
- At this training institute we provide theory & hands-on training. We have Augmented Reality Simulator and data time loggers for real time performance feedback.
- Thus, familiarization with various aspects of welding fabrication technology including Welding Design, Development, Planning, Production, Inspection, Quality Assurance. Understanding the key welding concepts to design and produce quality welds, reliably and economically.

Suitable For:

- Production, Planning And QA/QC Engineers

Course Content:

- A. Introduction to Welding, Principles of Welding& Significance of Heat Input
- B. Safety Precautions
- C. Introduction& Selection of Welding Processes (SMAW,GTAW,GMAW,PAW,SAW)
- D. Types, Size and Condition of Welding Consumables, it's carei n handling
- E. Welding Joint Design and Welding Symbols
- F. Welding Positions (Plates & Pipes)
- G. Fundamentals of Welding Metallurgy
- H. Pre& Post Weld Heat Treatment, Significance Of Heat Input
- I. Distortion (Cause, Prevention and Reduction)
- J. Purpose of WPS & PQR
- K. Destructive Testing Techniques
- L. Types of Weld Defects
- M. Non- Destructive Testing Techniques
- N. • Hands-On Training every day after theory session
 - Demonstration of Welding Processes (SMAW, GTAW, GMAW, PAW)&Performance on Welding Simulator for Steel, Stainless Steel and Aluminium.

Course Duration:

10 Days

Number of Seats per Batch:

20-30

Gas Shielded Tungsten Arc Welding (GTAW)

Objectives:

- Advancements in engineering materials and fabrication technology have increased the demand for welds with exacting quality requirements can be best met by adopting conventional/pulsed TIG welding.
- Stringent quality requirements associated with this process necessitates that the welders must possess sufficient skill and imbibe systematic and disciplined work methods.
- This course is carefully designed to offer the necessary theoretical and practical exposure to conventional and pulsed TIG welding. The lessons are planned in a methodical, step-by-step approach to enable a practising arc and gas welder to easily acquire the skills and work methods essential for TIG welding.

Suitable For:

- Candidate interested in a career as welders.

Gas Shielded Metal Arc Welding (GMAW)

Objectives:

- Many mild steels sheet metal and heavy section fabricators are switching over to CO2 welding process for better quality, productivity and economy.
- Proper training of welders is a critical factor for successful switchover/ application of CO2 welding process. This course will enable any arc welder to acquire the basic skills/ practice of CO2 welding process.
- This course is carefully designed to offer the necessary theoretical and practical exposure to CO2welding process. The lessons are planned in a methodical, step-by-step approach to enable the participant to easily graduate to a confident CO2 welder.

Suitable For:

- Candidate interested in a career as welders.

Shielded Metal Arc Welding (SMAW)

Objectives:

- This course will enable the young entrants to the welding trade to acquire the basic skills/practice of Shielded Metal Arc Welding.
- This course is carefully designed to offer the necessary theoretical and practical exposure to Shielded Metal Arc Welding process. The lessons are planned in a methodical, step-by-step approach to enable the participants to easily graduate from beginner level to a confident arc welder.

Suitable For:

- Candidate interested in a career as welders.

Course Content:

- A. Familiarization with TIG process
- B. Equipment and Accessories
- C. Safety Precautions
- D. Metals that can be weld
- E. Selection of Tungsten electrodes and shielding gases
- F. Handling of Equipment
- G. Welding Techniques
- H. Selection of Filler Metals and their care
- I. Process related defects and remedies
- J. Advantages of Pulsed TIG welding
- K. Applications and Limitations

Course Duration:

3 Days

Number of Seats per Batch:

10

Course Content:

- A. Familiarization with GMAW process
- B. Equipment and Accessories
- C. Safety Precautions
- D. Welding Variables
- E. Different modes of metal transfer
- F. Selection of Welding consumables
- G. Process related defects and remedies
- H. Applications and Limitations

Course Duration:

3 Days

Number of Seats per Batch:

10

Course Content:

- A. Introduction and Principle Of SMAW
- B. Welding power sources
- C. Safety Precautions
- D. Welding electrodes and their selection
- E. Types of joints and their preparation
- F. Defects in welding - cause and remedies
- G. Welding Techniques
- H. Inspection and testing weldments
- I. Economics of welding

Course Duration:

3 Days

Number of Seats per Batch:

10

NDT Training & Certification Course - Liquid Penetrant Testing (LPT)

Objectives:

- This PT course is presented in a manner that promotes understanding and the ability to make immediate application.
- This is an excellent course for NDT trainees who want training in order to qualify for certification as well as facility personnel who are responsible for or oversee the application of Liquid Penetrant Testing.

Suitable For:

- Diploma / Degree Engineers in Mechanical / Metallurgy / Industrial / Fabrication.

Course Content:

- A. Basics of Penetrant Testing
- B. Penetrant groups
- C. Pre-cleaning methods, Penetrant testing and techniques

- D. Types of developers
- E. Selection of techniques
- F. Manufacturing Processes and Discontinuities
- G. Interpretation and Preservation of indications, Evaluation of test materials
- H. Penetrant materials quality control
- I.
 - Codes, standards and procedures
 - ASME BPVC Section V, Article 6 (Liquid Penetrant Examination) and Section VIII Div. 1(Acceptance Standard).
- J.
 - Hands-On Training
 - Visible(Red) and fluorescent Penetrant testing of various types of engineering components using dry, wet and solvent suspended developers plus Interpretation, Evaluation and Reporting as per Code requirements.

Course Duration:

3 Days

Number of Seats per Batch:

10

NDT Training & Certification Course - Radiography Testing (RT)

Objectives:

- This course is intended to provide thorough knowledge in the principle of RT and fundamentals of material and process to develop techniques and procedures for analysing the test results and document. Also, to provide familiarity to codes, standards and specifications to evaluate test results.

Suitable For:

- Diploma / Degree Engineers in Mechanical / Metallurgy / Industrial / Fabrication.

Course Content:

- A. Nuclear Physics - Interaction of Radiation with Matter
- B. Shielding, Radiation Detectors, Biological Effects
- C. Radiation Protection, Basic Rules and Techniques
- D. Sources of Radiation and their characteristics

- E. Exposure Techniques
- F. Film Radiography and Processing
- G. Radiographic Viewing, Image Quality and Artefacts
- H. Sensitivity & Definition, I.Q.I's, Other Accessories
- I. Types of Discontinuities
- J. Non-Conventional Radiography
- K. Acceptance Standards, Codes and Procedures
- L. Manufacturing processes and Discontinuities
- M. Interpretation of Radiographs
- N. Radiography Technique sheets and Report Formats
- O. ASME BPVC Section V, Article 2(Radiographic Examination) and Section VIII Div. 1(Acceptance Standard).
- P.
 - Hands-On Training
 - Film Interpretation, Evaluation, recording of test results of Radiography of Castings and welds using X-ray and Gamma ray.

Course Duration:

12 Days

Number of Seats per Batch:

10

Certification Course - Radiographic Film Interpretation

Objectives:

- Understand the basic principles of the radiographic inspection procedure, understand the radiographic film processing, procedures, recognize limitations in exposure quality and understand potential causes of processing artefacts.
- Assess radiographic quality and understand viewing condition requirements.
- Interpret radiographic codes and specifications and write reports based on code requirements.
- Understand origins of defects and locate and recognize radiographic images of defects with a high probability of detection.

Suitable For:

- Diploma / Degree Engineers in Mechanical / Metallurgy / Industrial / Fabrication.

Course Content:

- A. Review of the Radiographic Variables related to Film Interpretation
- B. Film
- C. Radiographic Viewing
- D. Radiographic Image Quality
- E. Exposure Techniques
- F. Discontinuities
- G. Radiographic Artefacts
- H. Codes, Procedures and Written Practices
- I. Radiographic Report Forms

Course Duration:

4 Days

Number of Seats per Batch:

10

NDT Training & Certification Course - Ultrasonic Testing (UT)

Objectives:

- This course is intended to provide thorough knowledge in the principles of UT and fundamentals of materials and processes such that the trainee would be able to identify suitability of UT for the material and inspection techniques, develop techniques and procedures, analyse the test results and document the same and are familiar with codes, standards and specifications

Suitable For:

- Diploma / Degree Engineers in Mechanical / Metallurgy / Industrial / Fabrication.

Course Content:

- A. Properties and Generation of Sound waves.
- B. Interaction of ultrasound with matter and boundaries.

NDT Training & Certification Course - Magnetic Particle Testing (MPT)

Objectives:

- This course is intended to provide detailed instruction in theory and practice such that the trainee shall be able to identify suitability of MT for material and inspection procedure.
- To develop inspection techniques and procedures that shall be followed and to analyse, interpret and evaluate the test results.

Suitable For:

- Diploma/Degree Engineers in Mechanical / Metallurgy / Industrial / Fabrication.

Course Content:

- A. Basics of Magnetism and Magnetization Techniques
- B. Inspection Mediums, Techniques and Indication Classification

Certification Course on KUKA Robot

Objectives:

- Advancements in technology have increased the demand for welds with exacting quality requirements can be best met by welding with the help of robot.
- Stringent quality requirements associated with this process necessitates that the programmer must possess sufficient skill and imbibe systematic and disciplined work methods.
- This course is carefully designed to offer the necessary theoretical and practical exposure to conventional welding processes. The lessons are planned in a methodical, step-by-step approach to enable a practicing robotic welding to easily acquire the skills and work methods essential for robot welding.

Suitable For:

- Candidate interested in a career as robotic programmers.

- C. Types of Probes
- D. Test Methods, Equipment's and Variables
- E. Principles of DGS/DAC Methods
- F. Acceptance Standards, Codes and Procedures
- G. Manufacturing Process and Discontinuities
- H.
 - Hands-On Training
 - Complete calibration of ultrasonic flaw detection equipment for various types of transducers, Discontinuity Detection, locating the flaw and Size Estimation Techniques and also Interpretation, Evaluation of Indications using DGS/DAC. Evaluation Methods and Echo dynamics, Beam Profile and Plotting

Course Duration:

12 Days

Number of Seats per Batch:

10

- C. Test Equipment's and Accessories
- D. Demagnetization
- E. Selection of Techniques
- F. Acceptance Standards, Codes and Procedures
- G. Manufacturing Process and Discontinuities
- H.
 - Hands-On Training
 - Techniques using dry, wet ordinary and wet fluorescent powders, Demagnetisation and Interpretation, Evaluation and Recording of Test Results

Course Duration:

4 Days

Number of Seats per Batch:

10

Course Content:

- A. Structure and Function of A KUKA Robot System
- B. Moving the Robot
- C. Starting Up Steps at The Robot
- D. Executing Robot Programs
- E. Working with Program Files
- F. Creating and Modifying Programmed Motions
- G. Programming Collision Detection
- H. Using Logic Functions in The Robot Program
- I. Using Technology Packages
- J. Working with Variables
- K. Variables and Declarations
- L. Successful Programming In KRL
- M. Using Program Execution Control Functions
- N. Hands-On Training

Course Duration:

To suit batch requirements Minimum 9-12 days

Number of Seats per Batch:

6



Promoted by

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Keepsake Engineering Consultancy Pvt Ltd



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