

Department of Mathematics

Faculty of Science

MATH 732 (206732)

REAL ANALYSIS II

3(3-0-6)

Prerequisite

206731 or Consent of the instructor

Course Descriptions :

Introduction to functional analysis. Banach spaces : L-space. Halm-Banach theorem and its application. Distribution theory.

Course Contents

No. of Lecture Hours

1. Introduction to functional analysis	10
– Inner products and linear functional	
– Orthonormal sets	
– Trigonometric series	
2. Banach spaces	15
– Banach spaces	
– Baires'theorem	
– Fourier series of continuous functions	
– Fourier coefficients of L_p -functions	
– The Hahn–Banach theorem and applications	
3. L-spaces	10
– Convex functions and inequalities	
– L_p –spaces	
– Approximation by continuous functions	
4. Distribution theory	10
– Test function spaces	
– Distributions	
– Measure as distributions	
– Differentiation of distributions	
– Multiplication by functions	