Cover Letter

I consider teaching as the best profession. It provides ample opportunity for noble action like learning and teaching for whole life. I love to learn things and teach them to the student. The profession is noble and requires lifelong learning. It requires enthusiasm, dedication and overall great motivation to be a great professor. I have that zeal, and I am ready to undergo the hardship required to be a good professor.

Further, I believe that learning is a self-driven process, and a teacher's role involves is more than just facilitating learning and imparting knowledge to the students. A teacher should provide motivation to the students to learn and help in organizing their thought process to understand and develop skills necessary to be successful in professional and personal life. A teaches should also help students to develop creative and critical thinking to build solutions to real-life engineering problems and become a successful engineers. Since, Engineering is a "problem-solving discipline" that requires an understanding of the basic principles/axioms of nature and their role in formulating the underlying mathematical models. I believe that teacher should not compromise on mathematical rigor and physical insight required to address the problem to be solved. One can first start with the explanation of physics and then introduced to the mathematical tool to complete the particular difficult topic to the students.

Slide preparation, assignment preparation and illustration are three other things that teacher should give its effort, creativity, and customization to make the concept properly understood by the students. If possible, available or self-rendered video clips about the topic or physical phenomena can be shown to better recalling in the mind. One more skill that can help any teacher to success his/her mission of imparting knowledge is that skill of typeset, illustration, and publishing the content on the website so that student can focus on the studying of the topic instead of writing to make noted for themselves.

Some more points which I personally feel can be done (according to the rules of the institute) by keeping the interest of the students is to open to the review sessions, flexible schedule, website communication which provides students way to ask their doubts. All the above mentioned points can easily be executed as these above points require patience and passion to our subject which I feel I have.

Feedback during class or outside the class in the form of queries or doubt is very much essential for teachers. So that, teacher can understand where to repeat or explain in different way. A simple MCQ type questions can be given to students for a weekly progress of the students. The idea of doing all these things is to make students think and develop question and reasoning about the topic which ultimately build their confidence.

To make the student grasp the subject and understand the conceptual nuances, I would like to follow the following pedagogy techniques:

1. Sharing the slides with students, so that they can get the idea about that is going to be taught in the lecture. Further, this will help student to just focus on the understanding of the concept instead of note making.

2. Giving the outline of the topics and how topics are interrelated. Particularly, how present topic is interlink with previous topic or why this we are studying present topic. Is present topic an essential element for particular topic or anything other? So that, a continuously is maintain as done in other subject like History. A historic perspective can also be given which help students to understanding the subject in better way.

3. Teaching the theoretical topic using slides, presentation, and black/white board.

4. Demonstration of concept through prototype model (if possible)

5. Solving the numerical problems.

6. Solving same problem or different problem using suitable programming/scripting language.

7. Finally, software training like ANSYS or ABAQUS.

8. Whenever possible, importance of topic for different platform (GATE exams or job interview) will be highlighted.

The Further, as a teaching assistant, I have tutored several under graduate and Post-graduate student at the IIT Kharagpur. The subject in which I have been the teaching assistant are as follows:

1. Engineering Mechanics

2. Finite Element Method

3. Aerospace Structure

Apart from teaching assistant, I have mentor several undergraduate, post-graduate, and early PhD students during my stay in IIT kharagpur. I have also conducted workshop or training sessions on MATLAB and LaTeX.
So, from the skill set and experience gained from my Ph.D., I would be able to teach the following courses:

1. Computer Programming
2. Data Structures & Algorithm
3. Engineering Mechanics
4. Aerospace Structures
5. Strength of Material/Mechanics of Solids
6. Theory of Elasticity
7. Continuum Mechanics
8. Theory of Plate & Shell
9. Mechanics of (Advanced) Composite Materials
10. Smart Materials and Structures
11. Theory of Vibration
12. Structural Dynamics
13. Stability of Structures
14. Matrix / Finite element analysis of structures
15. Isogeometric Analysis
16. Engineering Drawing