OPER 331 - Nonlinear Optimization

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Basic Information:

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Office hours:
Lectures time: 1-3-5, 3:00 – 4:00

Assessment task	Week Due	Proportion of Total Assessment
Homework assignments	3,5,8,10	10%
Quizzes		10%
Midterm Exam (1)	6,7	20%
Midterm Exam (2)	11,12	20%
Final Exam	16	40%

Course Outline

1. Review of matrix algebra and convex analysis.
2. Basics concepts of optimization and classification of optimization problems.
3. Nonlinear optimization without constraints:
   - Optimality conditions
   - Sufficient conditions
4. Constrained optimization problem: Graphical solution - Optimality conditions - Lagrange technique - Kuhn Tucker conditions and their application to Quadratic program.
5. One dimensional and multi-dimensional search techniques for unconstrained optimization problems.
6. Gradient Projection, Feasible direction, and Penalty barrier function Methods: Algorithms and solution procedures with applications