1 Overview

- Review of Maxwell's equations.

- Module 1: Gauge transformation in Electromagnetics, Finite Difference Time Domain Method.

- Module 2: Lab: MIT Electromagnetic Equation Propagation (MEEP). Photonic band-gap (PBG) concept: Semiconductor of light, Lab: Introduction to MIT Photonic Bands (MPB). Hands-on design starts!

- Module 3: Lab: On-chip nanophotonic component design (optical waveguides, high Q resonators...)

- Module 4: Basics of Quantum Mechanics, Quantization of EM field: concept of photon.

- Module 5: Strong light matter interaction: Cavity QED, Applications to quantum computers and devices.

2 Evaluation

- Assignments 15%

- Quiz 15%

- Mid-semester 20%

- Mini-project 25%

- Paper presentation 25%

- Relative grading.

- Penalty for late-submission of assignments: After the submission deadline is over, a penalty of 25% of the obtained marks 'll be imposed per day (so zero marks if submitted on 4th day after the deadline).

- Zero tolerance towards plagiarism and/or cheating in assignments/exams. Such cases 'll be dealt strictly.