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| **COURSE** | Name | : Advanced Electromagnetics |
| | Code | : EE185538 |
| | Credit(s) | : 2 |
| | Semester | : (Elective Course) |

**Description of Course**

The Advanced Electromagentics course discusses electromagnetic applications for telecommunications, microstrip theory, microstrip antennas, microstrip filters, electromagnetic metamaterial theory, metamaterial applications.

**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**

(S08) Internalizing values, norms and academic ethics.

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

**Course Learning Outcomes**

**Knowledge**

Mastering comprehensively scientific concepts and principles, and in developing procedures and strategies needed for analysis and system design in Electromechanical Technology for Applications in the field of Multimedia Telecommunications.

**Specific Skill**

Able to compile solutions for engineering and analyze problems in antenna design, filters, in the realm of microstrip technology and the use of metamaterials to improve the performance of multimedia telecommunication systems by deepening or expanding microstrip technology and electromechanical metamaterials for applications in multimedia telecommunications.

**General Skill**

Able to use and utilize simulator software and MatLab in conducting experiments on the application of microstrip and electromagnetic metamaterial technology.

**Attitude**

Internalizing values, norms and academic ethics

Demonstrating attitude of responsibility for work in his/her area of expertise independently.

**Main Subjects**

1. Electromagnetic applications for Telecommunications
2. Microstrip theory
3. Microstrip antenna
4. Microstrip filter
5. Basic theory and application of electromagnetic metamaterials

**Reference(s)**

[1] Balanis, " Antena Teori, Analysis and Design", John Wiley & Sons, Inc, 1997.
[2] JR James & PS Hall, "Handbook of Microstrip Antennas", IEE, 1989.
[3] Jia-Sheng Hong & M.J. Lancester, "Microstrip Filters for RF/Microwave Applications", John Woley & Sons, Inc, 2001.
[4] Christophe Caloz & Tatsuo Itoh, "Electromagnetic Metamaterials: Transmission Line Theory & Microwave Applications", John Woley & Sons, Inc, 2006.

**Prerequisite(s)**

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