FMB020

Introduction to Operator Theory

SPRING 2010-2011

INSTRUCTOR: Tunç Mısırlıoğlu

PLACE: İstanbul Kültür University, Department of Mathematics and Computer Science.

TIMETABLE: TBA

CONTACT: t.misirlioglu@iku.edu.tr

PROGRAMME

WEEKS	SUBJECTS TO BE COVERED
1 & 2	Linear Operators Continuous Linear Transformations The Norm of a Bounded Linear Operator The Space B(X,Y). Inverses of Operators
3 & 4	Open Mapping Theorem Closed Graph Theorem Banach's Isomorphism Theorem Uniform Boundedness Principle
5 & 6	Linear Operators on Hilbert Spaces The Adjoint of an Operator Normal, Self-adjoint, and Unitary Operators
7 & 8	The Spectrum of an Operator. Positive Operators and Projections.
Will be announced	**Mid-term Exam**
9 &10	Compact Operators Spectral Theory of Compact Operators Self-Adjoint Compact Operators
11 & 12	Integral and Differential Equations Fredholm Integral Equations Volterra Integral Equations
13 &14	Differential Equations Eigenvalue Problems and Green's Functions
Will be announced	**Final Examination**

PRINCIPAL TEXTBOOK: B.P. Rynne and M.A. Youngson, *Linear Functional Analysis*, Springer, 2008

SUGGESTED READING:

- Y. Eidelman, V. Milman, and A. Tsolomitis, *Functional Analysis*, AMS, GSM 66, 2004.
- I. Gohberg and S. Goldberg, *Basic Operator Theory*, Birkhauser, 1981.
- I. Gohberg, S. Goldberg, and M.A. Kaashoek, *Basic Classes of Linear Operators*, Birkhauser, 2004.
- P.R. Halmos, *P.R. Halmos*, Springer, 1982.