

COURSE	Name	: Network Analysis
	Code	: EE184924
	Credits	: 3
	Semester	: Elective

Description of Course

Understanding the network; graph theory; graph and network representation; labeling procedures; the shortest path problem; variations and the shortest path application; the shortest path algorithm; spanning tree problems; variations, applications and spanning tree algorithms; maximum flow problems; variations, applications and maximum flow algorithms; transportation and transshipment issues; variations, applications and transportation and transshipment algorithms; minimum cost issues; variations, applications and minimum cost algorithms; generalizing the flow on the network and examples of its application; method of completion for one example of flow generalization; Bayesian network: its variations and its applications; as well as social networks: variations and their applications

Learning Outcomes

Knowledge

(P02) Mastering the concepts and principles of engineering, and implementing them in the form of procedures for analysis and design in power systems, control systems, multimedia telecommunications, or electronics.

(P03) Mastering the concepts and principles of design procedure in power systems, control systems, multimedia telecommunications, or electronics.

SPECIFIC SKILL

(KK02) Able to describe the completion of engineering problems in power systems, control systems, multimedia telecommunications, or electronics.

(KK03) Able to describe system design for problem solving in power systems, control systems, multimedia telecommunications, or electronics by concerning technical standards, performance aspect, reliability, ease of application, and assurance of sustainability.

GENERAL SKILL

(KU12) Able to implement information and communication technology (ICT) in the context of implementation of his/her work.

ATTITUDE

(S03) Contributing in improving the quality of community life, nation and state and the advance of civilization based on Pancasila

Course Learning Outcomes

Knowledge

Mastering the concept of Network Optimization and its Application

Specific Skill

Able to solve optimization problems using network optimization methods.

General Skill

Able to use C / Java programming language to implement algorithm modeling and solving network problems.

Attitude

Contributing to improving the quality of life of society, nation, state, and civilization based on Pancasila.

Main Subjects

1. Graph Theory
2. Network Concepts & Representations
3. Shortest path
4. Spanning Tree
5. Maximum flow
6. Transportation and Transshipment
7. Minimum Cost
8. Flow Generalization on the Network
9. Bayesian Network
10. Social Networking

Reference(s)

- [1] Bertsekas, Dimitri P. *Network Optimization: Continuous and Discrete Models*. Athena Scientific, Massachusetts, 1998.
- [2] Philips, D.T. *Fundamentals of Network Analysis*. Prentice-Hall, New Jersey, 1980.
- [3] Jensen, P.A. dan J.W.Barnes. *Network Flow Programming*. John Wiley & Sons Inc., New York 1980.
- [4] Ahuja, Ravindra K., Thomas L Magnanti, James B Orlin. *Network Flow Analysis*. Prentice-Hall, 1993
- [5] Alkaff, Abdullah. *Diktat Analisa Jaringan*. Diktat Kuliah, TSP, JTE, 2000.

Prerequisite(s)

EE184201 Linear Algebra and Discrete Structure
