NITI

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رؤيـــة VISION
2030
المملكة العربية السعودية
KINGDOM OF SAUDI ARABIA

Mechanical

Short Courses

Approved By

أرامكو السعودية
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المؤسسة العامة
للتدريب التقني والمهني
Technical and Vocational
Training Corporation

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1

Imperial & Metric Measurements with Precision Tools

12 Minimum participants

5 days

Course Overview

To introduce the correct identification of imperial and metric measuring scales and measurements and the uses of measuring tools both basic and precision that are used on an everyday basis.

Who Should Attend?

Electricians, Mechanics, Metalworkers, Pipefitters, Welders, Fabricators, Operators, Technicians or Engineers.

Enabling Objectives:

- Identify and select the correct basic measuring tool for each job
- Use measuring tools to make measurements
- Recognize the terms: nominal/actual size, limits, tolerance & fits
- Select and use the correct precision tool for given tolerances
- Demonstrate Using Metric & Imperial Precision Measuring Tools.

2

Technical Sketching & Drawing for Industry

12 Minimum participants

5 days

Course Overview

To introduce technical sketching and drawing to Technicians and Engineers who work at different Industrial sites in order to gain a basic understanding of how real systems are represented by sketches, drawings and diagrams.

Who Should Attend?

Electricians, Electrical Technicians, Mechanical Technicians, Instrumentation, Process Control, Welders, Pipefitters, Fabricators, and Operators.

Enabling Objectives:

- Identify and Apply Drawing Conventions
- Sketch Orthographic, Isometric, and Oblique Views
- Draw a Simple Mechanical Assembly
- Read and interpret Engineering Drawings
- Applied Engineering Drawings – ECDs, PFDs, P&IDs, and ILDs.

3

Safe Use of Hand Tools & Benchwork

12 Minimum participants

5 days

Course Overview

To train the safe use of Hand Tools and Benchwork for all that use Hand Tools in their respective professions.

Who Should Attend?

Electricians, Electrical Technicians, Mechanical Technicians, Instrumentation, Process Control, Welders, Pipefitters, Fabricators, and Operators.

Enabling Objectives:

- Introduction to Basic Safety and PPE
- Identify and select the correct tool for the job
- Layout and Markout a workpiece using Hand Tools
- Safe use of the drill press
- Prepare a workpiece to given specifications.

4

Using Power Tools Safely

12 Minimum participants

5 days

Course Overview

To train workers on the safe use of Power Tools for industry.

Who Should Attend?

Electricians, Electrical Technicians, Mechanical Technicians, Instrumentation, Process Control, Welders, Pipefitters, Fabricators, and Operators.

Enabling Objectives:

- Safety Rules for Using Power Tools
- Demonstrate Using Power Tools
- Fabricate a Component Using Power Tools..

5

Safe Lifting & Rigging

12 Minimum participants

5 days

Course Overview

To train on the safe methods of lifting & Rigging using A-Frames, Hoists, Chains, Pulleys and other equipment that is heavy and requires a mechanical device to be lifted and/or moved.

Who Should Attend?

Electricians, Electrical Technicians, Mechanical Technicians, Instrumentation, Process Control, Welders, Pipefitters, Fabricators, and Operators in warehouses, stores, yards or any other place where safe lifting and rigging is mandatory.

Enabling Objectives:

- Safety considerations and PPE
- Identify Rigging and Lifting Equipment
- Determine a Load and Rig It Up
- Lift and Move a Load Safely
- Perform Jacking and Lateral Moves

6

Basic Operation of a Centre Lathe Machine

12 Minimum participants

5 days

Course Overview

To introduce the operation of a center lathe to carry out repairs or machine new components. This course will enable the operator to do these tasks on a lathe safely and correctly.

Who Should Attend?

Millwrights, Mechanics, Maintenance Machinists, Fitters, Turners, Welders, Pipefitters and Fabricators, Mechanical Technicians & Engineers.

Enabling Objectives:

- Basic Safety and PPE when operating a Center Lathe
- Identify a Center Lathe and State Its Uses
- State the Safety Rules for Operating a Center Lathe
- State the Safety Rules for Maintaining a Center Lathe
- Grind a Center Lathe Tool

7

Advanced Operation of a Centre Lathe Machine

12 Minimum participants

5 days

Course Overview

To be able to operate a lathe as a skilled operator. The Basic Lathe course is a prerequisite or the operator must have extensive lathe operating experience before commencing this course.

Who Should Attend?

Millwrights, Mechanics, Maintenance Machinists, Fitters, Turners, Welders, Pipefitters and Fabricators, Mechanical Technicians & Engineers.

Enabling Objectives:

- State the Safety Rules for Operating a Center Lathe
- State the Safety Rules for Maintaining a Center Lathe
- Determine the RPM, Cutting Speed, and Feed for a Center Lathe
- Perform Facing and Turning on the Center Lathe
- Perform Drilling and Boring on the Center Lathe.

8

CNC Lathe Machine Operator Course

12 Minimum participants

5 days

Course Overview

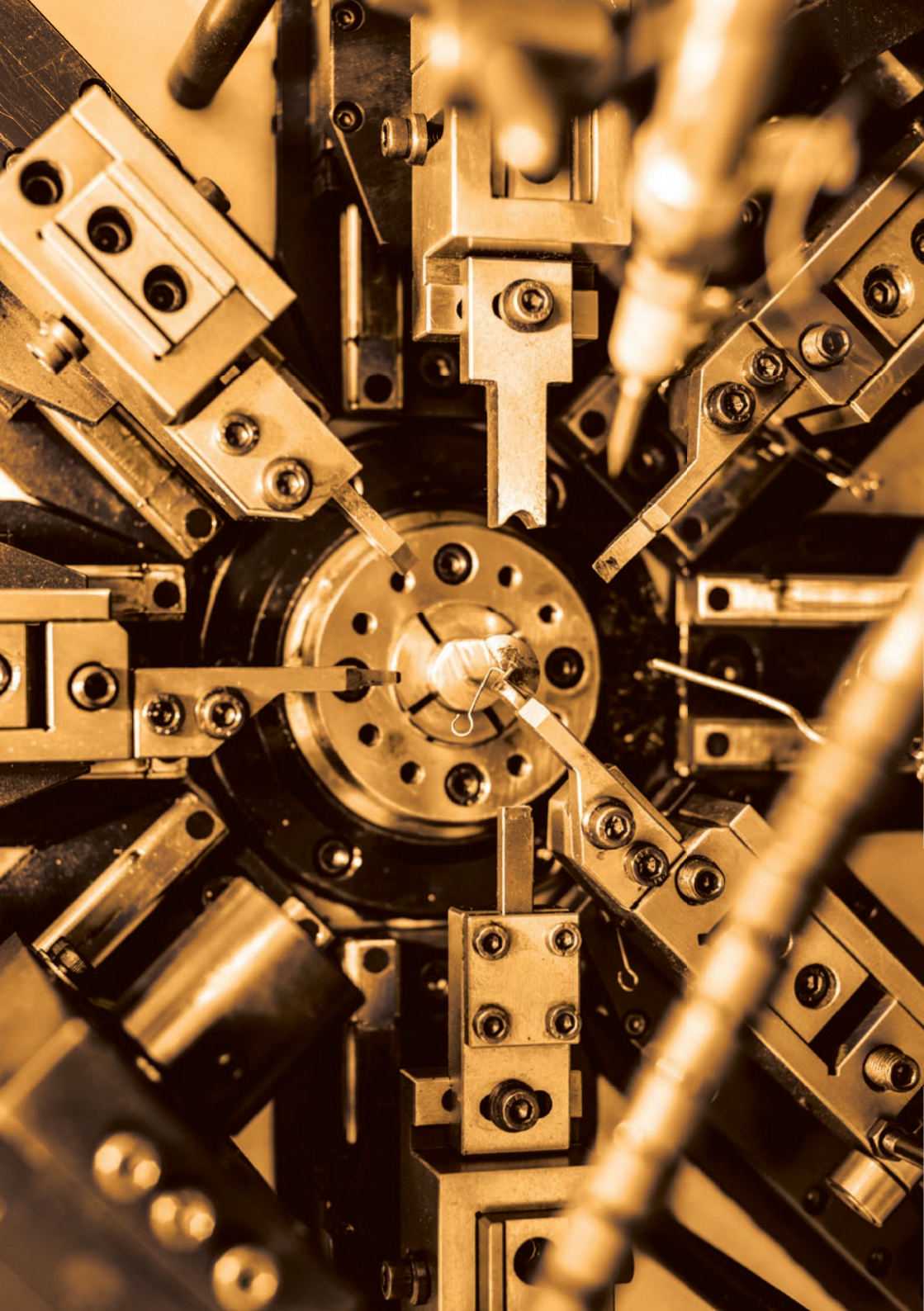
This course is designed for those who have little or no knowledge of basic CNC Lathe machine and its turning and cutting tools. It covers the basic principles of CNC Turning and tooling as used on a CNC Lathe machine.

Who Should Attend?

Millwrights, Mechanics, Maintenance Machinists, Fitters, Turners, Welders, Pipefitters and Fabricators, Mechanical Technicians & Engineers.

Enabling Objectives:

- Introduction to the CNC Lathe Machine
- Introduction to the CNC Turning& Tools
- Beginners Turning Basics for the CNC
- Learn to program - Turning
- CNC Setter/Operator – Turning



9

Basic Milling Operator Course

12 Minimum participants

5 days

Course Overview

To introduce Basic Milling Operations using the Manual Milling Machine.

Who Should Attend?

Millwrights, Mechanics, Maintenance Machinists, Fitters, Turners, Welders, Pipefitters and Fabricators, Mechanical Technicians & Engineers.

Enabling Objectives:

- Introduction to the Universal Milling Machines
- Machine & Tool Setup
- Face Milling
- Shoulder Milling
- Drilling and Boring

10

Advanced Milling Operator Course

12 Minimum participants

5 days

Course Overview

To train experienced operators in advanced Milling techniques.

Who Should Attend?

Millwrights, Mechanics, Maintenance Machinists, Fitters, Turners, Welders, Pipefitters and Fabricators, Mechanical Technicians & Engineers.

Enabling Objectives:

- Vertical & Horizontal Milling Machines
- Milling machines and Tool Setup
- Fabricating slots – Regular/Dovetail/V-type
- Angle Milling
- Angle Drilling

11

CNC Milling Machine Operator Course

12 Minimum participants

5 days

Course Overview

This course is designed for those who have little or no knowledge of basic CNC Milling and cutting tools. It covers the basic principles of CNC Milling and tooling as used on a CNC Milling machine.

Who Should Attend?

Millwrights, Mechanics, Maintenance Machinists, Fitters, Turners, Welders, Pipefitters and Fabricators, Mechanical Technicians & Engineers.

Enabling Objectives:

- Introduction to the CNC Milling Machine
- Introduction to CNC Milling & Tools
- Beginners MillingBasics for the CNC
- Learn to program - Milling
- CNC Setter/Operator -Milling

12

Replacing Gaskets, Packings & Seals

12 Minimum participants

5 days

Course Overview

To train operators in the repair of mechanical equipment by manufacturing Gaskets, Packing and Seals and replacing them in everyday plant equipment.

Who Should Attend?

Millwrights, Mechanics, Maintenance Machinists, Fitters, Turners, Welders, Pipefitters and Fabricators, Mechanical Technicians & Engineers.

Enabling Objectives:

- Identify the Use of various Sealing Devices
- Manufacture and Replace Gaskets
- Replace Packing in a Stuffing Box
- Replace Lip Seals and O-Rings
- Remove and reinstall a Basic Mechanical Seal

13

Maintenance on Shafts, Keys & Couplings

12 Minimum participants

3 days

Course Overview

To train operators in the repair of mechanical equipment by manufacturing Keys for Maintenance on Shafts and Couplings.

Who Should Attend?

Millwrights, Mechanics, Maintenance Machinists, Fitters, Turners, Welders, Pipefitters and Fabricators, Mechanical Technicians & Engineers.

Enabling Objectives:

- Inspect Shafts and Keys
- Manufacture and Fit a Plain Key
- Manufacture and Fit a Woodruff Key
- Remove a Flanged Coupling
- Maintain a Flanged Coupling

14

Bearings and Lubrication

12 Minimum participants

3 days

Course Overview

Trainees will learn how to maintain Bearings and Lubrication Systems in Mechanical Equipment.

Who Should Attend?

Millwrights, Mechanics, Maintenance Machinists, Fitters, Turners, Welders, Pipefitters and Fabricators, Mechanical Technicians & Engineers.

Enabling Objectives:

- Identify the Use of Bearings
- Identify the Use of Lubricants
- Remove and Install Antifriction Bearings
- Maintain a Plain Bearing Assembly
- Maintain Lubrication Systems

15

Maintaining Valves

12 Minimum participants

5 days

Course Overview

Trainees will learn how to maintain different types of Valves.

Who Should Attend?

Millwrights, Mechanics, Maintenance Machinists, Fitters, Turners, Welders, Pipefitters and Fabricators, Mechanical Technicians & Engineers.

Enabling Objectives:

- Define the Function of Valves
- Define the Operation of Valves
- Maintain Multi-Turn Valves
- Maintain a Quarter-Turn Valve
- Maintain a Non-Return Valve

16

Maintaining Transmission Systems

12 Minimum participants

5 days

Course Overview

Trainees will learn how to maintain different Drives and Gearboxes.

Who Should Attend?

Millwrights, Mechanics, Maintenance Machinists, Fitters, Turners, Welders, Pipefitters and Fabricators, Mechanical Technicians & Engineers.

Enabling Objectives:

- Introduction to Transmission Systems
- Identify different gearbox systems
- Replace Belt Drives
- Replace Chain Drives
- Maintain a Right-angled Gearbox

17

Maintaining Centrifugal Pumps

12 Minimum participants

5 days

Course Overview

Trainees will learn how to maintain different types of Centrifugal Pumps.

Who Should Attend?

Millwrights, Mechanics, Maintenance Machinists, Fitters, Turners, Welders, Pipefitters and Fabricators, Mechanical Technicians & Engineers.

Enabling Objectives:

- Identify the different types of Pumps
- State the Use of different Pumps
- State the Operation of different Pumps
- Maintain an Axial-Split Centrifugal Pump
- Maintain an Axial-Split Radial Pump

18

Maintain a Reciprocating Compressor

12 Minimum participants

5 days

Course Overview

Trainees will learn how to maintain a Reciprocating Compressor.

Who Should Attend?

Millwrights, Mechanics, Maintenance Machinists, Fitters, Turners, Welders, Pipefitters and Fabricators, Mechanical Technicians & Engineers.

Enabling Objectives:

- State the types of Reciprocating Compressor
- Identify the parts of a Reciprocating Compressor
- Describe the operation of a Reciprocating Compressor
- Disassemble a Reciprocating Compressor
- Maintain a Reciprocating Compressor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