

(3-0-0; —)

Graph Theory

MATH-401*

This course is directed to students in Mathematics or Computer Science. The emphasis is on solving problems. Topics covered may include paths, Eulerian circuits, trees, distance, matchings, connectivity, network flows, colourings, planar graphs, and spanning cycles. Famous applications may include the Minimum Spanning Tree Problem (finding a minimum cost spanning tree of a complete graph), the Marriage Problem (matching men and women into compatible pairs), the Assignment Problem (filling jobs in the best ways), the Network Flow Problem (maximizing flow in a network of pipes), the Committee Scheduling Problem (using the fewest time slots), the Four Colour Problem (colouring maps with four colours so that adjacent regions have different colours), and the Traveling Salesman Problem (visiting cities with minimum cost).

Textbook: *Schaum's Outlines in Graph Theory*
by V. Balakrishnan (McGraw Hill)

Prerequisite: One of MATH-201, 211, 212*, 217*, or CISC-202*, and one of MATH-280*/281* or CISC-222*.

Instructor: R. Murty

Evaluation: Midterm 20%
Homework 80%