This course is offered to UG and PG students of Engineering/Science background. It contains methods to solve nonlinear optimization problems which includes convex programming, KKT optimality conditions, quadratic programming problems, separable methods, geometric and dynamic programming. It also covers some search techniques which are used to solve nonlinear programming problems. It plays a vital role in solving various engineering and science problems.

Dr. S.K. Gupta is an Associate Professor in the Department of Mathematics, IIT Roorkee. His area of expertise includes Nonlinear and Fuzzy optimization. He has guided three PhD theses and has published more than 40 papers in various international journals of repute. He has also developed a NPTEL online certification course on “Mathematical methods and its applications” (jointly with Prof. P. N. Agrawal).

**COURSE OUTLINE :**

### Week 01:

### Week 02:
KKT optimality conditions, Quadratic Programming Problems-I, Quadratic Programming Problems-II, Separable Programming-I, Separable Programming-II.

### Week 03:

### Week 04: