



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

MTM410034 Ordinary Differential Equations

Pre-requisite: x-x

Weekly lesson hours: 06h

Discipline syllabus: Some usual methods of solving first order ordinary differential equations. Higher order ordinary differential equations. Linear systems with constant coefficients. Calculating the exponential of a matrix using Jordan's canonical form theorem. Phase portrayals of two-dimensional systems. Theorem of existence and uniqueness of solutions. Stability of solutions of non-linear systems. Liapunov theorems for stability.

BIBLIOGRAPHIC REFERENCES

1. BRAUER, F., Nohel, J.A; Ordinary Differential Equations: A First Course, W. A. Benjamin, INC, New York, 1967.
2. BRAUER, F., Nohel, J.A; The Qualitative Theory of Ordinary Differential Equations, W., Benjamin, INC., 1969.
3. Braun, M, Equações Diferenciais e suas Aplicações, Ed. Campus, Rio de Janeiro, 1979.
4. CODDINGTON, E. A., An Introduction to Ordinary Equations, Dover publications. INC, New York, 1993.
5. De FIGUEIREDO, D. G. e NEVES, A. F., Equações Diferenciais Aplicadas, Colóquio Brasileiro de Matemática, Universitária, 2002..
6. HIRSCH, M., SMALE, S., Differential Equations, Dynamical Systems, and Linear Álgebra, Academic Press, INC. N. Y., 1974.
7. YOSIDA, K., Lectures on Differential and Integral Equations, Wiley Inter-science, N. Y., 1960.
8. BELLMAN, R, & COOKIE, K. L., Modern Elementary Differential Equations: Second Edition, Publications, INC, New York, 1994.