EEL 6532 Information Theory

Credits: 3 credits

Textbook, title, author, and year: T. M. Cover and J. A. Thomas, *Elements of Information Theory*, John Wiley, 2006.

Reference materials: M. Mansuripur, *Introduction to Information Theory*, Prentice Hall, 1987.

Specific course information

1. Introduction
2. Review of Probability
3. Introduction to Information Theory
4. Asymptotic Equipartition Property
5. Data Compression
6. Channel Capacity
7. Continuous Channels and Sources
8. Error Control Coding
9. Rate Distortion Theory
10. Applications and Current Research Issues

Catalog description: Information theory, entropy, coding information sources, noisy channels, codes for error detection and correction.

Prerequisites:

- EEL 4541 - Stochastic Processes and Random Signals
- EEL 4512 - Communications Systems

Specific goals for the course:

- Review of Probability
- Introduction to Information Theory
- Asymptotic Equipartition Property
- Data Compression
- Channel Capacity
- Continuous Channels and Sources
- Error Control Coding
- Rate Distortion Theory