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

MTM510020 Introduction to Regularization Theory

Pre-requisite: x-x

Weekly lesson hours: 06h

Discipline syllabus: Introduction: classic examples and modeling; Definition of Regularization method; Continuous regularization methods; Regularization of Tikhonov: linear and non-linear operators.

BIBLIOGRAPHIC REFERENCES

1. Engl, Heinz W.; Hanke, Martin; Neubauer, Andreas, "Regularization of inverse problems", Kluwer, Dordrecht, 1996.
2. Groetsch, Charles; "Generalized inverses of linear operators: representation and approximation", Marcel Dekker, New York, 1977.
3. Groetsch, Charles, "Elements of applicable functional analysis", Marcel Dekker, Inc., New York, 1980.
4. Groetsch, Charles, "Stable approximate evaluation of unbounded operators" Springer-Verlag, Berlin, 2007.

COMPLEMENTARY BIBLIOGRAPHY

1. Groetsch, Charles, "The theory of Tikhonov regularization for Fredholm equations of the first kind", Pitman, Boston, MA, 1984.
2. Schuster, Thomas; Kaltenbacher, Barbara; Hofmann, Bernd; Kazimierski, Kamil, "Regularization methods in Banach spaces", Walter de Gruyter GmbH & Co. KG, Berlin, 2012.
3. Kirsch, Andreas, "An introduction to the mathematical theory of inverse problems", Springer-Verlag, New York, 1996.
4. Kreyszig, Erwin, "Introductory functional analysis with applications", John Wiley & Sons, New York, 1989.