Information Theory

ECE 7005

Credit Hours:
3.00 - 3.00

Course Levels:
Graduate (5000-8000 level)

Course Components:
Lecture

Course Description:
Mathematical models for channels and sources: entropy, information, data compression, channel capacity, Shannon's theorems, rate distortion theory.

Prerequisites and Co-requisites:
Prereq: 6001 (804).

Course Goals / Objectives:
- Introduce information theory, the mathematical theory of communication
- Use entropy as a measure of information
- Learn information theoretic principles and literature for application in MS and PhD research

Course Topics:
- Entropy and mutual information
- Asymptotic equipartition principle
- Entropy rate
- Data compression and discrete sources
- Channel capacity
- Differential entropy
- Gaussian channels
- Rate distortion theory
Designation:
Elective