

1.	Title of the course	Chemical Production Scheduling
2.	Course number	CH523L
3.	Structure of credits (L-T-P-C)	3-0-0-3
4.	New course/modification to	New
5.	To be offered by	Chemical Engineering
6.	Prerequisite	CoT
7.	Course Objective(s): To discuss principles, techniques, and tools required to develop efficient production schedules in chemical manufacturing environments. To apply various modeling strategies and advanced solution methods that increase the computational efficiency of the scheduling models.	
8.	Course Content: Introduction to linear programming and mixed integer linear programming, Scheduling: Definition and Application, Chemical production environments, Batch and continuous processing, Sequence-based models, Time grid-based models, Scheduling models for the sequential environment: single unit, single stage, multi-stage and multipurpose, Modeling and optimization of network environments: State task and resource task network representations, Continuous process scheduling, Introduction to advanced solution methods: decomposition, tightening, reformulations.	
9.	Textbook(s): 1. Maravelias C T, Chemical Production Scheduling: Mixed-Integer Programming Models and Methods, Cambridge University Press (2021). 2. Pinedo M L, Scheduling: Theory, Algorithms, and Systems, 3rd Edition, Springer (2008).	
10.	Reference(s): 1. Kopanos G M and Puigjaner L, Solving Large Scale Production Scheduling and Planning in the Process Industries, Springer (2019). 2. Diwekar U M, Introduction to Applied Optimization, 3rd Edition, Springer (2020).	