

**M 411 – Nonlinear Functional Analysis**

→ SX-S 430

2003-2004AR

T I : Various forms of continuity - Geometry in normed spaces and mapping, Nemytskii, Hammerstein and Urysohn operators.  
Chapter 1 of the textbook.

T II : Gateaux and Frechet derivative, Properties of derivative, Taylor's Inverse function theorem and Implicit function theorem, Subdifferential functions.  
Chapter 2 of the textbook

T III : Banch's contraction principle and its generalization, Nonexpansive mappings, Fixed point theorems of Brouwer and Schauder.  
Sections 4.1 to 4.3 of Chapter 4 of the textbook.

T IV : Fixed point theorems for multifunctions, common fixed point theorems, Sequences of contractions, generalized contractions and fixed points.  
Sections 4.4 to 4.6 of Chapter 4 of the textbook.

Reference: Topics in Nonlinear functional analysis Mohan C. Joshi and Ramendra K. Puri  
Wiley Eastern limited - Hyderabad, 1985.