

MSE-371 –Interfacial Phenomena (3 CH) (Elective)

Pre-requisites: None

Course contents:

- Surfaces in materials, physics of solid surfaces, theoretical models for adsorption, spectroscopic and other techniques for studying adsorption, **diffusion & conduction in phases.**
- Ion surface interactions, electron surface interactions
- Photon surface interactions, chemistry of surfaces
- Interfacial evaluation: (mechanical & structural)
- Interfacial modifications by surfactants / compatibilizers.
- Interfacial flow, stationary liquid layers, interfacial oscillations and waves
- Instabilities of parallel flows and films & Influence of lateral boundaries

Suggested Books

- Alexander A. Nepomnyashchy, Manuel G. Velarde, and Pierre Colinet, *Interfacial Phenomena and Convection*, Chapman and Hall/CRC, 2002
- Helmut Dosch, *Critical Phenomena at Surfaces and Interfaces*, Springer, 1992
- Robert J. Nemanich, P. S. Ho, and S. S. Lau, *Thin Films: Interfaces and Phenomena*