Summary
This course will focus on the electron transport in semiconductors, with emphasis on the mesoscopic systems. The aim is to understand the transport of electrons in low dimensional systems, where even particles with statistics different than fermions and bosons will be discussed.

Content
1. Preliminary concepts in Condensed matter physics
2. Landauer-Buttiker formalism in one dimensional channel
3. Transmission function, S-matrix and Green's functions
4. IQHE, Basics, Classical Hall effect
5. FQHE, Review of IQHE
6. Berry Phase
7. Recent/Relevant experimental works

Learning Prerequisites
Required courses
Introduction to Solid state physics

Important concepts to start the course
Electronic transport, superconductivity

Learning Outcomes
By the end of the course, the student must be able to:
• Develop basic understanding of quantum phenomenon in the mesoscopic devices and current state of the art experimental works in related fields

Assessment methods
oral exam during the exam session

Resources
Bibliography
Electronic transport in mesoscopic system by Supriyo Datta

Ressources en bibliothèque
• Electronic transport in mesoscopic system by Supriyo Datta

Notes/Handbook
Lecture notes