For either degree, independent scholarship is emphasized and presentations of research results at national technical meetings is stressed. Every graduate student gives an average of two formal oral presentations per year, many at industrial sponsor review meetings.

A Master's candidate is required to take eight courses, at least four of which must be in chemical engineering, in addition to completing the thesis research. Most students are able to complete the course work and submit a thesis within 15 to 18 months.

While the PhD program is intended to be flexible and has no specific course requirements, a typical PhD course of study would involve completion of approximately twelve courses, including core courses in the traditional thermodynamics, kinetics and transport phenomena areas. An active seminar program involving outside visitors supplements the scheduled courses. A prospective PhD student is not required to complete an MS degree first. A written qualifying exam on the traditional undergraduate topics must be passed along with demonstration of reading competency in a foreign language prior to acceptance into candidacy. A preliminary oral examination in the area selected for the dissertation research is also taken within the first two years in residency. Most students entering with a BS in chemical engineering take an average of 4.5 years to earn their PhD.

Doctoral student support can be either a fellowship or a research assistantship. Some students supplement their income by serving as teaching assistants beyond the one semester that is expected of all our PhD candidates. Supervisor selection is done within the first six weeks of the semester following presentations by all of our faculty and individual visits with those faculty who have projects of interest. Students select three possible supervisors/research projects; over 90% receive their first choice.

Over the last two years our department has ranked fourth in PhD production, with thirty-three degrees awarded. We expect to award fifteen to twenty PhD's annually for the foreseeable future. Our PhD's are finding employment in both academic and industrial positions.

REFERENCES

1. Septenary Committee, Univ. of Texas, *Chem. Eng. Prog.*, **81**, 9 (1985).
2. Fair, J. R., *Chem. Eng. Educ.*, Fall, 190 (1984). □

Editorial

A DEPARTMENT THAT SERVES

In previous editorials (*CEE* Winter 1986, page 3, and Spring 1986, page 100) we indicated that the goal of a chemical engineering department should not be to compete with other departments for high ratings or prestige, but instead should be to serve, in its own unique way, its students, the profession, the state, the nation, or in general, society as a whole. In our Fall issue we indicated that the goal of the individual professor likewise should not be to gain personal recognition but to serve society in his own unique way. We illustrated this with the life of Olaf Hougen of the University of Wisconsin. In this issue we feature the University of Texas, a prestigious department that exemplifies the ideal of service.

In 1984 the chemical engineering department at the University of Texas coordinated a zero-based study by a group of academic and industrial leaders on the requirements for undergraduate chemical engineering education. The study resulted in a report by the Septenary Committee: "Chemical Engineering Education for the Future."

The study proposed "a framework for the future role and development of chemical engineering education." Instead of an arbitrary, "How can we improve our rating?" the Texas department in effect asked: "How can we, as a department in a state university, better serve our students, our profession, and society as a whole?"

In trying to answer that question, the department did not merely adopt the program of the "average" department, or even that of other top-rated departments. Instead its Septenary Committee set out on its own to plan for the chemical engineering of the future—a future that is characterized by rapid change. As the committee, in fact, said, "Change appears to be the only certainty." They agreed that chemical engineering education must continue to prepare its graduates for change by emphasizing—even more than it has in the past—fundamental science and mathematics and "the ability to apply the fundamentals in diverse, complex, real world problem solving." They also called for "major improvement in teaching methods, including the extensive rewriting of textbooks."

Although one may not agree with all the conclusions of this committee, the department should be commended for its initiative, for its approach, and for its service to the profession.

Ray Fahien, Editor