

B.5. Faculty

In this section we review the qualifications and accomplishments of our faculty in the following sections:

- B.5.1. Faculty Competency and Adequacy
- B.5.2. Faculty Involvement in Advising and Mentoring
- B.5.3. Professional Development Activities
- B.5.4. Interaction With Industrial Practitioners

B.5.1. Faculty Competency and Adequacy

The department of chemical engineering has 17 full time faculty members not including two Full Professors who are in upper administration (Dr. Hanley, Provost and Dr. Curtis, Special Assistant to the President) at Auburn University. These 17 faculty members include 12 Full Professors, 1 Associate Professor, 3 Assistant Professors, and 1 non-tenure track Laboratory Manager. In addition, we have extended an offer to an exceptional individual to fill an open full time faculty position (tenure-track Assistant Professor) starting Fall 2004. Table I-4 (Appendix) provides the qualifications of the faculty members along with rank and years of experience. The technical expertise of the faculty provides wide coverage of all core competencies in the chemical engineering discipline as well as several specialized areas. The faculty are extremely qualified, productive and nationally and internationally recognized in their field of expertise.

The university recently required each academic unit to perform a calculation to determine the minimum number of full time equivalent teaching faculty required to adequately serve the instructional needs of our current undergraduate and graduate enrollments. In performing this evaluation it was determined that the minimum faculty size for the chemical engineering department was 11.5 faculty members. We currently adequately satisfy this minimum requirement and the overage allows the faculty members to devote time to research activities and other university and professional service. A faculty member typically teaches two courses per semester, but is able to obtain release time for additional research from funded research contracts. Some faculty with very active research programs teach only two courses during the academic year while those engaged more heavily in the instructional program may teach up to five courses during the academic year. Each faculty member contributes to the service activities of the department at various levels by serving on committees as outlined in Table I-3 (Appendix) that shows the teaching load distribution for 2003-2004 as well as the extent of research, extension and service involvement of the individual faculty.

The faculty members of the chemical engineering department represent a diversity of curricular and research expertise, educational and industrial backgrounds and cultures. The entire faculty has either their terminal degree in chemical engineering or one of their degrees in chemical engineering. The teaching of the faculty as a whole is well received by our students as evidenced by both written comments and numerical scores on the university's teaching effectiveness evaluation forms completed by the students each semester. Moreover, a number of the faculty have won a variety of teaching merit awards and other honors such as titled professorships due to their commitment and excellence in their teaching and academic pursuits. Table 5-1 shows a list of chemical engineering faculty who have won teaching/research awards

during the last several years.

Table 5-1 Faculty Teaching/Research Excellence Awards

Year	Faculty Member Name	Teaching/Research Awards
2004	Yoon Lee	Walker Merit Teaching Award – Ginn College of Engineering
2004	Robert Chambers	Outstanding Chemical Engineering Teacher – Ginn College of Engineering
2003	Ram Gupta	Alumni Professorship – Auburn University (2004 – 2008)
2003	Chris Roberts	Auburn Alumni Engineering Council Senior Faculty Research Award – Ginn College of Engineering
2003	Bruce Tatarchuk	Creative Research Award – Auburn University
2003	David Mills	Walker Merit Teaching Award
2002	Mark Byrne	Chorafas Prize for Best Doctoral Dissertation (Purdue University), Chorafas Foundation, Switzerland
2002	Mark Byrne	Materials Research Society Graduate Student Silver Award (2002)
2002	Ram Gupta	Senior Faculty Research Award – Ginn College of Engineering
2002	Gopal Krishnagopalan	Inducted as a TAPPI Fellow, Tech. Assoc. of the Pulp & Paper Industry
2002	Chris Roberts	Walker Merit Teaching Award - Ginn College of Engineering
2002	Gopal Krishnagopalan	Philpott/WestPoint Stevens Professor – Ginn College of Engineering (2002-2005)
2001	Mark Byrne	Estes H. and Vashti L. Magoon Award for Excellence in Teaching, Purdue University
2001	Harry Cullinan	Herman L. Joachim Distinguished Service Award – TAPPI
2001	Gopal Krishnagopalan	Walker Merit Teaching Award – Ginn College of Engineering
2000	Chris Roberts	Outstanding Chemical Engineering Teacher – Ginn College of Engineering
2000	Chris Roberts	Lambda Sigma Society – Teacher of the Quarter Award
2000	Chris Roberts	George E. & Dorothy Stafford Uthlaut Professorship – Ginn College of Engineering (2000 – present)
2000	Steve Duke	Walker Superior Teaching Award – Ginn College of Engineering
2000	Yoon Lee	Sanders Professorship – Ginn College of Engineering (2000 – present)
2000	Gopal Krishnagopalan	Senior Research Award – Ginn College of Engineering
1999	Chris Roberts	Outstanding Chemical Engineering Teacher – Ginn College of Engineering
1999	Bruce Tatarchuk	Industrial Energy Efficiency Award – U.S. Department of Energy, Office of Industrial Technology, Washington, DC
1999	Bruce Tatarchuk	Senior Research Award, AU College of Engineering

1998	Ram Gupta	James A. Shannon Director's Award, The National Inst. of Health
1998	Ram Gupta	Auburn Jr. Faculty Research Award – AU College of Engineering
1997	Steve Duke	Alabama NSF -EPSCoR Young Faculty Career Enhancement Award
1997	James Guin	Senior Research Award – AU College of Engineering
1997	Ram Gupta	Alabama NSF-EPSCoR Young Faculty Career Enhancement Award
1997	Chris Roberts	Walker Superior Teaching Award – AU College of Engineering
1997	Chris Roberts	Auburn Jr. Faculty Research Award – AU College of Engineering
1997	Gopal Krishnagopalan	Alumni Professorship – Auburn University (1997 – 2002)
1997	Bruce Tatarchuk	Philpott/WestPoint Stevens Professor – AU College of Engineering (1997-2002)

The faculty are active in professional and scientific societies such as AIChE, ACS and TAPPI. The majority of the faculty regularly publish papers in scientific or educational journals and their scholarly contributions are typically between 5-10 papers per year in peer-reviewed journals, books and book chapters, proceedings and presentations to learned societies.

All faculty communicate fluently in English. The student evaluation of the faculty in relation to their knowledge of the subject they are teaching has always been quite high. Equally laudable is the faculty's strong interest in the students' academic and professional developments and their commitment to the continued improvement of our educational program.

B.5.2. Faculty Involvement in Advising and Mentoring

The teaching program is designed to be flexible, accommodating to a wide range of individual interests and skills, while maintaining accountability and a reasonable level of equity. This flexibility in the teaching load distribution is possible because several of our faculty can teach comfortably several of the courses in our curriculum. Because of the diverse interests of our students, the chemical engineering department offers several specialization areas. There are several faculty members whose expertise coincides with each specialization area provide both breadth and depth of coverage in these areas shown in Table 5-2.

Table 5-2 - Faculty Teaching Expertise in Program Specialization Areas

Program Specialization	Faculty Members
Biochemical Engineering	Lee, Chambers, Byrne, Elnashaie
Computer Process Control	Eden, Elnashaie, Tarrer
Environmental Chemical Engineering	Tarrer, Eden, Chambers, Gupta, Duke, Krishnagopalan
Pre-Medical/Biomedical	Chambers, Byrne, Gupta
Pulp and Paper Chemical Engineering	Krishanagopalan, Duke, Cullinan, Neuman, Placek
Technical Service	Tatarchuk, Chambers, Roberts

The department provides undergraduate students with a full-time academic advisor (Mrs. Jennifer Harris) who has a master's degree in counseling. She functions as the advisor for all chemical engineering majors as well as all pre-chemical engineering students. Mrs. Harris reports to the Undergraduate Program Committee Chair and the Department Chair. While the department provides a full-time academic adviser, the department feels strongly that students should receive significant career counseling and advising from faculty members as well. Career counseling and professional development mentoring from our faculty occurs in curriculum advising, academic course settings, advising of student professional organizations, and other departmental activities.

A number of faculty have specific responsibility for advising students in the regular curriculum and program specializations and mentor these students accordingly. Drs. Placek and Roberts serve as faculty advisors for students in the regular chemical engineering curriculum. Drs. Chambers and Byrne advise students in the Biochemical Engineering Specialization and the Pre-Medicine/Biomedical Chemical Engineering Specialization. Drs. Tarrer and Eden advise students in the Computer-Aided Chemical Engineering Specialization and the Environmental Specialization. Dr. Krishnagopalan advises students in the Pulp and Paper Specialization.

A number of faculty arrange specific times in their courses to discuss career counseling and professional development:

- Drs. Duke and Roberts in the freshman ENGR 1110 Introduction to Chemical Engineering course (with particular attention to the wide range of career opportunities for chemical engineers)
- Drs. Guin, Roberts, Chambers and Byrne in the sophomore CHEN 2100 Principles of Chemical Engineering course
- Drs. Duke and Placek in the sophomore CHEN 3620 Transport I course
- Dr. Chambers in the junior CHEN 3820 Chemical Engineering Lab I course
- Drs. Chambers and Duke in the senior CHEN 4450 Process Economics course (with particular attention to resume development)

- Dr. Eden in the senior design sequence (CHEN 6460 Process Simulation, Synthesis and Design and CHEN 6470 Process Practice).

As shown in Table 5-3, the faculty of the Department of Chemical Engineering are involved in various types of services activities within the department, the college of engineering and the university. We consider the faculty to be of medium size, and as such, each faculty member plays a critical service role in order to deliver high quality undergraduate and graduate programs. Each faculty serve on at least one departmental committee with several playing key leadership roles on important committees such as the undergraduate program committee (UPC), the curriculum and accreditation planning and action committee (CAPAC), the graduate program committee (GPC) and the departmental executive committee (EC). The department has recently transitioned from a department head format to a department chair format with more distributed responsibilities. This has also made the service roles of each faculty member paramount in our continued success. The distribution of faculty workload shown in Table 5-3 reflects the important roles played by our faculty.

Table 5-3 - Faculty Service Activities (Fall 2003 & Spring 2004)

Name	Service Activities (Departmental, College, University, and Professional Societies)
Byrne, Mark	Graduate Program Committee (member) Graduate Recruiting Committee (co-chair) Served on NSF review panel for REU program
Chambers, Robert	Faculty Search Committee (member) Undergraduate Program Committee (member) Graduate Program Committee (member) Departmental Scholarship Committee (member) Undergraduate advisor– Biochemical and Pre-Medicine Program Specialization Previously participated in Council for Chemical Research and SE Chemical Engineering Department Heads meetings
Cullinan, Harry (PPREC Center Director)	Member of Executive Committee Director of Pulp and Paper Research and Education Center Organizer of numerous pulp and paper conferences and technical summits. Serves as member of CTO committee of AF&PA Agenda 2020
Duke, Steve	Curriculum and Accreditation Planning and Action Committee (member) Undergraduate Program Committee (member) Faculty Search Committee (member) Past advisor for Auburn student chapter of AIChE Chair of National Student Chapters committee of AIChE Chaired several sessions at AIChE meetings
Eden, Mario	Graduate Program Committee (member) Graduate Recruiting Committee (co-chair)
Elnashaie, Said	Departmental E-Day activities coordinator (displays and tours) Faculty advisor for Omega Chi Epsilon Honor Society Graduate Program Committee (member)
Guin, James A.	University Faculty Senate (departmental representative) Undergraduate Program Committee (member)
Gupta, Ram	Graduate Program Committee (chair) Graduate Recruiting Committee (member) Departmental Awards Committee (member) Member of editorial advisory board of I&EC Research Member of AU patent and invention disclosure committee Chaired sessions at AIChE and organized symposium at ACS
Krishnagopalan, Gopal	Assistant Department Chair Member of Executive Committee Curriculum and Accreditation Planning and Action Committee (member) Engineering Faculty Council (member) Undergraduate Program Committee (member) Departmental Scholarship Committee (member) Departmental Awards Committee (member) Ross Hall renovation committee

	<p>Pulp and paper recruitment and scholarship committee Undergraduate advisor– Pulp and Paper Program Specialization Faculty advisor for student TAPPI and PIMA chapter Chaired sessions at TAPPI conferences</p>
Lee, Yoon Y.	<p>Graduate Program Committee (member) Faculty advisor for student AIChE chapter</p>
Maples, Glennon	<p>Member of National Society of Professional Engineers</p>
Mills, David	<p>Undergraduate Program Committee (member) Faculty advisor for Auburn Tri-Athletes Maintains departmental computer labs Maintains undergraduate unit operations labs</p>
Neuman, Ronald	<p>Undergraduate Program Committee (member)</p>
Placek, Timothy	<p>Undergraduate Program Committee (chair) Curriculum and Accreditation Planning and Action Committee (chair) Departmental ABET accreditation coordinator Honors College Faculty Advisory Committee (member) Undergraduate advisor – General Curriculum</p>
Roberts, Christopher	<p>Chair of Department of Chemical Engineering Curriculum and Accreditation Planning and Action Committee (member) Undergraduate Program Committee (member) Graduate Program Committee (member) Faculty Search Committee (chair) Departmental Scholarship Committee (chair) Ross Hall renovation committee Steering committee of Auburn Undergraduate Research Fellowship Program Member of editorial board of Fuel Processing Technology-Elsevier Vice-Chair of AIChE area 1f programming committee Chaired sessions at AIChE and organized symposium at ACS</p>
Tarrer, Arthur	<p>Undergraduate Program Committee (member) Engineering Faculty Council (member) Department coordinator for PhD qualifying exam Undergraduate advisor – Environmental and Computer Control Specialization</p>
Tatarchuk, Bruce (CM3 Center Director)	<p>Member of Executive Committee Director of CM3 research center Departmental Awards Committee (chair)</p>

B.5.3. Professional Development Activities

The faculty of the department are involved in a number of professional development activities. These include: organizing professional conferences, serving as technical society program

committee members and panel members for proposal review, serving as peer-reviewers for professional journals and editorial board members, and serving as elected or appointed members in professional societies. Some of these activities are listed as service activities in Table 5-3 and are found in the faculty member's resume. Each of the faculty members participates in one or more professional societies. Most of the faculty participate in some type of outreach (technology transfer, graduate video courses, professional consulting, etc.).

B.5.4. Interaction With Industrial Practitioners

Several faculty members have had substantial industrial experience that richly contributes valuable insights to our undergraduate program. The faculty interact with industrial practitioners through a variety of mechanisms including our biannual meeting of the department of chemical engineering Advisory Committee (25 members with industrial backgrounds), the Auburn Pulp and Paper Foundation (APPF) biannual meetings (consisting of more than 40 companies), speakers for the student chapters of AIChE, TAPPI, PIMA, invited seminar speakers, consulting work, industrial research contracts and visits with employers when they come for career fair and interviews.

Table I-4 provides information about faculty involvement with industry, consulting, research and professional societies.