



MUE132

Make and Break Flanges & Protocols

Course Overview:

The role of engineers is crucial because they help machines run smoothly by keeping them in working order, and also help to keep workers' lives safe. Therefore, this Course is essential to understand the basics of how to operate machinery safely. A flange is a protrusive rim, collar, or ring on an object such as a column, beam, or pipe that provides added strength for the addition of another object. This course provides participants with the necessary foundation and practical skills to make and break flanged joints with manual bolt-up methods. Participants will also become proficient in safeguarding the reliability of flanges on pipework and vessels. This training course will empower you with an introduction to flanged joints, types of flanges, materials, sizes, and temperature rating so that you can carry out your tasks with confidence and accuracy.

Course Objectives:

Upon successful completion of this course, the delegates will be able to:

- Plan and prepare for the work
- Break flange under flange management procedure
- Inspect flange and its components
- Make flange joints following flange management procedures
- Study the correct procedures for assembling pipe flange connections
- Select and use the correct materials for gaskets and bolting
- Identify the methods of controlled bolting using torque & tensioning tools/equipment
- Assess their competency in practically applying these procedures

Who Should Attend?

This Course would be suitable for:

- Mechanical Technicians
- Technical Authorities
- Turnaround Managers
- Commissioning Engineers
- Lead Engineers
- Reliability Engineers
- Shutdown Coordinators
- All technical pipelines and facilities personnel

Course Outline:

MODULE 1: FLANGE TYPES & ASSEMBLY

- Flange types
- Flange dismantling
- Flange inspection
- Flange assembly

MODULE 2: CHARACTERISTICS OF MATERIALS USED

- Characteristics of steel, castings, and forgings
- Types of discontinuities
- ABS requirements for steel, castings, and forgings

MODULE 3: SAFETY CONCERNS & ISSUES

- Key safety concerns in the Joint Integrity Industry
- Acceptable level of flange imperfections
- Recommendations for acceptable gasket contact surface flatness and defect depth

MODULE 4: FLANGE GUIDELINES & SPECIFICATIONS

- Flange joint alignment guidelines
- Hardened washer usage guidelines and specification
- Alternative flange bolt assembly patterns

MODULE 5: CALCULATIONS AND OTHER REPORTS

- Assembly bolt load / calculation methods
- Gasket types and materials
- Flange joint leak report
- Training and certification standards
- Flange completion certificates and tagging

MODULE 6: TYPES OF GASKETS AND GUIDELINES

- Gasket types
- Gasket identification
- Assembly instruction
- The ASME PCC-1-2013 Guidelines for Bolted Flange Joint Assembly

MODULE 7: PLANNING AND PREPARATION

- Identify the tasks
- Inspect the job site
- Confirm whether isolations are completed as per the standard
- Confirm hazard controls
- Coordinate with relevant personnel

- Select suitable tools
- Check the calibration and certifications of tools
- Complete checklists and other required documentation

MODULE 8: BREAK FLANGE

- Prepare tools with care and accuracy
- Connect with required drain lines
- Undo nuts as per standard procedures
- Split flange and drain the pipe
- Identify any skills escalations
- Management of open pipes
- Complete checklists and other required documentation

MODULE 9: INSPECT FLANGE AND COMPONENTS

- Evaluate cold pull and refer if required
- Assess the degree of misalignment and refer if applicable
- Clean and inspect the flange surface – front and back
- Check all studs and nuts
- Confirm that the components are compliant with relevant standards
- Identify any issues and take suitable action

MODULE 10: MAKE FLANGE JOINT

- Select the appropriate gasket
- Check whether all components are as per the specifications
- Apply lubrication as required
- Complete the initial assembly of the unit
- Insert the blind as required
- Attach the drain as required
- Re-check the gasket
- Re-check the alignments of the components
- Tighten components using the relevant tools
- Use torque calibration charts
- Complete checklists and other required documentation

MODULE 11: COMPLETE THE TASK

- Check the joint alignment one last time
- Arrange for any other required checks
- Confirm joint integrity
- Complete checklists and other required documentation

Course duration:

Course Certificate:

International Center for Training & Development (ICTD) will award an internationally recognized certificate(s) for each delegate on completion of training.

Course Methodology:

This collaborative training program will comprise the following training methods:

- Lectures
- Videos
- Seminars & Presentations
- Group Discussions
- Assignments
- Case Studies & Functional Exercises

Course Fees:

To be advised as per the course location. This rate includes participant's manual, Hand-Outs, buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

Course Timings:

Daily Course Timings:

08:00 - 08:20	Morning Coffee/Tea
08:20 - 10:00	First Session
10:00 - 10:20	Recess (Coffee/Tea/Snacks)
10:20 - 12:20	Second Session
12:20 - 13:30	Recess (Coffee/Tea/Snacks)
13:30 - 15:00	Last Session