Northern Oklahoma College
Engineering & Industrial Technology
Options: Process Technology
Program Assessment
Completed May 2017

Based on the thorough internal or external program review addressing all criteria in policy, a comprehensive report should be possible within ten or fewer pages. This program review template is provided to assist institutions in compiling the program review information, which is to be presented to the institutional governing board prior to submission to the State Regents. Executive Summaries should be possible within two pages using the provided template (Program Review Executive Summary Template).

Description of the program's connection to the institutional mission and goals:

The mission of Northern Oklahoma College, the State's oldest community college, is a multi-campus, land-grant institution that provides high quality, accessible, and affordable educational opportunities and services which create life-changing experiences and develop students as effective learners and leaders within their communities in a connected, ever-changing world.

Northern Oklahoma College will be recognized as a model institution and leader in academic quality and cultural enrichment, promoting student success, collaborative learning, creative and forward thinking, and community responsiveness.

The core values of Northern Oklahoma College are that through personalized education we believe in providing individualized services leading our students to achieve their academic goals in a welcoming and safe environment, and we will provide support to students in and out of the classroom so that they receive a full college experience with diverse opportunities. Another core value is community and civic engagement, so we believe that educated citizens are necessary for a healthy, democratic society, and that free and open expression and an appreciation for diversity are cornerstones of higher education, and we believe in economic and environmental sustainability and the importance of enriching the intellectual, artistic, economic, and social resources of our communities.

We at Northern Oklahoma College also believe in the inherent value of intellectual pursuit for both personal and professional growth, as well as the need to prepare students for the 21st century professions, and that a knowledge-centered institution is vital to a knowledge-based economy, and we measure our success against national models and standards of excellence

3.7.5 Process (Internal/External Review):
Previous Reviews and Actions from those reviews:

Analysis and Assessment (including quantitative and qualitative measures) noting key findings from internal or external reviews and including developments since the last review:

The division is currently in the process of refining the program assessment and collection of course assessment data. The previous collection of data on student performance on key outcomes was analyzed to identify gaps/overlaps in curriculum.

Work is ongoing with an advisory board to add and modify classes as needed to meet industry needs. In the 2015-2016 academic year, recommendations were made for adding classes with an environmental emphasis. Degree options will be further reviewed in 2016-2017 for these options.

2016-2017

- Opened PTEC 1113 and PTEC 1313 to all students.
- Offered PTEC 1113 as on online course to allow studnets to determine if PTEC was a degree area they were interested in pursuing.
- Began offering PRVD 2321 in the spring semester (now offered during both semesters).
- Participated in the National Troubleshooting Competition.

A. Centrality of the Program to the Institution's Mission:

This program provides the access, foundation, and opportunities for students to pursue a career in process technology fields, which continue to be linked to the governor's state ecosystem plan for promising areas of development.

B. Vitality of the Program:

B.1.Program Objectives and Goals:

Students upon completion of the Process Technology degree will be able to:

Process Technology

- Communicate technical information related to process technology
- Identify common equipment including the use of components and their characteristics
- Identify common process including function, type, and equipment
- Apply chemistry and physics concepts to identify and solve processing problems.

B.2 Quality Indicators (including Higher Learning Commission issues):

Process Technology	
Date	5/24/2017
Competency # and Description	1. Communicate technical information related to process technology
Course	PTEC 1113 – Intro to Process Technology PTEC 1124 – Process Troubleshooting PTEC 1313 – Safety, Health & Work Pract PTEC 2014- Process Tech I - Equipment PTEC 2024 – Industrial Instrumentation PTEC 2124 – Process Tech II - Systems PTEC 2243 – Principles of Quality

Activity	PTEC 1113 – Final Exam PTEC 1124 – Final Exam PTEC 1313 – Final Exam PTEC 2014 – Final Exam PTEC 2024 – Final Exam PTEC 2124 – Final Exam PTEC 2243 – Final Exam
Measurement (attached copy of instrument with point distribution)	PTEC 1113 – Final Exam PTEC 1124 – Final Exam PTEC 1313 – Final Exam PTEC 2014 – Final Exam PTEC 2024 – Final Exam PTEC 2124 – Final Exam PTEC 2243 – Final Exam
Evaluation Criteria	Overall goal at this point is 70% passing for each item.
Last Semesters results	PTEC 1113 – Data not collected PTEC 1124 – 10 out of 12 - 83% passed PTEC 1313 – 16 out of 18 - 89% passed PTEC 2014 – 15 out of 17 - 88% passed PTEC 2024 – 17 out of 21 - 81% passed PTEC 2124 – 12 out of 13 - 92% passed PTEC 2243 – Data not collected
Results	PTEC 1113 – 27 out of 28 – 96% passed PTEC 1124 – 18 out of 18 – 100% passed PTEC 1313 – 16 out of 18 – 89% passed PTEC 2014 – 17 out of 21 – 81% passed PTEC 2024 – 21 out of 22 – 95% passed PTEC 2124 – 13 out of 17 – 76% passed PTEC 2243 – 16 out of 16 – 100% passed
Summary of previous changes	Not making any changes for next year, except to collect and compare online versus inclass data for PTEC 1113. Note: based upon feedback from advisory committee, program is pursuing "endorsed" status for 2019. Will be collecting supplemental data.
Recommendation for changes	No changes.
Timeline for Review	Fall/spring data will be collected and reviews in the spring by instructors from all campuses will determine needed adjustments.
Date	5/24/2017
Competency # and Description	2. Identify common equipment including the use of components and their characteristics
Course	PTEC 1113 – Intro to Process Technology PTEC 1124 – Process Troubleshooting PTEC 1313 – Safety, Health & Work Pract PTEC 2014- Process Tech I - Equipment PTEC 2024 – Industrial Instrumentation PTEC 2124 – Process Tech II - Systems

Activity	PTEC 1113 – Final Exam PTEC 1124 – Final Exam PTEC 1313 – Final Exam PTEC 2014 – Final Exam PTEC 2024 – Final Exam PTEC 2124 – Final Exam
Measurement (attached copy of instrument with point distribution)	PTEC 1113 – Final Exam PTEC 1124 – Final Exam PTEC 1313 – Final Exam PTEC 2014 – Final Exam PTEC 2024 – Final Exam PTEC 2124 – Final Exam
Evaluation Criteria	Overall goal at this point is 70% passing for each item.
Last Semesters results	PTEC 1113 – data not collected PTEC 1124 – 10 out of 12 – 83% passed PTEC 1313 – 15 out of 18 – 83% passed PTEC 2014 – 14 out of 17 – 82% passed PTEC 2024 – 17 out of 21 – 81% passed PTEC 2124 – 12 out of 13 – 92% passed
Results	PTEC 1113 – 18 out of 18 – 100% passed PTEC 1124 – 13 out of 17 – 76% passed PTEC 1313 – 21 out of 21 – 100% passed PTEC 2014 – 21 out of 22 – 95% passed PTEC 2024 – 16 out of 21 – 76% passed PTEC 2124 – 13 out of 17 – 76% passed
Summary of previous changes	Remains the same. Note: based upon feedback from advisory committee, program is pursuing "endorsed" status for 2019. Will be collecting supplemental data.
Recommendation for changes	No changes
Timeline for Review	Fall/spring data will be collected and reviews in the spring by instructors from all campuses will determine needed adjustments.
Date	5/24/2017
Competency # and Description	3. Identify common process including function, type, and equipment
Course	PTEC 1113 – Intro to Process Technology PTEC 1124 – Process Troubleshooting PTEC 2014- Process Tech I - Equipment PTEC 2124 – Process Tech II – Systems PTEC 2214 – Process Tech III - Operations
Activity	PTEC 1113 – Final Exam PTEC 1124 – Final Exam PTEC 2014 – Final Exam PTEC 2124 – Final Exam PTEC 2214 – Final Exam

Measurement (attached copy of instrument with point distribution)	PTEC 1113 – Final Exam PTEC 1124 – Final Exam PTEC 2014 – Final Exam PTEC 2124 – Final Exam PTEC 2214 – Final Exam
Evaluation Criteria	Overall goal at this point is 70% passing for each item.
Last Semesters results	PTEC 1113 – no data collected PTEC 1124 – 7 out of 12 – 58% passed PTEC 2014 – 14 out of 17 – 82% passed PTEC 2124 – 12 out of 13 – 92% passed PTEC 2214 – no data collected
Results	PTEC 1113 – 18 out of 18 – 100% passed PTEC 1124 – 14 out of 18 – 83% passed PTEC 2014 – 13 out of 17 – 76% passed PTEC 2124 – 13 out of 17 – 76% passed PTEC 2214 – 17 out of 18 – 94% passed
Summary of previous changes	Collect data for missing courses, otherwise remain the same. Note: based upon feedback from advisory committee, program is pursuing "endorsed" status for 2019. Will be collecting supplemental data.
Recommendation for changes	No changes
Timeline for Review	Fall/spring data will be collected and reviews in the spring by instructors from all campuses will determine needed adjustments.
Date	5/24/2017
Competency # and Description	4. Apply chemistry and physics concepts to identify and solve processing problems
Course	PTEC 1113 – Intro to Process Technology PTEC 1124 – Process Troubleshooting PTEC 2014- Process Tech I - Equipment PTEC 2124 – Process Tech II – Systems CHEM 2014 – Process Organic Chem
Activity	PTEC 1113 – Final Exam PTEC 1124 – Final Exam PTEC 2014 – Final Exam PTEC 2124 – Final Exam CHEM 2014 – Final Exam
Measurement (attached copy of instrument with point distribution)	PTEC 1113 – Final Exam PTEC 1124 – Final Exam PTEC 2014 – Final Exam PTEC 2124 – Final Exam CHEM 2014 – Final Exam
Evaluation Criteria	Overall goal at this point is 70% passing for each item.
Last Semesters results	PTEC 1113 – no data collected PTEC 1124 – 9 out of 12 – 75% passed

	PTEC 2014 – 15 out of 17 – 88% passed PTEC 2124 – 12 out of 13 – 92% passed CHEM 2014 – no data collected
Results	PTEC 1113 – 18 out of 18 – 100% passed PTEC 1124 – 15 out of 18 – 88% passed PTEC 2014 – 21 out of 21 – 100% passed PTEC 2124 – 13 out of 17 – 76% passed CHEM 2014 – 12 out of 17 – 71% passed
Summary of previous changes	Remain the same. Note: based upon feedback from advisory committee, program is pursuing "endorsed" status for 2019. Will be collecting supplemental data.
Recommendation for changes	No Changes
Timeline for Review	Fall/spring data will be collected and reviews in the spring by instructors from all campuses will determine needed adjustments.

B.3. Minimum Productivity Indicators:

Time Frame (e.g.: 5 year span)	Head Count/Graduates				
	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017
Process Technology	**96/17**	**96/15**	**90/31**	**80/15**	**60/13**

B.4. Other Quantitative Measures:

a. Number of courses taught exclusively for the major program for each of the last five years and the size of classes:

Course Number	**Course Name**	**Sections/Average Size of Class**				
		2012-2013	2013-2014	2014-2015	2015-2016	2016-2017
CHEM 2014	Process Organic Chemistry	1/18	1/22	1/23	1/11	1/19
PTEC 1113	Intro to Process Technology	1/10	1/32	1/22	1/25	2/17
PTEC 1313	Safety, Health & Work Pract	1/10	1/29	1/30	1/18	1/21
PTEC 2014	Process Tech I-Equipment	1/15	1/28	1/17	1/17	1/21
PTEC 2024	Industrial Instrumentation	1/12	1/30	1/22	1/22	1/22
PTEC 2124	Process Tech II-Systems	1/25	1/14	1/31	1/16	1/18
PTEC 2214	Process Tech III-Operations	1/24	1/14	1/26	1/12	1/19
PTEC 1124	Process Troubleshooting	1/24	1/12	1/26	1/12	1/19

PTEC 2243	Principles of Quality	1/23	1/17	1/26	1/13	1/17

b. Student credit hours by level generated in all major courses that make up the degree program for five years:

Course Number	**Course Name**	**Hours generated**				
		2012-2013	2013-2014	2014-2015	2015-2016	2016-2017
CHEM 2014	Process Organic Chemistry	72	88	92	44	76
PTEC 1113	Technology Safety, Health &	30	96	66	75	102
PTEC 1313	Safety, Health & Work Pract	30	87	90	54	63
PTEC 2014	Process Tech I-Equipment	45	84	68	68	84
PTEC 2024	Industrial Instrumentation	48	120	88	88	88
PTEC 2124	Process Tech II-Systems	100	56	124	64	72
PTEC 2214	Process Tech III-Operations	96	59	104	48	76
PTEC 1124	Process Troubleshooting	96	48	104	48	76
PTEC 2243	Principles of Quality	69	54	78	39	51
TOTAL		**586**	**692**	**814**	**528**	**688**

c. Direct instructional costs for the program for the review period:

The program cost for the degree with salary and fringe benefits was $4675 average per 3-credit hour class taught.
$ 6234 X 25 sections of 4-credithour courses = $ 155,850
$4675 X 15 sections of 3-credit hour courses = $70,125
Total Instructional Cost for Offering Program courses = $225,975

Note: the majority of the courses are taught by adjuncts at a lower rate than the one full-time instructor's rate in the calculations.

d. The number of credits and credit hours generated in the program that support the general education component and other major programs including certificates:

Course Number	**Course Name**	**Hours generated**				
		2012-2013	2013-2014	2014-2015	2015-2016	2016-2017
CS 1113	Computer Concepts	3927	3636	3021	2259	1770

BSAD 1113	Digital/Financial Literacy	0	0	441	963	705
TOTAL		**3927**	**3636**	**3462**	**3222**	**2475**

e. A roster of faculty members, faculty credentials and faculty credential institution(s). Also include the number of full time equivalent faculty in the specialized courses within the curriculum:

Faculty	Credential	Institution that granted degree
Full-time Faculty:		
Frankie Wood-Black	PhD in Physics	Oklahoma State University
Adjunct Faculty:		
Goddard, Mark	A.A.S. in Process Technology	Northern Oklahoma College
Land, David	B.S. in Physics	Oklahoma Baptist University
Murphy, Kyle	B.S. in Mechanical Engkineering	University of Oklahoma
Smith, Joshua	A.A.S. in Process Technology	Northern Oklahoma College

B.5.b. Detail demand for students produced by the program, taking into account employer demands, demands for skills of graduates, and job placement data:

As of May 2016, EMSI database reports the ten-year job prospects for this field as:

Petroleum Pump Systems Operators, Refinery Operators – Experience or Associates
Median Salary - $32.77/hr.
Growth of Transportation and Distribution Ecosystem – 20.2%
10 Year change in jobs - +205

Institutional Program Recommendations: (describe detailed recommendations for the program as a result of this thorough review and how these recommendations will be implemented, as well as the timeline for key elements)

Recommendations	Implementation Plan	Target Date
2016-2017 • Schedule PTEC advisory meetings more frequently for recognition as a National PTEC program. • Include representatives from Wind Energy companies on PTEC advisory board. • Explore the possibilities of offering pipeline and electrical courses.	Annual Review	2018

Program-Level Outcomes Timeline

Program Objectives **Associate in Engineering & Industrial Technology**	**Course Mapping**	**2015-2016**	**2016-2017**	**2017-2018**	**2018-2019**	**2019-2020**
Objective 1: Communicate technical information related to process technology	PTEC 1113 PTEC 2024 PTEC 2124 PTEC 2243 PTEC 1313	X		X		X
Objective 2: Identify common equipment including the use of components and their characteristics	PTEC 1113 PTEC 2014 PTEC 2214 PTEC 1313	X		X		X
Objective 3: Identify common process including function, type, and equipment	PTEC 1113 PTEC 1124 PTEC 2121 PTEC 2214		X		X	
Objective 4: Apply chemistry and physics concepts to identify and solve processing problems	PTEC 1124 PTEC 1313 PTEC 2124 CHEM 2014		X		X	

Note: Course competencies are reinforced through additional coursework beyond course designated for assessment purposes.