Estimation theory provides a wide variety of tools and techniques which form the basis for several key applications in modern wireless communications and signal processing. Therefore, it is naturally of a significant interest in research and industry. Various signal processing procedures in communication such as channel estimation, equalization, synchronization etc, which are also employed in MIMO-OFDM based 3G/4G wireless systems, are based on fundamental concepts in estimation theory. Further, recent research developments in areas such as wireless sensor networks also employ several tools from estimation theory towards distributed parameter estimation. A clear grasp of the basic principles of estimation can significantly enhance understanding by providing deeper insights into various techniques in signal processing and communication.

The aim of this course is to provide an in depth exposure to practicing engineers, faculty members and graduate students to the fundamental concepts of estimation theory, specifically in the area of modern wireless communications and signal processing. Beginning with a brief overview of the basic concepts of maximum likelihood (ML) and minimum mean squared error or Bayesian estimation, this course will comprehensively cover several applications of estimation theory in wireless communications such as channel estimation, equalization, and beamforming for multi-antenna wireless systems. Subsequently, the course will also cover other advanced topics in estimation such as Kalman filtering, adaptive filtering and allied applications. A MATLAB based demonstration session will introduce the participants to the tools and techniques available in modern estimation theory for the above applications.

**Target Audience**
- Practicing wireless system engineers.
- Graduate students pursuing research in wireless communications.
- Teachers of government and private engineering colleges.

For more details and registration information, visit the website [http://www.iitk.ac.in/ee/wireless](http://www.iitk.ac.in/ee/wireless)