UNIVERSIDADE FEDERAL DE SANTA CATARINA
CENTRO DE CIÊNCIAS FÍSICAS E MATEMÁTICAS
PÓS-GRADUAÇÃO EM MATEMÁTICA PURA E APLICADA

MTM510022 Introduction to Continuous Optimization

Pre-requisite: MTM410019 Linear Algebra; MTM410029 Análise Funcional

Weekly lesson hours: 06h

Discipline syllabus: Existence of solutions. Optimality conditions for problems without restrictions. Primal optimality conditions for constrained problems. The tangent cone. Optimality conditions in the case of equality constraints (Lagrange conditions, second-order conditions). Convex sets. Separation theorems. Theorems of alternative. Convex functions. Optimality conditions in the case of equality and inequality constraints (KarushKuhn-Tucker conditions, second-order conditions). Elements of Duality Theory.

BIBLIOGRAPHIC REFERENCES

Text book:

1. IZMAILOV; M. SOLODOV – Otimização-Volume 1: Condições de Otimalidade, Elementos de Análise Convexa e de Dualidade, Segunda Edição, Projeto Euclides, IMPA, 2009.

COMPLEMENTARY BIBLIOGRAPHY

1. BERTSEKAS, D. P. - Nonlinear programming, Belmont, Mass.: Athena Scientific, 1995.
2. LUENBERGER, D. G. - Linear and nonlinear programming. 2nd ed. Kluwer Academic Publishers, Boston, MA, 2003.
3. PERESSINI, A. L.; SULLIVAN, F. E., UHL, J. J., JR- The mathematics of nonlinear programming. Undergraduate Texts in Mathematics. Springer-Verlag, New York, 1988.
4. ROCKAFELLAR, R. T. - Convex Analysis. Princeton Univ. Press, 1970.