



COLLOIDS AND SURFACES

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INTENDED AUDIENCE : B.E/M.E/M.Tech/Ph.D

INDUSTRY SUPPORT : Consumer product industries (HUL, P&G, Paints, food and others)

COURSE OUTLINE :

This course introduces the fundamentals of colloids and nanoparticle science, wherever possible applications of these concepts will be discussed.

ABOUT INSTRUCTOR :

Prof. Madivala G. Basavaraj, Department of Chemical Engineering, Indian Institute of Technology-Madras. Before joining IIT-Madras in February 2011, He spent 3 months as visiting fellow at KULeuven (Belgium) in Prof. Jan Vermants group. He was a postdoctoral researcher with Prof. Norman J. Wagner at the University of Delaware (USA). He studied chemical engineering at SIT, Tumkur (Bangalore University), and received my M.S (Research) from IISc, Bangalore, by working on the determination of local dispersion coefficient and local holdup in a packed bed using X-rays. My PhD in chemical engineering is from KULeuven, Belgium (Prof. Jan Vermant). My PhD thesis was on - Tailoring colloidal gel rheology in bulk and at interfaces: Exploiting shape and surface chemistry effects.

COURSE PLAN :

Week 1: Introduction to Colloids

Week 2: Characterization of Colloids

Week 3: van der Waals Interactions

Week 4: van der Waals Interactions (continued)

Week 5: Colloid-Polymer Interactions

Week 6: Electrical Double Layer Interactions

Week 7: Electrical Double Layer Interactions (continued)

Week 8: Electrokinetics and Particles at Interfaces