

Виртуальный практикум: Сварочные технологии: Fabrication and welding

Виртуальный практикум

Демо-версия

Структура курса

Identifying and Classifying Materials Used in Fabrication and Welding

Aims and Keywords

- Aims and Keywords: Identifying and Classifying Materials Used in Fabrication and Welding

i-ACT: Introduction to the Types of Materials Used for Fabrication and Welding

- Factors Relative to Material Selection
- Heat Treatment Processes and Procedures
- Common Materials Used in Fabrication and Welding
- Heat Treatment Processes and Procedures
- Common Materials Used in Fabrication and Welding

i-ACT: Metallic and Non-metallic Materials Used in Fabrication and Welding

- Crystalline Structure of Metals
- Metallic Materials Used in Fabrication and Welding
- Non-metallic Materials Used in Fabrication and Welding
- Metal Crystallisation Process
- Materials Used in Fabrication and Welding
- Metallic and Non-metallic Materials Used in Fabrication and Welding

i-ACT: Properties of Materials Used in Fabrication and Welding

- Elements, Mixtures and Compounds
- Materials and Their Properties
- Properties of Materials Used in Fabrication and Welding
- Material Properties
- Properties of Elements, Mixtures and Compounds

i-ACT: Types of Metal Profiles, Clad Metals and Plastic Coatings

- Different Types of Metal Profiles
- Different Types of Clad Metals and Plastic Coatings
- Metal Profiles, Clad Metals and Plastic Coatings
- Metal Profiles, Clad Metals and Plastic Coatings

Interpreting Welding Symbols and Applying Them to Welded Joints

Aims and Keywords

- Aims and Keywords: Interpreting Welding Symbols and Applying Them to Welded Joints

i-ACT: The Anatomy of a Weld

- Differentiating Between Welded Joints
- Welding Terms, Parts of a Weld, and Welding Techniques
- Common Weld Defects and How to Prevent Them
- Fundamentals of Welding

- Welding Terms, Parts of a Weld, and Welding Techniques
- Welding Terms, Parts of a Weld, and Welding Techniques

i-ACT: Types of Thermal Joining and Measuring Welds

- Welding
- Devices Used to Measure Welds
- Using Weld Measuring Devices
- Methods of Welding
- Distinguishing Between Brazing, Soldering and Welding
- Thermal Joining Techniques

i-ACT: Symbols and Codes Used in Welding

- Reading Welding Symbols
- Welding Symbols
- Codes Used for Pipe Welding Positions
- Codes Used for Butt and Fillet Welding Positions
- Symbols Used in Welding
- Welding Position Codes
- Symbols and Codes Used in Welding

Differentiating Between Non-thermal Joining Techniques

Aims and Keywords

- Aims and Keywords: Differentiating Between Non-thermal Joining Techniques

i-ACT: Adhesives in Fabrication

- Advantages and Disadvantages of Using Adhesives in Fabrication
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- Advantages and Disadvantages of Using Adhesives in Fabrication

i-ACT: Non-thermal Joining Techniques and Hole Preparation

- Differentiating Between Non-thermal Joining Techniques
- Preparing Holes for Drilling and Threading
- Types of Mechanical Fastening
- Preparing a Hole for Mechanical Fastenings
- Non-thermal Joining Techniques and Hole Preparation

i-ACT: Self-Secured Joints in Fabrication

- Understanding Self-Secured Joints in Fabrication and How to Measure Them
- Groove Seams and Self-Secured Joints
- Bend Radius, Groove Seams, and Good Practice
- Groove Seam Formula, Bending Allowance Calculations, and Self-Secured Joints

Dealing with Distortion in Welding

Aims and Keywords

- Aims and Keywords: Dealing with Distortion in Welding

i-ACT: Types of Distortion in Welding

- Understanding Distortion and How It Can Be Prevented
- Identifying Types of Distortion
- Types of Distortion and Prevention Methods

- Causes of Weld Distortion, Distortion Reduction, and Rectification Methods
- Rectifying and Preventing Weld Distortion

Determining the Structural Integrity of Welded Joints

Aims and Keywords

- Aims and Keywords: Determining the Structural Integrity of Welded Joints

i-ACT: Weld Defects and Imperfections

- Classifying Weld Defects and Imperfections
- Weld Defects and How to Prevent Them
- Identifying Weld Defects and Imperfections
- Weld Defects and Imperfections
- Weld Defects and Imperfections

i-ACT: Magnetic Particle and Liquid Penetrant Inspections

- Visualising Magnetic Particle and Liquid Penetrant Inspections
- Testing Welds Using Magnetic Particle Inspection (MPI)
- Testing Welds Using Liquid Penetrant Inspection (LPI)
- Advantages and Disadvantages of MPI and LPI
- Magnetic Particle and Liquid Penetrant Inspections
- Magnetic Particle and Liquid Penetrant Inspections

i-ACT: Ultrasonic Testing in Welding

- Visualising Ultrasonic Testing
- Ultrasonic Waves and Scanning Methods
- Ultrasound and Its Application in Welding
- Terminology Used in Ultrasonic Testing
- Types of Ultrasonic Scanning and Waves
- Ultrasound and Methods of Ultrasonic Testing

i-ACT: Mechanical Testing Methods

- Mechanical Testing Methods
- Visualising Mechanical Testing Methods
- Mechanical Testing Methods
- Mechanical Testing Processes
- Mechanical Testing Methods

i-ACT: Radiography in Welding

- Radiographic Testing of a Weld
- Radiographic Testing and Safety
- Methods of Radiography
- Radiographic Testing of a Weld
- The Process of Performing Radiographic Weld Testing
- Radiography in Welding

Principles of Fabrication and Welding

Aims and Keywords

- Aims and Keywords: Principles of Fabrication and Welding

i-Practice: Setting Up Oxy-Acetylene Equipment for Welding

- Setting Up Oxy-Acetylene Equipment for Welding (Training) Практикум-тренинг.
- Setting Up Oxy-Acetylene Equipment for Welding Практикум-контроль.

i-Practice: Heat Treatment Procedures – Annealing, Hardening, Normalising, Pre-heating and Tempering, and Shutting Down and Cleaning of Oxy-Acetylene Equipment

- Heat Treatment Procedures – Annealing, Hardening, Normalising, Pre-heating and Tempering, and Shutting Down and Cleaning of Oxy-Acetylene Equipment (Training) Практикум-тренинг.
- Heat Treatment Procedures – Annealing, Hardening, Normalising, Pre-heating and Tempering, and Shutting Down and Cleaning of Oxy-Acetylene Equipment Практикум-контроль.

i-Practice: Setting Up MIG Equipment for Welding

- Setting Up MIG Equipment for Welding (Training) Практикум-тренинг.
- Setting Up MIG Equipment for Welding Практикум-контроль.

i-Practice: MIG Welding Process for Creating a Butt Joint Weld, a T Fillet Joint Weld, a Lap Joint Weld and a Corner Joint Weld

- MIG Welding Process for Creating a Butt Joint Weld, a T Fillet Joint Weld, a Lap Joint Weld and a Corner Joint Weld (Training) Практикум-тренинг.
- MIG Welding Process for Creating a Butt Joint Weld, a T Fillet Joint Weld, a Lap Joint Weld and a Corner Joint Weld Практикум-контроль.

i-Practice: MIG Welding Process for Creating a Single V Butt Position, a Double V Butt Position, a J Butt Position, and Wrapping Up and Cleaning

- MIG Welding Process for Creating a Single V Butt Position, a Double V Butt Position, a J Butt Position, and Wrapping Up and Cleaning (Training) Практикум-тренинг.
- MIG Welding Process for Creating a Single V Butt Position, a Double V Butt Position, a J Butt Position, and Wrapping Up and Cleaning Практикум-контроль.

i-Practice: Fabrication of a Lattice Girder, Including Bolts and Mechanical Fastenings

- Fabrication of a Lattice Girder, Including Bolts and Mechanical Fastenings – 1 (Training) Практикум-тренинг.
- Fabrication of a Lattice Girder, Including Bolts and Mechanical Fastenings – 1 Практикум-контроль.
- Fabrication of a Lattice Girder, Including Bolts and Mechanical Fastenings – 2 (Training) Практикум-тренинг.
- Fabrication of a Lattice Girder, Including Bolts and Mechanical Fastenings – 2 Практикум-контроль.

i-Practice: Creating a PF Position Single Bevel V Butt Weld, PC Position Single Bevel V Butt Weld and a H-L045 Position Pipe Weld

- Creating a PF Position Single Bevel V Butt Weld, PC Position Single Bevel V Butt Weld and a H-L045 Position Pipe Weld — 1 (Training) Практикум-тренинг.
- Creating a PF Position Single Bevel V Butt Weld, PC Position Single Bevel V Butt Weld and a H-L045 Position Pipe Weld — 1 Практикум-контроль.
- Creating a PF Position Single Bevel V Butt Weld, PC Position Single Bevel V Butt Weld and a H-L045 Position Pipe Weld — 2 (Training) Практикум-тренинг.
- Creating a PF Position Single Bevel V Butt Weld, PC Position Single Bevel V Butt Weld and a H-L045 Position Pipe Weld — 2 Практикум-контроль.

i-Practice: Measuring, Cutting and Welding Steel Pipes and Plates to Fabricate Fully Airproofed Ducting

- Measuring, Cutting and Welding Steel Pipes and Plates to Fabricate Fully Airproofed Ducting – 1 (Training) Практикум-тренинг.
- Measuring, Cutting and Welding Steel Pipes and Plates to Fabricate Fully Airproofed Ducting – 1 Практикум-контроль.
- Measuring, Cutting and Welding Steel Pipes and Plates to Fabricate Fully Airproofed Ducting – 2 (Training) Практикум-тренинг.

- Measuring, Cutting and Welding Steel Pipes and Plates to Fabricate Fully Airproofed Ducting – 2
Практикум-контроль.
- Measuring, Cutting and Welding Steel Pipes and Plates to Fabricate Fully Airproofed Ducting – 3
(Training) Практикум-тренинг.
- Measuring, Cutting and Welding Steel Pipes and Plates to Fabricate Fully Airproofed Ducting – 3
Практикум-контроль.
- Measuring, Cutting and Welding Steel Pipes and Plates to Fabricate Fully Airproofed Ducting – 4
(Training) Практикум-тренинг.
- Measuring, Cutting and Welding Steel Pipes and Plates to Fabricate Fully Airproofed Ducting – 4
Практикум-контроль.

Principles of Arc Welding

Aims and Keywords

- Aims and Keywords: Principles of Arc Welding

i-ACT: Using Electric Arcs in MIG Welding Processes

- Characteristics of Electric Arcs
- Techniques and Transfers in MIG Welding Processes
- Arc Forces and Their Significance in Welding
- Characteristics of Metal Transfers in MIG Welding Processes
- Identifying Features of Electric Arcs
- Using Electric Arcs in MIG Welding Processes

i-ACT: Functions and Characteristics of Wires, Electrodes and Coatings

- Wire and Electrode Types and Uses
- Types of Electrode Coatings and Their Specific Uses
- Specification and Classification of MMA (SMAW) Electrodes
- Functions and Characteristics of Wires, Electrodes and Coatings
- Electrode Types and Uses
- Functions and Characteristics of Wires, Electrodes and Coatings

i-ACT: Effects of Fluxes and Electrode Coverings upon the Welding Process

- Individual Electrode Characteristics
- Typical Uses of Electrodes
- Aspects of Electrode Deposition
- Advantages and Disadvantages of Using Coated Electrodes
- Welding with Various Electrode Types
- Effects of Fluxes and Electrode Coverings upon the Welding Process

i-ACT: Purpose and Function of Shielding Gases Used in Welding

- i-Ask: Inert and SemGases Used as Shielding Gases
- Features and Uses of Shielding Gases
- Combinations of Shielding Gases in Welding
- Inert and SemGases
- Using Shielding Gases in Welding
- Purpose and Function of Shielding Gases Used in Welding

Effects of Thermal Energy and Metallurgy in Welding

Aims and Keywords: Effects of Thermal Energy and Metallurgy in Welding

- Aims and Keywords: Effects of Thermal Energy and Metallurgy in Welding

i-ACT: Effect of Heat and Carbon Content on Iron-Carbon Alloys

- Iron-Carbon Phase Diagram
- Eutectic and Eutectoid Reactions
- Effects of Heat Treatment
- Iron-Carbon Phase Diagram
- Heat Treatment and Eutectic Reactions
- Effect of Heat and Carbon Content on Iron-Carbon Alloys

i-ACT: Effects of Heat on Materials Due to Welding

- Weld Thermal Cycles in Welding
- Heat-Affected Zones
- Types of Heat Treatment
- Identifying Processes Associated with Heat Distribution in Welding
- Weld Thermal Cycles in Welding
- Effects of Heat on Materials Due to Welding

i-ACT: Characteristics and Causes of Cracks and How to Reduce and Avoid Them

- Characteristics and Causes of Various Cracks
- How to Reduce and Avoid Cracking
- Differentiating Cracks
- Types and Causes of Cracks
- Characteristics and Causes of Cracks and How to Reduce and Avoid Them

Metal Forming and Shearing Techniques

Aims and Keywords: Metal Forming and Shearing Techniques

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i-ACT: Bending, Rolling and Shearing Metal

- The Mechanics of Bending
- The Neutral Line, Bend Allowance, and Roll Allowance
- Roll-bending Methods and Machines
- Shearing Using a Guillotine
- The Mechanics of Bending
- Bending and Rolling Allowance
- Roll-bending Machines
- Bending, Rolling and Shearing Metal

Finishing Fabricated Components

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- Aims and Keywords: Finishing Fabricated Components ✓

i-ACT: Finishing Fabricated Components Демо-версия

- Finishing Fabricated Components ✓
- Types of Metal Finishing ✓
- Finishing Fabricated Components ✓
- Metal Finishing Processes ✓

- Methods Used for Finishing Fabricated Components	✓
i-ACT: Surface Contaminants, Removal and Corrosion Prevention	Демо-версия
- Surface Contaminants	✓
- Methods of Removing Surface Contaminants	✓
- Common Causes of Corrosion and Degradation	✓
- Methods of Corrosion Prevention Commonly Found in Fabrication	✓
- Surface Contaminants	✓
- Removing Surface Contaminants	✓
- Causes of Corrosion	✓
- Corrosion Prevention	✓
- Removing Surface Contaminants and Preventing Corrosion	✓