

Department Of Computer Science and Engineering
Kathmandu University
Dhulikhel, Kavre



Subject: Graph Theory

Course: COMP – 323

Level: B.Sc/3rd Year/2nd Semester

Credit Hours: 3

Course Description

1. Fundamental Concepts

- Definitions and Examples
- Paths
- Vertex
- Isomorphism
- Subgraphs
- Types of Graphs
- Some applications

2. Trees

- Basic Properties
- Spanning Trees
- Optimization
- Counting trees
- Digraphs

3. Planar Graphs

- Definitions and examples
- Euler's Formula
- Characterization
- Parameters

4. Graph Coloring

- Definitions
- Vertex coloring
- Bounds
- The four color problem
- Chromatic graphs

5. Matching

- Definitions
- Maximum matching
- Hall's matching conditions
- Perfect matching

6. Switching Theory

- Definitions
- Boolean Algebra
- Analysis of Contact Network
- Normal Form
- Transmission Matrix, Primitive Connection Matrix and relation between them

7. Activity Networks

- Definitions
- Analysis of Activity Network
- Earliest Event Time
- Latest Event Time
- Total & Free Slacks
- Critical Path Method

Reference Books:

1. SM Maskey – First Course in Graph Theory, 2nd Edition, Ratna Pustak Bhandar, 2002
2. Frank Harry – Graph Theory, Narosa Publishing House, 2001.