

Is It Name or Content that Counts?

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It just goes to show that not everyone knows what Biological Engineering is. The working definition that some of us use is that Biological Engineering is the discipline of engineering based on the science of biology, similar to Chemical Engineering and chemistry, Electrical Engineering and electricity, and Mechanical Engineering and mechanics, without any particular application in mind. But that's not the way the Engineering Accreditation Commission (EAC) of the Accreditation Board for Engineering and Technology (ABET) sees it. Let me tell you how I know this.

In 2005, the Biological Resources Engineering (BRE) program at Maryland was reviewed under the Biological Engineering criteria and given a full six year accreditation in 2006. The program was apparently able to meet Biological Engineering requirements. In 2006, the undergraduate program was renamed "Bioengineering" and a few minor changes were made in required courses. The program still retained the broad and general flavor of the previous BRE program. All of the course requirements that I taught remained exactly the same. For those of you who know what I teach (Biology for Engineers, Basic Electronic Design, and Transport Process Design), you know that there is a little agriculture, a little environment, a little biotechnology, and a little biomedicine in each of these. That still remains.

We added an imaging course, a biomechanics course, and a physiological modeling course. We convinced the instructors of these courses that they should include material drawn from a wider range of applications than just medicine. We did the same

for the bioinstrumentation course that was carried over from the previously-named BRE program.

We made such minor changes that our University Senate approved the changes locally without sending them to the Maryland Higher Education Commission. Our academic program code (CIP) remained the same as it was before (09030), designating the program academically as agricultural, biological, or biomedical engineering.

The change of name was prompted, as it often is, by local conditions, and because the students greatly preferred “Bioengineering” over “Biological Resources Engineering.” Student interests may have changed somewhat with the different name, but even under BRE, 80-90% of our students had designated Biomedical Engineering or biotechnology as their primary interest. We presently describe our Bioengineering program to be Biological Engineering (broad, science based) and Biomedical Engineering (major application in health care). I know there are other Biological and Biosystems Engineering programs with similar profiles.

The next step was to request ABET to transfer our new BRE accreditation to the Bioengineering program. That is when we found out that it is name alone, and not content, that matters to ABET. The letter of refusal seemed to be self-contradictory: “...this program as named now invokes a set of program criteria against which the program was not evaluated during its last comprehensive review.” What does name have to do with program criteria? A lot, as it turns out; no, everything.

Something is wrong when ABET can presume to dictate acceptable names of programs. Something is wrong when Biological Engineering cannot include an application in human health care. Something is wrong when our ASABE (American

Society of Agricultural and Biological Engineers) and BMES (Biomedical Engineering Society) representatives accept arbitrary distinctions that don't exist in many programs.

The refusal letter went on to say that because of our name, we cannot be accredited under the Biological Engineering criteria. ASABE, which is the lead society for Biological Engineering accreditation, and which in the past has sent program evaluators and gained a certain loyalty because of it, will no longer be the lead society for our accreditation. That seems to be very shortsighted and not a good omen for the society's future, because we tried as hard as we could to maintain the spirit and historical strengths of Agricultural and Biological Engineering. We doubt whether these will be understood by our new BMES accreditors, either. We have no choice but to be accredited according to our name and not our content. Goodbye ASABE, hello BMES. We hope you understand our unusual combination of curricular objectives.