Advanced Digital Communications

Time and location:
- Mondays, 8–10, INM 10 (lecture)
- Mondays, 10–12, INM 10 (exercise)
- Wednesdays, 13–15, INR 113 (lecture)

Instructor:
- Hamed Hassani (INR 116, hamed@inf.ethz.ch)
  Office hours: by appointment.
- Rüdiger Urbanke (INR 116, rudiger.urbanke@epfl.ch)
  Office hours: by appointment.

Graduate teaching assistant:
- Mani Bastani Parizi (INR 032, mani.bastaniparizi@epfl.ch)

Undergraduate teaching assistants:
- Burak Hasircioglu (burak.hasircioglu@epfl.ch)
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Administrative assistant:
- Muriel Bardet, (INR 137, muriel.bardet@epfl.ch)

Prerequisite:
- Principles of Digital Communications (required)
- Circuits and Systems or Signals and Systems (recommended)
- Linear Algebra (recommended)

Web page: http://ipg.epfl.ch/

Textbook:
- M. C. Gastpar, *Advanced Digital Communications*, Lecture Notes,
  Available on Course Web page

Course mechanics:
- Weekly assignments (four of which graded, 10%),
- Midterm quiz (Wednesday November 9, 30%),
- Final exam during finals period (60%).

Approximate Outline:
- Review of Basic Concepts, The AWGN Channel (3 weeks)
- Band-limited AWGN Channel: Inter Symbol Interference, Equalization, OFDM (3–4 weeks)
- Wireless Channels: Fading, Diversity, MIMO, Multi-user Communication (3–4 weeks)
- Coding (3 weeks)