I believe that teaching at its core is simply the passing of knowledge and skills from one individual to another. Discovering effective ways to perform that task is a lifelong challenge as the students, technology, and materials are constantly changing. It is my job as a teacher to strive to impart students with both the necessary knowledge as well as to equip them with the tools (physical and mental) to apply that knowledge. From there it is the student’s responsibility to apply what they have learned in order to be successful in their career of choice.

As a computer scientist, the comprehension of facts only gets you so far and to really excel in this field you must be proficient at applying that knowledge to new and complex problems. My teaching style reflects that principle and as a result I’ve broken the description of my teaching style into two sections, which I call “instruction” and “application”.

The instruction portion of my classes resembles more of a traditional lecture, where I present them with the basic principles and facts of the subject matter. These principles and facts are the building blocks they need in order to solve problems of any complexity. This type of instruction is often done using a technological aide such as a slideshow or video clip. Further, to assess the students understanding of these principles and facts, they are given regular weekly quizzes. The quizzes are intended to evaluate the student’s retention of the material that has been presented in class the previous week.

The other portion of my class time is used to discuss how to apply the material they learned during instruction to complex problems. In my experience, I have found that students are much more likely to retain the information if they can see how it can be used in the big picture of things. I often choose to use real world scenarios to describe the subject matter not only for that reason, but because it encourages the student to think about how they could apply the concept to other problems they encounter. I assess the student’s ability to apply the material using both projects and homework. These types of assignments focus solely on using the building blocks they are given during the instruction to construct complex solutions to the problems they are presented.

While I described the “instruction” and “application” sections independently they are not disjoint in the classroom. I will often spend a few minutes instructing them on new concepts and they dive directly into how those concepts are utilized in a real world problem. The movement between the two types is a fluid process that happens many times over the course of just one class period.

Further, while “application” may be more interactive than the instruction portion both require student input and participation. I value their involvement in the classroom and try to make them aware that I am approachable. For example, on the first day of class I sit them down and have them write down what they think the class is about and what they are most interested in. That information gives me a baseline on which to measure their expectations and allows me to better guide them
through the class. I repeat this process periodically throughout the year when we transition to a new topic.

I feel that students remain more engaged in the course if they feel that they are more than just a number or body in a seat. One way to do this, like I showed in my previous example is to provide the students ample opportunity to give feedback. One unique way I found to do this is to allow them to post their questions anonymously online. The questions are visible to every student in the class and their classmates can vote on the questions they feel are most important. At the beginning of most classes I will take the top few questions and answer them. The other questions I answer outside the classroom and post the answers for the students to see.

Finally, in order to remain an effective teacher I must be pro-active. In this field the technology is constantly changing and I need to stay current. My approach to this is two-fold. First, I actively follow the research that is ongoing in my specialization by attending conferences, reading publications, and networking with colleagues. This in itself is insufficient, because focusing on any one specialization causes you to lose sight of the big picture. Therefore, I also keep abreast of what is going on in the consumer and enterprise markets by attending tradeshows and keeping up to date with commercial websites and periodicals. This information is particularly useful in the classroom as it gives me real world products and problems to reference that students can easily relate to.