



Course description:

Introduction to communications Systems and Transmission Media Multiplexing Techniques, Propagation of RF Waves, Microwave Communications Systems, Wireless Communication Satellite Communications Systems and Multiple Access.

Aims of the course:

- An ability to apply knowledge of mathematics, science, and engineering
- An ability to design a system, component, or process to meet desired needs.
- An ability to identify, formulate, and solve engineering problems.
- An ability to communicate effectively.
- The broad education necessary to understand the impact of engineering solutions in a global and societal context.

Intended Learning Outcomes (ILOs):

- Develop an overview of Communication Systems
- To be familiar with various multiplexing/multiple access techniques.
- Understand electromagnetic radiation mechanism and its physics and be able to compute radiation form several common antenna structures.
- Know and use standard antenna characterization parameters such as: impedance, far-field radiation pattern, scattering pattern, gain, directivity, bandwidth, beam width, polarization, efficiency, antenna temperature.
- Introduce students to the fundamentals of satellite communication.
- Develop an overview of a satellite communication system successfully transfers information from one earth station to another with some examples of applications.
- Provides an overview of wireless communication
- Develop an overview of multiple access technologies in wireless communication including past and future generation networks.
- Familiarize the student with networking principles and types of networks

Course structures:

Week	C. Hrs	ILOs	Topics	Teaching Procedure	Assessment methods
1	2	1	Introduction to Communication Systems	Power Point	First Exam
1, 2	4	2	Multiplexing and DE	Power Point	First Exam

			multiplexing Techniques		
2,3,4,5	12	3,4	RF Wave Propagation, Antenna and Waveguides	Power Point and visual methods(videos)	First and Second Exam
6,7,8	9	5,6	Satellite Communication	Power Point and Visual Methods	Second Exam
9,10,11	7	7,8	Wireless Communication	Power Point and visual methods(videos)	Final Exam
11,12,1 3	7		Networking	Power Point and visual methods(videos)	Final Exam
14	1		Review		

References:

1. W.Tomasi, "Advanced Electronics Communications System ", Sixth edition, Prentice Hall, 2004. (Textbook)
2. J.Flood &P.Cochrane , " Transmission Systems ", IEEE Telecom series, 1991.
3. Winch," Telecommunication Transmission Systems ",MacGraw –Hill, 1993.
4. J.Dunlop & D.Smith, "Telecommunication Engineering", Chapman and Hall, third edition, 1994.
5. Huurdeman, Anton A. Boston "Guide to telecommunications transmission systems Artech House, 1997.

Assessment Methods:

Methods	Grade	Date
First Exam	20	02/04/2017
Second Exam	20	7/5/2017
Presentation	10	7-11/05/2017
Final Exam	50	by Department

