INDIAN INSTITUTE OF TECHNOLOGY TIRUPATI
भारतीय प्रौद्योगिकी संस्थान तिरुपति
Yerpedu-Venkatagiri Road, Yerpedu Post, Tirupati District, Andhra Pradesh - 517 619

1.	Title of the course	Basic Graph Theory
2.	Course number	MA516L
3.	Structure of credits (L-T-P-C)	2-0-0-2
4.	New course/modification to	New
5.	To be offered by	Mathematics and Statistics
6.	Prerequisite	CoT
7.	**Course Objective(s):** To discuss some fundamental concepts of graph theory. To demonstrate some algorithms such as shortest path and minimum spanning tree algorithms.	
8.	**Course Content:** Fundamentals: graphs, subgraphs, isomorphism, representation of graphs, degrees and graphical sequences, walks, trails, paths, cycles, bipartite graphs, Trees: characterization of trees, minimum-spanning trees, number of trees, Cayley's formula, Connectivity: cut-sets, characterization of blocks, Search: shortest path algorithms, cut vertices and cut edges, Eulerian & Hamilton graph, characterizations, Fleury's algorithms, Planar graphs: Euler's formula and its consequences.	
9.	**Textbook(s):** 1. Bondy J A and Murty U S R, Graph Theory, Springer-Verlag (2008).	
10.	**Reference(s):** 1. West D B, Introduction to Graph Theory, 2nd Edition, Prentice Hall (2000). 2. Rosen K H, Discrete Mathematics and its Applications, 8th Edition, Tata McGraw Hill Publishers (2021). 3. Koshy T, Discrete Mathematics with Applications, Elsevier (2004).	