AGU
Course Record Catalogue

Code	**IE516**
Name	**Nonlinear Programming**
Hour per week	3 (3 + 0)
Credit	3
ECTS	10
Level/Year	Graduate
Semester	Fall or Spring
Type	Elective
Prerequisites	IE511
Content	A thorough introduction to the theory algorithms and applications of constrained and unconstrained nonlinear programs. The course is composed of two parts. Part I presents the fundamentals and the theoretical aspects such as convex sets and functions, necessary and sufficient optimality conditions, constraint qualifications, duality theory, Lagrange multipliers and semidefinite optimization. Part II is on computational aspects such as algorithms for quadratic programming, Newton and Gauss-Newton methods, gradient projections, conditional gradient method, barrier methods, interior point methods, subgradient optimization and convergence analysis.