



Applied Control Techniques Training Course – November 2017

Exceptional practical know-how for top performance with simple means -
the methods, techniques and experiences of the leading users

Increasing pressures on cost, quality, energy consumption, emission etc. demand increased controller performance and often even different control strategies, which in turn requires skills and know-how beyond traditional education: The ability to analyse a situation quickly yet profoundly, to select the best suited strategy, technology or controller type and to bring it to top performance.

ACT's courses provide the skills to master these challenges and to exploit opportunities so far out of reach. This increases the plant's profitability and also gives participant's more job satisfaction, time and recognition. They go far beyond theoretical education **emphasizing on practical use** and deliver exceptional know-how in easy understandable way. Newcomers gain sound knowledge in most effective use of standard and advanced techniques and experienced users the **special know-how to master complex and difficult situations and to achieve better performance in shorter time. Furthermore, ACT's courses stand out because of:**

- **Selected, fully practice oriented material**, including controller and technology selection criteria, implementation aspects, tricks and secrets for top performance, trouble-shooting, many examples of successful applications but also pitfalls
- **Coverage of special, little known techniques** – simple, easy but powerful
- **Many realistic exercises** with our award winning PC tool TOPAS for deeper understanding, experience in troubleshooting and handling of situations which cannot be practiced on the plant
- **Intensive work in small groups**, questions are answered in depth, actual problems discussed
- **An exceptionally experienced instructor** - over 30 years in practical application and management.

Target participants

Process control technicians and engineers, operations support staff, process designers and supervisors.

Agenda:

Although some topics may sound familiar, their coverage goes far beyond other courses especially regarding practical aspects (implementation, trouble-shooting) and the focus on achieving excellent, fast results yet with simple means.

- ↑ **Part 1**
- ↑ *Objectives and Main Benefits of Control:* Objectives, motivation for closed loop control, incentives from improved control
 - ↑ *Measurements:* Types, selection criteria, characterization and analysis, sampling, noise and filtering
 - ↑ *Control Strategy Development:* Selecting the best information source and the best suited manipulated variable(s)
 - ↑ *Process Dynamics:* Types of process behavior and their effect on control, process parameter estimation
 - ↑ *Standard Control Concepts:* Hierarchical levels of control, basic concepts, cascade vs. single loop control
 - ↑ *Feedback Control, Single Loop:* Objective, PID principle, tuning, performance criteria, trouble-shooting
 - ↓ *Liquid Level Control:* Objective, standard approaches, average and tight (error squared) level control.
- ↑ **Part 2**
- ↑ *Dead Time Compensation:* Objective, Smith Predictor and Predictive PID
 - ↑ *Feed-forward disturbance compensation:* Objective, concepts and realization, trouble-shooting
 - ↑ *Constraint Control:* Objective, concepts, static vs. dynamic constraint control, a simple PID based scheme
 - ↑ *Multivariable Control:* Multi-loop vs. multivariable control, criteria for variable pairing, approaches, tuning
 - ↑ *Model Based Control Introduction:* Objectives, criteria for use, key concepts, model development, tuning
 - ↓ *Optimization Fundamentals:* Model-free vs. model-based optimization, EVOP - a most simple yet effective approach
 - ↓ *Applications Implementation, Performance Assessment and Monitoring, Calculation of the Realized Incentives.*

The students' opinion: *"Best course I ever had - an important course for every control professional - the most practice oriented training I ever had - excellent course, could go on much longer - very good integration of different requirements and backgrounds".*

The most typical reaction: *"I did not believe that I could learn so much more".*

Course lecturer: Hans H. Eder, is a former senior control expert and CIM Advisor with EXXON with over 25 years experience in application and management of advanced control (speciality MBPC) and production optimisation. He has achieved outstanding results (measured in hard \$ figures), often with surprisingly simple means, and has also earned a reputation for locating untapped opportunities for cost savings and profit improvement. He is a key contributor to the *Handboek Procesautomatisering* (published by Kluwer Wolters), has given many speeches and presentations on APC and MBPC, held numerous courses and seminars in Europe, America and Asia and is also a registered expert with the European Commission.

The company: **ACT** offers outstanding know-how, technology and software for process control and operations optimization – with the objective to deliver maximum benefits with minimum cost and effort. Two examples: **TOPAS** is our award winning PC toolkit for controller selection / tuning / optimization and troubleshooting. **AMC** is our model based predictive controller, extremely simple, yet powerful and robust - for use right in the DCS. Furthermore, **ACT** offers several technologies especially for energy savings.

The course location: The course will be given at the premises of ACTA vzw in Brasschaat near Antwerp.

COURSE REGISTRATION

Send to (best by e-mail):

ACT – Hans H. Eder, Hauptstr. 22, 86497 Horgau, Germany
Phone +49 8294 860 1388,
e-mail office@act-control.com
<http://www.act-control.com/>

NAME POSITION
COMPANY DEPT
ADDRESS
VAT number (if within EU)
PHONE FAX
E-Mail
DATE SIGNATURE

I register for the following course in Belgium:

- APPLIED CONTROL TECHNIQUES - PART 1&2, November 13 – 17, 2017
in Brasschaat / Antwerp, Belgium**

Course fee for participants from EU countries: Euro 2800.00 (excl. VAT)

Course fee for participants from outside the EU: Euro 2900.00 (excl. VAT)

For optimum results and for most efficient future work we recommend
to purchase our award winning PC tool **TOPAS** already prior to the course
and to study the demos and exercises.



Important:

To ensure the enrolment, payment must be received two weeks prior to the course start. Payment can be made by bank transfer to our account IBAN DE84 3907 0024 0124 1025 00 at the Deutsche Bank, BIC/SWIFT code DEUTDEDB390. Course fees include handout material, lunches and beverages during the day, but not VAT. A charge of Euro 300.00 per person will apply for cancellations up to one week before course start. After that, the full course fee will be charged. For optimum results, the number of participants is limited to 12 and slots are reserved on a "first-come-first-serve" basis.

Courses can also be given at a place and date convenient for you, also in German. Contact us!