

<b>COURSE</b>	Name : Wireless and Mobile Communication Systems
	Code : EE185530
	Credit(s) : 2
	Semester : (Elective Course)

### Description of Course

The Wireless and Mobile Communication System course discusses the characteristics of mobile radio channels, the principles of wireless communication systems, technology standards and wireless communication system architecture, multiple access techniques, orthogonal modulation, MIMO. Furthermore, discussions of performance analysis and planning and performance of mobile wireless communication networks are also covered.

### 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.

(KK02) Being able to compose problem solving in engineering through depth and breadth of knowledge which adapts to changes in science and technology in power systems, control systems, multimedia telecommunications, electronics, intelligent multimedia network, or telematics.

#### General Skill

(KU11) Being able to implement information and communication technology in the context of execution of his/her work.

#### Attitude

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

(S12) Being able to implement information and communication technology in the context of execution of his/her work.

### Course Learning Outcomes

#### Knowledge

Students comprehend of the development of wireless communication systems and networks, and understand the planning and performance of wireless communication networks.

#### Specific Skill

1. Able to explain the basic principles of wireless communication systems and channels.
2. Able to explain the techniques and engineering of wireless communication systems, especially multiple access techniques, orthogonal modulation, MIMO.
3. Able to explain technology and standards of wireless and mobile communication systems.
4. Able to explain wireless communication network planning
5. Able to evaluate the performance of wireless communication networks.

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**General Skill**

Able to explain the concept of wireless communication technology.

Able to explain the characteristics of mobile communication channel media.

**Attitude**

Demonstrating attitude of being responsible for the work in his/her area of expertise independently.

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**Main Subjects**

1. Wireless communication systems and channels
2. Technique of wireless communication systems, especially multiple access techniques, orthogonal modulation, MIMO
3. Wireless and Mobile Communication Technology and Standards
4. Planning on wireless communication networks
5. Performance of Wireless Communication Networks

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**Reference(s)**

- [1] K Daniel Wong, Fundamentals of Wireless Communication Engineering Technologies, John Willey & Sons, 2012
- [2] Farooq Khan, LTE for 4G Mobile Broadband Air Interface Technologies and Performance, Cambridge UP, 2009
- [3] K. Sharon Evans, Telecommunications Network Modelling, Planning and Design, The Institution of Engineering and Technology, 2004
- [4] D. Tse, P. Viswanath, "Fundamentals of Wireless Communications", Cambridge University Press, 2005.
- [5] T.S. Rappaport, "Wireless Communications Principles and Practices", 2nd ed., Prentice-Hall, 2002.

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**Prerequisite(s)**

Digital Communication Systems

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