

PROGRAM EDUCATIONAL OBJECTIVES

A. Mission Statement

The mission statement for the university is presented in Exhibit 2.1.

Exhibit 2.1. Mission of the University

Prairie View A&M University is a state-assisted, public, comprehensive land grant institution of higher education. The university was designated in a 1984 amendment to the Texas Constitution as an “institution of the first class.” It is dedicated to achieving excellence and relevance in teaching, research and service. It seeks to invest in programs and services that address issues and challenges affecting the diverse ethnic and socioeconomic population of Texas and the larger society including the global arena. The university seeks to provide a high quality educational experience for students who, upon completion of bachelors, master, or doctorate degrees, possess self-sufficiency and professional competences. The experience is imbued by the institution’s values including, but not limited to, access and quality, accountability, diversity, leadership, relevance, and social responsibility.

B. Program Educational Objectives

The primary goal of the department is to prepare engineers who are well qualified to design and operate chemical processes. The goals of the department include the fostering of professional ethics, standards, and practices; the development of conceptual and analytical skill sets in problem solving; and the development of the student’s perception and creative faculties. The Chemical Engineering Program Educational Objectives (PEOs) are as follows:

1. Achieve success in advanced studies, if they so choose, and in pursuing a successful professional career in new and emerging areas, as well as traditional chemical engineering areas;
2. Attain leadership roles in professional careers in their field of choice, with high levels of competence, ethics and safety consciousness;
3. Maintain and raise their level of engineering competence and achievement by engaging in lifelong learning.

The goals and PEOs are publicized on the web at the URL below:

<http://www.pvamu.edu/cheg/objectives/>

C. Consistency of the Program Educational Objectives with the Mission of the Institution

The PEOs are consistent with the university mission. Explanation of how this is so is enumerated below, with quotes from the university mission statement.

1. Achieve success in advanced studies, if they so choose, and in pursuing a successful professional career in new and emerging areas, as well as traditional chemical engineering areas. This PEO is consistent with the university's commitment that graduates should possess "self-sufficiency and professional competences" and the stated values for "access, quality, accountability, leadership, and relevance," among others.

The needs of the companies and agencies that employ our graduates have been expressed through the members of our Industrial Advisory Council (IAC), who are representatives of this important constituency. Surveys of students in the program also indicate this is an important objective, and consistent with the needs perceived by our students.

2. Attain leadership roles in professional careers in their field of choice, with high levels of competence, ethics and safety consciousness. This PEO is consistent with the university's commitment that graduates should possess "self-sufficiency and professional competences" and the stated values for "access, quality, diversity, accountability, leadership, relevance, and social responsibility." Moreover, companies that hire our graduates need chemical engineers with good leadership qualities, including strong ethics and environmental and safety consciousness.
3. Maintain and raise their level of engineering competence and achievement by engaging in lifelong learning. This PEO is consistent with the university's commitment that graduates should possess "self-sufficiency and professional competences" and the stated values for "quality, accountability, leadership, relevance, and social responsibility." Further, many companies that hire our graduates need chemical engineers with one or more advanced degrees. Hence, some of our graduates will need to go on to graduate school to achieve their particular career goal, whether it is in industry, academia, or the government sector. Also, a commitment to excellence must include a commitment to ceaseless learning to further career advancement and stay abreast of developments in our technological society.

D. Program Constituencies

The significant constituencies of the Chemical Engineering Program include (1) faculty members in the program, (2) alumni, (3) employers of the graduates, and (4) students in the program. These constituencies have involvement in establishing and reviewing the PEOs, as described later.

The Role of Alumni and Employers of the Graduates

Alumni and employers of the graduates are two significant constituencies of the program. After a few years of work experience, the alumni views generally reflect important assessments of the program relevant to the knowledge and skills required in the work environment. Employers have first-hand information regarding their own needs and of the abilities of graduates of the Chemical Engineering Program to satisfy these needs. The Chemical Engineering Department under Professor Kamel Fotouh formally organized the Industrial Advisory Council (IAC) in 1991 with Dr. Vic Edwards

and Freeman Self as co-chairs. The first IAC meeting was held in the summer of 1992. IAC membership has since consisted of representatives of many companies relevant to the CHEG program. A partial listing of IAC member company and Alumni (who participate sometimes in IAC meetings) affiliations over the past several years is provided below (see Exhibit 2.2).

Exhibit 2.2. Companies/Institutions Represented on CHEG IAC over the Past Several Years

• 3M	• General Electric
• Afton Chemical	• Ineos
• Arkema	• Jacobs Engineering
• Air Liquide	• Kuraray
• Aker Solutions (Kvaerner)	• Motiva
• AMEC Oil & Gas	• Northrup Grumman
• BASF	• Oxy
• Bechtel	• Rohm & Haas
• Betz Deerborn	• Shell Oil Company
• BP	• SABIC Americas
• Chevron	• Synchrony
• Chevron Phillips Chemical	• Technip
• Demols, Inc	• Victor H. Edwards Technical Analysis
• Dow Chemical	• Worley Parsons
• Equity Engineering	• Testingeer Engineering
• ExxonMobil	• YAB Solution, LC

Mr. Freeman Self of Bechtel Corp later chaired the IAC for several years. Mr. Bernard Groce of Betz Deerborn, Inc. succeeded Mr. Self in 2001. In 2004 the IAC chair was accepted by Dr. Yao Ababio, who has served as IAC chair till present. The current IAC membership is shown in Exhibit 2.3a.

Exhibit 2.3a. CHEG Industrial Advisory Council Members as of June, 2020

NAME	E-MAIL	PHONE	Company
Yao Ababio, PhD, PMP	ababio@yabsolution.com	281-704-7455	CHI Baylor St Luke's Medical Center
Caryn Davis	cjdavis@bechtel.com	832-723-4334	Bechtel
Victor Edwards, PhD, PE	m2vhe@att.net	713-724-0406	VHE Technical Analysis, LC
Freeman Self	feself@bechtel.com	713-526-9172	Bechtel
Cordelia Price	cprice5348@comcast.net	713-594-6364	Engineering Research Manager, retired
Kenneth Walter, PhD	kl.walter3604@gmail.com	281-292-3623	Principal Design Consultant, retired
Michael Washington	michael.washington@arkema.com	281-254-0213	Arkema, Inc.

The IAC regularly meets twice each year, in January and October, with an optional meeting in May. At the January meeting, it is customary for the IAC meeting to have a social hour (over lunch) of interactions with students. Some records of proceedings of past IAC meetings are available on display as part of the binder set for the CHEG Program. The ChE Alumni Group (Exhibit 2.3b) joins the IAC in supporting the program, as well.

Exhibit 2.3b. CHEG Alumni Group Members as of April, 2020

NAME	E-MAIL	Class	Company
Wasiu Abioye	wasiu_abioye@oxy.com	2012	Occidental Petroleum
Caryn Davis	cdavis@bechtel.com	1989	Bechtel
Adebowale Adelekan	aadelekan@gmail.com	2007	Chevron Phillips
Michael Washington	michael.washington@arkema.com	1994	Arkema, Inc.
Olufemi Ademolu	olufemi.ademolu@gmail.com	2005	Demols, Inc.
Keirstin Bello	keirstin.bello@motiva.com	2016	Motiva
Casey Cook	hartce@cpchem.com	2006	Chevron Phillips
Sitrina Davis	sitrina.davis@gmail.com	1995	British Petroleum
Ijeoma Ejimadu	ijeomaejimadu@chevron.com	2016	Chevron
Tayo Femifowode	foldex1@yahoo.com	2007	General Electric
Carolyn Hervey	carolyn.hervey@arkema.com	1998	Kuraray America
Felicia Johnson	felicia.johnson@syf.com	1996	Synchrony Financial
Teandra Kinlaw	Teandra.kinlaw@basf.com	2015	BASF
Veniece Kirksey	veniece.kirksey@shell.com	2013	Shell
Jude Noah	jude.noah@airliquide.com	2015	Air Liquide
Arinze Onyenezi	arinze.onyenezi@yahoo.com	2014	Exxon Mobil
Chiaka Opara	chiaka.opara@basf.com	2016	BASF
Taofeek Sanyaolu	sanyaolutaofeek@yahoo.com	2018	Exxon Mobil
Blaine Sanders	blaine.sanders@ineos.com	2007	Ineos
Ryan Sharrer	sharrer.ryan@gmail.com	2017	Afton Chemical
Herbert Sims	herb93@aol.com	1993	Northrop Grumman
Yacouba Tiendrebeogo	ytiendre@bechtel.com	2017	Bechtel
Reginald Wilcox	reginaldwilcox@yahoo.com	1996	3M
Zarina Wolf	zarina.wolfe@shell.com	2018	Shell
Jessica Wright	jessica.wright@worleyparsons.com	2006	Worley Parsons
Aiden Zaki	aiden_zaki@praxair.com	2017	Occidental Petroleum

The Role of Students in the Program

The students in the Chemical Engineering Program are another important constituency. Their participation was sought in establishing and reviewing the program educational objectives as outlined earlier. Special meetings of the student body are held, organized through the student organizations listed below:

- American Institute of Chemical Engineers (AIChE)
- National Organization for the Professional Advancement of Black Chemists and Chemical Engineers (NOBCChE)
- Society for Women Engineers (SWE)

- Society of Petroleum Engineers (SPE)
- Omega Chi Epsilon (Chemical Engineering Honor Society)

Leaders of these organizations were asked to review the PEOs (for the 2016 self-study report) and provide input for possible changes.

E. Process for Review of the Program Educational Objectives

The process for establishing and updating the PEOs is summarized in Exhibit 2.4. The process starts with the department head (HoD), who drafts an initial set of objectives. The HoD then transmits the proposed objectives to the faculty and meets with them to obtain recommendations. The HoD also meets with students for their inputs. After faculty and student inputs, the head revises the objectives and presents them to the IAC for their recommendations. The cycle of input and review continues until a departmental faculty endorsement of the final document. The head of department is responsible for submitting the IAC approved objectives for publication in the university catalog.

Note that the faculty input includes feedback from the outcomes assessment process. In this way, the outcomes assessment cycle results can lead to changes in the PEO set. Likewise, changes in the PEOs may lead to changes in program components, from the curriculum to the outcomes assessment process itself.

The current set of PEOs was established in 2009.

- The first set of PEOs was established in 2001 as the college prepared for its first review under EAC 2000 criteria. These were developed by the faculty and reviewed by the IAC. Students in chemical engineering courses were surveyed at semester's end and were fully supportive of the PEO set.
- The 2001 PEOs were reviewed and updated in 2004, incorporating findings from the outcomes assessment cycle. Faculty members and members of the IAC reviewed, commented on, and provided support for the PEOs.
- The IAC was briefed on the PEO assessment process and performance results at the May 2009 meeting of the IAC. In June 2009, feedback was obtained during a Mock Visit that pointed out needed improvements in the PEOs. The faculty presented a revised PEO set at the October 2009 meeting of the IAC. The IAC reviewed the new PEOs and recommended some changes. Those changes were incorporated and the new PEOs were published in the next printing of the university catalog. This represented the second completion of the double cycle process.
- The IAC most recently reviewed the PEOs in October 2014 and recommended minor changes to how our PEOs were stated. The suggested changes were discussed by the faculty in February and the decision was made to accept the changes. Comments on the proposed modified PEOs were solicited from the student organization leaders in the department. The new PEOs were accepted by the students and then published in the next printing of the university catalog. This represents the third completion of the double cycle process.

Exhibit 2.4. Program Educational Objectives Development Cycle

