

QForm Base course training

Introduction	<ul style="list-style-type: none">● General presentation● Overview of the possibilities● Goals of the training
Geometry preparation	<ul style="list-style-type: none">● 2D geometry requirements, geometry editor QDraft, direct import of dxf-files● 3D geometry editor QShape● 3D advanced features of preparation, symmetry, direct import of step-files
Data setup demonstration	<ul style="list-style-type: none">● Source data control panel, Workflow● Initial data: Materials, temperature, equipment etc.
Analyzing results	<ul style="list-style-type: none">● Fields, graphs, stress, strain● Usual workpiece defects● Saving of images, animations
Coupled deformation tasks	<ul style="list-style-type: none">● Model types: General and Separate● Postprocessing calculations
Database	<ul style="list-style-type: none">● Equipment● Materials● Lubricant● Simulation parameters, etc.
Postprocessing calculations	<ul style="list-style-type: none">● Tracing: points, lines, array lines● Subroutines
Advanced features	<ul style="list-style-type: none">● Simulation parameters: calculation step, mesh properties● Batch mode● Program settings, Multiview● Export results
Conclusions	<ul style="list-style-type: none">● Questions and answers

Goals:

- *Complete ability to use the program*
- *Initial data setup and launching calculation*
- *Performing geometry preparation*
- *Understanding and analyzing the results, postprocessing calculations*
- *Performing tooling analysis*

Day 1 Schedule > 10 AM - 3 PM

1. Introduction (10:00-10:15)

- General presentation. Overview of the possibilities
- Documentation (QForm Manual)
- License
- Goals of the training

2. Preparation of case 3D Fork (Lecture and Practice) (10:15-10:30)

- Demonstration of simulation setup. Describing initial data.

3. Interface (Lecture) (10:30-11:15)

- Main menu, Toolbar, Playback bar, Simulation control panel, Simulation message log
- Source data control panel: Project, Operations, Geometry, Workpiece parameters, Tool parameters, Stop conditions, Boundary conditions, Blows

4. Analyzing results (Lecture and Practice) (11:15-12:00)

- Fields, graphs, cross cut, animations, export results, measurements

Coffeebreak/Lunch (12:00-12:30)

5. Preparation of case 2D Disk (Lecture and Practice) (12:30-13:15)

- Coupled deformation task. Model types: General and Separate.
- Postprocessing calculations
- Assembled tools, Fittings

6. Preparation of case 2D surf line (Lecture and Practice) (13:15-13:45)

- CTracing undersurface lines. Tracing objects in general
- Minimum distance to surface field
- Garfield subroutine. Subroutines in general

7. Preparation of case QExample 2D-3D (Lecture and Practice) (13:45-14:30)

- Demonstration of simulation setup. Describing initial data
- Sequence of operations
- From 2D to 3D
- Clipping surface

8. Preparation of case 2D filling (Lecture and Practice) (14:30-15:00)

- Demonstration of simulation setup. Describing initial data
- Underfilling defecte

Day 2 Schedule > 10 AM - 3 PM

1. QShape (Lecture and Practice) (10:00-11:00)

- Requirements to 3D geometry
- Formats: step, lges, x_t
- Possibilities
- Preparation of examples
- Clipping surface
- Direct import

2. 2D geometry preparation, QDraft (Lecture and Practice) (11:00-11:20)

- Requirements to 2D geometry
- Preparation of examples
- Direct import

3. QBatch (Lecture and Practice) (11:20-11:30)

- Demonstration of possibilities
- Run example

4. Preparation of case 3D Cogging (Lecture and Practice) (11:30-12:00)

- Blows, Forging manipulator, Axes
- Multiview feature

Coffeebreak/Lunch (12:00-12:30)

5. Database (Lecture) (12:30-13:15)

- Equipment, Deformed materials, Tool material, Lubricant, Environment
- Simulation parameters, advanced features: calculation step, mesh properties

6. Preparation of case 2D Disk flow defect (Lecture and Practice) (13:15-13:40)

- Gartfield, Mesh in specific areas
- Comparing results

7. Preparation of case 2D Spring loaded (Lecture and Practice) (13:40-14:10)

- Spring loaded tool properties
- Tool movement by another tool

8. Preparation of case 3D Reduce rolling (Lecture and Practice) (14:10-14:40)

- Universal drive
- Axes, QShape possibilities
- Boundary conditions

9. Conclusions (14:40-15:00)

- Summary of obtained knowledge
- Questions and answers