

MT-520	Graph Theory
	<p><u>Introductory Graph Theory:</u> Basic concepts, Connectivity, Cycles and cut sets, Matrix representation.</p> <p><u>Graph Colouring:</u> Introduction to graph colouring, Independent sets and cliques perfect graph.</p> <p><u>Paths and Circuits:</u> Euclidian paths and circuits, Hamiltonian paths and circuits, Basic concepts, Euler's formula, Kuratowski's theorem, Dual graphs, Shortest paths, Maximum flows, Minimum cost flows, communication networks, Difficult routing and assignment problems.</p> <p><u>Trees and Algorithm:</u> Introduction to trees, Characterizing trees, Rooted trees, Binary trees, Spanning trees, Minimum spanning trees, Counting spanning trees, Shortage fault, Cycles, Edge cuts, Graph and vector spaces, Matroids and Greedy algorithms.</p> <p><u>Inclusion-Exclusion Principle and Coding Theory:</u> Principle of inclusion and exclusion, Rook polynomials, Hall's theorem, Optimal assignment problems, Introductory coding theory, Linear codes, Hamming codes, Finite state automata.</p> <p><u>Reference Books:</u></p> <ol style="list-style-type: none"> 1. Danh T.N, <i>Advanced Discrete Mathematics</i>, VNU of Ho Chi Minh City, 2004. 2. Susanna S. E, <i>Discrete Mathematics with Applications</i>, 3rd Edition, Thomson, 2004. 3. Rosen K.H, <i>Discrete Mathematics and its Application</i>, 5th Edition, Mcgraw Hill Co Inc, 2003.