

### Possible Courses for Teaching

<i>Undergraduate</i>	<i>Graduate</i>
<ul style="list-style-type: none"> <li>• Electromagnetics</li> <li>• Structural/optical/electrical properties of semiconductors</li> <li>• Introduction to Photonics</li> <li>• Solid State Physics/Devices</li> <li>• Fundamental of Optics/Photonics</li> </ul>	<ul style="list-style-type: none"> <li>• Nanophotonics/Plasmonics</li> <li>• Advanced Optical Materials</li> <li>• Nonlinear Optics</li> <li>• Fundamental of Opto-electric Devices</li> <li>• Introduction to Nano/Micro-Fabrication</li> </ul>

I am primarily interested in teaching physics and electrical engineering related courses at the undergraduate or graduate levels. I prefer to teach (but am not limited to) the courses associated with my research area to include ceramics, solid state materials, optics, nanophotonics, and micro/nano fabrication.

### Teaching Philosophy

The individual experiences in daily life help students to decide their majors in university. Especially, newly emerging high-tech products can attract the students' interest and make them to be students in college of engineering. However, many junior students suffer from a difficulty to figure out how much courses works are essential for the understanding of fundamental physics to realize the fascinating real-world products and technologies, because the rapid development of technologies causes a large gap between contents in class and practical technologies. As a professor in engineering, those issues should be well-addressed to provide an efficient learning environment to students. In addition, the instructors are required to have an ability which can handle students with diverse backgrounds including different culture, age, and race under the globalization of the university. My teaching philosophies are as follows to address those issues:

- 1) ***Teaching should provide students with an opportunity to understand the big picture and to bring their interest in classes.*** Looking back upon my freshman year in university, it was not so easy to realize the importance of basic courses for pursuing my academic goals. Since most of courses in the science and engineering are required to cover an enormous amount of contents in class, instructors often overlook the importance to show big picture to student for helping them to find the meaning of the lecture. Additionally, some of students are easy to be overwhelmed by team/individual projects, homework, and exams, and eventually they lose their interest on lectures. These burdens are somewhat unavoidable to learn many topics and contents; however, instructors should put their effort to make students bring their interests in classes. I believe that the instructor's perspective spanning various physical phenomena and cutting-edge technologies can help students develop an interest in their field of studies.
- 2) ***The instructors must organize and prepare each lecture ahead of time and deliver the material with enthusiasm and knowledge of the topic.*** I believe an essential part of lecture is to deliver concise and precise information to students so that students can clearly capture the main message being given in the lectures. I was really inspired with one of senior professor when I heard from a class assistant that the professor always practices his lecture ahead of time although he has taught the class for several decades. As always keeping the value of student-hours for my lecture in mind, I will strive to be well-prepared for classes with well-thought-out plans and materials. Furthermore, instructors can spend their time to incorporate a variety of teaching styles and resources that offer multiple views on the subjects to students from diverse backgrounds.

3) *Teaching is a two-way communication between an instructor and students.* University students are active audiences who are able to ask questions, collect information, and conduct group discussion on their own. In addition, nowadays students can easily search a lot of information associated with course works online. Therefore, instructors should interact with students to find what they need in class for answering their curiosity and questions from additional information through their external activities. Furthermore, instructors encourage the student to involve the class more actively, enabling them to express their opinions. Even out of class, having a good relationship with students will be another option to share their thought and concerns.

*Overall, teaching is the best and direct way to raise up the next generation, so it is most meaningful work as being a professor. As much as research activities, teaching will be the important part of life.*

### Teaching Strategy

**Undergraduate:** I will provide abundant examples in my lectures so that students can learn how to apply the principle theory and concept into practical cases. It will give the students the opportunity to develop the skills in solving challenging problems. In general, the exams will not be difficult, but will be used in evaluating the students to see if they understand the basic principles. Team projects will be assigned to high grade students to make them capable of pursuing careers in industry and to help further their studies at higher academic levels. In addition, I will also promote and advise some highly motivated students to work on a journal level project.

**Graduate:** I plan to train many graduate students from diverse research groups as experts in nanophotonics, device manufacturing, numerical simulations, and material engineering. My goal in teaching will be to empower students to develop new methods and techniques in exploring and solving more challenging problems. I will try to emphasize critical thinking, creativity, collaboration and communication skills. Under the given conditions, I will try to give students a chance to have hand-on experience, allowing them to enhance the knowledge. In addition, I will encourage students to practice the presentation from the team or individual based projects. Lastly, I will fully utilize all materials from the courses I have been taken so far, and I will adjust them to the subject and the students' interest and research area.