100 years of passion for technology and innovation

Welcome

PLCnext Lab

PHOENIX CONTACT

PLCnext Lab

PLC200 Professional

PLC200.A

PLCnext Introduction

- Overview
- Runtime
- Hardware
- Ecosystem

PLC200.B

Professional Management

- Authentication
- Firewall
- Security Profile
- External memory
- Logging

PLC200.C

Professional Programming

- Management
- Tasks
- Variables
- Datatypes
- Ports
- Configuration

PLC200.D

Professional Service Components

- OPC UA
- Datalogger
- HMI
- Proficloud

PLC200 is focused on the features of the PLCnext Runtime. We will be looking at introductions into the functionality of the hardware and supporting software. This course will allow you to use the PLCnext proficiently within the PLCnext Runtime area.

PLCnext Lab

Overall Equipment Efficiency

Availability

Availability takes into account Unplanned and Planned Stops. An Availability score of 100% means the process is always running during Planned Production Time.

A

Performance

Performance takes into account Slow Cycles and Small Stops. A Performance score of 100% means when the process is running it is running as fast as possible.

P

Quality

Quality takes into account Defects (including parts that need Rework). A Quality score of 100% means there are no Defects (only Good Parts are being produced).

Q

OEE

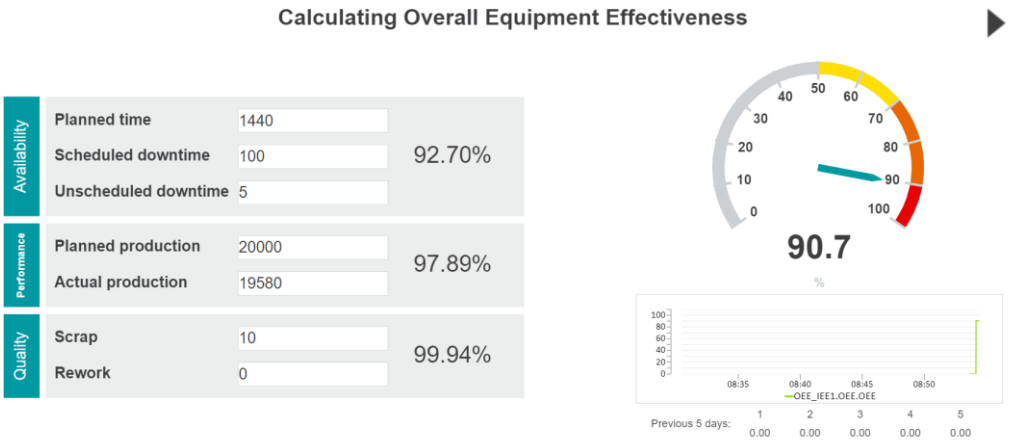
OEE takes into account all losses. An OEE score of 100% means you are manufacturing only Good Parts, as fast as possible, with no Stop Time.

OEE

OEE (Overall Equipment Effectiveness) is the gold standard for measuring manufacturing productivity. Simply put – it identifies the percentage of manufacturing time that is truly productive. An OEE score of 100% means you are manufacturing only Good Parts, as fast as possible, with no Stop Time. In the language of OEE that means 100% Quality (only Good Parts), 100% Performance (as fast as possible), and 100% Availability (no Stop Time). Measuring OEE is a manufacturing best practice. By measuring OEE and the underlying losses, you will gain important insights on how to systematically improve your manufacturing process. OEE is the single best metric for identifying losses, benchmarking progress, and improving the productivity of manufacturing equipment (i.e., eliminating waste).

PLCnext Lab

Project



You need to calculate the OEE on the bottling plant. This project is to simulate and ensure that the calculations are correct.

PLC200 Project

You need to calculate the OEE on the bottling plant. It is to take the inputs of availability, performance and quality to calculate the OEE.
This project is to simulate and ensure that the calculations are correct.

[5] eHMI

- [2] A HMI is to be created to display and control the values to be calculated:
    - Availability
        - Total planned availability
        - Scheduled downtime
        - Unscheduled downtime
    - Performance
        - Planned production
        - Actual production
    - Quality
        - Scrap
        - Rework
- [1] Display the overall OEE value calculated
- [1] Display a chart of the OEE value
- [1] Have a read-only user and read/write user

[3] IEC 61131-3

Structured text, Function Block Diagram or Ladder logic (or a combination) is to be used to calculate the [1] availability, [1] performance and [1] quality.

[1] IO

- Digital input(s) to increase/decrease scraps.
- The analogue input to be used to change one of the variables (e.g. Unplanned time.)

[1] OPC UA

OPC UA is to be used to publish the data

[1] Datalogger

The datalogger is to be used to create a chart on the HMI

[1] Services

Disable Profinet Device service

Units

- Time – minutes
- Quantity – PC
- OEE – Percentage

Minimum mark 9/12