Short Course on Precision Coating and Drying

Coating Process Fundamentals Program
Industrial Partnership in Interfacial and Materials Engineering (IPRIME)
University of Minnesota

January 8th, 2019

Tokyo, Japan

Overview:

This course provides coating engineers, scientists and researchers with an understanding of the principles of premetered coating processes and solidification phenomena that are central to developing high performance, precision coatings used in a variety of industries. This one-day course includes content from the Coating Process Fundamentals Short Course held annually on the campus of the University of Minnesota each May. The course draws on decades of research in the Coating Process Fundamentals Program. Comprehensive course notes will be provided.

Instructors:

Marcio Carvalho, Professor in Department of Mechanical Engineering, Pontifical Catholic University of Rio de Janeiro; Principal investigator in the Coating Process Fundamentals Program. Research interests: Precision coating processes (slot, slide, curtain), fluid mechanics, interfacial phenomena, rheology,

Lorraine F. Francis, Professor in Department of Chemical Engineering and Materials Science, University of Minnesota; Leader of the Coating Process Fundamentals Program. Research interests: Drying, curing, microstructure and stress development in coatings, printed electronics.

Schedule:

9:00 - 9:05	1. Welcome, Introductions. [LF]
9:05 - 9:35	2. Overview and basic phenomena. [MC]
9:35 - 10:05	3. Liquid coating properties. [MC]
10:05 - 10:35	4. Introduction to colloidal dispersions. [LF]
10:35 - 10:50	Break
10:50 - 11:30	5. Slot coating. [MC]
11:30 – 12:00	6. Tensioned web over slot coating. [MC]
12:00 - 12:55	Lunch
13:00 - 13:35	7. Slide and curtain coating. [MC]
13:35 - 14:15	8. Multilayer coating. [MC]
14:15 - 15:00	9. Drying and microstructure. [LF]
15:00 - 15:15	Break
15:15 - 16:15	10. Stress and stress-induced defects. [LF]
16:15 - 17:00	11. Examples of University of MN research with companies in IPRIME
17:00 - 17:10	Break
17:10 - 18:30	12. Q & A, business card exchange [MC & LF]