

### Program Review

Self-Study Template

Revised 01-23-2023

Academic unit: Engineering Technology	College:	Engineering		
Date of last review May 2018	Date of last accredit	ation report (if relevant) <u>2021</u>		
List all degrees described in this report (add lines as necessary)				
Degree: BS Engineering Technology		CIP* code: <u>15.00</u>		
Degree: <u>Certificate in Sustainable Energy Systems</u>		CIP* code:		
Degree: <u>Certificate in Sustainable Water Resources</u>	5	CIP* code:		
Degree:Certificate in Assistive Technology and Acc	cessible Design	CIP* code:		
Degree: <u>Certificate in Cyber Physical Systems</u>		CIP* code:		
Degree: <u>Certificate in Applied Data Analysis</u>		CIP* code:		
*To look up, go to: Classification of Instructional Programs Website, http://nces.ed.gov/ipeds/cipcode/Default.aspx?y=55				
Certificate (s):				

Faculty of the academic unit (add lines as necessary)

(If interdisciplinary, please list your core teaching faculty and department name if external to academic unit)

NAME (List department –if external to unit)	SIGNATURE	TENURE OR NON- TENURE TRACK
Gary Brooking	gre	NTT
Samantha Corcoran	Soundy that Ce-	NTT
Adam Lynch	THAT	NTT
Joe Jabara	All	NTT
Tania Jareen	Tanca Jupeen	NTT
Kara McCluskey	Dara W. Willish	NTT
Christopher Rees	tes )	NTT
Nathan Smith	no-2-	NTT
Perlekar Tamtam	T. Perla	0.5 NTT

Submitted by:	Dr. Gary Brooking, Chair	Date	05/03/2022	
	(Name and title)		(Date)	

Please note that the signatures indicate that each faculty has read the self-study template and agreed (by consensus) to its contents.

In yellow highlighted areas, data will be provided

# Part 1: Departmental Purpose, Relationship to the University Mission and Strategic Plan engagement

*Please list the program purpose statement. Explain in 1-2 concise paragraphs the role of the program and tie them to the University mission (printed below) and strategic plan.* 

The mission of Wichita State University is to be an essential **educational, cultural and economic driver** for Kansas and the greater public good.

#### A. Program Purpose Statement - formerly Mission

(If more than one program, list each purpose statement):

The Wichita State University Engineering Technology's purpose for all programs is to grow the local and regional workforce and foster an innovative and entrepreneurial mindset in students by providing experiential and applied learning opportunities through engaging industry and other hands-on activities in the learning process.

#### B. The role of the Programs and relationship to the University mission:

The role of the BS in Engineering Technology (ET) program is to provide an undergraduate education to its students that will prepare the graduates to:

- 1. Pursue gainful careers and practice successfully in their chosen technical profession.
- 2. Remain technically current and adapt to rapidly changing technologies through continuous learning and self-improvement.
- 3. Demonstrate independent thinking, curiosity, and function effectively in diverse teams to solve open-ended problems in an industrial environment; and
- 4. Communicate effectively and perform ethically and professionally in business, industry and society.

These roles directly relate to the Universities mission through:

- Being an educational driver by providing both knowledge and skill sets to be effective problem solvers for current and future environments.
- Being an economic driver by proving relevant skilled graduates to both sustain and grow current manufacturing and sustainability industries and also by providing an entrepreneurial mindset to enhance current business and develop new ones.
- Being a cultural driver by providing students with broad ethical and professional preparation.

#### C. Has the purpose of the Program(s) changed since last review? Xes No

If yes, describe in 1-2 concise paragraphs. If no, is there a need to change?

The program went through an extensive planning and strategic goals initiative in 2021 initiated by our Industrial Advisory Board. The revision was intended to align our strengths with the University's vision and to focus on critical current and predicted industry needs in our region.

#### D. How does the Program support the university strategic plan?

Describe in 1-2 concise paragraphs.

The Engineering Technology program has been developed to include accessible education opportunities to attract a broader more inclusive group of students. The modular program is comprised of stackable certificates to allow for a variety of student focused learning paths. This empowers students to gain new knowledge and experiences and prepares them for ever-changing needs. The certificates, many of which are aligned to standard industry certifications, are recognized by employers, and provide a flexible mechanism for students to scale their academic career while gaining meaningful employment. The programs have a strong focus on applied, hands-on learning that is driven by local and regional employer demands. Students gain an engineering entrepreneurial mindset that allows them to develop and support innovation and new ventures.

## *E. Provide an overall description of your program (s) including any changes made since the last review?*

The BS in Engineering Technology (BSET) program focuses on the design, hands-on engineering technology fundamentals, instrumentation, mathematics, science, and practical design principles needed to equip students for employment or further education. Engineering technologists bridge the gap between management and engineering operations while focusing on engineering applications. The department's BS in Engineering Technology program includes 120 credit hours of required course work and offers four different concentrations; Civil Engineering Technology, Facilities Management, Mechatronics and Engineering Technology Management. The program is designed such that the students can complete their degree in 4 years. The program consists of general education, required courses in engineering technology and other engineering disciplines, as well as technical electives. The students also complete two experiential-based senior design projects over the last two semesters of their study. The senior design projects are evaluated by industry and faculty.

The BS in Engineering Technology Program's Educational Objectives (PEOs) are aimed to ensure that the graduates will have:

- 1. Identified, analyzed, and solved broadly defined engineering technology problems in mechatronics, technology management, or environmental sustainability.
- 2. Engaged in professional development activities through training, certification, or advance degree in engineering technology or related fields.
- 3. Demonstrated the commitment to address professional and ethical responsibilities including a respect for diversity.

Each semester students are required to meet with either their faculty advisor, academic advisor or both before they register for classes. During this consultation, the student's records file is accessed and discussed. Also lists of approved elective courses in humanities and fine arts, social and behavioral sciences, natural sciences, and indepartment and out-of-department technical electives are available. Through the use of a computer-generated degree audit, the advisor ensures that the student is obtaining appropriate credit in engineering design, mathematics, basic science, and humanities and social sciences. The program has a rigorous accreditation program through ABET that defines annual continuous improvement with input from faculty, students, alumni, and the Industrial Advisory Board. The curriculum, lab development and other educational opportunities are analyzed and structured to meet the PEOs of the programs. Additionally, the Chair performs a graduation check of all seniors in the semester prior when the student is expected to graduate. The Chair uses a standardized check-sheet to ensure that a student will meet all graduation requirements before he/she graduates.

BSET is an undergraduate teaching focused program with non-tenured faculty who have no expectation of research. Our non-tenure tract faculty have a semester expectation of either teaching three courses and providing 25% of service (10 hours a week) or teaching four courses and providing 10% of service (4 hours per week). A required part of the service activities is to advise students and have open office for four hours a week.

The faculty members in the program have adequate expertise and experience in delivering the required curriculum. Faculty are encouraged to continually improve by attending Kern Engineering Entrepreneurship Network (KEEN) and other workshops that will enhance their teaching skills. All faculty have attended the KEEN Integrating Curriculum with Entrepreneurial-Mindset (ICE) and/or National Effective Teaching Institute (NETI) workshops and are using material developed through these workshops in their classes to ensure applied, project-based learning is practiced where possible. Through their service and professional development activities, the faculty bring many practical examples to their classrooms, which benefit the students. The department supports the faculty by providing travel support for faculty who bring recognition to the department.

The Engineering Technology Department is a new, developing department as evident in the growing program majors and degrees (see Table 1B). Since the program is new, the class sizes are small resulting in a SCH/FTE ratio that is slight lower than the College. In order to provide a broader range of subjects, additional teaching faculty were hired which further reduced the SCH by FTE in 2018-2019. However, the growing enrollment, both as students in the program as well as growing course enrollment of non-major students (service classes) has resulted in an improving SCH by FTE in 2020-2021 that is expected to continue.