



Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore
Department of Mathematics (GE for PG Students)

SUBJECT CODE	Category	SUBJECT NAME	TEACHING & EVALUATION SCHEME								
			THEORY			PRACTICAL		Th	T	P	CREDITS
			END SEM	MST	Q/A	END SEM	Q/A				
GPMA101	GE	Introduction to Graph Theory	60	20	20	0	0	3	0	0	3

Course Objective

To introduce the students with the Fundamentals of the Graph Theory.

Course Outcomes

After the successful completion of this course students will be able to:

1. understand and apply the basic axioms and concepts of Graph Theory
2. write and present theorems and proofs of Graph Theory
3. analyse the types of a Graph
4. illustrate the degree and nature of vertices
5. create trees with characteristics.

Course Content:

UNIT – I

Definitions, examples of problems in graph theory. Adjacency and incidence matrices, isomorphisms.

UNIT – II

Paths, walks, cycles, components, cut-edges, cut-vertices.

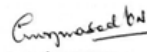
UNIT – III


Bipartite graphs, Eulerian graphs. Vertex degrees, reconstruction conjecture

UNIT – IV

Degree sequences. Directed graphs, de Bruijn cycles


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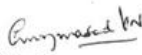
UNIT – V

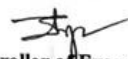
Trees and forests, characterizations of trees, Spanning trees, radius, and diameter.

Texts:

1. Narsingh Deo, (2014) "Graph theory with applications to engineering and computer science", Prentice Hall Inc., New Delhi.
2. Fred S. Roberts (1978), Graph Theory and Its Applications to Problems of Society, Odyssey Press, Dover, New Hampshire
3. L.R. Foulds, (1993) "Graph Theory Applications", Narosa Publishing House, New Delhi.
4. J. A. Bondy and U. S. R. Murty (1976), "Graph Theory with Applications", Elsevier Science Publishing Company Inc., New York.
5. Jonathan L. Gross, Jay Yellen, Mark Anderson (2019) "Graph Theory and Its Applications" Third edition, CRC Press Taylor and Francis Group, New York.


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