

# QForm UK Longitudinal Rolling Introductory course

<b>Introduction</b>	<ul style="list-style-type: none"><li>● Introductory presentation</li><li>● Overview of available options</li><li>● Objectives of the event</li></ul>
<b>Demonstration of initial data assignment</b>	<ul style="list-style-type: none"><li>● Interface overview</li><li>● Structure of the initial data panel</li><li>● Rolling parameters</li><li>● Database</li><li>● Simulation parameters</li></ul>
<b>Geometry Preparation</b>	<ul style="list-style-type: none"><li>● Geometry requirements</li><li>● Direct import from DXF and STEP files</li><li>● Parametric geometry, planes of symmetry</li></ul>
<b>Analysis of results</b>	<ul style="list-style-type: none"><li>● Result fields, graphs, dimensions</li><li>● Saving images/animations</li><li>● Tracking objects, subroutines</li></ul>
<b>Roll pass design in CAD QKaliber</b>	<ul style="list-style-type: none"><li>● Introductory presentation</li><li>● Preparation of initial data</li><li>● Analysis of results</li><li>● Automatic project preparation in QForm UK</li></ul>
<b>Analysis of Olympiad task</b>	<ul style="list-style-type: none"><li>● Statement and requirements</li><li>● Solution example for the Olympiad task 2024</li><li>● Recommendations to participants</li></ul>

## Goals:

- *Familiarization with QForm UK capabilities for simulation longitudinal rolling processes and QKaliber software for roll pass design;*
- *Learning the interface and results analysis tools;*
- *Mastering the principles of preparing initial data;*
- *Acquiring skills in simulation longitudinal rolling processes and roll pass designing;*
- *Introduction to the requirements of the Olympiad task.*

## **Schedule (09:00 – 14:00 CET)**

### **1. Introduction (Presentation) (09:00-09:25)**

- Introductory presentation. Overview of QForm UK capabilities for simulating longitudinal rolling processes.

### **2. Preparing a case №1 «One pass in longitudinal rolling» (report and hands-on session) (09:25-10:05)**

- Initial data panel: Project, Geometry, Workpiece parameters, Tool parameters, Rolling Parameters, Stop conditions, Boundary conditions, Simulation parameters.
- Demonstration of initial data preparation for simulation.

### **3. Interface overview (report) (10:05-10:30)**

- Main menu, toolbar, result playback panel, simulation control panel, simulation log, results view window, right-click menu.
- Fields and scale
- Cross-cut sections and measurements
- Additional options for post-processor analysis of simulation results

### **4. Preparing a case №2 «Revolve the geometry» (report and hands-on session) (10:30-11:00)**

- Requirements for 2D geometry. Direct import of geometry from DXF files.
- Parametric geometry
- Requirements for 3D geometry
- Graphs
- Workpiece trimming

### **Coffee break (11:00-11:30)**

### **5. Preparing a case №3 «1 operation, 7 passes in reverse rolling» (report and hands-on session) (11:30-12:10)**

- Simulation in the reverse rolling module
- Passes tab parameters
- Batch mode
- Finite element mesh settings
- Save animations/images and export results

### **6. Preparing a case №4 «2 operations. Reverse and longitudinal rolling» (report and hands-on session) (12:10-12:50)**

- Database overview
- Simulation of a chain of operations
- Project structure, copying, editing processes and operations

### **7. Roll pass design in CAD QKaliber (presentation) (12:50-13:00)**

- Introductory presentation. Overview of CAD QKaliber capabilities for roll pass designing.

### **8. Preparing a case №1 «Getting started» (report) (13:00-13:10)**

- Initial data panel: Billet parameters, Stand and rolls, Groove.
- Interface overview
- Preparing the geometry of box groove

**Coffee break (13:10-13:25)**

**9. Preparing a case №2 «Create a project in QForm UK» (report) (13:25-13:35)**

- Automatic project preparation for simulation in QForm UK
- Results analysis and charts.

**10. Olympiad on longitudinal rolling 2024 (report) (13:35-13:50)**

- Statement and requirements
- Example solution
- Recommendations to participants

**Q&A session (13:50-14:00)**

**Additional examples**

- QForm UK. Case №5 «1 operation - 3 passes. Planes of symmetry.
- QForm UK. Case №6 «Universal stand and symmetry plane».