PAPER III: Functional analysis
SYLLABUS

Unit-1 Linear Metric Spaces

Vector Spaces, Linear Metric Spaces, Normed Linear Spaces.

Unit-2 Basic Theorems On Normed Linear Spaces

Bounded Linear Transformations, Hahn-Banach Theorem, Open Mapping Theorem, Banach – Steinhaus Theorem.

Unit-3 Hilbert Spaces

Inner Product Spaces, Orthonormal Sets, Riesz Representation Theorem, Bounded Linear Operations On Hilbert Spaces.

Unit-4 Fixed Point Theory

The Contraction Mapping Theorem And Its Applications, Brouwer's Fixed Point Theorem And Its Applications, Schauder's Fixed Point Theorem And Some Related Results.

Unit-5 Partial Metric Spaces

Definitions Some Examples, Banach Fixed Point Theorem, $\psi-\phi$ Contraction Theorem For Four Maps And Corollaries Of This Theorem, Suziki Type Fixed Point Theorem For Single Valued Maps, W- Comparability, A Unique Common Coupled Fixed Point Theorem For Four Maps.

Prescribed Text Book:

Functional Analysis With Applications By **B.Choudhary** And **Sudarsan Nanda**; Wiley Eastern Limited.