

MSE-852 Advanced Surface Coatings – 3 CHs

Prerequisite - Nil

Category: Elective Course

Existing Course Contents	Proposed Changes
<p>Course contents:</p> <ul style="list-style-type: none"> • Coating deposition and Surface treatment techniques, Classification of Coatings, • Hard facing, Thermal spraying, Vapor deposition, Microstructural modifications, • Diffusion treatment, Implantation techniques, Surface Cleaning Methods, • Surface roughening, Grit Blasting, Evaporation, Activated Evaporation • Activated Reactive Evaporation, Ion Implantation, Sputtering, • Chemical Vapor Deposition, Physically Enhanced Chemical Vapor Deposition, • Characterization of the coatings. 	<p>Course contents:</p> <ul style="list-style-type: none"> • Coating deposition and Surface treatment techniques, Classification of Coatings, • Chemical vapor deposition (CVD) & Physical vapor deposition (PVD) and their types e.g. Sputtering, evaporation, atomic layer deposition, pulse laser deposition, molecular beam deposition, plasma enhanced CVD, Physically enhanced CVD. Development of coatings for optical, electrical and dielectric applications • Multilayered stacks for batteries, solar cell and supercapacitors • Diffusion treatment, Implantation techniques, Surface Cleaning Methods, • Activated Reactive Evaporation, Ion Implantation, • Characterization of the coatings.

Proposed Weekly Plan for the Concerned Faculty

Week /Lecture	Topic
1	Coating deposition and Surface treatment techniques, Classification of Coatings,
2-6	Chemical vapor deposition (CVD) & Physical vapor deposition (PVD) and their types e.g. Sputtering, evaporation, atomic layer deposition, pulse laser deposition, molecular beam deposition, plasma enhanced CVD, Physically enhanced CVD. Development of coatings for optical, electrical and dielectric applications
7-9	Multilayered stacks for batteries, solar cell and supercapacitors,
10-12	Diffusion treatment, Implantation techniques, Surface Cleaning Methods,
13-15	Activated Reactive Evaporation, Ion Implantation,
16,17	Characterization of the coatings.