Notes on My Journey as a Teacher
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I owe my inspiration to take up the teaching profession to many of my great teachers. Just to start the notes with one experience which touched me. … When I was in my Upper Primary School I used to visit my 6th standard school teacher's home near the school itself. I still recall my main motivation to visit her home was the huge swing she had in her home. Of course, whenever I visit she will also give me some savouries. When I started my studies at the High School, I had a completely new set of teachers with new school timings. I was no longer meeting her. Being an ordinary student or I can say to hide my guilty feeling - "as I was a child at that time", I conveniently forgot about her after my upper secondary school days. To my huge surprise, after 19 years, she appeared for my marriage function. My teacher, old and fragile, just came to the stage where I was standing with my newlywed wife, held my hand and proudly said to the audience, here is her student. That day I could see the innocent joy and pride in her eyes. Though she enquired about my further studies after school, I am sure she did not get most of what I said to her as it was too loud and she had a problem with her hearing. That day I learned the real joy of being a teacher from her eyes. Interestingly, I got my offer from IIT Bombay a few weeks before my marriage. I later learned my teacher was living alone in an old age home.

When I joined IIT Bombay, I should say, I had a wonderful mentor, Prof. Ballal. As my research area was the same as that of Prof. Because of Ballal, I started interacting with him very regularly. I joined IIT Bombay some time during the middle of Feb 2000. I was asked to teach the course on Transport Phenomena by the department from the Autumn 2000. Prof. Ballal told me the most important thing was to make a good first impression on the students in your first course. He told me that impressions are carried from one batch of students to the other. Hence, he advised me to prepare for the course the whole summer. I sincerely followed his advice. Once I started teaching, almost after every class I used to go to his office and describe that day's highlights to him. Through those interactions, I learned many things which I practice in my class:

- Do not prepare too much or too little before the class. Of course, not preparing before the class can be disastrous especially for a beginner. If one prepares too much before the class, there is a tendency to conduct the class the way one has already decided while preparing; This may give little opportunity to listen to the students; The students may get bored. Make sure that there is an element of surprise for the students as well as for the teacher in a class.
- If a student asks a question and as a teacher one does not know the answer, just be bold enough to be honest and say, " I do not know, I will come back to you in the next class'. Of course, one needs to make sure that those queries from the last class are answered at the beginning of the next class.
- In the class, if one has discussed some important conceptual topic, just go to the back end of the class and allow the students a few minutes to ponder over those discussions. It was quite challenging both for me and the students to be there in that uncomfortable brief silence, but I believe it helps.

- Never ridicule a student's query in the class. Always try to encourage to make the class very engaging. Otherwise, it creates inhibition among the students to ask questions.
- Fortunately, I rarely got angry in the class; Though I may act angry to convey some message to the students. I do believe students, especially UG students in their teens, tend to be mischievous. Like the way one treat one's own children, I try to be firm but not angry while dealing with such incidents in the class.
- The most important feedback I got from the students is that learning happens outside the classroom. Always one should give office hours for the students to come in to discuss with their teacher. I always found the 11:35 to 12:30 slot very useful as many students stay back after the class for discussions.
- As an instructor, I always found some of the students, if not all, can be made curious by asking questions which one witnesses on a regular basis, but not observed close enough. For example, if you open a tap and let the water fall on the floor, what do you observe? Have you carefully observed what is inside an ice cube? Ask them to go over the campus during monsoon and look at how two flows from drain merge to single drain etc. More often than not I found that students do not observe them carefully in their first attempt. I keep asking them with more questions so that they will start observing more carefully and then start pondering the why part of the observation. Interestingly many alumni who come back to me after so many years remember more about these questions than what was taught in the class.
- I insist on quantitative skills for a practicing engineer. For a 6-credit course, every week one tutorial is conducted where students are asked to form groups of 2 or 3 and solve the problems by themselves. I along with TA's help groups during discussions. Many students have appreciated this methodology in their course feedback. For a smaller class I also give more realistic industrial problems for which they can come with potential solutions which may involve analysis, computations, synthesis, etc.
- I do not believe in provide readymade unique solutions to the problems which I give in assignments to the students, I only discuss them outside the class room. I try to tell the students that real engineering problems need not have unique solution. I try to get them out of their JEE/GATE mindset of well posed problems. I make sure to give students a few real-life engineering problems which are not well posed. They need to work it out through discussion to a well-defined problem and seek solution for it.
- I do give DX and FR grades for students whose performance is very poor. Interestingly, a few of these alumni, much later their graduation, have come and thanked me for giving FR. Some of them did perform exceptionally well when they took the course a second time. They acknowledge the fact that giving them FR was helpful in aligning their priorities properly and successful completion gave confidence in their abilities. Apparently, this learning was useful later in their career growth.
- Lastly, I can sense after every class whether the class went well or not. Sometimes, classes did go bad. But mostly the classes have gone well and my day is made after such classes.