

## **EL 430 - Control Systems with Lab**

4 Credit Hours

Covers both analog and digital communication basics. With sampling theorem at the center of the theoretical foundation, modulation techniques as the main focus, amplitude modulation (AM), frequency modulation (FM), and phase modulation (PM) are introduced for analog communication. For digital communication, major techniques include pulse-code modulation (PCM), phase-shift keying (PSK), and quadrature amplitude modulation (QAM). Multiplexing techniques are another important topic, including those based on frequency (FDMA), time (TDMA), code (CDMA) and orthogonal frequency-division multiplexing (OFDM). Different communication systems are characterized by their noise performance. Some basics for wireless communication such as Repeaters and Cellular systems, the cellular concept.

### **Prerequisites**

[EL 410](#)