

1. Course Description:

This introductory course will cover system-level and circuit design topics relevant to wireline communications, including basic communication standards, channel characteristics, modulation/demodulation schemes, synchronization, and key functional modules and the corresponding design considerations.

2. Textbooks:

- B. Razavi, Design of Integrated Circuits for Optical Communications, McGraw Hill, 2003.
- Handouts
- Professional Journal and Conference papers like IEEE Journal of Solid-State Circuits, International Solid-State Circuit Conference, etc..

3. Teaching Methods:

- Lecture : 3 hours
- Outside study : 4 hours

4. Evaluation:

- Homework : 60 %
- Project : 40 %

5. Tentative Syllabus:

- Introduction
- Channel characteristics
- Transmitter circuits
- Receiver circuits
- Tx equalization
- Rx equalization
- Clocking circuits
- Clock-and-data recovery