Semester IV

Subject Name: Graph Theory	Duration: 6 hrs /Cycle
Subject Code: 4PGM1(2015 on)	Credit : 4

Unit I: Graphs and Degrees: Connected graphs-Common classes of graphs-Degree of vertex- Regular graphs-Degree sequences.

Unit II: Trees and Connectivity: Bridges-Trees-T he minimum spanning tree problem-Cut-vertices-Blocks- Connectivity.

Unit III: Matching, Factorization and Planarity: Matching- Factorization-Decompositions and graceful labelings- Planar graphs- Embedding of graphs on surfaces.

Unit IV: Coloring: The four color problem-vertex coloring-Edge coloring-The Heawood map coloring theorem-Local coloring.

Unit V: Distance and Domination: The center of a graph- Distant vertices- Detour and directed distance-The domination number of a graph.

Text Book: An Introduction to Graph Theory by Gary Chartrand and Ping Zhang, 4th edition, TATA McGRAW-Hill (Reprint 2008).

Chapters: 1(1.2, 1.3), 2(2.1, 2.2, 2.3), 4(4.1, 4.2, 4.3), 5(5.1, 5.2, 5.3), 8(8.1, 8.2, 8.3), 9(9.1, 9.2), 10(10.1, 10.2, 10.3, 10.4, 10.5), 12(12.1, 12.2, 12.4), 13(13.1 only).

Reference Books: 1. Graph Theory by F. Harary, Addison Wesley, 1969.

2. Graph Theory with Applications by J.A. Bondy and U.S.R. Murty, Elsevier Science Ltd/North-Holland (June 1976).