

V.V Sangha.Ballari

A.D.B.First Grade College Harapanahalli

Dept of mathematics

Certificate Course on Graph theory

Academic Year :2021-2022

SYLLABUS

TEACHING HOURS: 30HRS

UNIT - I: Basics of Graph theory (16 hrs) Basic Definitions, Isomorphism, Subgraphs, Operations on graphs, Walks, Paths, Circuits, Connected and disconnected graphs.

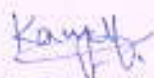
UNIT - II: Euler graphs, Hamiltonian graphs, Some Applications, Trees and Basic properties, Distance, Eccentricity, centre, Spanning trees, Minimal spanning tree.

UNIT - III: Cut- sets, Cut- vertices and Planar Graphs (16 hrs) Cut- sets, Fundamental circuits; fundamental cut-sets, Connectivity, Separability, cutvertex, Network flows, 1- and 2- Isomorphisms.

UNIT - IV: Planar and non planar graphs, Euler's formula, Detection of planarity. Matrix representation of Graphs – Adjacency matrix of a graph, Incidence matrix of a graph.

Books for References:

1. Edgar G. Goodaire and Michael M. Parameter, Discrete Mathematics with Graph theory, 2nd Ed., Pearson Education(Singapore) P. Ltd., Indian Reprint, 2003.
2. Rudolf Lidl And Gunter Pilz, Applied Abstract Algebra, 2nd Ed., Undergraduate Texts in Mathematics, Springer (SIE), Indian reprint, 2004.
3. C.L. Liu – Elements of discrete mathematics, McGraw-Hill, 1986
4. Kenneth H. Rosen – Discrete Mathematics and its applications, McGraw-Hill, 2002.
5. F Harary – Graph theory, Addison Wesley, Reading Mass, 1969.
6. N Deo – Graph theory with applications to Engineering and Computer Science, Prentice Hall of India, 1987.
7. K R Parthasarathy – Basic Graph theory, Tata McGraw-Hill, New Delhi, 1994.
8. D B West – Introduction to Graph theory, Pearson Education inc., 2001, 2nd Ed.
9. J A Bondy and U S R Murthy – Graph theory with applications, Elsevier, 1976.



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