

COURSE	Name	: Electromagnetic Wave Transmission and Antenna
	Code	: EE184532
	Credits	: 4
	Semester	: V

Description of Course

The course studies the no-loss and loss-line transmission lines, field wave propagation in no-loss media and loss media, wave reflection and transmission with normal arrival and angles, the concept of radiation antenna through the integral radiation at the ideal dipole antenna, antenna parameters: pattern radiation, directivity, gain, bandwidth, effective aperture, polarization, wire antenna, wide band antenna, array antenna, and antenna measurement technique.

Learning Outcomes

Knowledge

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

Specific Skill

(KK01) Able to formulate engineering problems in power systems, control systems, multimedia telecommunications, or electronics.

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

General Skill

(KU05) Able to take decisions appropriately in the context of problem solving in the area of expertise based on the results of information and data analysis.

Attitude

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

Course Learning Outcomes

Knowledge

Mastering the concept of Electromagnetic Wave Transmission.

Mastering the concept of radiation from an antenna, antenna parameters, antenna measurements and commonly used types: wire antenna, broadband antenna, aperture antenna, and antenna array.

Specific Skill

Able to analyze wave equations and derivatives. Able to analyze antenna parameters.

General Skill

Able to solve problems about transmission channels, able to use the smith chart. Able to design and make an antenna and measure its parameters.

Attitude

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

Main Subjects

1. Transmission Channels
2. Field wave propagation
3. Reflection and wave transmission
4. Integral radiation
5. Antenna parameters
6. Wire antenna
7. Broadband antenna
8. Antenna array
9. Antenna measurement technique

Reference(s)

- [1] Fundamentals of Applied Electromagnetics, by Fawwas T. Ulaby, Prentice Hall International, Inc.
- [2] Electronic Transmission technology by William Sinnema, Prentice Hall International, Inc.
- [3] W. L. Stutzman, G. A. Thiele, Antenna Theory and Design 3rd Ed., John Wiley & Sons, 2012.
- [4] C. A. Balanis, Antenna Theory, Analysis and Design 3rd Ed., John Wiley & Sons, 2005.

Prerequisite(s)

EE184303 Electromagnetic Fields
