

Practical Chemical Engineering for Robust Process Development and Scale-Up

WEBCOURSE INSTRUCTOR:

Dr. Andrei A. Zlota

Online training



March 30 – April 01, 2021, and June 8 – 10, 2021



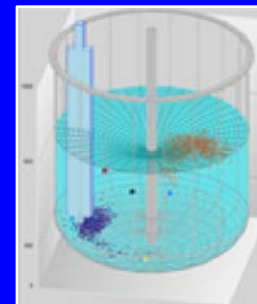
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www.thezlotacompany.com

“An excellent course delivered by an expert in the field. Very worthwhile.”

Practical Chemical Engineering for Robust Process Development and Scale-Up



Webcourse fee: 1040 EUR (\$1,274)

Discounts available for multiple registrations, please inquire: info@thezlotacompany.com

Participants interested in the course manual can order a copy (shipping and handling fees apply)

COURSE OVERVIEW

- Provides a practical perspective of chemical engineering concepts used in synergy with chemical sciences to successfully develop scaleable processes
- Practical learning: two hands-on workshops and several interactive discussions based on real-life examples
- Makes recommendations for effective collaboration between chemists and chemical engineers
- Facilitation by a chemist and chemical engineer with over 25 years experience providing realistic advice for the early integration of chemical engineering in process development

WHO SHOULD ATTEND

Chemists project managers and supervisors who seek to learn about the value of early synergy between chemistry and chemical engineering, and about chemical engineering concepts. Typical attendees include process chemists, analytical chemists, manufacturing engineers, mechanical and electrical engineers, as well as formulation scientists.

COURSE SYLLABUS

1. Introduction

- The value of the synergy between chemistry and chemical engineering for rapid development of robust processes
- Chemists and chemical engineers: outlooks and partnerships
- Transport phenomena: mass and heat transfer

2. Ideal reactors

- Reaction mechanisms and kinetics
- Chemical reaction engineering
- Batch reactors
- Continuous stirred tank reactors
- Plug flow reactors

3. Converting batch to continuous processes

- Continuous processing advantages
- Batch process evaluation
- Design of continuous processes
- Process safety considerations
- Economic justification

4. Mixing and Scale-Up, Non-Ideal Reactors

- Homogeneous processes
- Liquid-liquid heterogeneous processes
- Solid-liquid heterogeneous processes
- Gas-liquid heterogeneous processes
- API crystallization process development and scale-up
- Scaling-up by scaling down
- Workshop (practical mass and heat transfer calculations)

5. API Crystallization

- Batch crystallization process development and scale-up
- Continuous crystallization process development
- Process Analytical Technology (PAT) and Statistical design of experiments (DoE) for crystallization process development
- Case studies

6. Filtration and Drying

- Filtration equipment
- Filtration process design and scale-up
- Filtration case studies
- Drying equipment
- Drying process design and scale-up
- De-agglomeration (delumping)
- Drying case studies

7. API Micronization

- Micronization equipment
- Micronization process design and scale-up
- Micronization case studies
- Workshop

8. Review, round table discussion

COURSE SCHEDULE

Day 1: 8:30 -11:30 AM EST (14:30-17:30 CET)

Day 2: 8:30 -11:30 AM EST (14:30-17:30 CET)

Day 3: 8:30 -11:30 AM EST (14:30-17:30 CET)

Daily coffee break: 9:50 - 10:10 AM EST (15:50-16:10 CET)

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“Dr Zlota is a great lecturer who takes the time to make sure his audience is following what could be at times challenging material to understand.”

COURSE INSTRUCTOR



Dr. Andrei A. Zlota

Dr. Zlota is the President and Chief Chemical Engineer at The Zlota Company which he founded in 2006. During this time Andrei provided consulting for risk analysis, statistical design of experiments (DoE), chemical process scale-up, crystallization process development, and process analytical technology (PAT) for 36 pharmaceutical companies. Andrei also trained 2,500 scientists from 200 companies worldwide on QbD methodology. Previously, Andrei worked for Sepracor, Gillette, Monsanto and Biopharm. Dr. Zlota obtained his PhD in Chemistry from the Weizmann Institute of Science, his MSc in Chemistry from the Technion, and his MSc in Chemical Engineering from the Bucharest Polytechnic Institute.

Note: Andrei's full bio is available at www.thezlotacompany.com

COURSE OBJECTIVES

Upon completion, the course participants will be able to:

- Appreciate key chemical engineering principles
- Understand the importance of the early chemists-chemical engineering collaboration
- Meaningfully compare batch with continuous reactors
- Design a practical strategy to convert batch to continuous processes as appropriate
- Establish a robust strategy to define chemical process scale-up factors
- Successfully design a robust crystallization process
- Use the tips provided to effectively design filtration, drying and milling processes

IN-HOUSE WEBCOURSES

For groups larger than seven participants, a customized webcourse can be delivered in-house, please inquire: info@thezlotacompany.com.

REGISTRATION

Please register at www.thezlotacompany.com, or e-mail the pdf scan of the form below to: info@thezlotacompany.com.

Upon confirmation of registration an invoice will be e-mailed to the registrant for payment by electronic bank transfer.

CANCELLATION POLICY

Cancellations must be made in writing at info@thezlotacompany.com, and they are subject to a 390 EUR cancellation fee. If cancellation is made more than thirty (30) days prior to the course, a refund equal to the fee paid minus the 390 EUR cancellation fee shall be issued. If cancellations are made less than thirty (30) days prior to the course, a voucher for the value of the fee paid minus 390 EUR cancellation fee will be issued for use towards the fee of another course offered by The Zlota Co., either by the same registrant, or by anyone else in that company. If a registrant fails to attend but has not cancelled the registration, neither a refund nor a voucher shall be issued. Requests for substitutions must be made in writing to: info@thezlotacompany.com.

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REGISTRATION FORM

Register at www.thezlotacompany.com, or e-mail the pdf scan of the form below to: info@thezlotacompany.com. Upon confirmation of registration an invoice shall be e-mailed to the registrant.

Company Name	
Title (Dr/Mr/Ms)	
First Name	
Last Name	
Job Title	
Street Address	
City	
Post/Zip Code	
Country	
e-Mail Address	
Office telephone number	
Mobile telephone number	

I agree with the cancellation policy described above, please initial here: _____

We will store your contact information securely, and use it for the purpose of communicating course updates, sharing it only with participants of the same course for which you registered. Additional details regarding our privacy policy can be found at <http://www.thezlotacompany.com>.

If you agree to have your contact information shared with third parties, please initial here: _____