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

MTM410020 Complex Variable

Pre-requisite: Linear Algebra and Analysis

Weekly lesson hours: 06h

Discipline syllabus: Complex numbers. Sequences in the complex plane. The Riemann sphere. Functions of a complex variable. Conditions of Cauchy-Riemann. Integration of complex functions. Cauchy's theorem. Cauchy integral formula. Goursat's theorem. Analytical functions and power series. Laurent series. Calculations of integrals with residues. Conformational transformations and their applications. Analytical continuation. Introduction to Riemann surfaces.

BIBLIOGRAPHIC REFERENCES

Text book:

1. CONWAY, J. B. - Functions of One Complex Variable, Berlin, Springer-Verlag, 1978.

COMPLEMENTARY BIBLIOGRAPHY:

1. AHLFORS, L. - Complex Analysis. New York, McGraw-Will, 1966.
2. CARTAN, H. - Theórie Élementaire des Fonctions Analytiques d'une ou Plusieurs Variables Complexes. Paris, Hermann, 1961.
3. LANG, S. - Complex Analysis, 4th edition, Springer-Verlag, 1999, 485p.
4. STEIN, E., SHAKARCHI, R., Complex Analysis, Princeton Lectures in Analysis, Princeton University Press, 2003, 379p.