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Teaching Philosophy

My overall goal is to research and teach the design of alternative processes, applicable to small scale plant production and processing as well as small scale waste bio-processing, and aimed to be more environment-friendly, more socially acceptable and more lucrative than existing processes.

I believe that the field of Bioresource Engineering can benefit from a curriculum rich in advanced engineering and science classes. I also believe such a curriculum can be taught in a way to demystify engineering, to make it accessible, and to emphasize the aptitude of Bioresource Engineering majors in both life sciences and engineering subjects.

More specifically I look forward to designing and teaching two types of classes. The first type would cover the fundamentals of Bioresource Engineering. The second type would be advanced classes where students pool knowledge from their past classes and synthesize it to apply it to designing a process, which they can possibly implement in a class project and also add to their portfolio. I believe from experience that the fundamentals of engineering can be easily understood and applied if explained correctly and that the quality of instruction that students receive in these classes might shape their future in engineering. I would design and teach interactive classes in Bioresource Engineering, life sciences, electrical or mechanical engineering subjects and basic programming in such a way that students do not fall behind due to issues such as a student's poor time management or lack of motivation to participate in class. Time management issues can be avoided by allocating time in class for some of the studying and problem solving. In the way of interactive classes, I would use the Harvard model, which encourages engaged learning. I learned about this model in a professional development class, and it involves giving students short time periods in class to derive the equations they're learning, using the text-book, instead of passively hearing of them from their instructor. I am also a proponent of individualized pace instruction, by making the instruction material available online. This allows students to get enough exposure to the studied subject to improve their performance in class and make up for any missed chances.

I also took a design class where I learned what not to do once I am an instructor. All the instructor could say is that creating a design is "difficult". I would have rather heard that the key to a successful career in engineering is enjoying creativity, rather than coping with it. I would give my students the opportunity to be creative while being methodical. I would guide them to pool all their multidisciplinary knowledge, get in touch with reality by meeting with their target consumer such as farmers or bioenergy industries, and motivate them by giving them frequent opportunities to present their work to the public. Most importantly I believe that teaching is the best way of learning, and I expect to continuously gain more knowledge in the subjects I teach.