Static optimization refresher

Course title - Intitulé du cours	Static optimization refresher
Level / Semester - Niveau /semestre	M1 / Semestre 1
School - Composante	TSE
Teacher - Enseignant responsable	SILVA_FRANCESCO
Other teacher(s) - Autre(s) enseignant(s)	
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Other teacher(s) - Autre(s) enseignant(s)	
Lecture Hours - Volume Horaire CM	15
TA Hours - Volume horaire TD	
TP Hours - Volume horaire TP	
Course Language - Langue du cours	Anglais
TA and/or TP Language - Langue des TD et/ou TP	Anglais

Teaching staff contacts - Coordonnées de l'équipe pédagogique :

francisco.silva@unilim.fr MF 010 Après les cours. Sortie de cours, par mail et sur rendez vous.

Course's Objectives - Objectifs du cours :

- It is a basic course oriented to operational methods which is meant for (static) optimization users. - We shall insist a lot on intuition and on the geometry of optimization problems which is not generally well understood. - Some classical exercises will illustrate the standard methods of optimization (e.g. using second order conditions, solving simple equality/inequality constrained maximization, graphical solutions for linear programs, etc). - Students willing to deepen the subject may use the bibliographical references provided at the end of the syllabus. - Students already familiar with optimization but who need to refresh their memory might also find this course profitable.

Prerequisites - Pré requis :

- Basic Calculus. - Elementary notions of linear algebra. - Elementary differential calculus. - Basic notions in real analysis : supremum/infimum, limits, continuity of functions, closed/open sets, compact sets.

Grading system - Modalités d'évaluation :

Pas d'évaluation.

Bibliography/references - Bibliographie/références :

Elementary references: - Optimization in Economic Theory, A.K. Dixit, 1990. - Mathematic Optimization and Economic Theory, M. Intriligator, SIAM, 2002. Some accessible references: - Chong E.K.P., Zak S.H., "An introduction to optimization" (Second Edition), Wiley Inter-Science in Discrete Mathematics an Optimization, 2001. - Luenberger, D. G. Optimization by vector space methods". John Wiley & Sons, Inc., New York-London-Sydney 1969 xvii+326 pp. - Sundaram, R.K. "A first course in optimization theory". Cambridge University Press, Cambridge, 1996. xviii+357 pp. More involved

material: - Bonnans F., “Optimisation continue”, Dunod, 2006. - Boyd S. and Vandenberghe L., “Convex Optimization”, Cambridge University Press, 2004. Available online, MOOC available after registration. - Borwein, J., Lewis, A.S., “Convex Analysis and Nonlinear Optimization”, Springer-Verlag 2000. - Ruszczynski, A., “Nonlinear Optimization”, Princeton University Press, 2006.