

2024 Advanced Materials Engineering I

Guest Lectures from overseas

On Oct. 7:

Prof. Joseph J. Richardson

“Polymeric and metal-organic thin films for engineering surfaces and controlling interfaces”

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Surfaces control the interactions between materials and their environment, and therefore thin films and coatings are ideal ways to engineer interfaces. This lecture will explore different thin film assembly techniques, namely Layer-by-Layer assembly, and metal-phenolic networks, as two powerful approaches to control interfaces. With Layer-by-Layer assembly, sub-nanometer control is provided for the coatings, and a wide range of polymers and cargo can be used to engineer the physicochemical properties of the coatings. With metal-phenolic networks, a wide range of phenolic ligands and metals imbue the films with unique properties relevant for a wide variety of applications. The two types of films will be compared and contrasted, along with the different methodologies for forming the films, and the various techniques available to characterize them.