COURSE	Name	: Satellite Communication Systems
	Code	: EE185633
	Credit(s)	: 2
	Semester	: (Elective Course)

Description of Course

The course of Satellite Communication Systems broadly discusses the concept of satellite orbit, satellite systems including satellite segments and earth segments, radio propagation effects on satellite communications, satellite communication system design, satellite constellation, satellite network design, multiple access on satellite communication systems, and satellite applications for remote sensing.

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.

(KU09) Being able to develop themselves and compete in national and international level.

Attitude

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

Course Learning Outcomes

Knowledge

Mastering the scientific concepts and principles of systems, subsystems and communication satellite networks, and their applications for navigation and remote sensing.

Specific Skill

Able to formulate engineering problems in the field of satellite communication systems and apply scientific methods to solve them.

General Skill

Able to understand critically the substance of international scientific papers and use them in research and development in the field of satellite communication systems.

Attitude

Able to show a responsible attitude in designing satellite networks and remote sensing systems properly and correctly.

Main Subjects

1. Satellite orbit and direction of earth station antenna
2. Link budget for satellite communication
3. Satellite constellations and multi-beam satellite networks
4. Multiple access communication systems and interference
5. Satellite-based navigation system
6. Satellite-based remote sensing

Reference(s)

[1] Dennis Roddy, Satellite Communications, ed. 4, McGraw-Hill, 2006.
[2] Timothy Pratt, Charles Bostian, Jeremy Allnutt, Satellite Communications, ed. 2, Wiley, 2002.
[3] Erich Lutz, Markus Werner, Axel Jahn, Satellite Systems for Personal and Broadband Communications, Springer-Verlag, 2000.
[4] Aboelmagd Noureldin, Tashfeen B. Karamat, Jacques Georgy, Fundamentals of Inertial Navigation, Satellite-Based Positioning and Their Integration, Springer, 2013.
[5] James Campbell, Randolph Wynne, Introduction to Remote Sensing, ed. 5, Guilford Press, 2011.

Prerequisite(s)

- Propagation and Radiation
- Digital Communication Systems