



Course Syllabus

Instructor: Chen-Bin Huang (robin@ee.nthu.edu.tw)

EECS 704A Tel: 62180

Class time/location: R7R8R9/EECS 106

Office hours: feel free to arrange with the instructor via e-mail!

Course Description:

This course provides discussions and lectures so that the students may develop deeper understandings toward recent advancements in the field of ultrafast optics. The students will be asked to survey among top journal articles, express their opinions and join open discussions. Prior knowledge in ultrafast optics is beneficial but not required.

Course Materials: <http://mx.nthu.edu.tw/~cbhuang> → Courses

References:

A. M. Weiner, *Ultrafast Optics*, Wiley (2009). (NTHU library e-book)

J. Ye and S. T. Cundiff, *Femtosecond optical frequency comb: principle, operation and application*, 1st Ed, Springer (2004). (NTHU library e-book)

F. X. Kaertner, *Few-cycle laser pulse generation and its applications*, 1st Ed, Springer (2004). (NTHU library e-book)

Recent journal papers.

Teaching Method: Lectures and discussion in English

Course Outline:

0. Brief review to Ultrafast Optics
1. Ultrafast nonlinear optics: second-order and third-order
2. Generation and applications of optical frequency combs
3. Manipulations of ultrashort optical pulses
4. Ultrafast spectroscopy
5. Ultrafast terahertz radiations

Grading: Homeworks and quizzes (40%), Mid-term examination (30%), and Final report (30%).