

# LIEBERMAN PROCESS TROUBLESHOOTING SEMINAR

ACCREDITED as Continued Professional Development Activity

25 to 27 January 2022 / 1 to 3 February 2022

(Registration key date 15 DECEMBER 2021)

## ONLINE WEBINAR – LIMITED POSITIONS

### OVERVIEW



This popular PROCESS TROUBLESHOOTING SEMINAR is conducted by the internationally acknowledged expert in his trade and author of several world renowned books. The presentation is interactive and would benefit all working in the process engineering field from novice engineers to the most experienced. The full spectrum of troubleshooting methodology, practical approach as well as process fundamentals are addressed in a challenging, stimulating and enthusiastic manner. It is eye opening, challenging and inspiring!

### CONTENT

**The content would be finalised with representatives of the attendees from the spectrum of topics listed below. Probably 1 day distillation; 1 day reboilers, condensers & heat exchangers; 1 day pumps, turbines & compressors.**

**Distillation:** Review of Fundamentals, Tray Hydraulics, Identifying Flooded Towers, Tray Deck Plugging – Downcomer Back-up, Damaged Trays, Effects of Excessive Preheat, Control Problems, Incipient Flooding, Expanding Tower Capacity, Crude Column Fractionation, Optimizing Pumparounds, Side stream stripping Problems, Tower Pressure Drop Surveys, Tower External Temperature Surveys, Tower Bottoms Steam Stripping, Packed Tower Design and Operation, FCCU Fractionator Problems.

**Reboiling and Condensing:** Thermosyphon Reboilers, How Reboiler Problems Cause Tower Flooding, Kettle and Forced Circulation Problems, Fouling in Shell and Tube Exchangers, Effect of Sub-cooling on Condenser Efficiency, Pressure Control in Light Ends Columns, Air Fin-Fan Coolers, Vacuum System Inter-Stage Condensers.

**Fired Heaters:** Proper Use of Excess Air, Heat Balancing Convective and Radiant Sections, Draft Control, Afterburn – Causes and Cures, Air Preheaters, Preventing SO<sub>3</sub> Condensing, On-Stream Cleaning Techniques, Coke Formation Inside Tubes, Debottlenecking Heaters.

**Pumps, Turbines and Steam Jets:** Operation of Centrifugal Pumps, Mechanical Seals and Bearings, Optimum Impeller Size, Sizing Motor Drives, Troubleshooting NPSH, Steam Turbines 0 Use of Hand Valves, Surface Condensers, Vacuum Pumps, Converging – Diverging Jets, Optimising Steam Jet Performance, Pumping Viscous Fluids.

**Compressors:** Centrifugal Compressor Fundamentals, Relationship of Polytropic Head to Surge, Rotor Fouling, Measuring Compressor Efficiency, Reciprocating Compressor Fundamentals, Volumetric Compression Efficiency, Head-End Unloaders.

### PRESENTERS



*NORMAN LIEBERMAN has authored several highly acclaimed books from his career in design, debottlenecking and troubleshooting Of process equipment predominantly in the oil & gas, and petrochemical industry. He has taught in excess of 400 technical seminars on process troubleshooting with a very unique interactive style. The case studies from one of his books "A working guide to Process Equipment", co-authored with ELIZABETH LIEBERMAN forms the basis of the Lieberman Process Troubleshooting Seminar.*



### VENUE – ONLINE WEBINAR

Webinar details to follows later.

- 3 full days SA Time
- 6 x 1 hour sessions per day, 15 minutes break between sessions, 60 minute lunch break.

## COURSE FEE: (Excluding VAT)

The attendance fee (excluding VAT) is set on a sliding scale to give attendees the “economy of scale benefit”.

**Rate per person will be based on number of registrations confirmed by 15 December 2021.**

- At least 7 attendees registered by 15 December 2021: R 42 000 per attendee. (Minimum required)
- > 10 attendees registered by 15 December 2021: R 35 000 per attendee
- > 15 attendees registered by 15 December 2021: R 25 000 per attendee
- Maximum places available is 20

## REGISTRATION

A MS-Word registration form can be obtained from the ‘Scheduled Events’ page of the *RESOLVE* web page at [www.resolvekzn.co.za](http://www.resolvekzn.co.za). Complete the required input fields and then e-mail the form to [andries@resolvekzn.co.za](mailto:andries@resolvekzn.co.za). Positions are limited and will be filled on a first-come-first served basis.

**Order and Payment:** On 20 December 2021 or thereafter upon registration an invoice would be sent to the nominated contact for payment by electronic transfer within 30 days. Late payment could result in put attendance reservation of attendance at jeopardy.

## RESERVATIONS:

Due to the popularity of this course early registration is advised as available places would be allocated according to sequence in which registrations are received.

Late payment could put reservation of attendance at risk. Full payment is the final guarantee of reservation.

For cancellations received after 15 December 2021 there would be no refund and the full attendance fee would be due. For cancellations received before 15 December 2021 there would be no payment due.

If you registered and are unable to attend the event you may substitute at any time. Such substitution and name changes must be communicated to *RESOLVE* by e-mail.

Presentation of the seminar is subject to a minimum of 7 attendees confirmed by 15 December 2021; the programme could be subject to change at the discretion of Norman Lieberman or *RESOLVE* and in the event of illness the date or presenter could be altered.

**HOST :** [www.resolvekzn.co.za](http://www.resolvekzn.co.za)



This excellent opportunity for the Process Engineers is proudly hosted in South Africa by UNLOCK AND ALIGN FACILITATION CC. trading as *RESOLVE*. Refer to [www.resolvekzn.co.za](http://www.resolvekzn.co.za) for more information on this or other exciting opportunities hosted and presented by *RESOLVE*



## 2022 LIEBERMAN PROCESS TROUBLESHOOTING WEBINAR

25 to 25 January 2022 or 1 to 3 February 2022 (To be confirmed). ONLINE WEBINAR

Download and complete registration form and e-mail to [andries@resolvekzn.co.za](mailto:andries@resolvekzn.co.za)

Find herewith a request for the following reservation for the above training course:

**REGISTRAR DETAIL:**

Name: [ ] e-mail: [ ] Tel: [ ]

**INVOICE DETAIL:**

Company Name: [ ] VAT Nr. [ ] Quotation Required? (Yes / No): [ ]

Company Invoice Address: [ ] Order Nr. [ ]

Invoice Contact Name: [ ] Invoice Contact e-mail: [ ] Invoice Contact Tel: [ ]

**ATTENDEE DETAILS:**

|    | Name & Surname | ID Nr | e-mail | ECSA Nr | Physical Address for Course Material Delivery |
|----|----------------|-------|--------|---------|---|
| 1  |                |       |        |         |   |
| 2  |                |       |        |         |   |
| 3  |                |       |        |         |   |
| 4  |                |       |        |         |   |
| 5  |                |       |        |         |   |
| 6  |                |       |        |         |   |
| 7  |                |       |        |         |   |
| 8  |                |       |        |         |   |
| 9  |                |       |        |         |   |
| 10 |                |       |        |         |   |

**Course Fee:**

The attendance fee (excluding VAT) is based on the number of registrations received on 15 December 2021. The attendance fee is set per sliding scale to benefit economy of scale to participants. R 42 000 per attendee if at least 7 register; R 35 000 if >10 register; R 25 000 if >15 register. Maximum attendance is set at 20.

**Payment:** On 20 December 2021 or thereafter upon registration an invoice would be sent to the nominated contact for payment by electronic transfer within 30 days. Late payment could put attendance reservation at risk.

**Reservations:** If you registered and are unable to attend the event you may substitute at any time. Such substitution and name changes must be communicated to *RESOLVE* by e-mail. No refund for cancellation after 15 December 2021. Presentation is subject to minimum requirement of 7 attendees registered by 15 December 2021. The programme could be subject to change at the discretion of Norman Lieberman or *RESOLVE* and in the event of illness the date or presenter could be altered. Refer to course brochure for other rights reserved.