

COURSE	Name : Optimization Techniques
	Code : EE185721
	Credit(s) : 2
	Semester : (Elective Course)

Description of Course

The Operational Techniques Course discusses the concept of optimization, the basics of mathematical optimization, analytical solutions to optimization problems, numerical solutions to optimization problems without constraints, linear programming and variations, dynamic programming both deterministic and stochastic, and metaheuristic methods.

Learning Outcomes

Knowledge

(P01) Mastering the concepts and principles of science in a comprehensive manner, and to develop procedures and strategies needed for the analysis and design of systems related to the field of power systems, control systems, multimedia telecommunications, electronics, intelligent multimedia network, or telematics as a preparation for further education or professional career.

Specific Skill

(KK01) Being able to formulate engineering problems with new ideas for the development of technology in power systems, control systems, multimedia telecommunications, electronics, intelligent multimedia network, or telematics.

General Skill

(KU07) Being able to improve the capacity of learning independently.

Attitude

(S09) Demonstrating attitude of responsibility on work in his/her field of expertise independently.

Course Learning Outcomes

Knowledge

Mastering the concept of optimization and various forms of optimization problems along with the method of completion.

Specific Skill

Able to get mathematical model of optimization problems and solve various optimization problems by using analytical approaches, numerical approaches, and matrix and metaheuristic methods.

General Skill

Able to use Matlab, Delphi and Visual C software to solve optimization problems.

Attitude

Demonstrating attitude of responsibility on work in his/her field of expertise independently.

Main Subjects

1. Optimization concept
2. Basic Mathematics of Optimization
3. Analytical completion of Optimization Issues
4. Numerical completion of Optimization Issues
5. Linear Programming
6. Linear Programming Variations
7. Deterministic Dynamic Programming
8. Stochastic Dynamic Programming
9. Case Study
10. Metaheuristic method

Reference(s)

- [1] Alkaff, A. dan Gamayanti, N. Diktat Kuliah Penyelidikan Operasi
- [2] Analisa Hillier and Lieberman., "Introduction to Operation Research", 8th Edition, Mc Graw Hill international Edition, 2004
- [3] Hamdy A taha., "Operation Research : an Introduction", 8th Edition, Prentice Hall, 2006
- [4] WAGNER, H.M., "Principles of Operations Research", 2nd edition", Prentice-Hall, New Jersey 1980.

Prerequisite(s)

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