

Mobile Computing
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Course Objective

The course is an introduction to the fundamentals of mobile computing. The ubiquity of wireless communication technologies and the proliferation of portable computing devices have made possible a mobile computing era in which users, on the move, can seamlessly access network services and resources, from any-where, at any-time. In this course, we shall present the challenges faced to efficiently enable such access along with state of the art solutions.

Required Text

No textbook is required. We shall cover material from the research literature, in addition to the instructor's lecture notes. A set of recommended texts will be provided later.

Prerequisites

A background in computer networks is required. Familiarity with network simulation tools would be an advantage.

Topics

Tentatively, the topics that will be covered include:

- Introduction to mobile computing
- Data link layer considerations
 - Channel allocation
 - Wireless LANs
 - Bluetooth™ (time permitting)
- Network layer considerations
 - Mobile IPv4 and Mobile IPv6
 - Micro-mobility solutions to the host mobility problem
 - Routing in mobile ad hoc networks
- Transport layer considerations
 - TCP in wired/wireless environments
- Application layer considerations
 - Adaptation
 - Disconnected operation

- Mobile agents
- Security
- Wireless sensor networks (time permitting)