Broadband Mobile Communications

Syllabus

Logistics

- Instructor: Jung-Chun Kao (高榮駿)
  - Email: jungchuk@cs.nthu.edu.tw
  - Office hour: Tue. 5:30 – 6:30pm (台達館 609)
- TAs: See the class webpage for
  - TAs' names, office hours, and contact information
- Meeting times
  - Tuesdays 3:30 – 5:20pm (台達館102)
  - Thursdays 3:30 – 4:20pm (台達館102)
- Class web page
  - eeclass (https://eeclass.nthu.edu.tw)
  - My personal homepage (http://www.cs.nthu.edu.tw/~jungchuk)

Textbook and grading

- **My handouts**
  - No textbook
- **References**
  - A. Kumar, D. Manjunath, and J. Kuri, "Wireless Networking," 2008, Morgan Kaufmann Publication
  - J. G. Andrews, A. Ghosh, and R. Muhamed, "Fundamentals of WiMAX," Prentice Hall
- **Tentative grading policy**
  - Midterm exam (10/22): 40%
  - Final exam (12/17): 40%
  - Homework: 10%
  - Participation: 10%
  - Extra bonus

Tentative syllabus

- Basic topics
  - Review of engineering math, communication systems, wireless channel impairments (e.g., co-channel interference, path loss, shadowing, inter-symbol interference, channel fading, noise) and models, modulation and signal constellation, multiple access, cellular network concept
- Core topics
  - OFDM (Orthogonal Frequency Division Multiplexing)
  - Resource allocation
- Advanced topics (optional)
  - MIMO (multiple-input and multiple-output)
  - Performance modeling and analysis, network coding, advanced transmission control technology, …

Pre-requisites

- Required
  - Undergrad-level engineering mathematics
    - Calculus, probability, …
- Recommended but not required
  - Introduction to computer networks, …

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