

Semester	AUG 2022
Open to semester	5,7,11
Course code	<b>MT3154</b>
Course title	<b>Graph Theory</b>
Credits	4 /
Course Coordinator & participating faculty (if any)	Soumen Maity
Nature of Course	Lectures
Pre-requisites	MT2233 for Sem 5 students. Sem 7 students have no prerequisites, but they can only take the course if they have not taken MTH323 before.
Objectives (goals, type of students for whom useful, outcome etc)	This will be a rigorous course in Graph theory with more emphasis on proofs rather than applications. The course will begin with basic terminology, concepts, and methods of Graph theory, and then move on to a range of topics like Vertex and Edge coloring, Basic Ramsey theory, Turan's theorem, Matching and König-Egervary theorem, enumeration of Trees, Max-Flow-Min-Cut theorem, Planar Graphs, Regular graphs
Course contents (details of topics /sections with no. of lectures for each)	Basics [7 L]: graphs, paths and cycles, connectivity, trees and forests, bipartite graphs, contraction and minors, Euler tours, Hamilton Cycle. Cuts and Connectivity [2 L]: Coloring [4 L]: Vertex and Edge coloring Matching and Covers [5 L]: König-Egervary theorem Basic Ramsey theory and Turan's theorem : [4 L] Network Flow [3 L]: Max-flow Min-cut theorem Planar Graphs [3 L]: Regular Graphs [3 L]:
Evaluation /assessment	End-Sem Examination-40% Mid-Sem Examination-40% Others-20%
Suggested readings (with full list of authors, publisher, year, edn etc.)	1) Graph theory with Applications, by J.A. Bondy and U.S.R. Murty. This is a book from 1977, made available (ebook) for free by the authors. 2) Introduction to Graph theory, by Douglas West, second edition 2016 Pearson (Indian edition). 3) Modern Graph Theory, by Bela Bollobas, Springer GTM 184