Department of Industrial Chemistry **Faculty of Science**

CHE (258)474 **Optimization of Chemical Processes** **3(3/3-0/0)**

Abbreviation OPTIMIZATION CHEM PROC

Prerequisite **CHE 403**

Course Description

Nature of optimization problems, developing models for optimization, formulation of the objective function, concepts of optimization, optimization of unconstrained functions, linear programming, nonlinear programming and application of optimization in chemical processes

Objectives

1. Students will be able to understand optimization theory and methods
2. Students will be able to apply those theory and methods to optimize chemical processes

Course Content	**Lecture Hours**
1. Nature of optimization problems	3
2. Developing models for optimization	3
3. Formulation of the objective function	3
4. Concepts of optimization	3
5. Optimization of unconstrained functions	5
6. Linear Programming	5
7. Nonlinear Programming	5
8. Application of optimization in chemical processes	
8.1 Heat transfer and energy conservation system	3
8.2 Separation processes	3
8.3 Fluid flow systems	3
8.4 Chemical reactor design and operation	3
8.5 Large-scale plant design and operation	3
8.6 Planning, scheduling, and control in the chemical process industries	3
Total	45