COURSE	Name	: Numerical Analysis and Dynamic Programming
	Code	: EE185742
	Credit(s)	: 2
	Semester	: (Elective Course)

Description of Course

The course of Numerical Analysis and Dynamic Programming discusses the basic understanding of numerical algorithms and skills for applying numerical algorithms to solve math problems in computer; Solving a mathematical problems using numerical algorithm approach that includes Error Analysis, Number Representation, Taylor Theorem, Non-Linear Equations, Linear Equations, Regression, Interpolation, Numerical Integration, Numerical Differentiation, and Differential Equations.

Learning Outcomes

Knowledge

(P02) Mastering engineering concepts and principles to develop the necessary procedures and strategies for systems analysis and design in the areas of power systems, control systems, multimedia telecommunications, electronics, intelligent multimedia network, or telematics.

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 concepts and principles of science in a comprehensive manner, and to develop procedures and strategies needed for the numerical analysis and dynamic programming related to the field of electronics.

Specific Skill

Being able to formulate engineering problems with new ideas of numerical analysis and dynamic programming for the development of technology in electronics.

General Skill

Being able to improve the capacity of learning independently for the numerical analysis and dynamic programming.

Attitude

Demonstrating attitude of responsibility regarding the numerical analysis and dynamic programming independently.

Main Subjects

1. Error Analysis, Number Representation, Taylor Theorem
2. Non-Linear Equations
3. Linear Equations
4. Regression
5. Interpolation
6. Numerical Integration
7. Numerical Differentiation
8. Differential Equations

Reference(s)

[1] Greenbaum and T. P. Chartier. Numerical Methods: Design, Analysis and Computer Implementation of Algorithms. Princeton University Press, 2012.
[2] W. H. Press, S. A. Teukolsky, W. T. Vetterling, B. P. Flannery. Numerical Recipes: The Art of Scientific Computing. Cambridge University Press, 2007.
[3] L. R. Scott. Numerical Analysis. Princeton University Press, 2011.
[4] E. Suli, D. F. Mayers. An Introduction to Numerical Analysis. Cambridge University Press, 2003.

Prerequisite(s)

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