20BSM308T					ANALYSIS-II					
Teaching Scheme					Examination Scheme					
L	T	P	C	Hrs. /Week	Theory			Practical		Total Marks
					MS	ES	IA	LW	LE/Viva	
3	1	0	4	4	25	50	25	--	--	100

COURSE OBJECTIVES

- To be able to understand the concept of countable, uncountable sets and metric space
- To be able to construct proofs in terms of implications, quantifiers, negations and contrapositives
- To be able to understand the concept of functions on metric spaces
- To understand the concept of point wise and uniform convergence

UNIT 1 METRIC SPACE **10 Hrs.**

Algebraic and Order properties of real numbers, Finite, Countable and Uncountable Sets, Cantor's set, Metric spaces, Open sets, Closed sets in a metric space, Closure of a set, Limit Points and their theorems.

UNIT 2 SEQUENCES **09 Hrs.**

Sequence, Convergence of a sequence, Cauchy Sequence, Limit point of a Sequence. Continuity, Completeness of a metric space, Dense Set.

UNIT 3 COMPACTNESS AND CONNECTEDNESS 12 Hrs.

Compactness: Characterizations of compactness, Continuous functions on compact sets. Connectedness: Characterizations of connectedness, Continuous functions on connected sets

UNIT 4 SEQUENCES OF FUNCTIONS 09 Hrs.

Definition of point-wise and uniform convergence, Examples of point-wise and uniform convergence, Uniform convergence and continuity, Uniform convergence and differentiation.

40 Hrs.

COURSE OUTCOMES

On completion of the course, student will be able to

CO1 – Identify rigorous arguments developing the theory of underpinning real analysis
CO2 – Understand fundamental properties of the real numbers that lead to the formal development of real analysis
CO3 – Apply the acquired knowledge in important practical problems and extend ideas to a new context.
CO4 – Analyze the concept of compactness, connectedness and uniform convergence with various aspects
CO5 – Evaluate the problems of the subsets of a metric space are open, closed, compact and/or connected
CO6 – Develop abstract ideas in analyzing proofs of theorems

TEXT/REFERENCE BOOKS

1. W. Rudin, Principles of Mathematical Analysis, (McGraw Hill, 1976)
2. R. G. Bartle, Introduction to Real Analysis, (John Wiley and Sons, 2000)
3. T. M. Apostol, Mathematical Analysis, (Addison-Wesley Publishing Company, 1974)
4. A. J. Kosmala, Introductory Mathematical Analysis, (WCB Company , 1995)
5. W. R. Parzynski and P. W. Zipse, Introduction to Mathematical Analysis, (McGraw Hill Company, 1982)
6. H. S. Gaskill and P. P. Narayanaswami, Elements of Real Analysis, (Prentice Hall, 1988)

END SEMESTER EXAMINATION QUESTION PAPER PATTERN

Max. Marks: 100	**Exam Duration: 3 Hrs.**
Part A: 6 questions of 4 marks each	24 Marks
Part B: 6 questions of 8 marks each	48 Marks
Part C: 2 questions of 14 marks each	28 Marks