

# QForm UK Sheet Metal Forming Introductory course

<b>Introduction</b>	<ul style="list-style-type: none"><li>● Introductory information</li><li>● Overview of available options</li><li>● Goals of the course</li></ul>
<b>Demonstration of initial data setting</b>	<ul style="list-style-type: none"><li>● Structure of the source data panel: workpiece parameters, parameters of tools, etc.</li><li>● Interface overview</li></ul>
<b>Analysis of results</b>	<ul style="list-style-type: none"><li>● Result fields, graphs, dimensioning</li><li>● Saving images/animations</li><li>● Exporting results</li></ul>
<b>Geometry preparation</b>	<ul style="list-style-type: none"><li>● Requirements for geometry</li><li>● Direct import from step files</li><li>● Parametric geometry, creation of quad mesh</li></ul>
<b>Database</b>	<ul style="list-style-type: none"><li>● Equipment</li><li>● Materials</li><li>● Lubricants</li></ul>
<b>Postprocessor capabilities for analyzing results</b>	<ul style="list-style-type: none"><li>● Tracked objects: points, lines, line arrays and arrays of points</li><li>● Standard postprocessing subroutines: Forming Limit Diagram, Thickness, etc.</li></ul>
<b>Additional features</b>	<ul style="list-style-type: none"><li>● Adjustment of simulation parameters: calculation step, volume constancy, accounting for rotational motion, etc.</li><li>● Control of finite element meshes of workpiece and tools</li></ul>

## Objectives:

- *Introduction to the possibilities of program application*
- *Learning the interface and tools for analyzing results*
- *Mastering the principles of preparing tasks for simulation and the necessary input data*
- *Gaining skills of preparation of initial data and simulation sheet metal forming processes in the specialized QForm UK module*

## Schedule

### 1. Introduction (presentation)

- Introductory presentation. Overview of available options.
- User manual (Help) structure.
- Goal of the introductory course.

### 2. Possibilities of sheet metal forming simulation in QForm UK

- An overview of the available possibilities for sheet metal forming simulation.

### 3. Preparing the 3D\_strip bending training example (presentation and hands-on session)

- Source data panel: Project, Operation, Geometry, Workpiece parameters, Tool parameters, Stop conditions, Boundary conditions, Blows, Simulation parameters.
- Demonstration of the preparation of source data for simulation.

### 4. Interface overview (presentation)

- Main menu, toolbar, result playback panel, calculation control panel, simulation log and RMB menu.

### 5. Tools for analyzing results (presentation)

- Fields and scale of results.
- Graphs, sections and measurements.
- Save animations/images and export results.

### Break/Lunch (~ 30 minutes)

### 6. Recommendations for the geometry preparation (presentation)

- Requirements for geometry. Direct import of geometry from step files.
- Creation of hexahedral workpiece mesh.

### 7. Preparing the 3D\_Nakajima training example (hands-on session)

- Setting the material model.
- Additional features for postprocessing analysis of simulation results: Forming Limit Diagram.

### 8. Overview of databases (presentation)

- Equipment, Lubricants, Deformed materials.

### 9\*. Preparing the 3D\_double-action drawing training example (hands-on session) *(additional example; optional)*

- Simulation of a chain of operations.
- Application of the trimming surface.
- Creation of a model of the material and equipment.