



Cleveland State University

Fenn College of Engineering
Chemical and Biomedical Engineering Department

February 7, 2010

Dear Chemical Engineering Alumnus:

I am writing this letter to ask for your help. As part of our continued accreditation, we are required to assess our undergraduate chemical engineering program's effectiveness in preparing graduates for their professional careers. This survey is of prime importance as we are preparing our self-study towards this Fall 2010 ABET impending visit to determine the program's accreditation for the next six years.

Therefore, we would appreciate your assistance in this endeavor by taking a few minutes to complete the attached survey. There are two ways you can submit your completed survey:

- 1) by completing and returning it via U.S. Postal Service, or
- 2) by completing the survey on-line

Your feedback is important as we continually strive to improve our educational program. We will analyze your responses, identify strengths and weaknesses of the program and take appropriate corrective measures to overcome the weaknesses.

Let me also take this opportunity to bring you up-to-date on many of the exciting happenings occurring in the department since you graduated.

Undergraduate Program.

First the good news: our undergraduate enrollment is on an upswing. For the first time in many, many years, we have thirty students enrolled in CHE 300, Chemical Engineering Principles. This is very exciting for the department. Overall, we currently have approximately 100 undergraduate chemical engineering students.

The department faculty has now integrated the use of process design software ASPEN PLUS throughout its curriculum. Its use begins with material and energy balance course and continues in reactor design and separation processes. The sophomores and juniors are exposed to the software. In their senior year, the students use it extensively for their process design project.

The unit operations lab is continually being upgraded, with the addition of new experiments. The laboratory that accompanies the course Reaction Kinetics now has

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use of a tubular reactor, a stirred tank that can operate in open-loop or with a control loop, a batch reactor, and a catalytic reactor for the analysis of enzymatic reactions. A fuel-cell unit and an adsorption unit were also recently added to the unit operations lab. Students now take an additional 1-credit lab course in the fall of junior year in order to get them started in experimental design, statistical data analysis, and report writing. Dr. Talu has also added a new experiment on fuel cells in the undergraduate lab.

The department is continuing the use of the Integrated Design Experience (IDE) in our curriculum. This program helps students integrate the topics they learn in different courses in the curriculum *before* they reach the capstone design project in their senior year. Each entering sophomore class is assigned a design project. The students work in groups and they work on a small piece of this project in each of their core courses. During the first semester of Process Design in their senior year, the students integrate their individual projects to develop a complete design. In this way, students start performing design early in the program, and they learn how the design of one subsystem impacts that of the entire project. Student feedback has indicated that the IDE has been successful in helping them integrate the individual course topics into a better understanding of chemical engineering and design.

At the bachelor's level, students now have the option of an Accelerated Masters Programs leading towards bachelors and masters degrees in a five-year curriculum. Students can join these programs as early as in the Summer of their Junior year and, by carefully designing their Junior and Senior schedules, accumulate up to twelve masters credits by the time they complete their bachelors' degree.

The engineering college has been working hard to improve the co-op opportunities for our students. Ms. Juliana Capuano is the co-op and placement director for engineering and she now has an office in Stilwell Hall. The number of chemical engineering co-op positions for our students has increased leading to better work experience and more employment opportunities for our students when they graduate. This year we have a graduating class of 12 well-qualified students. If your organization is in need of chemical engineers, please do not hesitate to call Ms. Capuano at 216-687-2233 or myself, and we will help you find a person with the education and skills that you need.

Graduate Programs.

Biomedical Engineering Focus. As you know, our department's name has been changed to Chemical and Biomedical Engineering. This new name more accurately reflects the department's increased educational and research emphasis in biomedical engineering. The Department already spearheads the College's DRE degree program in Applied Biomedical Engineering. The ABE DRE program has been highly successful with 30 full-time students and 3 part-time students. Instruction and research advising at the doctoral level is supplemented by over 30 adjunct faculty from the Cleveland Clinic.

Last Summer the Ohio Board of Regents approved our new master's degree program in Biomedical Engineering. This program officially started in Fall 2009. Thus in an ever changing job market, we are now proud to offer two distinct masters programs for the professional growth of students whose backgrounds span over several Science and Engineering majors. In the first semester, we had 12 full-time students enroll in this new program. We currently have 15 full-time and 5 part-time students enrolled in the M.S. in Biomedical Engineering program.

M.S. BME Track for Chemical Engineering students

For the traditional chemical engineering students who have an interest in biomedical engineering, the Department instituted a Biomedical Engineering Track within the Master's degree program for chemical engineering. The program has been in effect since Fall 2008. Under this program, students can complement their graduate experience by including several (3 to 5) biomedical engineering courses.

We continue to have strong enrollment in our graduate programs. In addition to 15 full-time M.S. BME and 5 part-time MS BME students, we also have 30 full-time and 4 part-time M.S. CHE students. We are proud of the fact that we currently have more than 30 students completing their doctoral degrees in ABE and CHE specializations.

Updates on Departmental Personnel:

Dr. Bahman Ghorashi is now (has been appointed) Dean of the Fenn College of Engineering. Dr. George Chatzimavroudis has been appointed as Interim Associate Dean of Operations for the College. We all wish them all the best in their new responsibilities as they handle the numerous challenges facing the College as we move forward. Dr. Holland has been granted tenure and promoted to the rank of Associate Professor effective Fall 2009. Congratulations to him as well!

Beginning this Fall of 2009, Dr. Belovich has assumed the duties of Graduate Program Director for the Biomedical Engineering programs (Doctoral program for Applied Biomedical Engineering and BME Master's degree program).

The department has three faculty who form the core of biomedical engineering. They are; Dr. George Chatzimavroudis (imaging, biofluid dynamics), Dr. Belovich (bioprocessing, tissue engineering, metabolic modeling), and Dr. Nolan Holland (protein/liquid interfaces). Until Fall 2009, these three faculty were all teaching biomedical engineering courses at the master's and doctoral level. Dr. Siu-Tung Yau, Professor in Electrical and Computer Engineering, has an expertise in the area of biosensors. He is thus helping us broaden our course offerings and research base in biomedical engineering. Many of our chemical engineering faculty members are also applying their expertise to biomedical problems. Dr. Jorge Gatica uses mathematical modeling, statistics, and reaction engineering principles to develop tissue metabolic models. Dr. Sridhar Ungarala applies data rectification techniques for image analysis,

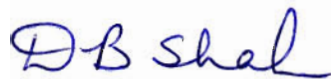
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and Dr. Surendra Tewari is looking into material processing methods for bone implants. With Dr. Chatzimavroudis' move to a full-time administrative position, the department is currently understaffed to meet our biomedical engineering teaching obligations.

Have you considered upgrading your skills or deepening your knowledge of engineering topics by taking graduate courses or pursuing a master's degree? Our graduate courses are offered in the evening (they begin after 4:00 PM) so a working engineer may be able to enroll in the graduate program. By the way, you may check the latest course offerings and the schedules online by logging in as guest through Campus Net (<https://campusnet.csuohio.edu/guest/stage.htm>). If you wish to just take a course now and then, you may enroll as a non-degree student, which is a simple one-page application at <http://www.csuohio.edu/admissions/gradForm.html>. Up to 12 credits taken as non-degree student can be later transferred into a degree-seeking program, should you choose to continue your education.

Stop in to visit us anytime or give us a call to update us about what you are doing now. We look forward to hearing from you!

Best Regards,

A handwritten signature in blue ink that reads "D B Shah". The letters are cursive and fluid.

Dhananjai Shah, Ph.D., P.E.
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