

ÉCOLE POLYTECHNIQUE FÉDÉRALE DE LAUSANNE

School of Computer and Communication Sciences

Handout 1

General Course Information

Advanced Digital Communications

Sep. 21, 2016

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)