

Curriculum Plan: B. Sc. (Hons) Mathematics (Semester V)- METRIC SPACES (2026-27). ODD SEM

DR. ABHISHEK KR. SINGH Assistant Professor Department of Mathematics Kalindi College University of Delhi Delhi- 110008 Mobile: +91-8375834510 Email: abhishek@kalindi.du.ac.in			Marks Distribution	Theory -
				Internal Assessment-
			Classes Assigned	Lectures: 3 per week
	References	Shirali, Satish & Vasudeva, H. L. (2009). Metric Spaces. Springer. Indian Reprint 2019.		
	Week	Topics		
	1 st week	Definition, examples, sequences, and Cauchy sequences,		
	2 nd week	Complete metric space; Open and closed balls,		
	3 rd week	Neighborhood, Open set, Interior of a set, Limit point of a set,		
	4 th week	Derived set,		
	5 th week	Closed set, Closure of a set, Diameter of a set, Cantor's theorem, Subspaces		
	6 th week	Continuous mappings, Sequential criterion and other characterizations of continuity,		
	7 th week	Uniform continuity; Homeomorphism, Isometry and equivalent metrics,		
	8 th week	Contraction mapping, Banach fixed point theorem.		
	9 th week	Connectedness, Connected subsets of $\mathbb{R}$,		
	10 th week.	Connectedness and continuous mappings,		
	11 th week	Compactness and boundedness,		
	12 th week	Characterizations of compactness,		
	13 th week	Continuous functions on compact spaces		
	14 th week	REVISION.		
	15 th week	REVISION.		