

# **"Introduction to Process Analytical Chemistry"**

*ACS - 2-Day Short Course*

<b>Lecture #</b>	<b>Lecture Title</b>
1	0 - Course Syllabus
2	1 - Assessing the Need for Process Improvement
3	2 - Benefits of Process Analyzers
4	3 - Capital Cost Justification of an Analyzer Project
5	4 - Definition of the Process Analytical Problem to be Solved
6	5 - Project Implementation
7	6 - Pharmaceutical Considerations and PAT
8	7 - Process Analytical Technology Solutions
9	7.11 - Near-IR Spectroscopy - 1 - Introduction
10	7.11 - Near-IR Spectroscopy - 2 - Drying Study
11	7.12 - Mid-IR Spectroscopy
12	7.13 - Raman Spectroscopy - 1 - Introduction
13	7.13 - Raman Spectroscopy - 2 - Instrumental Components
14	7.13 - Raman Spectroscopy - 3 - Process Sampling & Applications
15	7.14 - Dispersive vs FT Design Considerations
16	7.15 - Mass Spectrometry - 1 - Quadrupole - Introduction
17	7.15 - Mass Spectrometry - 2 - Quadrupole - Applications
18	7.15 - Mass Spectrometry - 3 - Magnetic Sector
19	7.16 - Nuclear Magnetic Resonance Spectrometry
20	7.17 - UV-visible Spectroscopy
21	7.20 - Brief Overview of Statistical Data Treatment - Chemometrics
22	7.31 - Gas Chromatography - 1 - Introduction and Components
23	7.31 - Gas Chromatography - 2 - Sample Systems
24	7.31 - Gas Chromatography - 3 - Column Switching
25	7.31 - Gas Chromatography - 4 - Application
26	7.32 - Liquid Chromatography
27	7.33 - Ion Chromatography
28	7.41 - Potentiometric Titration and ISE
29	7.42 - Particle Size Analysis - 1 - Laser Diffraction
30	7.42 - Particle Size Analysis - 2 - FBRM
31	7.43 - Moisture Analysis
32	7.44 - Ancillary Analyzers - 1 - density and flow
33	7.44 - Ancillary Analyzers - 2 - turbidity
34	7.44 - Ancillary Analyzers - 3 - viscometry - rotational
35	7.44 - Ancillary Analyzers - 4 - viscometry - vibrational
36	7.44 - Ancillary Analyzers - 5 - TOC
37	7.44 - Ancillary Analyzers - 6 - IMS
38	7.44 - Ancillary Analyzers - 7 - gas analyzers
39	8.1 - Pharmaceutical Considerations and PAT - 2.1
40	8.2 - Pharmaceutical Considerations and PAT - 2.2
41	9 - Process Analytical Resources
42	10 - Conclusions and Final Considerations
43	11 - Acknowledgements