ACADEMIC PROGRAM REVIEW REPORT FORM AY2024-2025

Program(s) in the review: Petroleum Production OEC, Valve Repair and Maintenance OEC, Petroleum Technology UC, Industrial Process Instrumentation AAS, Process Technology AAS

Specialized Accrediting Agency (if applicable): N/A

Campuses where the program is delivered: ☐**Anchorage** ☐**KOD** ☒**KPC** ☐**MSC** ☐**PWSC**

Year of last review: The Petroleum Technology UC, Industrial Process Instrumentation AAS, Process Technology AAS were reviewed in AY2019-2020. The OECs were implemented in Fall 2021 and have not been through the program review process.

Final decision from last review: Continuation

PROGRAM SECTION (Due on March 1)

Program Review Committee:

Jeffrey Laube, Professor, Process Technology, Kenai Peninsula College, *Chair*
James Titus, Assistant Professor, Process Technology, Kenai Peninsula College, *Member*

1. Demonstrate that the program has responded to previous recommendations.

Recommendation 1: Produce a plan to meet the needs of the Anchorage community for the hands-on courses.

How do you know the recommendation has been successfully achieved? *(2500 characters or less)*

Success in meeting the needs of the Anchorage community for hands-on Process Technology courses will be demonstrated by continued enrollment from the Anchorage area, successful completion of required lab courses, and employer satisfaction with graduates. Since more than 50% of admitted students come from outside the local campus area, KPC has already established a strong track record in delivering flexible learning opportunities. Success will also be measured by the number of Anchorage-based students completing hands-on lab intensives with minimal disruption to their work or personal commitments. Additionally, employer engagement in hiring graduates from Anchorage will be a key indicator of the program's effectiveness in meeting industry workforce needs.

Actions taken to date *(2500 characters or less)*

KPC has expanded online coursework with video streaming options, allowing students in Anchorage and beyond to complete the majority of their studies remotely. To address the hands-on course requirement, KPC has implemented lab-intensive scheduling to minimize travel requirements, enabling students to complete practical components in condensed sessions. KPC has also worked to increase outreach efforts, including plans for training Anchorage School District (ASD) Career and Technical Education (CTE) instructors to offer Introduction to Process Technology at local high schools, creating a pipeline of Anchorage-area students into the program.

Evidence of success to date *(2500 characters or less)*

Enrollment trends show that KPC is successfully attracting students from outside the immediate campus area, including Anchorage. Over the past seven years, completion rates for non-local students have

remained within 10% of local student completion rates, indicating that distance learning and lab-intensive scheduling are effective. Additionally, KPC has seen industry support through employer engagement, with companies regularly visiting the campus to recruit students, further validating the program's ability to produce job-ready graduates regardless of location. The planned training of ASD CTE instructors to offer Introduction to Process Technology is another indicator of success, as it demonstrates commitment from both educators and industry leaders to expand access to the program in Anchorage. With continued efforts, KPC is well-positioned to fully meet the hands-on training needs of Anchorage-area students while maintaining its high standards for process technology education.

Recommendation 2: Continue to work with industry partners to explore additional attendance options for students outside of the Kenai Peninsula area.

How do you know the recommendation has been successfully achieved? *(2500 characters or less)*

Success in expanding attendance options for students outside the Kenai Peninsula is demonstrated by consistent enrollment and completion rates among non-local students, particularly those working rotational schedules or residing in Anchorage and beyond. The ability of students working a two-weeks-on, two-weeks-off North Slope schedule to successfully complete the Industrial Process Instrumentation (IPIN) AAS degree is a clear indicator that flexible learning options are effective. Additionally, the regular recruitment of KPC graduates by industry leaders confirms that employers recognize the program's ability to deliver skilled, job-ready professionals. Continued demand from students outside the local area, combined with industry support and positive graduate outcomes, signifies that KPC has successfully adapted to meet the needs of non-local students.

Actions taken to date *(2500 characters or less)*

To support students outside the Kenai Peninsula, KPC has implemented recorded lectures, allowing students to access course materials at their convenience, even while working remote rotational schedules. Additionally, hands-on lab requirements have been structured to accommodate non-local students, ensuring that those who need to be on campus for the final three semesters of the IPIN degree can do so efficiently. Many IPIN students working a two-weeks-on, two-weeks-off schedule have successfully completed the degree, demonstrating the feasibility of this model. Employers have also been engaged in discussions about supporting employees pursuing the degree, reinforcing industry collaboration in workforce development.

Evidence of success to date *(2500 characters or less)*

Enrollment data shows that more than 50% of admitted students in process technology programs come from outside the local campus area, highlighting the program's accessibility to non-local students. Additionally, completion rates for local and non-local students are within 10% of each other over the past seven years, proving that distance learning and structured lab intensives support student success. The ongoing recruitment of KPC graduates by top industry employers, including Hilcorp, Marathon Petroleum, ConocoPhillips, and Alyeska Pipeline Service Company, further validates that non-local students can complete the program and transition into high-quality industry roles. The success of students working rotational schedules on the North Slope while completing the IPIN degree is another strong indicator that the flexible attendance model is effective and sustainable.

Recommendation 3: Work with CTC in Anchorage to provide clear information about program availability for those seeking process industry careers.

How do you know the recommendation has been successfully achieved? *(2500 characters or less)*

The recommendation has been successfully achieved through established advising support and clear communication channels between KPC and the Career and Technical College (CTC) at UAA. With [redacted] serving as a dedicated advisor for Process Technology (PRT) and Industrial Process Instrumentation (IPIN) students at UAA's Gordon Hartleb Hall (GHH), students in Anchorage have a direct resource to assist them in navigating KPC's program offerings. Success is further demonstrated by the steady enrollment of Anchorage-area students in KPC's process industry programs, as well as increased awareness of program availability among those seeking careers in the process industry.

Actions taken to date *(2500 characters or less)*

To support Anchorage-area students, KPC has stationed [redacted] as an advisor at UAA, ensuring that students considering careers in the process industry have access to clear and accurate information about KPC's PRT and IPIN programs. The advisor provides guidance on enrollment, course selection, program structure, and industry opportunities, helping students transition smoothly into KPC's programs. Additionally, KPC has worked with CTC to promote program availability through advising sessions, outreach efforts, and informational materials. By establishing a consistent advising presence on the UAA campus, KPC has taken proactive steps to support Anchorage-based students interested in process industry careers.

Evidence of success to date *(2500 characters or less)*

Evidence of success is reflected in the steady stream of Anchorage-area students enrolling in KPC's process technology programs, indicating that advising efforts are effectively guiding students into the field. The presence of a dedicated advisor at UAA has provided a reliable support system for students, improving retention and completion rates. Additionally, continued industry interest in KPC graduates—including visits from employers to recruit students—demonstrates that the program remains a viable and well-regarded pathway into process industry careers. The strong collaboration between KPC and CTC has ensured that Anchorage students have clear, accessible pathways into the process industry, further strengthening KPC's role in workforce development across the state.

2. Demonstrate the centrality of the program to the mission, needs, and purposes of the university and the college/community campus. Include how the program is integrating (or planning to integrate) intentionally designed opportunities for students to develop the four core competencies (Effective Communication; Creative and Critical Thinking; Intercultural Fluency; and Personal, Professional, & Community Responsibility). *(3000 characters or less)*

The Process Technology program at Kenai Peninsula College (KPC) is designed to equip students with both technical expertise and the four core competencies essential for career success: effective communication, critical thinking, intercultural fluency, and personal, professional, and community responsibility. Through a blend of coursework, hands-on labs, and industry engagement, students gain the skills needed to excel in the process industry.

Effective Communication

Students develop strong written and verbal communication skills through courses like WRTG A111 (Writing Across Contexts), WRTG A212 (Writing and the Professions), and COMM A111 (Fundamentals of Oral Communication). These prepare them for technical writing, reporting, and professional interactions. Industry

engagement through the Operator's Club and Advisory Committee meetings further enhances their ability to network and present ideas effectively.

Critical Thinking

Operators must quickly analyze data, diagnose issues, and optimize processes. Courses like PRT A250 (Process Troubleshooting) and PRT A255 (Quality Concepts for the Process Industry) develop these skills, while hands-on labs and simulated operational scenarios challenge students to apply logical reasoning and problem-solving techniques.

Intercultural Fluency

The process industry is [redacted] and global, requiring professionals to collaborate across cultural backgrounds. Safety, environmental, and ethical discussions in courses expose students to international industry standards, while guest lectures and networking events provide direct engagement with industry professionals from various backgrounds.

Personal, Professional, and Community Responsibility

PRT A110 (Introduction to Process Safety, Health & Environmental Awareness) instills a strong sense of safety, compliance, and ethical responsibility. Hands-on labs reinforce personal accountability in following protocols, while industry partnerships and internships encourage professional and community engagement.

KPC's intentional curriculum and industry-aligned training ensure graduates are not only skilled technicians but also effective communicators, critical thinkers, culturally aware professionals, and responsible industry leaders—well-prepared for success in the process industry.

3. Demonstrate program quality and improvement through assessment and other indicators.

a. Program Student Learning Outcomes Assessment and Improvement Process and Actions

i. OEC Petroleum Production

- *1) Describe the petroleum production operator's duties; 2) Describe the operation of various types of oil & gas well production methods; 3) Identify federal agencies, state agencies, and their applicable regulations that impact safety, health, and environment concerns in petroleum production operations; 4) Identify various hand tools and their safe use in petroleum production operations; 5) Identify various symbols, graphics, and components used in petroleum production, Piping, and Instrumentation Diagrams (P&ID) and Process Flow Diagrams (PFD).*

Describe your key findings for these outcomes. (3500 characters or less)

The Occupational Endorsement Certificate (OEC) in Petroleum Production has demonstrated low student interest, minimal industry demand, and administrative inefficiencies, making its long-term viability questionable. Given these concerns, we recommend suspending the OEC for a one-year review period to assess its relevance and determine whether it should be revised, restructured, or fully discontinued.

Despite being available to students, completion rates remain extremely low—with only two certificates awarded in 2021, one in 2023, and two in 2024. Notably, every recipient of this OEC earned it only because their AAS in Process Technology already met the certificate's requirements, making it an unnecessary administrative step rather than a meaningful credential. This creates extra paperwork without adding real value to students' educational or career prospects.

Describe actions taken to improve student learning for these outcomes. (3500 characters or less)
see above -- suspend and review this OEC --> During the one-year suspension, the department will work to realign the OEC course sequencing with the AAS in Process Technology to create a more structured and valuable credential. Additionally, discussions with industry partners will be held to ensure they understand what the OEC represents, allowing them to better evaluate job candidates who hold it.

Describe evidence that these actions are working. (3500 characters or less)

see above -- suspend and review this OEC

To address administrative inefficiencies and improve completion rates, the University should also explore automatically awarding the OEC to students who complete the required courses, eliminating the need for students to apply separately for the OEC or submit a graduation application. This change should remove barriers for students while ensuring that those who meet the qualifications receive the credential.

ii. OEC Valve Repair and Maintenance

- *1) Describe general troubleshooting techniques and repair procedures for remotely actuated valves; 2) Describe general troubleshooting techniques and repair procedures for mechanically actuated valves; 3) Describe alignment techniques for remotely actuated valves; 4) Describe negative feedback control of a remotely actuated valve in a closed loop control system; 5) Identify various hand tools and their safe use in valve maintenance and repair procedures.*

Describe your key findings for these outcomes. Programs may enter "See above" if there is a significant overlap of outcomes. (3500 characters or less)

The Occupational Endorsement Certificate (OEC) in Valve Repair and Maintenance has never been offered, never requested by students, and remains entirely unnecessary in the current job market. Since its creation, there has been no enrollment, no industry-driven demand, and no available instructors with the specialized expertise required to teach the coursework. This lack of engagement from both students and industry partners highlights the impracticality of maintaining this program.

From an industry perspective, the need for dedicated valve specialists is extremely limited. Large process facilities employing 150 operators may only require one valve specialist, and even then, these roles are traditionally filled through on-the-job training rather than formal coursework. Employers prefer to train their own valve maintenance personnel internally, tailoring the skills to their specific operational needs rather than seeking candidates with a standalone academic credential in valve repair.

Additionally, KPC lacks faculty with the necessary expertise to deliver this program, and recruiting qualified instructors would be an unjustifiable expense given the lack of student interest. Without demand from students or employers, and with industry already meeting this need through internal training, there is no reason to continue maintaining this OEC as an offering. Eliminating the Valve Repair and Maintenance OEC will allow KPC to focus resources on programs that directly support industry hiring needs, ensuring that academic offerings remain relevant and beneficial to students and employers alike.

Describe actions taken to improve student learning for these outcomes. Programs may enter "See above" if there is a significant overlap of outcomes. (3500 characters or less)

see above -- delete this OEC

Describe evidence that these actions are working. Programs may enter "See above" if there is a significant overlap of outcomes. (3500 characters or less)

see above -- delete this OEC

iii. UC Petroleum Technology

- *1) Identify various process technology industries; 2) Identify federal and state agencies and regulations that impact process industries; 3) Calculate various process equipment theory results; 4) Explain various process instrumentation theories; 5) Identify various process instrumentation and the uses of the instrumentation in control loops; 6) Sketch accurate piping and instrumentation diagrams (P&ID's); 7) Develop and compose process procedures; 8) Explain Outside Operator and Board Operator responsibilities and duties; 9) Monitor a process, troubleshoot problems, and respond appropriately; 10) Explain quality concepts, tools, and methods used in the process industries.*

Describe your key findings for these outcomes. Programs may enter "See above" if there is a significant overlap of outcomes. (3500 characters or less)

The Undergraduate Certificate (UC) in Petroleum Technology has proven to be a redundant and misaligned credential that does not effectively serve students or industry needs. Given its lack of clear purpose and minimal demand, we recommend suspending the UC for a one-year review period to evaluate its relevance and determine whether it should be restructured or discontinued.

The coursework in the UC significantly overlaps with the AAS in Process Technology but allows students to bypass General Education Requirements (GERs) that are essential for industry success. Foundational skills such as technical writing, critical thinking, and applied mathematics are critical in technical fields, particularly when authoring procedures, troubleshooting operations, and communicating effectively with teams. By skipping these key GER components, students earning the UC are less prepared for core courses in the UC.

Additionally, employers do not seek or require this UC, further reinforcing its lack of value in workforce development. Completion numbers remain low and largely incidental, as students who complete the AAS in Process Technology often unintentionally qualify for the UC and simply apply for it when submitting their AAS graduation application. This adds an unnecessary administrative burden without providing students with additional career advantages. Industry hiring managers consistently prioritize candidates with the AAS in Process Technology, making the UC irrelevant in hiring decisions.

Describe actions taken to improve student learning for these outcomes. Programs may enter "See above" if there is a significant overlap of outcomes. (3500 characters or less)

During the one-year suspension, the department will work with industry partners to reassess the UC's course content and explore ways to better align it with the AAS in Process Technology. This review will ensure that any future version of the credential includes the foundational knowledge and technical skills that employers expect from job candidates.

Describe evidence that these actions are working. Programs may enter "See above" if there is a significant overlap of outcomes. (3500 characters or less)

Additionally, to streamline administrative processes and improve completion rates, the University should explore automatically awarding the UC to students who meet the requirements, removing the need for a separate application or graduation request. This adjustment, along with industry discussions to clarify the

UC's value and purpose, will ensure that the credential—if retained—provides genuine benefits to both students and employers.

By conducting this review, the program can determine whether a restructured UC can add meaningful value or if it should be fully discontinued.

iv. AAS Industrial Process Instrumentation

- *1) Read P & ID drawings and interpret instrument symbols; 2) Describe the output from a pneumatic or electronic transmitter for a given process input condition; 3) Describe the effect of changes in gain or integral time on the dynamic behavior of closed-loop control; 4) Describe the techniques for troubleshooting an orifice meter and flow control loop using either electronic or pneumatic equipment; 5) Identify the voltage drops in a series connected current loop or a parallel connected voltage loop; 6) Distinguish between data transmitted by analog signals and data transmitted by digital signals.*

Describe your key findings for these outcomes. Programs may enter "See above" if there is a significant overlap of outcomes. (3500 characters or less)

Graduates of the Industrial Process Instrumentation (IPIN) AAS program demonstrate a strong understanding of instrumentation principles, troubleshooting techniques, and control system dynamics, as outlined in the learning outcomes. Students are proficient in reading Piping and Instrumentation Diagrams (P&IDs) and interpreting instrument symbols, skills reinforced through ET-A241 (Digital Control Systems) and PETR-A240 (Industrial Process Instrumentation III). Additionally, their ability to describe transmitter outputs, troubleshoot flow control loops, and differentiate between analog and digital signals is developed through a structured sequence of electronics and instrumentation courses, such as ET-A102/L (Basic Electronics: AC Circuits + Lab) and ET-A243 (Programmable Logic Controllers).

One challenge identified is that students who do not follow the recommended course sequence may struggle with advanced troubleshooting concepts due to gaps in foundational knowledge. This is particularly relevant for those taking Industrial Process Instrumentation III (PETR-A240) and IV (PETR-A244), which build on earlier coursework. Ensuring students progress through the curriculum in the correct order is critical for achieving these learning outcomes effectively.

Describe actions taken to improve student learning for these outcomes. Programs may enter "See above" if there is a significant overlap of outcomes. (3500 characters or less)

To enhance student comprehension and success, the program has:

Maintained a structured course schedule, ensuring that key instrumentation and electronics courses are offered once per year in a logical sequence. This prevents students from taking advanced courses before mastering prerequisite material.

Enhanced hands-on lab components to provide real-world applications of theoretical knowledge. Courses like ET-A126/L (Digital Electronics) and ET-A246 (Electronic Industrial Instrumentation) reinforce practical skills in troubleshooting and circuit analysis.

Integrated industry-standard software and equipment into coursework, such as Programmable Logic Controllers (PLCs) in ET-A243 and real-world troubleshooting exercises in PETR-A244.

Encouraged faculty collaboration with industry partners to align curriculum with employer needs and incorporate emerging technologies into instruction.

Describe evidence that these actions are working. Programs may enter "See above" if there is a significant overlap of outcomes. (3500 characters or less)

Student performance assessments in lab courses indicate improved troubleshooting abilities and a deeper understanding of control loop dynamics. Evaluations from PETR-A244 (Industrial Process Instrumentation IV) show that students effectively apply knowledge of analog and digital signal transmission, closed-loop control behavior, and instrumentation troubleshooting.

Employer feedback consistently highlights the program's hands-on training as a key strength, with graduates demonstrating competency in instrument calibration, control loop analysis, and system troubleshooting from day one on the job.

Course completion rates and student retention have improved, particularly in second-year courses, suggesting that efforts to structure the course sequence effectively and reinforce foundational skills are benefiting students.

Industry advisory board recommendations have been incorporated, ensuring that students graduate with relevant, job-ready skills in process instrumentation and industrial control systems.

By maintaining a structured course progression, incorporating real-world applications, and strengthening hands-on learning, the Industrial Process Instrumentation AAS program ensures that graduates are well-equipped for careers in industrial automation, control systems, and instrumentation technology.

v. AAS Process Technology

- *1) Identify process technology industries; 2) Identify federal and state agencies and regulations that impact process industries; 3) Calculate various process equipment theory results; 4) Explain various process instrumentation theories; 5) Explain various process instrumentation and the uses of the instrumentation in control loops; 6) Sketch accurate piping and instrument diagrams (P&IDs); 7) Compose process procedures; 8) Explain Outside Operator and Board Operator responsibilities and duties; 9) Monitor a process, troubleshoot problems, and respond appropriately; 10) Explain quality concepts, tools, and methods used in the process industries.*

Describe your key findings for these outcomes. Programs may enter "See above" if there is a significant overlap of outcomes. (3500 characters or less)

Key Findings for Student Learning Outcomes

The Process Technology program at Kenai Peninsula College (KPC) continues to meet rigorous industry and academic standards, ensuring graduates are well-prepared for careers in the process industries. The learning outcomes align with industry needs and the North America Process Technology Alliance (NAPTA) endorsement, which is more stringent than traditional accreditation reviews.

Findings indicate that:

Students consistently demonstrate proficiency in identifying process industries, regulations, and quality control measures.

Courses requiring hands-on lab work provide essential practical experience, reinforcing theoretical concepts.

Instrumentation theory and control loop applications remain areas where additional reinforcement improves student understanding.

Process monitoring, troubleshooting, and operator responsibilities are effectively covered, with students benefiting from exposure to real-world simulations and industry engagement.

Describe actions taken to improve student learning for these outcomes. Programs may enter "See above" if there is a significant overlap of outcomes. (3500 characters or less)

To enhance student learning, the program has implemented several improvements:

Flexible Learning Format: Since the closure of the Anchorage Extension Site (AES), all lectures are available online, allowing students from across Alaska and beyond to complete coursework remotely. Hands-on lab intensives are scheduled strategically to reduce travel requirements while ensuring sufficient practical training.

Enhanced Lab Scheduling & Accessibility: Labs are offered on Fridays and Saturdays to accommodate working students. Key courses, including Process Technology I, II, and III, as well as Instrumentation II, maintain essential hands-on training.

Strengthened Industry Alignment: The Operator's Club and Advisory Committee meetings provide direct interaction with industry professionals, reinforcing real-world applications of course content. Guest speakers from industry partners discuss process safety, troubleshooting, and operator expectations, reinforcing classroom learning.

Improved Instrumentation Instruction: Given the complexity of instrumentation theory and control loops, additional learning resources, including simulation software and recorded demonstrations, have been integrated.

Describe evidence that these actions are working. Programs may enter "See above" if there is a significant overlap of outcomes. (3500 characters or less)

The program's hybrid learning approach has demonstrated positive outcomes:

Student Performance & Retention: Completion rates for both local and non-local students remain comparable (within 10%), demonstrating the effectiveness of online learning and intensive lab scheduling.

Industry Hiring & Engagement: Graduates secure employment with top industry leaders such as Hilcorp, Marathon Petroleum, ConocoPhillips, ExxonMobil, and Alyeska Pipeline Service Company, showing employer confidence in KPC's training.

NAPTA Endorsement: The program maintains NAPTA endorsement, confirming that learning outcomes are met at a nationally recognized standard.

Student Feedback: Positive feedback from students highlights the value of online flexibility and intensive labs, making the program more accessible and manageable for working professionals.

Overall, KPC's Process Technology program continues to evolve to meet student and industry needs, ensuring that graduates possess theoretical knowledge, practical skills, and industry awareness necessary for success in the workforce.

b. Demonstrate program quality and improvement through other means, for example, maintaining specialized accreditation, using guidance from advisory boards/councils, responding to community partners and local

needs, maintaining currency of the curriculum, implementing innovative program design, intentionally integrating high-impact teaching and learning practices into the program, and meeting indications of quality in distance education, such as the C-RAC Standards. ***(3500 characters or less)***

In addition to its NAPTA endorsement, Kenai Peninsula College (KPC) continuously enhances program quality through industry engagement, specialized accreditation compliance, and advancements in distance education. The Process Technology program maintains strong ties with an industry-led advisory committee, which meets at least twice annually to provide guidance on curriculum updates, industry trends, and evolving workforce needs. These advisory board meetings ensure that KPC's offerings remain aligned with employer expectations, equipping graduates with the skills and competencies required for immediate employment. Feedback from industry leaders has led to curriculum refinements, the addition of real-world case studies, and enhancements in hands-on training methodologies to better prepare students for the field.

KPC also upholds high standards in distance education by leveraging video-streamed lectures, online course management tools, and virtual lab simulations to support remote learners. The program's hybrid model, which combines online coursework with scheduled intensive lab sessions, allows students across Alaska and beyond to complete their education without sacrificing hands-on training. Faculty members regularly update course content, incorporate interactive learning technologies, and provide recorded lectures to ensure students receive consistent, high-quality instruction regardless of location. These efforts, combined with ongoing faculty professional development and adherence to accreditation standards, underscore KPC's commitment to delivering a rigorous, industry-relevant Process Technology program that meets the needs of both students and employers.

4. Demonstrate student success and the closing of achievement gaps.

a. Analyze and respond to the disaggregated data in the data sheet for your program. Provide clarifications or explanations for any positive or negative trends indicated by the data, and discuss what you are doing to close any achievement gaps. The Student Success program review metrics are Junior Graduation Rate, Associate Graduation Rate, Semesters to Degree – Graduate Programs, and Course Pass Rates by Course Level. ***(3500 characters or less)***

The data highlights fluctuations in student success rates, with some concerning declines in graduation rates, particularly in the 4th-year Associate Graduation Rate, which dropped to 0% in 2023 and 2024. The 6th-year and 8th-year graduation rates are more stable, suggesting that while students are taking longer to complete their degrees, they are ultimately succeeding. This trend aligns with the reality that many Process Technology students are working adults balancing jobs, family, and education, leading to part-time enrollment and extended time to graduation.

Positive Trends & Strengths:

Course Pass Rates: The overall lower-division course pass rate increased to 90% in 2024, up from 80% in 2023, reflecting effective instruction and student support mechanisms. Pell Grant recipients and first-generation students also saw significant improvements in pass rates (96% in 2024 vs. 68%-74% in 2023).

Graduation Rates (6th & 8th-Year): The 6th-year Associate Graduation Rate rebounded to 40% in 2024, up from 17% in 2023, suggesting many students persist despite delays. The 8th-year rate also improved, rising from 33% in 2023 to 38% in 2024.

Strong Industry Demand & Program Capacity: While enrollment is currently below capacity, the Alaska LNG project and industry growth suggest a strong job market for graduates. Expanding faculty to four full-time instructors could help meet anticipated industry demand.

Challenges & Areas for Improvement:

4th-Year Graduation Rate Decline: The 0% graduation rate in 2023 and 2024 can be explained. This drop suggests students are either completing the degree faster than 4 years or taking longer to graduate or leaving the program before completion.

Disparities in Completion by Demographics: White students historically have had the highest 4th-year graduation rates (63% in 2020), but they also dropped to 0% in 2023 and 2024. First-generation students also struggled with a 0% graduation rate in 2023 and 2024, despite past improvements.

Low Enrollment: The program is not operating at full capacity, despite high job demand. Low student interest in process technology degrees remains a barrier.

Actions to Improve Student Outcomes & Close Achievement Gaps

Increasing academic advising and proactive outreach to help part-time students stay on track for graduation.

Expanding high school outreach initiatives to attract new students into process technology programs.

Collaborating with industry partners to promote scholarships, apprenticeships, and incentives for students entering the field.

Temporarily expanding to four full-time instructors to increase graduate throughput in response to Alaska LNG project demand.

Conducting a faculty search in AY26 to replace the retiring instructor and maintain program stability.

Increasing mentorship and career guidance for first-generation students and underrepresented groups to improve retention and graduation rates.

Strengthening tutoring and academic support services for students struggling in math, physics, and technical courses.

While graduation rates remain an area for growth, improvements in course pass rates, increased faculty support, and expanded outreach efforts are positioning the Process Technology program for long-term success.

b. Numerous US universities, and a number of programs across UAA, have holistically evaluated their programs and courses to look for unintended barriers to student success. For example, the Purdue IMPACT (Instruction Matters: Purdue Academic Course Transformation) effort between 2011 and 2018 resulted in 325 courses being redesigned to incorporate research-based strategies known to increase student outcomes, while maintaining academic quality and rigor. Other efforts have involved course sequencing and scheduling, resulting in improved success even for graduate students. Please consider your program's graduation rate, course pass rates, and similar data sources to reflect on any barriers to students moving through the curriculum, and describe what steps you have taken (or are planning to take) for possible redesign of gateway courses, course sequence changes, course scheduling, or similar efforts. *(3500 characters or less)*

Low Associate Graduation Rates

Many students are working full-time while attending school, often taking only 1-2 courses per semester, delaying their graduation timelines.

The 6-year and 8-year graduation rates show improvement, suggesting that students persist but take longer than expected.

MATH-A105 (Intermediate Algebra) is a common barrier, with some students requiring developmental math before reaching it.

By promoting dual enrollment opportunities with high schools to introduce students to process technology earlier, KPC aims to increase student retention and graduation rates. These efforts will help expose students into high-demand industry jobs.

c. Provide evidence of the overall success of students in the program. For example, you might talk about the percent of students in post-graduation employment in the field or a related field, the percent of students who go on to graduate school or other post-graduation training, and/or the percent of students who pass licensure examinations. You might also give examples of students who have been selected for major scholarships or other competitive opportunities. [Please do not use personally identifiable information.] ***(3500 characters or less)***

The Process Technology program at KPC has demonstrated outstanding success in preparing students for high-paying, in-demand careers. According to the January 2025 Fast Facts – Oil and Gas Programs – UA Graduates report, 88.1% of KPC Process Technology graduates secure employment within their first year, one of the highest placement rates across all University of Alaska programs. These graduates earn an average first-year wage of over $84,000, and their five-year average wage surpasses $133,000, making it one of the most lucrative associate degrees available. In fact, the KPC Process Technology AAS degree has the second-highest five-year average earnings of any degree in the UA system, trailing only the Master's in Petroleum Engineering. This remarkable return on investment underscores the program's effectiveness in meeting workforce needs while providing students with a direct and rewarding pathway to high-paying jobs in Alaska's oil, gas, and energy industries.

5. Demonstrate demand for the program.

a. Analyze and respond to the data in the data sheet for your program. Provide clarifications or explanations for any positive or negative trends indicated by the data, and discuss what you are doing to improve. The Demand program review metrics are Ratio of Out-of-Discipline Credit Hours to Total Credit Hours, Number of Program Graduates Who Continue Education, and Number of Program Graduates Who Return to UAA to Pursue an Additional Program. ***(3500 characters or less)***

The Process Technology program at KPC has seen fluctuations in student demand over the past five years. While the ratio of out-of-discipline credit hours to total credit hours has remained stable (81%-85%), there has been a decline in the number of graduates continuing education and returning to UAA for additional programs. These trends suggest that while students are successfully completing coursework, fewer are pursuing further education, possibly due to strong job placement opportunities in the industry or shifting career goals.

Positive Trends & Strengths:

Stable Credit Hour Ratio (81%-85%)

The ratio of out-of-discipline credit hours to total credit hours indicates that students continue to take general education and elective courses while completing their Process Technology degrees. This stability suggests consistent curriculum structure and program integration within KPC and UAA offerings.

High Job Market Absorption

The decrease in graduates continuing education (37 in 2020 → 7 in 2024) and those returning to UAA (16 in 2020 → 2 in 2024) may indicate that students are transitioning directly into the workforce rather than pursuing further education. This aligns with industry demand, particularly with large-scale projects like Alaska LNG offering immediate employment opportunities.

Challenges & Areas for Improvement:

Declining Number of Graduates Pursuing Further Education

The number of graduates continuing education has steadily declined from 37 in 2020 to just 7 in 2024. This drop may be due to:

Job availability: Many graduates may find high-paying, stable jobs that do not require additional degrees.

Limited awareness of further educational pathways: Students may not be aware of the benefits of advancing their education in related fields like engineering or business management.

Fewer Graduates Returning to UAA for Additional Programs

The number of graduates returning to UAA for further study has dropped from 16 in 2020 to just 2 in 2024. This suggests that graduates are either satisfied with their current credentials or seeking alternative training options outside of UAA.

Actions to Strengthen Program Demand:

Industry Collaboration for Upskilling & Continuing Education

Partnering with Alaska LNG, oil & gas, and manufacturing companies to encourage tuition reimbursement and incentives for continued education.

Improving Awareness of Further Educational Pathways

Enhancing academic advising to show students the value of obtaining additional credentials (e.g., bachelor's degrees in Technology, Engineering, Industrial Management, or Occupational Safety).

Boosting Enrollment & Graduate Output

Expanding outreach efforts to high schools and working professionals to increase student interest and enrollment.

While the drop in further education numbers may reflect strong workforce placement, enhancing pathways for continued learning and increasing awareness of career advancement opportunities will help strengthen program demand and long-term student success.

6. Demonstrate program productivity and efficiency.

Analyze and respond to the data in the data sheet for your program. Provide clarifications or explanations for any positive or negative trends indicated by the data, and discuss what you are doing to improve. The Productivity and Efficiency program review metrics are Five Year Degree and/or Certificate Awards Trend, Student Credit Hours per Full-Time Equivalent Faculty, and Full-Time Equivalent Student per Full-Time Equivalent Faculty. *(3500 characters or less)*

The Process Technology and Industrial Process Instrumentation programs at KPC have seen fluctuations in degree/certificate completion rates, student credit hours (SCH), and full-time equivalent student (FTES) ratios

over the past five years. These trends provide valuable insight into program efficiency and areas for improvement.

Positive Trends & Strengths:

Sustained Degree Completion in Process Technology (AAS)

The Process Technology (AAS) program consistently produces graduates, averaging over 20 per year, except for one unreported year. This demonstrates stable enrollment and degree completion rates.

Recent Growth in Industrial Process Instrumentation (AAS)

Though the Industrial Process Instrumentation (AAS) program had only 1-2 graduates per year from 2020 to 2022, it increased to 4 graduates in 2023 and 2024. This indicates potential growth in student interest and retention.

SCH/FTEF Improvement in 2024

After a steady decline in SCH/FTEF from 312.6 (2020) to 210.1 (2023), the metric rebounded to 280.2 in 2024. This suggests better course fill rates and faculty efficiency, possibly due to increased enrollment in courses.

Challenges & Areas for Improvement:

Declining Student Credit Hours Per Faculty (SCH/FTEF) (2020-2023)

From 312.6 in 2020 to a low of 210.1 in 2023, SCH/FTEF dropped, reflecting reduced course enrollment, faculty capacity underutilization, or students taking fewer credit hours per semester. While 2024 showed improvement (280.2), maintaining this upward trend is critical.

Declining FTES/FTEF (2020-2023)

The full-time equivalent student (FTES) per faculty has declined from 10.4 in 2020 to a low of 7.0 in 2023, before rebounding to 9.3 in 2024. A lower ratio can indicate smaller class sizes, under-enrollment, or an increase in part-time students taking fewer credits.

Actions to Improve Productivity & Efficiency:

Increase Student Enrollment & Retention

Expand high school outreach and recruitment efforts to generate interest in process technology careers.

Develop stronger industry partnerships to create scholarships, internships, and tuition incentives to attract students.

Implement academic support initiatives (e.g., tutoring, study groups) to improve retention rates.

Enhance Program Awareness & Career Pathways

Develop clear articulation agreements with four-year programs, making it easier for students to continue their education after graduation.

Faculty & Staffing Considerations

With plans to return to three full-time faculty in AY26, we will monitor faculty workload to ensure optimal student-to-faculty ratios.

If student demand increases (e.g., due to the Alaska LNG project), a temporary expansion to four full-time faculty could increase graduate output to 150+ per year.

Conclusion

While the Process Technology program continues to produce graduates at a steady rate, efforts are needed to boost enrollment and maximize faculty productivity. The increase in SCH/FTEF and FTES/FTEF in 2024 is a positive sign, but continued outreach, scheduling optimization, and industry engagement will be necessary to maintain and improve these metrics.

Optional: Discuss the extent to which, if any, extramural funding supports students, equipment, and faculty in the program. *(3000 characters or less)*

The KPC Process Technology program benefits from strong extramural funding support, ensuring that students and faculty have access to valuable resources for training, professional development, and industry engagement. The KPC Process Technology Fund, managed through the UA Foundation, is specifically designated for promoting and enhancing the Process Technology AAS degree. Funds are used for promotional swag used in recruiting, critical initiatives such as NAPTA membership ($1,000/year), faculty participation in the NAPTA Instructor Skills Conference ($3,000/year), and travel costs for the Troubleshooting Skills Competition ($14,000/year)—a key event that helps students sharpen their real-world problem-solving abilities. Additionally, the fund could be used to support process technology student scholarships. Contributions from industry partners play a vital role in sustaining these efforts, with Marathon Petroleum recently donating $10,000, bringing the current fund balance to over $22,000. This financial backing underscores the industry's commitment to developing a skilled workforce and reinforces KPC's role as a leading training hub for Alaska's energy sector.

7. **Assess program distinctiveness, as well as any duplication resulting from the existence of a similar program or programs elsewhere in the University of Alaska System. Is duplication justified, and, if so, why? How are you coordinating with UAA's community campuses and the other universities in the system? *(2500 characters or less)***

The Industrial Process Operator AAS at the University of Alaska Fairbanks (UAF) and the Process Technology AAS at Kenai Peninsula College (KPC) both serve the broader need for trained process operators in Alaska. However, the programs are distinct in delivery, focus, and structure, which minimizes unnecessary duplication while allowing for greater accessibility and workforce alignment across regions.

Key Differences & Program Distinctiveness

The Industrial Process Operator AAS at UAF and the Process Technology AAS at KPC differ in several key ways. UAF's program is primarily face-to-face with a cohort model, while KPC's program is mostly asynchronous online with lab intensives, providing greater flexibility for students across Alaska. UAF offers more technical electives in mining, aligning with the region's industry needs, whereas KPC focuses on oil & gas, refining, and LNG workforce demand. Faculty availability also varies, with UAF having fewer faculty and smaller cohorts, while KPC has a larger faculty base and can serve more students online. UAF's structured cohort format requires students to attend in person, while KPC's flexible scheduling allows students—including those at UAF—to complete coursework remotely. Additionally, UAF's hands-on training is conducted in on-campus labs, whereas KPC integrates online learning with lab intensives. These distinctions ensure that each program meets the specific workforce need.

UAF has an Instrumentaion certificate, to KPC's AAS.

Justification for Duplication

While the University of Alaska System strives to avoid unnecessary duplication, having both programs is justified for several reasons:

Geographic Barriers & Student Access

Fairbanks (UAF) and Kenai (KPC) are 518 miles apart, making it impractical for students in one location to commute to the other.

The asynchronous online model at KPC allows students from across Alaska, including those in Fairbanks, to access coursework without relocating.

Industry-Specific Workforce Needs

UAF's program is tailored toward mining, serving the interior and northern Alaska regions where mining is a dominant industry.

KPC's program is aligned with oil & gas, refining, and the Alaska LNG project, which has a high workforce demand.

Separate programs ensure both regional industry demands are met without compromising the depth of training.

Coordination Between UAF & KPC

UAF students commonly take some of their coursework through KPC, leveraging the flexibility of online courses.

8. Assess the strengths of your program and propose one or two action steps to address areas that need improvement. *(4000 characters or less)*

Assessment of Program Strengths and Areas for Improvement

The Process Technology program at Kenai Peninsula College (KPC) excels in preparing students for high-demand careers in Alaska's energy and industrial sectors. As a NAPTA-endorsed program, it aligns with industry standards and employer expectations. Its flexible, asynchronous online format combined with lab intensives makes it accessible to a diverse student base, including working professionals and those in remote locations. Strong industry partnerships and an engaged advisory committee help keep the curriculum relevant and provide students with valuable networking opportunities. The PRT program's success is demonstrated by its high employment rate (88.1% within the first year) and competitive wages ($84,000 first-year average, $133,000 five-year average), making it one of the most lucrative associate degrees in the state. IPIN wages ($80,000 first-year average, $123,000 five-year average).

Addressing Enrollment and Retention Challenges

Despite these strengths, enrollment remains below program capacity, limiting the number of skilled graduates entering the workforce. To address this, KPC is expanding outreach efforts to high schools and industry employers. Additionally, with anticipated job growth from projects like Alaska LNG, a temporary expansion to four full-time faculty could allow for increased enrollment and graduate throughput. Another challenge is retention and completion rates, as many students juggle coursework with full-time employment, leading to longer time-to-degree completion.

Limitations of Traditional Institutional Research Data

The Institutional Research (IR) data used for program assessment is designed for four-year programs, measuring graduation rates at four, six, and eight years. However, these metrics do not accurately reflect community

campus programs like Process Technology and Industrial Process Instrumentation at KPC, where students complete shorter-term credentials such as:

- Occupational Endorsement Certificates (OECs) – Completed in one semester
- Undergraduate Certificates (UCs) – Completed in two semesters
- Associate Degrees (AAS) – Typically completed in two years

Because many students enroll for workforce advancement rather than degree completion, traditional IR data fails to capture student success. Future assessments should focus on completion rates within expected timeframes, employment outcomes, wage progression, and industry engagement to provide a more accurate evaluation of program effectiveness.

KPC and UAA as Dual Mission Institutions

As part of UAA's dual mission model, KPC integrates academic and workforce training programs, offering:

- Bachelor's degrees
- Career-focused associate degrees
- Industry-recognized workforce training

This model emphasizes regional needs, flexible credentialing, and strong industry partnerships, but traditional data metrics fail to capture its full impact. Moving forward, Institutional Research should track employment rates, wage data, and short-term credential completions to better assess success.

Recommendation: Strengthening Academic Pathways

One major gap is the lack of clear pathways for Process Technology and Industrial Process Instrumentation graduates who want to continue their education.

To address this, KPC and UAA should collaborate and:

- Develop clear degree pathways for AAS students seeking bachelor's degrees that industry stakeholders desire for their workforce
- Offer proactive advising sessions to help students plan their long-term education

By improving advising and academic pathways, KPC can enhance student success, ensuring Process Technology graduates have clear opportunities for continued education and career advancement.

Committee chair first name last name: **Date:** Select date.

END OF PROGRAM SECTION

DEAN SECTION (Due on April 1)

1. Evaluation of Progress on Previous Recommendations

For each recommendation from the last program review, indicate if the recommendation has been met or has not been met and provide commendations and guidance as appropriate. ***(2500 characters or less for each recommendation)***

Recommendation 1: Produce a plan to meet the needs of the Anchorage community for the hands-on courses. Recommendation has been met.

1.) This has been met, the faculty have created an excellent online presence with short intensives for the hands-on learning needed. This meets both Anchorage and Alaska's needs.

Recommendation 2: Continue to work with industry partners to explore additional attendance options for students outside of the Kenai Peninsula area. Recommendation has been met.

1.) This has been met, as stated above the faculty have created an excellent online presence with short intensives for the hands-on learning needed. This meets both Anchorage and Alaska's needs.

Recommendation 3: Work with CTC in Anchorage to provide clear information about program availability for those seeking process industry careers. Recommendation has been met.

1.) This has been met, CTC has been working with KPC and the faculty to get the word out about the program and it's availability. Our Website changes this summer will further expand the connections and information sharing.

Provide your analysis of #2-8 below, based on the data provided and the program's responses above.

2. Centrality of the Program ***(2000 characters or less)***

I agree that there are parts of the program that hit most of the core competencies, I believe, based on the given information above, that the two main focuses of the program are Critical Thinking and Personal, Professional, and Community Responsibility. The programs focus on safety and how their actions can affect the world around them is both responsibility and critically grounded. I agree that there are parts of the program that hit most of the core competencies, I believe, based on the given information above, that the two main focuses of the program are Critical Thinking and Personal, Professional, and Community Responsibility. The programs focus on safety and how their actions can affect the world around them is both responsibility and critically grounded.

3. Program Quality and Improvement ***(2000 characters or less)***

3.) The faculty are correct, there is a need in the industry and many companies are actively recruiting students into full-time employment before they complete the AAS, which would allow those students longer term career progression. This has decreased the student graduation rates for all of the programs. Additionally, looking later in the report the OEC's and UC may need to be completely revised to meet the current industry needs. As such, the focus of the program should be working with both companies that hire our students and the students themselves to understand the benefits of completing the AAS. Additionally, coordination with companies to sponsor students through the AAS would be an option that would encourage the company to wait for the students to finish.

4. Student Success and the Closing of Achievement Gaps ***(2000 characters or less)***

4.) One aspect that might still be affecting the program's 4 year graduation rate is the affect of the Covid 19 pandemic. While it has been a long way out now, the 4 year group would be those that started in the Fall of

2020, which did affect student progress. The program did well to keep the volume of students moving through the program and expanding options online during that time, and should be commended. Also, the pass rates of classes would indicate that the students are learning the material, which could also mean that they are entering industry before completion. Unfortunately, math will continue to be a barrier, as this industry and career uses math consistently.

5. **Demand *(2000 characters or less)***

5.) There is industry demand, and it is growing. The larger issue is convincing students that the Process Tech career field is for them. Faculty are encouraged to work with their director to develop a marketing plan and implement it. CTC will work with to further expand their footprint in Alaska.

6. Productivity and Efficiency *(2000 characters or less)*

6.) The program has maintained a reasonable efficiency, and if we are able to increase the retention in the AAS's there should be an increase in credit hour per faculty ratio. It is interesting to note that there is a shift to part time students, even with the online options. We may wish to look at scheduling courses and offerings, or at least a clear cohort plan for the part-time students.

7. Duplication and Distinctiveness *(2000 characters or less)*

7.) I agree with the faculty, both programs meet the needs and provide back and forth options for students. Also, the programs do have different specialties.

8. Strengths and Ideas for Moving Forward *(2000 characters or less)*

8.) IR can get the right data for the OEC's but it most likely some of the outside data such as leaving due to industry hiring will need to be at location. The faculty are right though, this career is very attractive and needed. So, we will need to examine the OEC's and UC's to see what can be done to make them more useful for industry and more attractive to students to catch those that leave early.

Dean's Final Evaluation

I commend the program for: *(number and list the specific commendations in the narrative box, 2000-character limit)*

The faculty have done some amazing work on their courses and programs. I would like to commend them for the following, but this is in no way a complete list of accomplishments.

1.) The faculty should be commended for all their work aligning with Industry.

2.) The faculty have done excellent work matching the needs of industry.

3) Additionally, the creative ways that they have done distance education, this has improved the reach of the program.

I recommend that the program: *(number and list the specific recommendations in the narrative box, 2000-character limit)*

Both the Petroleum Technology and Instrumentation programs are strong and have been improving. However there some areas that I recommend we examine.

1.) There are several OEC's and UC's in the programs that need to be evaluated and possibly reworked. It is recommended that the faculty evaluate the OEC's and UC and, if necessary, change the curriculum to meet industry needs.

2.) Industry is projecting a large increase in need in trained personnel. It is recommended that the faculty and administration of the program develop a marketing plan and implement it to attract more students.

3.) Students are leaving the program to go to work in industry. While addressing the shorter OEC's and UC's should help, we need to work on the retention of students to complete their programs. It is recommended that the faculty and administration of the program develop a retention plan that includes working with industry to help keep students to the end of the programs.

Dean's overall recommendation to the provost: Continuation -- Program is successfully serving its students and meeting its mission and goals. No immediate changes necessary, other than regular, ongoing program improvements.

If an Interim Progress Report is proposed, recommended year: Select N/A or Academic Year.

If a Follow-up Program Review is proposed, recommended year: Select N/A or Academic Year.

Proposed next regular Program Review: AY2030

Dean first name last name: Raymond Weber **Date:** 4/8/2025

END OF DEAN SECTION

PROGRAM OPTIONAL RESPONSE SECTION (Due within one week of receiving dean's review)

Are you submitting an optional response? If yes, add your response below, enter your name and date, and follow the guidance below for submission. If no, enter your name and date, and follow the guidance below for submission.

No

Optional Response: ***(10,000 characters or less)***

Committee chair first name last name: Jeffrey Laube **Date:** 4/10/2025

END OF PROGRAM OPTIONAL RESPONSE SECTION

PROVOST SECTION (Due on August 1)

Provost's commendations, additional or adjusted recommendations, if any, and other general comments *(3500 characters or less)*:

I concur with the dean's commendations, and would also like to call out the work with industry and the innovations in program delivery.

I also concur with the dean's recommendations, and note that all previous recommendations have been met. I agree with the program that it makes sense to suspend admissions to the OEC Valve Repair and Maintenance, and the dean will want to put forward that memo. I also encourage the program to learn more about UAA's credential "on the way" process, which is a streamlined process for students.

Finally, I am asking that over the next year or so faculty holistically review the overall design of their program(s) within the framework of UAA's dual mission and make changes accordingly. As per accreditation standards, degrees must demonstrate breadth, depth, and appropriate sequencing of coursework. UAA's core competencies provide a mechanism for breadth, as do the general education requirements for associate's and baccalaureate degrees. Whenever possible, students are able to complete UAA programs within the Board of Regents' minimum credit requirements, ensuring programs are affordable financially and in terms of a student's commitment of time. UAA programs provide clear and streamlined pathways into and through the credential, not requiring specific Tier 1 and Tier 2 GERs, ensuring no hidden prerequisites, requiring prerequisites only when clearly tied to success in the course, and, whenever possible, standardizing prerequisites across courses at a particular level within the credential. Credentials within the same discipline or related disciplines clearly stack one within the next, providing students flexible, streamlined opportunities to earn one credential and return to UAA at a later time to complete the next level. Finally, programs formally acknowledge appropriate alternative credit paths, allowing students to take advantage of prior learning and avoid unnecessary credit accumulation.

Provost's decision: Continuation -- Program is successfully serving its students and meeting its mission and goals. No immediate changes necessary, other than regular, ongoing program improvements.

Interim Progress Report: N/A

Follow-up Program Review: N/A

Next regular Program Review: AY2030

Provost's signature: DocuSigned by: Denise Runge AE7EE55F615543D...

Date: May 9, 2025