Industrial scale research and development leading to innovations in technologies and products depend on both technical and business problem solving. Whereas science and engineering can guide us in inventing new technologies and solving technical problems, one of the biggest challenges in commercializing inventions and innovative processes is scale-up. With the costs of physical experiments mounting up as complexity increases, computational experiments (a.k.a. simulations) in the mathematical prototypes of real system are ever so increasingly being used in industrial R&D set-ups for scaling up technologies. For advanced degree chemical, biological, and materials engineers entering in commercial R&D, this seminar would provide real life perspective to launch large-scale industrial innovations while ensuring scientific and engineering depth necessary for the same. The students and researchers would learn how to focus and plan their graduate studies and research work for a wide-ranging impact on business and progress of the contemporary world.