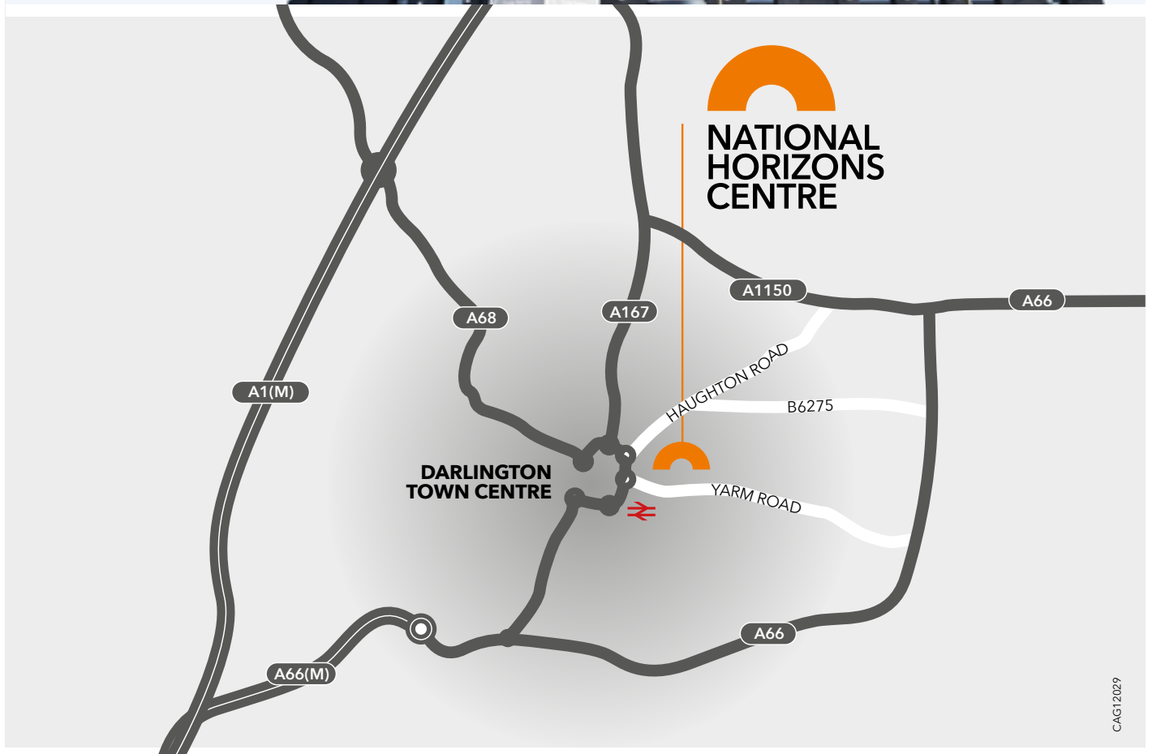

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TEES VALLEY COMBINED AUTHORITY | TEES VALLEY MAYOR

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European Union
European Regional Development Fund

NATIONAL HORIZONS CENTRE

Teesside University

INTRODUCTION TO PROCESS AUTOMATION AND CONTROL

DELIVERED IN PARTNERSHIP WITH APPLIKON, EMERSON AND INDUSTRIAL TECHNOLOGY SYSTEMS

A UK CENTRE OF EXCELLENCE FOR THE BIOSCIENCE INDUSTRY

TRAINING

WELCOME

Dr Jen Vanderhoven

DIRECTOR

Welcome to the National Horizons Centre (NHC). We are Teesside University's centre of excellence for the biosciences and healthcare sector. With research, partnerships and training at our core, we bring together industry, academia, talent and world-class facilities to create real-world impact.

As a National Training Centre for Advanced Therapies, funded from the Department for Business, Energy & Industrial Strategy (BEIS) and Innovate UK (IUK) delivered through the Cell and Gene Therapy Catapult, our courses are industry approved and we have worked closely with key bioindustry leaders across the sector to ensure our courses have been designed to deliver vital skills needed for advanced therapies, vaccines manufacturing and bioprocessing.

Delivered in conjunction with Applikon, Emerson and Industrial Technology Systems, this three-day course introduces the benefits, strategies and concepts of automation and control in industrial biomanufacturing.

Participants learn about the potential for control improvement, how to know when process control systems are underperforming, and gain an appreciation of how to build a business case for implementing better quality control systems.

I look forward to welcoming you to the NHC.

The NHC is one of the National Training Centres part of the ATSTN programme funded from the Department for Business, Energy & Industrial Strategy (BEIS) and Innovate UK (IUK) delivered through the Cell and Gene Therapy Catapult.

COURSE OVERVIEW

DAY 1

Session one
The Bio Control Systems Landscape

Session two
Dynamics and why it is important to control design

Session three
Open and closed loop control concepts, reverse acting / forward acting, performance metrics and PID control

Session four
Bioreactor measurement and the implications for control, online measurement and offline sampling

Session five
Controller tuning laboratory

DAY 2

Session one
Advanced control concepts – feedforward, cascade and ratio control

Session two
Bioreactor loop interactions and their implications. Control strategies to mitigate interactions

Session three
Cost-benefit analysis

Session four
Industrial implementations of bioreactor control at the lab and pilot plant scale

Session five
Overview of statistical process control – concepts and its role

DAY 3

Session one
Overview of advanced control concepts

Session two
Software demonstration of advanced control

Session three
Control and automation in the validated environment

Session four
Exploiting data from the controlled environment