#### **Beckhoff Automation**

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#### **Overview of Course**

#### **Introduction and Quick Start**

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**Programming Basics** 

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#### Introduction

- 1. General PLC Architecture
- 2. TwinCAT 3.1 Installation
- 3. First Project
- 4. Setting the Cycle Time

#### 2.1 System Requirements

- Only Intel processors are supported.
- You will need Administrator privileges to install TwinCAT 3.1.
- During installation, you will need to restart your computer.
- Access to network settings (IP address, etc.) is preferred after installation is complete.

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- All tools required for PLC development are free of charge and don't require a license.
- Latest version is available at <u>www.beckhoff.co.uk</u>

#### 2.2 Download

- Open <u>www.beckhoff.co.uk</u> in a web browser.
- In the folder structure on the lefthand side, navigate to

Automation

- $\rightarrow$  TwinCAT 3
  - $\rightarrow$  TExxxx | TC3 Engineering
- Click on Download TC 3.1.



- This will open the Download Cart window.
- Click on
  - >> Start Download link



#### 2.2 Download

- If you have already created a website account, please log in.
- Otherwise, you can create one by clicking on
  - >> Create new account
- Creating an account is free and only takes a few minutes.



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- Please fill in your contact details.
- The fields with the next to them are mandatory.
- Please read the Data privacy regulations, and tick the box if you agree.
- Click on the Register button at the bottom.

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#### 2.2 Download

- Check the inbox of the supplied email address for a mail from Beckhoff Automation.
- Click on the link in the mail to confirm your registration.



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- Fill in the email address and password provided during account creation.
- Click on the Login button.



#### 2.2 Download

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- Once logged in, your download cart is shown.
- Click on the link to download TwinCAT 3.1.



- Once downloaded, right click on the zip file and select
   Extract All...
- Then click the Extract button on the window that pops up.



#### 2.3 Run Installer as Administrator

- Once extracted, open up the folder containing the TC3.1 installer.
- Right click on the installer and select

Run as Administrator...

 When prompted to allow application to make changes to your system, agree.



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#### 2.3 Run Installer as Administrator

Click Next.

agreement.

Click Next again.



#### 2.3 Run Installer as Administrator

- In order to support multi-user login to the PLC, the installer will need to include Git, which is covered by the GPL License.
- Although a very useful feature, it is not critical to the operation of TwinCAT and can be excluded from the installation if required.

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Brd Party Software: Git for Windows Minimal	License: GPL License	Used by TwinCAT component: TwinCAT Multiuser
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I accept the terms of the I do not accept the terms	s of the license agreem	ent. 3rd Party Software will not be installed.

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• A complete installation is recommended.



#### 2.3 Run Installer as Administrator

- If an existing installation of Visual Studio 2013/15/17 Shell or Full is detected, TwinCAT can be integrated into it. This is optional.
- In addition, TwinCAT XAE Shell is installed, and will be used for this course.
- Click on Install to start the installation of TwinCAT 3.1, which may take up to 30 minutes.



#### 2.3 Run Installer as Administrator

Once complete, your computer will need to reboot in order to complete the installation.

Your computer must be restarted before continuing with the next step.



## 2.4 Finish Installation BECKHOFF After rebooting, The Cog should be visible in the System tray. This indicates that TwinCAT was installed successfully, and that the background service is running.

#### 2.4 Finish Installation

One last task remains on Windows 8 and Windows 10 computers to allow simulation on your computer: please run

C:\TwinCAT\3.1\System\win8settick.bat

as Administrator, and allow it make changes to your system, then reboot again.

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Properties	TcSysUL.exe	19/12/2019 13:29	Application	640 KB			
a via	win8settick.bat	19/12/2019 11:11	Windows Batch File	1 KB			

#### Module 2 Recap

- TwinCAT 3.1 is now installed on your computer, allowing you to:
  - Write PLC applications,
  - Simulate PLC programs on your computer without any hardware,
  - Connect to an IPC and remotely debug your PLC program whilst running on real hardware.
- No licenses are required to run, deploy and debug TwinCAT 3.1 PLC applications.

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