Introduction:
I have been a faculty member at IIT Bombay since 2009 and I have taught a wide range of courses in the Mechanical Engineering (ME) department, including UG core, UG electives, UG lab, PG core and PG electives. In what follows, I have summarised the practices that I follow while teaching a course. These practices are presented as points and I have classified them in two broad categories – teaching and assessment. These points are listed in no particular order, have evolved over the years, and are expected to continue evolving in the coming years.

Teaching:

- I have found it extremely useful to prepare a course handout, which I share with the students on the first day of class. This handout includes the following: course objective, learning outcomes, syllabus, text book, list of reference books, grading schemes, attendance policy and integrity policy. In my opinion, the first two points are extremely important as they not only provide students with essential information about the course but also serve as guiding principles for the instructor during the course preparation and its subsequent delivery. I have found it useful to specify a "Textbook" at is makes easier for the students to follow the lecture topics and also enables me to assign corresponding tutorial problems. I also try to incorporate my industry experience and my sponsored research projects into my teaching whenever possible by citing relevant examples. This helps students appreciate the practical relevance of the topics covered in the course and at the same time recognise the complexities involved in addressing real engineering problems.
- It is important to recognise that when one commits to teaching a course for the first time, it should be done with the understanding that the teaching effort and associated time commitments will be high for the first year. In the ME Department, we typically teach a course for three consecutive years. In the first year I try not to tinker too much with the contents or my teaching methodology. I primarily concentrate on making sure that all the important topics are covered and on developing a good set of lecture notes that can be used in subsequent years. In the second and the third years, based on the feedback received from the students and my own assessment, I make modifications to the way the material is presented and add or remove certain topics. The preparation time for the lectures is substantially higher for the first year as compared to the second and third years. I usually do not continue teaching a course beyond three years, as I have observed that my enthusiasm tends to diminish when the course contents become somewhat repetitive.
- It is essential that we are well prepared for our lectures. However, despite of our best efforts, we are sometimes asked questions for which we have no satisfactory answer. In such situations, I have found that it is always best to acknowledge that I do not know the answer and then get back to the students with the answer in the next lecture.
- It is of utmost importance that we treat all students with respect and engage with them in a fair and transparent manner. This goes a long way in establishing and maintaining a healthy classroom environment. At times, students may have genuine issues related to the course (late submissions, missed exams, etc). In my opinion, we should make every effort to resolve them to the best of our ability, while at the same time ensuring consistency with the stated class policies.

Assessment:

- As I have mentioned earlier, I share the assessment scheme, along with the weightages assigned to different components, with the students on the first day of class. I also ensure that I do not deviate from this scheme. The components on which the students are assessed include tutorials, quizzes, mid-semester exam and the end-semester exam. The electives, both UG and PG, also include a project component which needs to done by the each student independently. I grade the tutorials mostly on completeness. I usually undertake the full grading of the mid-semester and end-semester examinations myself as they carry the maximum weightage. This not only helps me assess the performance of the students but also helps me identify which parts of the course contents need extra attention.
- For resolving the student complaints regarding the grading, I adopt the following approach: I first share my solutions with the students and ask the students to go through them. Students are then asked to submit written cribs only if they believe that their solution has been graded incorrectly or that some part of their solutions hasn't been evaluated. These cribs have to be precise and clearly explain the nature of the concern. I do not entertain oral cribs, nor do I accept written cribs of the nature "I deserve more marks" or "Please regrade".
- When setting question papers, it is a good practice to solve the entire paper ourselves before the exam. This helps uncover mistakes, missing information, inconsistencies and subtleties in the questions. It also helps us to estimate the approximate time a well-prepared student will require to solve the paper. I try to make sure that I set the paper such that I am able to solve a two (three) hour paper in less than than 90 (150) minutes, respectively. I believe that a well-prepared student should not leave the examination hall with a feeling that they could have performed better only if additional time had been available.
- In my opinion, the main purpose of the exams is to assess the students learning. Therefore, the paper should be designed in such a way that it covers all the important topics with their relative importance being appropriately reflected in the distribution of marks. I also feel that there is little value in setting a paper in which all the questions are difficult as it does not help in effectively assessing the learning of the students. I set the question paper in such a way that the level of difficulty gradually increases and students who have been regular in the class should be able to score ~70% in the exam. The gradation in the difficulty level also helps the student build confidence while solving the paper.
- I generally make exams either open notes or provide all the necessary information required to solve papers, as I believe that the exams should test understanding rather than memory. The disadvantage of an open notes exam is that some students do not prepare for the exams and start reading the notes only after coming for the exam !
- As I have mentioned earlier, I always include an individual project component for my electives, either UG or PG. Students choose their own project topics and are required to make a presentation and submit a report towards the end of the semester. I have found that projects not only help the students improve their understanding of the subject but also encourages them to explore additional topics that are not covered in the class.

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