Tennessee Technological University
Mathematics Department

MATH 6010-6020: Functional Analysis I-II

I. COURSE DESCRIPTION FROM CATALOG:

Metric spaces, normed and Banach spaces inner product and Hilbert spaces. Fundamental theorems for normed and Banach spaces and their applications. Linear operators on normed and Hilbert spaces. Lec. 3. Cr. 3.

II. PREREQUISITE(S):

MATH 6010: C or better in MATH 4120 or MATH 5120.
MATH 6020: C or better in MATH 6010.

III. COURSE OBJECTIVE(S) MATH 6010/6020:

One of the main objectives of the course is to familiarize the students with the basic concepts, principles and methods of functional analysis and its applications. Main topics include Normed spaces, Banach spaces, Dual spaces, Hilbert spaces, Hahn- Banach Theorem, Operator theory on Hilbert spaces, and Spectral theory of linear operators.

IV. STUDENT LEARNING OUTCOMES:

MATH 6010
Students will:

know, understand and be able to apply fundamental theorems about normed spaces.
know, understand and be able to apply theorems about bounded operators on Hilbert spaces.
know, understand and be able to apply Banach Fixed Point Theorem.

MATH 6020
Students will:

know, understand and be able to apply approximation theory in normed spaces.
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2.6 Linear Operation
2.7 Bounded and Continuous LinLin(Q-2(L)9(i10(n)s17.48 Tm[( )] TJET331.25 0 0 1 108.02 717.48 Tm[( )] TJETqQ