

TEACHING PHILOSOPHY

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During my doctoral and postdoctoral terms, I have deeply enjoyed teaching of various courses and supervision of students. Although, my official teaching and supervision experience are summarized in the attached Curriculum vitae, one particular experience has shaped my pedagogical techniques, the most. The responsibility was being a Tutor for B. Tech. 1st year compulsory course, in Physics, at I.I.T. Kanpur, India. The vast course structure was being taught, not just as proof of some theorems, but with rigorous examples and problem solving.

I have a firm belief in an old Latin principle Docendo discimus “By teaching, we learn”, the teaching strategy will be tutorial and examples oriented. Although, the lecture and notes based teaching has also been useful during my student years, I experienced me and my classmates being much more interested, when theorems were explained with examples. Moreover, problem solving skills ingrained in students are utilized better in society. Therefore, as a greater return for the taxpayer’s money invested in the academic system, I would like to teach with example based approach. For example, the 2nd year undergraduate course on Electromagnetism I taught this current semester, I used multiple hands-on demonstrations and small experiments in class to teach the important concepts of interplay of electric and magnetic forces. The interactive sessions encouraged the students to ask “why” and “how”, regarding the concepts. To me the incubation and nurturing of such scientific thinking about surrounding is the greatest reward of teaching.

Teaching Plan

As I enjoy teaching as well as research, therefore the best match for my academic carrier is Assistant Professor position, where I will get the chance of teaching Bachelor, Master and Doctoral level students. Specifically, I am very interested in teaching courses of classical mechanics, electronics, electromagnetism, quantum mechanics, condensed matter physics, nanotechnology, atomic and molecular physics, experimental methods at undergraduate and postgraduate levels.

In the first year at Texas Tech Univ., I would like to first discuss the specific need of the Department of Physics and Astronomy, regarding courses and curriculum. Thereafter, I can design and deliver the required course to fill in the gap. Although, if I can choose a course to begin with, I would like to teach Electromagnetism or and condensed matter physics. Moreover, I would be very happy, if given the responsibility of experimental lab for Bachelor or Master students.

My specialization being mesoscopic physics, I would also like to start specialized courses for experimental techniques for Master level students, preferably in my 2nd year. The primary aim of the course would be to introduce the students to exciting world of experimental techniques in condensed matter physics. This course would be subdivided in three major segments, namely: Device fabrication techniques, Structural characterization, and Electronic measurements. Each subdivision will contain introduction to the physical phenomenon and the associated experimental technique for investigating the phenomenon. Coupled with demonstrations in the lab, the course could ignite students’ passion for pursuing science as a career.