Portland Community College
Aviation Maintenance Technology

Program Review 2016

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Table of Contents

1. Program/Discipline Overview:

A. What are the educational goals or objectives of this program/discipline? How do these compare with national or professional program/discipline trends or guidelines? Have they changed since the last review, or are they expected to change in the next five years?

The single educational goal of the Aviation Maintenance Technology program has been consistent for the past 47 years. We provide training under the guidance of 14 CFR Part 147 allowing successful program graduates to complete the FAA Written, Oral and Practical testing necessary to obtain the globally coveted Mechanic Certificate issued by the Federal Aviation Administration.

Our program graduates can be found practicing their craft, quite literally around the world. PCC AMT program graduates have found their career paths take them to Africa, to the plateaus in the south and the river-basin forests in the center of the vast continent, supporting the transportation needs of educational and medical NGO's. Our program graduates find themselves tending to the complex maintenance needs of large helicopters, facilitating oil exploration in the islands of Indonesia or many countries in South America or helping fight fires in Europe. Some graduates find their place supporting aircraft use in the war efforts in near and Middle East.

The goals and objectives of the AMT discipline have been consistent with both the industry and its regulatory body over the past 42 years, since the program's first association with PCC in 1969. The Aviation Maintenance Technology program has been true to its charge as a regional training organization for Airframe and Powerplant Mechanics.

- The Aviation Maintenance Technology (AMT) Program provides training under Part 147 of the CFRs for those desiring certification from the FAA as Aircraft Mechanics
- Provide specialized training through industry partnerships that promote and support a growing base of aviation maintenance activity in the Northwest.
- Respond to opportunities for offering custom training in existing curriculum areas of Part 147 content or in focused subjects such as Aviation Electronics, Aircraft Systems, Aircraft Structures, or Rotary Wing Maintenance.

VISION

The Aviation Maintenance Technology Program builds the futures for our Students and Communities by providing them with a complete FAA Certificated and VA approved Aircraft Airframe and Powerplant Technician Certification Program that is not offered anywhere else in the Portland area. Consequently, it serves close to 900,000 residents in a five-county, 1,500 square mile area in northwest Oregon. As a matter of fact, the nearest complete AMT Program south of PCC is Lane Community College in Eugene (approximately 110 miles). PCC and LCC are the only two complete AMT programs in

Oregon. The nearest one north of PCC is Clover Park Vocational Technical Institute, Tacoma, Washington, (approximately 130 miles).

MISSION

The Aviation Maintenance Technology Program provides access to a very high quality education at a fraction of the price of many private Part 147 schools, in an atmosphere that encourages the full realization of each individual's potential. The Program offers opportunities for academic, professional, and personal growth to students of all ages, races, cultures, economic levels, and previous educational experiences which can be attested to by the variety of students enrolled in the Program at any given time. Students from thirty different nations have completed the Program over the years.

WHO WE ARE

The AMT Program is located at the Rock Creek Campus and has students attending it from all over the Portland area, and even some from out of state. The AMT Program provides its graduates with possible transfer to 4-year Aviation/Industrial Management degree programs. Completers are prepared to enter the work force in many local, regional, national, and global areas of aviation including general, corporate, repair station, military, government, and transport category with both local and worldwide career opportunities.

STATEMENT OF VALUES

The PCC AMT Program provides:

- Quality, lifelong learning experiences that helps students to achieve their personal and professional goals
- An environment that is committed to diversity as well as the dignity and worth of the individual
- Continuous professional and personal growth of our employees and students
- Effective teaching and student development programs that prepare students for their roles as citizens in a democratic society in a rapidly changing global economy
- Academic Freedom and Responsibility - creating a safe environment where competing beliefs and ideas can be openly discussed and debated
- Sustainable use of our resources
- Collaboration predicated upon a foundation of mutual trust and support
- The PCC AMT Program provides an agile learning environment that is responsive to the changing educational needs of our students and the communities we serve
- Accountability based upon an outcomes-based approach in education
- The public's trust by effective and ethical use of public and private resources

GOALS

The PCC AMT Program strives to support in spirit and intent all of the college's Goals:

- Improve access to quality lifelong learning opportunities through the effective use of technology, affordable classes and the strategic location of facilities.
- Promote success for all students through outstanding teaching, student development programs, and support services in all that we do;
- Professional technical education will be responsive to industry needs and prepare students to work in a global marketplace.
- Transfer preparation will prepare students for success in obtaining baccalaureate degrees.
- College readiness will promote student preparation for college-level programs and employment.
- Community education/continuing education will provide quality education to enrich students personally, socially, culturally, and to upgrade occupational/job skills.
- Enrich the educational experience by committing to the development of diversity in our student body, faculty and staff.
- Develop, safeguard and allocate our resources (human, financial, capital, and technological) to ensure through planning and assessment the delivery of relevant, quality programs and services.
- Effectively respond to the educational needs of our students and communities through strategic alliances with business, government agencies and educational institutions.
- Facilitate growth and development of our district communities by accepting a leadership role and serving as a key educational resource to the community.

1. Program/Discipline Overview:

B. Briefly describe changes that were made as a result of SAC recommendations and/or administrative responses from the last program review.

The administrative response did concur with many of the AMT recommendations, and in fact PCC administration had already acted upon some. In those areas of agreement, they note that some are more constrained by funding availability, and that requests dependent on funding are typically subject to a variety of campus and district based allocation processes.

1. Lab Technicians: *(The AMT department needs two part-time lab technicians.)* We have been able to secure funding to support part-time student help.

2. Internships: *(Securing internships for AMT students with local or regional aviation maintenance services providers despite barriers related to liability and need for*

supervision.) We have been able to develop and nurture relationships with some local-area companies to provide internships.

3. Enhance Industry Interface: We still need to re-establish our industry advisory committee with a group of committed industry leaders.

4. Equipment and facility needs: While we have been well supported by funds to purchase equipment and tools, we still have some major needs and desires for equipment.

5. Curricular support: *(... The program lacks necessary storage areas at the hangar to store and provide common, identifiable storage for course training aids.)* We have cleared out a lot of surplus and unnecessary equipment to make more room for other curricular support needs.

6. Professional Development: *(Training opportunities for both full-time and adjunct faculty need to be made available for factory schools, industry courses, conventions, and other professional development events. Barriers include funding, and release with substitutes.)* We lack available part-time support staff to cover our classes so we could leave to attend professional development opportunities

7. Access and Success for Students: *(The Department's web-site helps with recruitment. We continue collaboration with the Aviation Science Program at conventions, fairs, and other recruiting activities.)* Our program is running at near peak enrollment. We do not find that recruiting is of concern at this time.

2. Outcomes and Assessment: Reflect on learning outcomes and assessment, teaching methodologies, and content in order to improve the quality of teaching, learning, and student success.

A. Course-Level Outcomes: The College has an expectation that course outcomes, as listed in the CCOG, are both accessible and assessed, with the intent that SACs will collaborate to develop a shared vision for course-level learning outcomes.

i. What is the SAC process for review of course outcomes in your CCOGs to ensure they are assessable?

The AMT Department has found it difficult to engage with the College requirements for assessment; much of the assessment done is inherent to each individual course, but isn't necessarily captured or capturable in such a way that readily lends itself to aggregate data analyses. However, it should be noted that while this is the case, assessment is always a key component of both individual classes as well as the program as a whole: not only is each student assessed multiple times in every single course, as many of the course outcomes are directly translated to course projects which are assessed by the individual instructor, but one of the overall goals of the program is to prepare students for the FAA-required Written, Oral, and Practical testing, which every student seeking FAA Certification must undergo. The department has a long-standing history of engagement with the FAA Testing Designees and regularly receives feedback on the performance of graduated students and, in turn, makes adjustments as necessary. (Two of the full-time instructors are Designated Mechanic Examiners, DMEs, as well as another full-time instructor was a DME for many years and all three are members of the AMT SAC.)

But more than just passing an evaluation to get a certificate and rating, one of the other primary goals of the program is to prepare students to be successful in the industry; that preparation requires constant and continual evaluation, both of the individual and of his or her demonstrated output (both through "traditional" examinations/testing as well as the projects linked to the course outcomes).

It is true that the SAC has had some challenges with regards to quantifying assessment data. Nevertheless, we are constantly performing assessments that are based on the course outcomes to ensure students are being trained and equipped to meet and exceed the governmental and industry qualification standards on which these course outcomes are based.

2. Outcomes and Assessment: Reflect on learning outcomes and assessment, teaching methodologies, and content in order to improve the quality of teaching, learning, and student success.

A. Course-Level Outcomes: The College has an expectation that course outcomes, as listed in the CCOG, are both accessible and assessed, with the intent that SACs will collaborate to develop a shared vision for course-level learning outcomes.

ii. Identify and give examples of changes made in instruction to improve students' attainment of course outcomes, or outcomes of requisite course sequences (such as are found in in MTH, WR, ESOL, BI, CH, etc.) that were made as a result of assessment of student learning.

The PCC AMT Program had struggled for many years with adequately enabling the students to meet the stated course outcomes for AMT 120, "Propellers & Engine Installation" class, because of the outdated and non-typical Hamilton-Standard "Hydromatic Propellers" that were the main propeller training aids that we had for this class. We struggled not only with the outdated propellers, but also with a complete lack of proper fixtures and tooling for these propellers. We had our students laying these propellers out on benches for overhaul working with standard hand tools, which is entirely unrepresentative of the industry, rather than Propeller overhaul/maintenance fixtures, proper tooling, and current applicable overhaul/maintenance data.

Since the last Program review the AMT SAC extensively evaluated this class and made the decision to seek out a Propeller Manufacturer that would work with us on procurement of some more representative "Constant Speed Propellers", with proper tooling, data, and fixtures. After much research we found that McCauley Propeller, Inc. was willing to work with us. They provided us with new current model Constant Speed Propellers at a substantial discount, including the overhaul/maintenance data at no cost, and loaning us the drawings and specifications for the overhaul/maintenance fixtures, which we were able to have built by a machine shop for the AMT Dept. This acquisition has greatly enhanced this class, enabling us to provide the students with a more than adequate opportunity to meet the stated course outcomes.

In the AMT 108 General Practicum class, there is a course outcome to be able to: when eligible, competently sit for the FAA written, oral, and practical certification testing of the General Subject Area content. The practical testing instruction in the class had historically been administered to a group of students in a lab setting while the instructor was away conducting oral testing instruction. The class recently changed to provide for the instructor to be present during the practical testing to help instruct that each student must conduct the practical projects individually without interactive discussion with other students. This change has helped the student to understand that the FAA testing done at the end of the program will have to be accomplished by that individual without any possible interaction from others.

2. Outcomes and Assessment: Reflect on learning outcomes and assessment, teaching methodologies, and content in order to improve the quality of teaching, learning, and student success.

B. Addressing College Core Outcomes: i. Update the Core Outcomes Mapping Matrix.

The SAC has identified some changes that are being made to the Core Outcomes Mapping matrix, including the addition of AMT 108 (General Practicum) and WLD 210 (Aviation Welding). We have submitted the changes to Academic Support and will be found at: http://www.pcc.edu/resources/academic/core-outcomes/amt.html
See appendix 2b for the updated list [as posted online].

2. Outcomes and Assessment: Reflect on learning outcomes and assessment, teaching methodologies, and content in order to improve the quality of teaching, learning, and student success.

C. For Career and Technical Education Programs: Degree and Certificate Outcomes

i. Briefly describe the evidence you have that students are meeting your Degree and/or Certificate outcomes.

AMT students demonstrate they meet program outcomes by meeting two criteria. Within the program, students complete each of the three Practicum classes successfully with a grade of "C" or better. (See Appendix 2Ci) Reference the grade data points for AMT 108, 216 and 225. Data for AMT 108 will generally show less success than the other two practica. This is due to the fact that, for many students, it is the first encounter of a comprehensive assessment of their oral, written, and practical skills. By completion of the repeat course, students are much better attuned to the concept of comprehensive testing they will find when sitting for their FAA certificate testing.

Outside of the program, assessment is made of program graduates through the Oral, Written and Practical testing conducted by the FAA for each of their ratings, Airframe and Powerplant. AMT program graduates must demonstrate to the outside certificating body, the Federal Aviation Administration, that they have the knowledge and skills sufficient to earn Airframe and Powerplant ratings for the Mechanic certificate. This is accomplished with a written knowledge test they must complete with a 70% or higher score, an orally conducted knowledge test, and a practical skills demonstration administered by an FAA Designated Mechanic Examiner (DME).

The Technical Skills Assessment (TSA) report due in June of each year for validating Carl Perkins funding, has been approved by the State of Oregon for demonstrating Degree and/or Certificate outcomes have been adequately met by program graduates. (See Appendix 2Ci) The TSA report compares PCC certificate and degree completers with FAA certification. We would like to emphasize that 100% of those program graduates that choose to complete the FAA certification testing are issued the ratings for which they applied. It is a mystery to us that not all program graduates choose to complete FAA testing after two years of technician training.

2. Outcomes and Assessment: Reflect on learning outcomes and assessment, teaching methodologies, and content in order to improve the quality of teaching, learning, and student success.
C. For Career and Technical Education Programs: Degree and Certificate Outcomes

ii. Reflecting on the last five years of assessment, provide a brief summary of one or two of your best assessment projects, highlighting efforts made to improve students' attainment of your Degree and Certificate outcomes.

We identified a course project that clearly tests the students in the area of "Critical Thinking & Problem solving." We decided to develop a multiple choice quiz that the student is required to take, and to pass, in order to complete the project. In our AMT 219 Turbine Engine Overhaul class we assign a project that requires the student to evaluate the recorded engine operating parameters, of a gas turbine engine, that were recorded during an engine run-up, and determine which parameters are out of specification, and then decide what adjustments must be made in order to correct the discrepancies. Putting this in a gradable quiz format has provided a ready means of grading the level of student attainment of the "Critical Thinking & Problem solving" outcome. The first attempt at designing and delivering this quiz revealed a need for improvement. Therefore, a second rendition of this quiz was developed and given during the next offering of this course. We now plan to make some further refinements, and deliver this revised quiz again during the next offering of this class.

2. Outcomes and Assessment: Reflect on learning outcomes and assessment, teaching methodologies, and content in order to improve the quality of teaching, learning, and student success.
C. For Career and Technical Education Programs: Degree and Certificate Outcomes

iii. Do you have evidence that the changes made were effective (by having reassessed the same outcome)? If so, please describe briefly.

{In reference to 2c(ii)} The first attempt at designing and delivering this quiz revealed a need for improvement in the area of quiz question design. A second rendition of this quiz was developed and given during the next offering of this course. The students then gave clearer, more decisive answers, which enabled the instructor to correct misunderstandings of concepts immediately following the assessment. We now plan to make some further refinements and deliver this revised quiz again during the next offering of this class.

2. Outcomes and Assessment: Reflect on learning outcomes and assessment, teaching methodologies, and content in order to improve the quality of teaching, learning, and student success.
C. For Career and Technical Education Programs: Degree and Certificate Outcomes

iv. Evaluate your SAC's assessment cycle processes. What have you learned to improve your assessment practices and strategies?

AMT has struggled with the assessment cycle process. We firstly find that it has detracted from our efforts to spend time together improving our program at the course level. We have had significant need in the last 5 years to improve the curriculum and instructional projects of courses that were left by a retired instructor. The new instructor had considerable difficulty in amending lecture presentations project descriptions and equipment use and availability. That effort heavily involved the SAC as we reviewed FAA requirements, CCOGs, project objectives, equipment needs, and even new and replacement needs.

Secondly, we have struggled to maintain pace with the triennial review process of our 25 courses. We often have had courses brought forward from faculty as needing to be reviewed (as stated above) but also the selection of random courses for review. It is a demanding process as we always go into details of outcomes, content, projects, equipment, safety, industry input, and future issues. Some courses have not been looked at for several years.

In our assessment cycle process, we looked at self-reflection in 2013-14. In that effort, although not reported, we learned that our survey of students about safety was too lengthy for us to be able to summarize into a report. We look forward to revising the survey and re-administering it in the future. In 2014-15, we evaluated a troubleshooting project in our turbine engine overhaul class as explained in 2(c)(ii) and 2(c)(iii).

2. Outcomes and Assessment: Reflect on learning outcomes and assessment, teaching methodologies, and content in order to improve the quality of teaching, learning, and student success.
C. For Career and Technical Education Programs: Degree and Certificate Outcomes

v. Are any of PCC's Core Outcomes difficult to align and assess within your program? If yes, please identify and explain.

Yes, AMT has found that Cultural Awareness is a difficult PCC Core Outcome to align and assess. We would likely look at a method for dealing with workplace conflicts that arise from cultural differences.

3. Other Curricular Issues

A. Which of your courses are offered in a Distance Learning modality (online, hybrid, interactive television, etc.), and what is the proportion of on-campus and online? For courses offered both via DL and on-campus, are there differences in student success? If so, how are you addressing or how will you address these differences? What significant revelations, concerns, or questions arise in the area of DL delivery?

The AMT program offers only one course using the distance learning platform. That course is AMT 101 Introduction to AMT. Structured as a Hybrid course, it takes focused advantage of the Dropbox, Tests and Discussion components of the D2L platform. For a 1 credit-hour course that has 10 hours in a classroom over 2 Saturdays, D2L helps to increase the value of the time spent on in-class assessment and increases the material presentation time.

We have contemplated re-designing AMT 101 to be completely online, making it more accessible to a greater number of students. However, our program has seen great advantage to having prospective students visit the campus, tour the excellent facilities and get a sense of the duration of a regular AMT program instructional day - 5 hours of instruction that start at 7:00am each weekday morning. Conducting an introductory course similar to the manner in which the program is conducted provides more input / decision points for the prospective student.

AMT classes have not been conducted via the DL modality, up to this point, primarily because much of the knowledge, experience, and skill that is necessary to meet the requirements for an FAA Airframe & Powerplant Certification, does not lend itself to the DL format. It is not possible to obtain this level of proficiency without an ongoing significant laboratory component.

Students spend many hours in the lab learning:

- the use of tools, test and measurement equipment,
- to operate aircraft safely,
- disassembly, overhaul, and reassembly of aircraft components,
- to repair, alter, and inspect aircraft and components,
- to troubleshoot systems, and
- a wide variety of maintenance, and corrosion preventative procedures.

The knowledge that the students acquire in lecture is brought to completion only by the hands-on application of that knowledge in a well-equipped Aviation Maintenance laboratory, such as PCC AMT Department is able to provide.
The possibility of changes to learning modalities are coming to aviation maintenance instruction. Great improvements in simulation model technologies have vastly improved the teaching and learning of things mechanical in recent years. Incorporating these technologies will require AMT faculty to access and engage professional develop

resources. As well, the college will need to fund access to and incorporation of simulation technologies.

Additionally, the FAA, in its recent proposed rule changes for AMT Schools, has allowed for development and submission for approval the use of Distance Learning modalities for traditionally "classroom only" portions of the AMTS curriculum. DL will never replace the need to conduct labs where students demonstrate practical skills. However, the strategic use of well-developed DL modules can improve student performance and enhance the student lab experience.

Increased pressure by industry and education is seeing the FAA move AMT instruction toward assessing students based on their competency at a task, rather than a fixed number of hours of exposure to skill development. The FAA has been reticent to move away from strictly time/certificate ratios due to the ease of regulation of fixed length program. However, fixed-hour training, codified in regulation, has not allowed flexibility for the AMTS to adjust its course delivery depending on the target audience experience. At the same time, task definition codified in regulation has not allowed the AMTS to adjust its curriculum to changing industry technologies.

Possible movement by the FAA to allow more competency-based teaching and learning and delivery of the appropriate material in a DL modality: these possibilities will provide significant challenge to the AMT program, but one we look to meet.

3. Other Curricular Issues

B. Has the SAC made any curricular changes as a result of exploring/adopting educational initiatives (e.g., Community-Based Learning, Internationalization of the Curriculum, Inquiry-Based Learning, Honors, etc.)? If so, please describe.

The curriculum of the AMT program meets and, in most cases, exceeds, the requirements of the certifying agency, the Federal Aviation Administration. However, implementing any significant changes to or within the AMT curriculum, especially those brought about by the above-mentioned initiatives, would be quite challenging for several reasons:

The AMT Two Year certificate incorporates 93 credit hours of AMT coursework. The AMT A.A.S. degree demands 113 credit hours, inclusive of the 16 credits of General Education requirements and the 4 credits of Writing 121. This is a significant undertaking for students to complete in what should be accomplished in a two year period. Adding softer, time intensive coursework to the AMT program would add significant burden to students in the form of additional credit hours.

The coursework of the AMT program is prescribed in federal law, including not only a set minimum number of hours of coursework but also the successful completion

of mandated tasks competencies. The program exceeds the FAA mandated 1900 hour minimum by 150 hours, offering a total of 2050 possible hours in coursework to students. This margin provides for coordinating the college's academic calendar, student absences, and distribution of coursework into the modular structure. To expand the AMT coursework beyond the very full requirements of the FAA would have direct effect on student debt load and possible student completion rates.

That said, the AMT SAC does see value in some of the above-mentioned initiatives. We incorporate a limited form of Inquiry-based Learning approach through our significant use of lab projects. We feel other of the initiatives would serve little benefit to students in their ultimate goal of workplace readiness. An Honors program would not benefit AMT students, as only the occasional student articulates to four year degree programs. There is little need for Internationalization of the curriculum, as in the end, FAA certificated mechanics work on U.S. registered aircraft. Ultimately, while we are open to exploring initiatives, we are reticent to undertake the exploration or adoption of any additional expansion of the AMT program coursework.

3. Other Curricular Issues

C. Are there any courses in the program offered as Dual Credit at area High Schools? If so, describe how the SAC develops and maintains relationships with the HS faculty in support of quality instruction.

There are no courses within the program of AMT currently offered as Dual Credit within the curriculum of local high schools. FAA surveillance of AMT instruction requires that technical coursework be presented by an FAA certificated Airframe and Powerplant rated Mechanic. With the general dearth of CTE preparatory programs at high schools local to PCC, it is even more difficult to develop and coordinate a Dual Credit program oriented to aviation maintenance, while having to meet restrictive instructor qualifications. That is not to say the AMT program has not attempted to bridge connections with PCC for local students interested in aviation maintenance career field.

In previous years the AMT program had an agreement with Benson Polytechnic High School. Successful students in that school's Transportation Cluster were able to articulate credits for meeting the requirements of AMT 107 - Materials and Processes at PCC. The articulation of credit was dependent on the coursework at Benson having been provided by an aircraft mechanic. For more than 20 years, Benson instructor Tom Kingsbury dedicated himself to maintaining the AMT bridge to PCC. Currently, the coursework at Benson has been reduced in content and hours, not allowing us to articulate students into the AMT program.

Despite the current lack of connection to high schools within the college district, AMT program instructors explore opportunities to make connections at local high schools. We participate in visitation days to the Rock Creek campus by area high school students.

We visit local high school campuses, coordinating with Heidi Edwards. An AMT instructor sits on the advisory board for an Aviation focused program at the Clark County Skills Center.

3. Other Curricular Issues

D. Please describe the use of Course Evaluations by the SAC. Have you developed SAC-specific questions? Has the information you have received been of use at the course/program/discipline level?

SAC specific questions have been developed and integrated into the AMT Course Evaluations. Due to the modular nature of the AMT program class sequencing, access by students to the course evaluations was restricted for a time. The AMT FDC worked with the Course Evaluation administrator to synchronize AMT student access with AMT module timing. This systemic correction took place during the time when the district was making effort to improve student response percentages.

The AMT SAC, as a group, does not review the Course Evaluations on a regular or intermittent basis. The SAC encourages AMT instructors to access and review their course evaluations individually and use their findings for course improvement. The AMT FDC accesses and reviews evaluations for each of the Part Time Faculty to aid in performance reviews.

See appendix 3d for the list of SAC-added questions.

3. Other Curricular Issues

E. Identify and explain any other significant curricular changes that have been made since the last review.

As the PCC AMT program not only has accreditation academically (through all normal/standard PCC means, etc.), it also must follow the rules and regulations promulgated by the FAA to allow for us to be certificated as an AMT school (technically speaking, we have an "Air Agency" Certificate allowing us to operate the AMT school). So, not only must we comply with the academic policies and standards of PCC, but also with Part 147 of Title 14 of the Code of Federal Regulations (14 CFR 147), which is the principal part that governs how AMT schools operate (irrespective of whether a school is part of a college/post-secondary institution or a "stand-alone" entity). Since the last program review, the FAA has made no significant changes in that regard, neither has any of our curriculum undergone any change more significant than some relatively minor adjustments here and there.
However, there are some very significant changes underfoot; for information pertaining to this, please see section 4C.

4. Needs of Students and the Community

A. Have there been any notable changes in instruction due to changes in the student populations served?

No. AMT has always worked with diverse populations and our instruction has not changed. We have always delivered to the required standards of the FAA and have instructed all students in our population to those standards.

4. Needs of Students and the Community

B. What strategies are used within the program/discipline to facilitate success for students with disabilities? What does the SAC see as particularly challenging in serving these students?

As a program, we highlight the institutional resources available to students, specifically the Office of Disability Services. To date, we have only received one (1) approved accommodation request from a student. However, as individual instructors, we do try to make reasonable accommodations as specific situations warrant even without students going through D.S.
Having said that, though, there are some challenges we face in this area: specifically, there are limits to what we are able to do based on the FAA standards for Certification as well as the resources available to us as instructors.

Because our program runs intensely-focused classes 5 hours a day Monday-Friday in a compacted 18-day schedule (3 modular classes per term), it doesn't leave much extra time for instructors to work one-on-one with students outside class hours. While we certainly are available, there's an inherent limit to what we are able to offer. Due to the fast-paced nature of our classes, there is also a limit on what kind of adjustments and accommodations we are able to make within a class; which also has just as much to do with monopolizing the instructor's time: if the instructor isn't able to divide time between groups or individuals, there would be many students who would end up falling behind. However, this is not to say that we don't try to work with students; on the contrary, there are many instances of instructors working with a students to help better facilitate his or her learning and overcome challenges, including the aforementioned approved accommodation request. At the end of the day, though, the most difficult aspect of this is weighing the needs of an individual versus the needs of the all the other students -- which is a challenge even without factoring in students with special needs.

Another difficulty we have observed is also due to the compacted nature of our modular courses: by the time instructors have identified a student who seems to be struggling, it is often too late to make any significant impact in that particular course, although we certainly do try. We do avail ourselves to monitoring student progress, identifying weaknesses, discussing these things with students informally or even using the Course Progress Notification (CPN) system to more formally address these issues. On the upside of this is that, even though a student may receive a low grade in one course, often times we are able to identify problems and work the student to correct these issues

for subsequent courses in the term, so in that sense, the students get a "fresh start" with each course and poor performance isn't repeated across all courses at the same time.

In summary, while we do what we can, ultimately the challenges we face stem from two inter-related issues: we have an intense, fast-paced program and lack the extra manpower necessary to best serve students who would need significant amounts of additional tutoring.

4. Needs of Students and the Community

C. Has feedback from students, community groups, transfer institutions, business, industry or government been used to make curriculum or instructional changes?
If so, please describe (if this has not been addressed elsewhere in this document).

The FAA has already implemented changes to the airman certification process for Aircraft Mechanics that may require us to consider some curriculum changes. At very least, all three Practicum courses (AMT 108, AMT 216, AMT 225) will almost certainly need some revision; as a SAC, though, we have decided to postpone changes to those courses until such a time as we receive feedback from the SAC members who are Designated Mechanic Examiners (DMEs) as to how that new process is running, which will allow us to make much more intelligent and appropriate changes, rather than making the modifications now, only to change them again in 6 months to a year.

Additionally, there is a Notice of Proposed Rule Making (NPRM) issued by the FAA for some drastic changes to Part 147 (See Appendix 4c) (c.f. 80 FR 59674-59690 – Federal Register Vol. 80 No. 191, Fri, 2 Oct 2015, listed pages) which will have some serious impacts and repercussions to the PCC AMT program, likely over the course of the next several years, though, since the final rule has not yet been issued, perhaps even in as little time as a year to a year and a half. These changes, among other things, call for the re-ordering of classes/subjects, adding new content, and removing outdated requirements. Of special interest is that the requirements for how long a student must spend in each part of the program has changed; while the total/overall time is not changing (1900 hours), and the "General" section time will also remain the same (450 hours minimum), the Airframe and Powerplant sections each will change by 50 hours, Airframe to 800 and Powerplant to 700 (from the original 750/each). This will require us to modify courses, re-order things, and cause us to expend a great deal of time and energy complying with this.

5. Faculty: Reflect on the composition, qualifications and development of the faculty.

Provide information on:

A. How the faculty composition reflects the diversity and cultural competency goals of the institution

The faculty and staff of the AMT program are very aware that it does not reflect the diversity of the greater population of the United States, let alone that of PCC. Our full time faculty and staff is composed of four white males over the age of 60, the fourth full time faculty member, hired during the past academic year, is a white male in the 30-40 year age-bracket. However, we are committed and determined in our efforts to be engaged in the college's efforts to increase the diversity of the AMT staff and faculty. This will occur as opportunity for faculty or staff hiring arises due to retirement or program expansion.

The effort to increase the diversity within AMT employee ranks will be extremely challenging due to the nature of the pool from which we must hire. Our hiring efforts will draw from a currently, relatively small pool of an estimated 130,000-150,000 trained, active aviation mechanics. National studies, one of which is the National Academies Press' Taking Flight: Education and Training for Aviation Careers,[1] indicates a great number of factors impact the historical lack of diversity in the aviation technician workforce. One of the primary factors is that the military has historically been the primary source of trained mechanics. In its structure, it has been historically, highly discriminatory. The majority of mechanics working today gained their first training through the military and so the vast number of faculty at FAA approved training schools reflect historical structural discrimination.

An additional impact on the future pool of qualified applicants for AMT faculty or staff is the sheer volume of new technicians needed in the workforce over the next 20 years. Boeing estimates an additional 88,000 new technicians will be needed in the U.S. alone, with a forecasted need of almost half a million more across the world (See appendix 7D). As the current technician workforce ages into retirement, the aviation industry is not replacing its need for trained technicians. Greater opportunities for maintenance technicians to advance in their industry will impact our ability to draw great candidates into roles as instructors.

While PCC can influence the diversity of its faculty and staff in a direct manner, influencing the lack of diversity in the aviation technician workforce is much more evolutionary. There is a bright spot in our effect on a diverse workforce in aviation. Historical evidence indicates, just in gender parity alone, an estimated 3-4% of the aviation technician workforce are female. We in AMT feel fortunate that during any one term, female students make up approximately 6-8% of the AMT student body.

[1] http://www.nap.edu/read/5433/chapter/1

Generally, the female students excel in the workforce, according to the businesses hiring our students. While we understand that gender by no means addresses the full breadth of diversity, we feel we are responding positively to encouraging women to prepare for and engage aviation maintenance as a career path.

Cultural competence, related to the goals of PCC, is a concept that the faculty and staff of the AMT program find difficult to understand. Current college discussions seem to the AMT SAC, to provide no clear, definitive standards by which to judge cultural competence. Perhaps, due to our orientation to making yes and no decisions regarding airworthiness, we find it difficult to interact with the college's statement of what composes cultural competence. When an aircraft component is inspected by an adequately trained technician, a decision must be made regarding whether or not the component continues in service. The technician will ultimately need to evaluate the component based on a standard. The standard must be clear and well defined. If the part meets the appropriate standard, it can continue in service. We look forward to the enhanced articulation of identifiers for cultural competence, so that we can engage what it is to be culturally competent, incorporating it into program curriculum, and our professional standards. We also welcome assistance in furthering our understanding of this.

Although not a substitute for meeting actual diversity goals, the broad-based cross-cultural experiences of many of the current AMT faculty aid us in our teaching and professional conduct. Many of us have experienced some level of living for long periods of time in a culture not our own, expressing ourselves in a language not our mother tongue. Our experiences were tinted with privilege, in some part, in that we were able to leave the country of service and return to familiarity and relative security. However, while we lived and worked abroad, we did so as learners of and servants to the people with whom we worked. That changed us for the good. We remember that as we engage our students here at Rock Creek.

5. Faculty: Reflect on the composition, qualifications and development of the faculty.

Provide information on:

B. Changes the SAC has made to instructor qualifications since the last review and the reason for the changes.

The AMT program Instructor qualifications were last revised in 2011. Again this year, the AMT SAC submitted revised Instructor Qualifications. Following recommendations and review by Kendra Cawley, the revisions have been submitted, clarifying and strengthening the demonstrated qualifications of prospective AMT faculty regarding embedded Related Instruction, in response to recent insight gained during the Accreditation visit of the NWCCU. (See Appendix 5B)

5. Faculty: Reflect on the composition, qualifications and development of the faculty. Provide information on:

C. How the professional development activities of the faculty contributed to the strength of the program/discipline? If such activities have resulted in instructional or curricular changes, please describe.

As a whole, the AMT department faculty and instructional staff make significant efforts to stay current in the aviation field. This includes almost all faculty attending an annual Inspection Authorization (IA) seminar, a full day of presentations on various topics in the aviation maintenance industry, as well as various FAA safety seminars - several of which we host in the hangar and are open to the public. We are committed to stay on top of current trends and issues, as well as maintaining some of the highest standards of professionalism and technical acumen in the industry.

This is also seen in that several of our faculty have gone to manufacturer-specific courses to get additional, in-depth training on various products. This not only gives us a greater understanding and depth of knowledge on that particular product, but allows us to better explain things to our students – especially as there is a significant amount of material that is equally applicable to similar products from other manufacturers (e.g. while there are specific details for a *McCauley* propeller that will be covered by that training course, there are many things that could just as easily apply to a *Hartzell* propeller).

Additionally, our faculty remains committed to excellence in the educational sphere. One of the newer members of our department recently participated in the Teaching Improvement Program (TIP), as others in the past have, and found it very helpful. Various faculty members frequently trade suggestions and observations with each other; so as a whole, we are constantly seeking to improve our craft, in both the technical and educational realms.

However, there are also some significant challenges in this regard as well. Due to the nature of the program and the fact that our personnel resources are stretched very thin, it doesn't leave us much time to attend these professional development opportunities. While seminars that are on weekends or in the evening are generally manageable, anything longer than a day is very difficult to schedule or attend. Primarily, this is due to the lack of qualified substitutes and adjunct (P/T) faculty to cover classes. (We currently only have one (1) P/T instructor, and he is already scheduled near the maximum amount allowable. All F/T faculty are at an FTE of 1.35 for two terms and about 0.9 for the third term; in addition, most teach during the summer as well as one or more overloads during regular term.) We have found it can be a challenge to retain P/T faculty, especially due to the modular nature of our classes and the fact that it is not a guaranteed source of income. In fact, there have been multiple instances where an instructor was unable to take a personal day due to that lack of available coverage, or where an entire day's class had to be cancelled due to an instructor illness.

6. Facilities and Academic Support.

A. Describe how classroom space, classroom technology, laboratory space, and equipment impact student success.

Overall, classroom and laboratory technology is greatly improved from decades past. All the AMT instructors use the *Course Tools* for most, if not all of their curriculum materials in each class they conduct. The college supporting the full development of wireless access within the Building 6 Hangar complex has allowed the program to stay up-to-date with industry trends in supplying real-time maintenance data, giving our students experience very similar to what they will encounter in industry.

The program dedicated computer lab is well supported by TSS. TSS technicians work together well with AMT faculty to maintain the lab as a very useful tool for instruction. However, the podium technology in each of the five classrooms used by the AMT program occasionally encounters rough spots. An unclear delineation of responsibilities between TSS and one of their smaller support groups, Media Services, at a management level has led to interrupted services during the teaching day, which were unacceptable. Restoration of the podiums to usefulness was eventually accomplished when technicians from both services worked toward resolution.

The *Smart Board* and its enhanced capabilities in Classroom 6-110 is utilized by not only by several of the instructors in the AMT program, but also extensively by the AVS program. We have seen that the ability to mark up and draw directly on/over presentations can be quite useful, especially when an instructor makes those annotated presentations (either in PPT or PDF) available to students for further study and review. We would note that the one downside to *Smart Board* is that it is significantly smaller than the traditional projectors; in a large classroom, students seated towards the back may have difficulty seeing smaller text/objects. Additionally, the lower positioning of the board further adds to this problem. However, these issues notwithstanding, it is an excellent technology that facilitates a greater degree of interaction in the classroom. In classroom 6-104, we will be experimenting with a hybrid concept: a *Smart Board* side-by-side with a “traditional” projector. This is currently still in the installation and set-up phase, but we look forward to incorporating this and the additional capabilities it will offer.

We understand that laboratory space is at a premium everywhere in the college district. We very much appreciate the approximately 25,000 square feet that we have available for hangar and classroom space. The size, number and volume of aircraft, associated equipment and mock-ups needed to conduct our program fills all of the available space in a moderate to compact fashion, while still allowing student movement within the hangars, for the most part. There has been a consolidation of the space allocated to AMT over the past five to ten years with the modification of select labs for use by other MAIT division programs. RC 2-134, formerly an AMT paint booth was modified to accommodate climate controlled storage needs for the Think Big program and the AMT

footprint in RC 1 was significantly reduced for a Dynamometer lab for the Diesel programs.

During upgrades to both the campus backup generator monitoring system and the upgrading of the IT server room, floor space was appropriated by other district services with limited regard as to long term impact on lab space. We believe that, in the future, district services which impact teaching and learning space should have higher levels of scrutiny so as not to impact those spaces negatively.

Instructional equipment, namely the aircraft, engines, component mock-ups and such, are the portions of the program that have been the most negatively impacted by a lack of support from the district. We acknowledge the campus's overall support of the program, exemplified by consistent yearly funds dedicated to equipment purchases since the last program review. However, due to the significant cost of aviation equipment and the delay of the purchase of long-identified equipment, large gaps still exist that the campus cannot meet. The AMT program has identified that we are at a critical juncture regarding the upgrading, updating and replacement of program instructional equipment. If the significant equipment needs are not addressed in a timely fashion, the program will begin to accelerate toward becoming a mediocre to poor program. The issue of equipment improvement will be addressed in other sections of this report.

6. Facilities and Academic Support.

B. Describe how students are using the library or other outside-the-classroom information resources.

The resources of the college library do not appreciable impact student success in the AMT core curriculum coursework. The course material of our program is highly specific to our industry. Initiatives such as the Open Access Textbook are not helpful as our handbooks are produced by the FAA and posted in PDF and the texts we use are available only by purchase. The complete cost of textbooks and supplies is approximately $600 for two years. However, the textbooks are useful even after leaving school as technical resources.

We provide students access to a cloud-based digital technical manuals service. This yearly subscription provides a real-time repository for the aircraft maintenance manuals for all our program aircraft and associated equipment. Students are assigned a password protected account that will allow them access to the documents via Wi-Fi, so when working in the Hangar or classroom, technical manuals are available. This not only reduces the time our technical support staff spends updating paper manuals, but it exposes students to the type of technical manual access similar to what our industry uses in major maintenance shops.

6. Facilities and Academic Support.

C. Does the SAC have any insights on students' use of Advising, Counseling, Disability Services, Veterans Services, and other important supports for students? Please describe as appropriate.

Disability Services: As mentioned in report section 4B, we have been engaging with DS and have encouraged students needing accommodations to do the same. However, this is an area where we exercise caution; while we do want to enable students to succeed, and to give them the resources and accommodations necessary to do that, we don't want students to have unrealistic expectations or, worse, set them up to fail once they enter the industry. This seems to be a bit of a challenge, because we are quite limited as to what we can even say about this to students. Thus, we have been in communication with DS to help tailor what accommodations are both possible and reasonable.

Counseling: Several of our faculty members have made significant use of *Student of Concern* (SOC) reporting. Especially in our program, with its condensed course schedule and intense nature, when students have life issues, it can often lead to further difficulties, especially if a student has already missed time. So, when we are made aware of these difficulties, not only will we often offer a kind word and let students know we want to help them, but we also direct them to the campus resources available, including counselling. We have a handful of current students who have been engaged by Counselling/Student Retention, and we have nothing short of high praise and gratitude for Jeff Lamott and his team. They have worked in conjunction with us to help these students not only stay in the program, but to go through the challenges and succeed, both personally and academically. While obviously not every single case is a success story, and some students end up leaving for other reasons altogether, the instances where we have been able to connect students with resources they need, more times often than not, has resulted in a win-win situation for everyone involved.

7. For Career and Technical Education (CTE) Programs only:

To ensure the curriculum keeps pace with changing employer needs and continues to successfully prepare students to enter a career field:

A. Evaluate the impact of the Advisory Committee on curriculum and instructional content methods, and/or outcomes.
Please include minutes from the last three Advisory Committee meetings in the appendix.

The industry Advisory Committee for college CTE programs, as required by State of Oregon law, is meant to establish and keep a CTE program responsive to industry and employers' workforce needs. An Advisory Committee is mandated at the establishment of any new CTE program and continuously thereafter, primarily to assure that funding guidelines for Carl Perkins grants are met by each CTE program.

As referenced previously in this document, the coursework of the AMT program is highly impacted by Federal Aviation Regulations. The 14 CFR Part 147 Aviation Maintenance Technician School, operated by PCC is FAA approved, holding Air Agency Certificate DA9T079R. The AMTS can conduct approved coursework for the Airframe and Powerplant Ratings of the Mechanic Certificate.

Aviation employers' universal expectations are that the PCC AMT program provides instruction so that students can pass the exams and obtain the Airframe and Powerplant Mechanic Certificate. The AMT program provides an adequately trained technician with a "license to learn" to the employers and the employers, in turn, train the technician regarding the specific industry segment in which they are engaged. Employers, whether helicopter or fixed-wing, commercial, corporate, or general aviation, understand the foundational training that all technicians receive at all Part 147 AMTSs is the same, because it is so highly regulated.

Historically, the aviation employers that draw from the pool of PCC AMT graduates have been very satisfied with the level of knowledge and skill that PCC AMT graduates have demonstrated on the job. They also understand that the program is surveilled by the FAA. The quality reputation of the PCC AMT program is unquestioned. It has been our experience that many employers have come to the realization that engagement in an Advisory Committee cannot offer any significant impact on or affect any substantial change to the AMT program core curriculum at the local level. More recently, however, employers have found that they can have a greater impact through the regulatory process governing aviation technician schools. A recent Notice of Proposed Rule Making (NPRM) from the FAA addresses the need to change the curriculum structure, some content and the regulatory process by which content can be updated to synchronize with contemporary technologies. (See Appendix 7A for meeting notes.

7. For Career and Technical Education (CTE) Programs only:

To ensure the curriculum keeps pace with changing employer needs and continues to successfully prepare students to enter a career field:

B. Describe current and projected demand and enrollment patterns. Include discussion of any impact this will have on the program.

The demand for graduates of this program is constant. However, not all demand is placed by the industry for which we primarily train. A discussion of this in other sections of this report indicates that a wide variety of industries have need for the skills acquired by AMT program graduates. The ARSA-ATEC-WMT Workforce study, (See Appendix 7B) indicates that AMT programs across the U.S. are not meeting the demand within the aviation maintenance sector of aviation due to the dilution of the AMT trained workforce into other industries. A wide variety of efforts to refine the skill set and tighten the focus of the training of AMT's is underway by industry, government and schools, hoping to eliminate some of the dilution of the trained workforce to meet future needs.

Enrollment patterns for the AMT program have also been constant over the long term. Registration for the entry term classes usually sees full enrollment in three days. The program consistently sees a wait list on the first day of each entry term. The wait list numbers are low, but motivated students who see that they are over Wait List #3 drop AMT classes in order to register into their general education classes.

The ultimate demand for new technicians indicates a rather high probability for the success of a fifth cohort being added to the AMT program, most likely in the hours after the morning sessions. This possibility would most likely cause conflict with the morning cohorts in the sharing of lab space and equipment. The stance being taken by the program with a high level of support from our Division administrator is that any expansion of the AMT program should diversify the program offerings, not try to squeeze more out of the current resources in staff and equipment. Some might remember the exploration of an initiative with Guangzhou Civil Aviation College in China. Ultimately, that did not come about due to the lack of additional resources China would have contributed to the initiative.

An initiative that would broaden our program offering would be addressing the industry declared need for greater skills in electronics for aircraft mechanic. As Moore's Law has seen the exponential miniaturization of computing devices, those technologies have been incorporated into modern aircraft. This does not mean the AMT must also be a computer whiz, but it does mean an understanding of the integration of electromechanical devices into aircraft is increasing. To this end, we are investigating establishing a complimentary training certificate program for Aviation Electronic Technicians.

7. For Career and Technical Education (CTE) Programs only:

To ensure the curriculum keeps pace with changing employer needs and continues to successfully prepare students to enter a career field:

C. Explain how students are selected and/or prepared (e.g., prerequisites) for program entry.

The AMT program is an open enrollment program. Prerequisites, revised and implemented over the long history of the program serve, generally, to assure that students entering the program are adequately prepared to engage classes from the first day.

AMT 101 - Introduction to AMT is the program's gateway prerequisite course. There are no prerequisites to AMT 101, except for the usual Admission process. The design behind AMT 101 is to, in one credit hour, provide a "mini" experience of the AMT program entirety. AMT 101 is held on two consecutive Saturdays each term, from 7am to 12pm. It is a hybrid course, employing D2L as a means of allowing more time on site for exploration of career paths and orienting prospective students to the AMT program. The course includes the introduction of content that will be further explored in later classes. Students are required to be in attendance for 90% of of the ten hours offered. Those students that are significantly late for class or that are No Show on the second Saturday fail the course attendance requirements. They have the opportunity to enroll and attend at a later date.

The remaining program prerequisites are testing into Reading 90, Writing 90 and meeting one of two methods to show Math competency. The demonstration of Math competency is to either complete successfully MTH 60 at PCC or pass the AMT department Math competency test with a 70% or greater. The competency test, offered in the Rock Creek testing center, is made up of thirty written questions in the style of FAA written tests.

Recent input from our collective department experience and from faculty outside the AMT program has us contemplating an adjustment of our reading and writing prerequisites. We anticipate reviewing the need for a possible prerequisite of placement into Writing 115. We find, generally, that students who only meet the baseline prerequisite of placement into RD/WR 90 struggle more in the first term when significant amounts of reading are required. This seems to be especially true for non-native speakers of English or those native English speaker that just meeting the placement standard. Due to the AMT program's modular structure, students have a short 18 days to manage success for each grouping of subjects. AMT students that have higher levels of established patterns of comprehension and application of technical language consistently demonstrate greater levels of success and achievement. We have the greatest student attrition or need to repeat classes within the first several terms, where the most life and schedule changes occur.

7. For Career and Technical Education (CTE) Programs only:
To ensure the curriculum keeps pace with changing employer needs and continues to successfully prepare students to enter a career field:

D. Review job placement data for students over the last five years, including salary information where available. Forecast future employment opportunities for students, including national or state forecasts if appropriate.

Job placement data for graduates of the AMT program is difficult to gather and significantly anecdotal. We have no ready access to databases of significance developed by the industry, government or PCC that would facilitate our understanding of who of our graduates are employed in the industry. Our professional association, Aviation Technician Educators Council (http://atec-amt.org), recognizes this issue and is currently petitioning the Standard Occupational Classification Policy Committee to substantially revise several of the SOC's related to the aviation. They hope to facilitate clearer data gathering to assist in better understanding of aviation maintenance occupations. (See Appendices 7D.)

On occasion, we as instructors and staff gain evidence that our students are being hired. Mostly, we hear that our students are being hired when they drop by school to tell us or when a recent student that met another student when hired by a certain employer. Restrictions to student information governed by FERPA severely limit our ability even to poll local and regional employers as to whether or not they hire our graduates.

Other factors contribute to the predicament of gathering data for evidence of graduate employment. The nature of hiring for aviation maintenance jobs is cyclical with that of the national and world economy as a whole. It is also very segmented, broken into types of aircraft purposed for specific tasks. For instance, in the State of Oregon, 85% of the world's heavy-lift helicopter operators have their headquarters. Our graduates are a part of their workforce at locations, locally, across the state and in the world.

It is probably safe to say that all of the local companies at the Hillsboro airport have at one time or another employed our graduates. Hillsboro Aero Academy operations include the use of small helicopters and small single and twin engine fixed wing aircraft for flight training. Aero Air and Global Aviation service the corporate sized jet aircraft. Premiers Jets operates small Lear jets conducting air ambulance services. The same could be said for most of the companies at the Troutdale and Portland International airports.

Another segment of aviation offering career opportunities is that in global humanitarian and relief agencies. Mission Aviation Fellowship, for example, engages our graduates as pilot/mechanics and mechanic specialists, supporting other Non-Governmental Organization agencies in very remote parts of the world. MAF and others like them, recommend the PCC AMT program as their top school for technician training.

There is a misconception is that with all the commercial airlines at PDX, our students should easily find jobs. This is not true. Graduates that wish to work for an airline have one regional choice, Alaska Air Group. If, like a few students every year, a graduate who works for Delta or United as a baggage handler wishes to gain employment inside their current company, they will have to move to one of a few large maintenance hubs across the U.S.

An advantage for our students, but a disadvantage for the collecting of data regarding employment, is the wide variety of industries other than aviation service companies that find our graduates skills very desirable. Intel engages a company that maintains and services clean room equipment that occasionally recruits for and hires our graduates. Portland General Electric hired at least one of our graduates to maintain their turbine powered natural gas auxiliary generator. The best example of hiring PCC AMT for their skills and knowledge is our experience with Boeing of Portland. Boeing began offering four years ago a competitive, five week, paid internship program in their assembly plant in Gresham. Even though aircraft manufacturing does not require the certification of employees as aircraft maintenance technician, Boeing considers our graduates very valuable. Our graduates have a greater depth of understanding of quality assurance, inspection techniques, attention to detail, safety awareness and familiarity with the regulatory environment because of their training in standards of airworthiness.

For the future of our program graduates the outlook for employment is bright. Boeing Commercial Airplane Company provides a twenty year, long term running forecast for pilots and technicians. (See Appendix 7D.) Overall, the need for aircraft mechanics is shown to be steadily increasing. Boeing bases this forecast largely on orders for new aircraft from among the world's commercial airlines, revising it on a two-year cycle. It is a helpful forecast, in that while it is focused on commercial aviation, the trickle down to the other segments of aviation is positive. Generally, as Commercial aviation flourishes, so do the feeding industries within General and Business aviation.

It is difficult to "prove" our students are getting hired directly into the aviation maintenance industry after completing two years of rigorous education at PCC. However an example of the possibilities and opportunities for life change that our graduates have presented to them is articulated in a heartwarming email from a recent program graduate. We have included it in the body of this report so that it is not missed.

> Hey Marshall, Dave, and Steve!
>
> I've been meaning to email you all for a bit - time is going so fast, I cannot believe it's been over a year already since graduating the Aviation Maintenance program and starting at Boeing!
>
> Boeing has been amazing. I am growing, being stretched, and learning so much as a person. It's incredible. I emailed Marshall a few months ago about an electrician apprenticeship I was applying for: I missed the opportunity by one point on my interview

- so close! I went back and forth about whether or not I wanted to apply again next year but have finally decided to apply myself whole-heartedly to my studies at Embry-Riddle and am currently taking four classes.

It's a bit crazy, but I love it. I'm taking mainly management classes and hoping to get my Bachelors degree (in Technical Project Management) by next year or in a year and a half - depending on if I can keep up this intense school/work schedule or not. Boeing pays 100% of your education up until $5280 and then the amount is taxed like income so the amount of classes I'll be able to afford also depends on how many scholarships I receive. So far I'm in the planning/researching stages - I have my sights set on one from WIA and one from Embry-Riddle...if any of you know of/think of any amazing scholarships that would fit my background/criteria let me know! :)

At work I was beginning to get restless building airplane parts, especially when they over-hired in preparation for a bunch of people retiring this/year and next. I requested to be moved to this shop we have called the "Creation Shop" in which you get to build different things to improve work stations, processes, etc. I've been there since March and am completely loving it! My second level manager recently gave me the okay to try and bring organization to the process in which we receive projects (there is no method for how we determine which project is most important, a deadline to adhere to, etc) so that is what I'm currently working on. It's challenging but I'm having so much fun.

Last week a manager approached me and asked if I'd be interested in applying for a temporary management position! Apparently they have a huge need for managers right now and have almost like an apprenticeship program or full-immersion program for those who are interested in management. There is certain criteria you have to pass and an interview process, which this particular manager was wanting to coach me through. I was very flattered, but want to wait at least six more months before I start that kind of adventure - so far I've "changed" positions at work every six months and it's been a really good amount of time.

I've really felt like a little kid in a large candy store trying to decide what candy bar I want to eat first since starting my job here. I'm trying to settle down and focus on one thing at a time - but its hard there are so many opportunities!

I am so extremely grateful to all of you who coached me through becoming a mechanic and got my toes wet working in a shop. It was through the program, working with the same people for two whole years (many of whom I STRUGGLED to get along with), that I started to study what motivates people, and began to realize that I loved organizing groups of people for a common goal. I've grown up so much from the girl who was bored studying art and wanted to conquer her fears of the unknown in deciding to follow her dream in aviation....and you guys were the beginning of that.

I will always have a special place in my heart for each of you and the part you've played in my adventures of life. You will never know what each of your individual coaching and your PATIENCE with my frustrations in so many things has meant to me....I really have balanced out. WELL, a little. HAHA. :D

THANK YOU!

> Sending all my thoughts! Hope the school is doing well, and that each of you are doing even better!!!
>
> *(student signature redacted)*
>
> P.S. I don't have Bob's email, but would you mind sending this along to him? Is he still at PCC? Thanks!! :) :)

7. For Career and Technical Education (CTE) Programs only:

To ensure the curriculum keeps pace with changing employer needs and continues to successfully prepare students to enter a career field:

E. Please present data on the number of students completing Degree(s)/Certificate(s) in your program. Analyze any barriers to degree or certificate completion that your students face, and identify common reasons that students may leave before completion.

A significant investment of time and energy is required to complete the AMT program. The 113 credit hours required for completion of the A.A.S degree places it in the upper reaches within the college of total credit hour achievement for a single degree. While the PCC AMT program is one of the least expensive of its kind in the nation and seemingly a bargain compared to our partner aviation program, Aviation Science (AVS), which can range from $70,000 to $100,000, the AMT program is nonetheless still a significant investment at $16,000.

The AMT SAC does believe that the program causes barriers to student completion. The two primary categories for why students tend not complete the AMT program are the lack of sufficient funds and poor academic performance. These two broad categories have not changed significantly since the last program review. Moreover, they seem to be inherent to the college experience. While these barriers impact students who are not just statistics, but real persons, 85% of students beginning the AMT program are able to complete the program.

Non-completion due to academic failure seems to be the result of one or more of the following weaknesses: Some students over-commit their time in areas not related to school and academics, which has reasons as wide as the imagination can take one. Failures in this case are due to lack of consideration regarding the compressed nature of the 18-day modular structure of the program, allowing students to quickly fall behind to a point beyond recovery; while instructors do try to identify students who are struggling, and often will issue Course Progress Notifications (CPN), by the time there is sufficient data generated to analyze for this sort of issue, again due to the rapid pace, often times the course has already significantly progressed to where it may be difficult for the student to adequately address the issues in time to make enough of a difference. Other students are constrained by lack of reading skills appropriate to the level and pace of the program. The weakness in comprehension and pace of reading most affects non-native English speakers and students who mistakenly assume [aviation] mechanics only work

with their hands. In summary, many students display a level of resilience and tenacity; we have seen students who were not adequately prepared to perform academically for program entry fail classes within their first two terms, then later return to the program to conquer their first failures.

The last program review occurred during the throws of the Great Recession when overall college enrollment was on the increase. However, the ensuing significant rise in tuition and fees might have entrenched student funding restrictions more solidly than ever. With community college education as good a value as it is, other economic factors such as generally stagnant wages might increase the need for the AMT intensify its student scholarship efforts.

As with all data exploration, a proper context must be understood to make correct conclusions regarding what is shown by the data. With some painting of the context, we hope to demonstrate how healthy the AMT program is. Entry into the AMT program is available in the Fall and Winter terms, with cohorts of 20 each of those terms, carrying a maximum student body of 80, with a rolling graduation twice a year from the program. The program anticipates that two students per entering cohort will not advance with their cohort, but either drop out of the program or drop back into the next incoming cohort to repeat classes they failed. If a snapshot is taken of enrollment levels, it might appear that cohorts numbers vary by 3-5 students. However, the average program enrollment has still only seen two to three people leave the program.

An anomaly within the data regarding enrollment overall climbs and falls are the numbers for the AMT 101- Introduction to AMT class. The numbers for this class are included in the total AMT unduplicated headcount. As viewed in raw data, everything about this class seems to indicate failure; high FTE vs. high failure of the class and low numbers articulating into the remaining classes of the AMT program. A bigger picture of AMT 101 shows this 1-credit hour course designed as an introduction and orientation class. A high number of students in this class choose not to continue on into the actual AMT coursework. In fact, this class is recommended as an elective by our partner AVS program.

7. For Career and Technical Education (CTE) Programs only:

To ensure the curriculum keeps pace with changing employer needs and continues to successfully prepare students to enter a career field:

F. Describe opportunities that exist or are in development for graduates of this program to continue their education in this career area or profession.

The AMT program provides a wide range of opportunities for personal and professional development following graduation. Our program, as discussed earlier, is broad in its technical training, so that graduates can seek employment in large range of aviation segments. Further education is not needed for obtaining entry and intermediate level

jobs. However, as graduates advance in their chosen career, they find that long range movement into middle or upper management requires further education. This is not always packaged in a Bachelor degree, but exposure and training is needed in business concepts such as leadership, organizational management, Human Factors, aviation law or accounting practices.

Embry Riddle Aeronautical University is often the school of choice locally where our graduates continue their education. ERAU offers access to this aviation focused education through a world-wide campus system, engaging students from every country in the world. Generally, AMT students will complete a Bachelor of Science in Technical Management, Aviation Maintenance or Aviation Business Administration, but a larger offering is available.

Less accessed, but still available, are the opportunities at to complete undergraduate studies in industrial management offered at Southern Oregon University and Oregon Institute of Technology. These study opportunities are offered at lower cost than ERAU, but do not offer the focus on subjects particular to aviation industries. (See Appendix 7F)

8. Recommendations

A. What is the SAC planning to do to improve teaching and learning, student success, and degree or certificate completion?

The natural flow of thought would say that concentrating a program's efforts on the improvement of teaching and learning in the classroom and lab would positively impact student success and therefore lead to greater degree and certificate completion. A review of the numbers for our program indicates that we already attain to a significantly high level of student achievement and completion. Not that those numbers could not be improved, but the AMT SAC feels that the greatest effect of our efforts overall would be felt by improving teaching and learning.

In our efforts to improve the AMT program has chosen to focus on the following issues: instructional equipment upgrade and improvement, standardization of curriculum archiving, increased professional development in newer technologies, and a more rigorous approach to periodic review of the 24 courses in the AMT curriculum. Focusing on these issues will be iterative, in that all the areas will need consistent, long-term, simultaneous effort.

We feel instructional equipment upgrade and improvement forms the base for our improvement efforts. We treat all of our aircraft and associated equipment as primarily Instructional Equipment. There is no consideration that any of the aircraft will ever be in flight-worthy condition again. This is because students, while being instructed, make mistakes that might require major investment to repair to an airworthy condition, able to be flown again. Secondly, the aircraft and equipment are subject to cycles of disassembly and reassembly in the student lab, not conceived of in actual practice. Plainly, much of our equipment is worn out or will be in the immediate future. We feel there should be a district plan to support the regular replacement of equipment that is successfully used up in the process of teaching and learning.

Even though the major portion of the inventory of aircraft and associated equipment in dedicated use within our program is relevant to our current level of instruction, it is declining in supportability, affected by price and availability of parts. It is clear to the AMT program and our industry partners that it needs updating. The newest aircraft in our fleet was manufactured in 1980, making it more than 35 years old. While still useful technologically, parts for this aircraft are becoming increasingly difficult to obtain. The oldest aircraft in our fleet were manufactured in the mid-1950's. If parts are available, they are at a premium price. The blind spot within the college for capital investment in instructional equipment, at least for the expensive AMT program, and the standard high level of cost for anything associated with Aviation, is finally catching up with the AMT program equipment.

Our industry partners are supportive of our goal to improve, upgrade, and retire, where appropriate, the equipment we use. Particularly supportive is Max Lyons, owner of

Hillsboro Aviation, Inc. At a meeting he initiated in 2014, Mr. Lyons challenged the AMT program to develop a Five Year Plan for needed equipment. He encouraged us to return with prioritized plan and funding set aside by the college for purchases. In that same meeting were the then District President, the Rock Creek DOI, and MAIT Division Dean, as well as seven other HAI managers. Mr. Lyons made the commitment that, if we could come up with the funding, his company resources would be at our disposal to locate and purchase the appropriate aircraft and equipment, as far as practical. We acted on the recommendation and developed a capital equipment list that would most impact our program effort to enhance student success. The PCC Foundation has, simultaneously, moved in the direction of helping focused clusters of CTE programs to develop funding for major capital equipment, sorely needed to strengthen PCC programs. We are excited about the possibilities becoming reality.

At the same time as equipment quality is enhanced, we will be focusing efforts on improved teaching and learning through standardization of AMT curriculum archives. Curriculum, the essence of any program, is developed by subject area experts who, through personal efforts, mold and shape the curriculum they present. The SAC is to be the watchdog of program curriculum, but in a CTE program like AMT the program subject matter is vast, too detailed for a committee to care for it. Faculty members, for shear division of labor, become caretakers of a range of courses, sometimes not teaching other portions of the program curriculum for years at a time. Professional competence is not questioned at this point, but when teaching full time, faculty cannot stay current with all subjects in the program. And in the case where a subject area is not cared for by a full time faculty, continuity and quality is lost. At the time of faculty retirement or when unforeseen health issues suddenly pulls a veteran instructor from the teaching ranks, many times there has not been adequate capturing of course material for a hand-off.

Lack of an adequate means of curriculum pass down places an enormous burden on the new incoming faculty member. In an attempt to standardize and improve our curriculum material retention, we recently found funding to pay one of our part time faculty members to develop a standardized archiving method for three AMT courses. This has included not only presentation materials, but course calendars, student project guides, quiz and test templates and instructor study materials. This archiving does not have the intention of reducing personal style in class presentations, but gives adequate guidance on course materials so that an instructor is freed to develop style. This method of archiving should help the SAC in the curriculum review process by reducing the personal ownership sense that comes with long term caretaking of specific courses.

Another effort on improvement of teaching and learning will be in the area of professional development in both our industry's technologies and instructional skills and knowledge. An effort to increase instructor training in newer technologies will be especially important as upgraded equipment is integrated into the program. Recently the college received the donation of a Williams International jet engine for the AMT

program. This engine is the only representation of current turbofan technology within the equipment of the program. Williams has offered forty hours of maintenance training at no cost to all four of our full time faculty. It will be difficult to get even one instructor to the training, let alone all four, due to instructor loading and inability to obtain replacement faculty for the training periods. This could be addressed by an increased margin of time, funds and "fill-in" faculty.

An adjustment of the AMT budget model for the AMT program could increase the effectiveness of each instructor by allowing a bit more time margin for participating in improvement initiatives. There would also be increased class coverage availability for professional development. The lack of any margin in budgeting was the result of a major restructuring more than ten years ago, when we saw the loss of one full-time faculty position and approximately $250,000 in budget. The effort and results were beneficial for the college General budget. The benefit for the AMT program was lessening of pressure on it for being a 'bloated' program. However, paring of the budget was to the bone. We have not had the margin of time within teaching loads to consistently address areas of improvement within the program. Added to that has been the initiatives for improvement added by the Curriculum Office regarding accreditation issues. We feel it is time for a corrective adjustment.

8. Recommendations

B. What support do you need from the administration in order to carry out your planned improvements? For recommendations asking for financial resources, please present them in priority order. Understand that resources are limited and asking is not an assurance of immediate forthcoming support, but making the administration aware of your needs may help them look for outside resources or alternative strategies for support.

The essence of any support request from the college administration is in its essence an "ASK" for funding. The largest portion of the AMT program request that follows is for program funding, addressing the purchase of replacement and upgraded instructional equipment, providing for reductions in instructor loading and associated release time, and funding to address significant industry regulation changes by government. The following will be an effort to summarize the needs and not to defend proposals, as has been done in previous portions of the report. We will welcome an opportunity to fully develop plans and budgets when so requested by district administration.

The Five Year equipment update and replacement plan, spoken to in section 8A, shows a stated need for approximately $1,030,000 budget across a 5-year plan. The PCC Foundation has identified the AMT and AVS program growth by identifying the programs as one of their six clusters on which they are planning to focus development efforts. (See Appendix 8B.)

The restructure of the AMT budget to accommodate a fifth full-time faculty member, redistributing the current faculty loading from four FT faculty and almost 2.0FTE of PT

faculty to five FT faculty and 1.0FTE PT faculty member. An increase of one FT faculty member will allow greater distribution of other duties as assigned and increased time for professional development. This initiative would have a small positive net increase on the current budget.

The approval to follow through with a submitted request to develop and stand up an Aircraft Electronic Technician (AET) less than one-year certificate. This program will provide opportunities for professional skills enhancement to not only current students but for current industry technicians.

Increased funding for release time for faculty to address imposed curriculum changes as a result of FAA regulation changes. It is not clear what the full extent of the program adjustments will be. The change is still in a NPRM. The comment period has closed and we now await the FAA response, which has historically allowed a 2-3 year implementation period. A budget will be developed when the full extent of change is understood.

The increase of one additional Instructional Technician 4. The current Instructional Technician 3 is not able to address adequately the laboratory support for the faculty, in planning and delivery. Additionally, a level 4 will allow for increased engagement in laboratory instruction.

Capital repairs for the hangar facilities that is deferred maintenance:

Repair of roof and siding leaks into the labs and classrooms,
Re-grading, adequate underlayment and resurfacing of deteriorated of tarmac

Capital improvements for the hangar facilities:

Water chiller/filter station in the hangar complex
Improved faculty office workstation furniture
Mezzanine floor for the Tool room
Added exterior covered storage and operational areas

We do have a few requests that address philosophical or institutional culture concerns. They will inherently, require funding, but speak more to attitudes and orientation of college administration.

- Develop an informed plan to more equitably address the district diversity and inclusion concerns of in the technical industries workforce cultures from which we draw new faculty members.
- Develop into the organizational structure of PCC, managerial or director positions for clustered programs, with a focus on the programs that are accredited by outside agencies, beyond the college district.
- Develop a greater district recognition and structural support of the uniqueness of the Career and Technical Education programs in contrast to Lower Division transfer programs.

- Re-energize or re-establish the Vocational / Career Technical Education instructor training program that provides initial and ongoing training for CTE faculty.

Core Outcomes Mapping

Mapping Level Indicators:

0: Not Applicable.
1: Limited demonstration or application of knowledge and skills.
2: Basic demonstration and application of knowledge and skills.
3: Demonstrated comprehension and is able to apply essential knowledge and skills.
4: Demonstrates thorough, effective and/or sophisticated application of knowledge and skills.

SAC - AMT: Aviation Maintenance Technology Core Outcomes

1. Communication.	**2.** Community and Environmental Responsibility.	**3** Critical Thinking and Problem Solving.
4. Cultural Awareness.	**5.** Professional Competence.	**6.** Self-Reflection.

http://www.pcc.edu/resources/academic/core-outcomes/

(see next page…)

Course #	Course Name	#1	#2	#3	#4	#5	#6
AMT 101	Intro to Airframe & Powerplant	2	1	2	0	0	0
AMT 102	Aircraft Electricity I	3	1	4	1	4	4
AMT 105	Aviation CFRs & Related Subjects	~~2~~3	1	4	1	4	4
AMT 106	Aircraft Applied Science	3	1	4	1	4	4
AMT 107	Materials and Processes	3	2	4	1	4	4
AMT 108	AMT Practicum / General	3	1	4	1	4	4
AMT 109	Assembly & Rigging	3	1	4	1	4	4
AMT 115	Aircraft Structures & Inspection	3	1	4	1	4	4
AMT 117	Recip. Engine Theory & Maintenance	3	2	4	1	4	4
AMT 120	Propellers & Engine Installation	3	2	4	1	4	4
AMT 121	Turbine Engine Theory & Maintenance	3	2	4	1	4	4
AMT 123	Ignition Systems	3	2	4	1	4	4
AMT 124	Fuel Metering Systems	3	2	4	1	4	4
AMT 203	Aircraft Electricity II	3	1	4	1	4	4
AMT 204	Aircraft Electricity III	3	1	4	1	4	4
AMT 208	Aircraft Systems	3	2	4	1	4	4
WLD 210	Aviation Welding	0	1	2	0	2	0
AMT 211	Composite Structures	3	2	4	1	4	4
AMT 212	Sheet Metal	3	1	4	1	4	4
AMT 213	Hydraulic, Pneumatics & Landing Gear	3	2	4	1	4	4
AMT 214	Instruments, Comm. & Nav. Systems	3	1	4	1	4	4
AMT 216	AMT Practicum / Airframe	3	2	4	1	4	4
AMT 218	Powerplant Inspection	3	2	4	1	4	4
AMT 219	Turbine Engine Overhaul	3	2	4	1	4	4
AMT 222	Reciprocating Engine Overhaul	3	2	4	1	4	4
AMT 225	AMT Practicum / Powerplant	3	2	4	1	4	4

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COLLEGEWIDE TABLES (Excl Campus 6 & HS dual credit): Full Time Equivalent (Student FTE) Enrollment and % Change	2010-11	Percent Change: 09-10 to 10-11	2011-12	Percent Change: 10-11 to 11-12	2012-13	Percent Change: 11-12 to 12-13	2013-14	Percent Change: 12-13 to 13-14	2014-15	Percent Change: 13-14 to 14-15
	Total	%	Total	%	Total	%	Total	%	Total	%
Collegewide, Excl Campus 6	126.4	*3.8*	140.4	*11.0*	141.2	*0.6*	139.5	*-1.2*	132.6	*-4.9*

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COLLEGEWIDE TABLES (Excl Campus 6 & HS dual credit): Unduplicated Headcount Enrollment and % Change	2010-11	Percent Change: 09-10 to 10-11	2011-12	Percent Change: 10-11 to 11-12	2012-13	Percent Change: 11-12 to 12-13	2013-14	Percent Change: 12-13 to 13-14	2014-15	Percent Change: 13-14 to 14-15
	Total	%	Total	%	Total	%	Total	%	Total	%
Collegewide, Excl Campus 6	170	*-1.7*	212	*24.7*	188	*-11.3*	178	*-5.3*	167	*-6.2*

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COLLEGEWIDE TABLES (Excl Campus 6 & HS dual credit): Gender Distribution			Female	Male
		N	%	%
Collegewide, Excl Campus 6				
	2012-2013	186	7.0	93.0
	2013-2014	175	9.7	90.3
	2014-2015	164	10.4	89.6

Source: Banner End-of-Term Extracts, Excluding Campus 6 and HS dual credit

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COLLEGEWIDE TABLES (Excl Campus 6 & HS dual credit): Race/Ethnicity Distribution		Total	Foreign National	Multi-Racial	African American	Pacific Islander	Asian	American Indian/Alaska Native	Hispanic	White Non-Hispanic
		N	%	%	%	%	%	%	%	%
Collegewide, Excl Campus 6										
	2012-2013	164	4.9	3.7	1.2	0.6	6.1	0.6	3.0	79.9
	2013-2014	160	3.8	1.9	1.3	0.6	6.3	.	5.0	81.3
	2014-2015	151	2.6	3.3	2.6	.	6.6	0.7	5.3	78.8

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COLLEGEWIDE TABLES (Excl Campus 6 & HS dual credit): Age Distribution			14-17	18-20	21-25	26-30	31-40	41-50	51-60
		N	%	%	%	%	%	%	%
Collegewide, Excl Campus 6									
	2012-2013	188	.	18.1	24.5	25.5	20.7	7.4	3.7
	2013-2014	178	1.7	17.4	29.8	21.3	17.4	9.6	2.8
	2014-2015	166	3.6	18.1	27.7	16.3	25.9	6.6	1.8

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COLLEGEWIDE TABLES (Excl Campus 6 & HS dual credit): Percent Distribution of Students who Indicate they are Degree-Seeking or Non-Degree-Seeking		All	Degree Seeking	Non-Degree Seeking
		N	%	%
Collegewide, Excl Campus 6				
	2012-2013	188	98.4	1.6
	2013-2014	178	98.9	1.1
	2014-2015	167	98.2	1.8

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COLLEGEWIDE TABLES (Excl Campus 6 & HS dual credit): Percent Distribution of Students in the Subject Area who are Enrolled Full-, Half-, or Part-Time at PCC in Credit Courses (in this or other subject areas): Fall Term Only			Full Time Credit Courseload	Half Time Credit Courseload	Part Time Credit Courseload
			%	%	%
Collegewide, Excl Campus 6					
	Fall	2012-2013	58.8	25.2	16.0
		2013-2014	62.1	21.4	16.5
		2014-2015	68.5	18.5	13.0

Source: Banner End-of-Term Extracts, Excluding Campus 6 and HS dual credit

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COLLEGEWIDE TABLES (Excl Campus 6 & HS dual credit): Grades (Credit Courses Only) for 2014-15, by Course	Total	A	B	C	D	F/NP	W	Other/Incomp/Audit
	N	%	%	%	%	%	%	%
AMT 101	77	37.7	26.0	9.1	.	26.0	.	1.3
AMT 102	38	36.8	44.7	13.2	.	5.3	.	.
AMT 105	38	18.4	47.4	28.9	.	5.3	.	.
AMT 106	38	39.5	36.8	15.8	.	7.9	.	.
AMT 107	39	61.5	25.6	7.7	2.6	.	2.6	.
AMT 108	36	47.2	33.3	5.6	.	13.9	.	.
AMT 109	34	52.9	32.4	8.8	2.9	.	.	2.9
AMT 115	31	41.9	48.4	9.7	.	.	.	.
AMT 117	35	14.3	48.6	17.1	2.9	17.1	.	.
AMT 120	29	41.4	55.2	3.4	.	.	.	.
AMT 121	29	51.7	34.5	10.3	.	3.4	.	.
AMT 123	31	29.0	54.8	12.9	.	3.2	.	.
AMT 124	28	42.9	42.9	14.3	.	.	.	.
AMT 203	37	35.1	43.2	16.2	.	5.4	.	.
AMT 204	38	23.7	28.9	26.3	.	10.5	.	10.5
AMT 208	34	44.1	29.4	26.5	.	.	.	.
AMT 211	30	80.0	20.0	.	.	.	.	.
AMT 212	31	51.6	38.7	6.5	.	3.2	.	.
AMT 213	31	38.7	48.4	9.7	.	.	3.2	.
AMT 214	34	58.8	20.6	17.6	.	2.9	.	.

(Continued)

Source: Banner End-of-Term Extracts, Excluding Campus 6 and HS dual credit

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COLLEGEWIDE TABLES (Excl Campus 6 & HS dual credit): Grades (Credit Courses Only) for 2014-15, by Course	Total	A	B	C	D	F/NP	W	Other/Incomp/Audit
	N	%	%	%	%	%	%	%
AMT 216	**35**	51.4	42.9	.	2.9	.	.	2.9
AMT 218	**33**	39.4	42.4	9.1	.	3.0	3.0	3.0
AMT 219	**28**	67.9	28.6	3.6	.	.	.	.
AMT 222	**29**	82.8	13.8	.	.	3.4	.	.
AMT 225	**27**	88.9	7.4	.	.	.	3.7	.

Aviation Maint Technology

CAMPUS TABLES: Full Time Equivalent (Student FTE) Enrollment and % Change	2010-11	Percent Change: 09-10 to 10-11	2011-12	Percent Change: 10-11 to 11-12	2012-13	Percent Change: 11-12 to 12-13	2013-14	Percent Change: 12-13 to 13-14	2014-15	Percent Change: 13-14 to 14-15
	Total	%	Total	%	Total	%	Total	%	Total	%
Rock Creek	**126.4**	*3.8*	**140.4**	*11.0*	**141.2**	*0.6*	**139.5**	*-1.2*	**132.6**	*-4.9*

Source: Banner End-of-Term Extracts, Excluding Campus 6 and HS dual credit

The SAS System

Aviation Maint Technology

CAMPUS TABLES: Full-Time Equivalent (Student FTE) Enrollment, by Course		2012-13	11-12 to 12-13	Percent Change: 11-12 to 12-13	2013-14	12-13 to 13-14	Percent Change: 12-13 to 13-14	2014-15	13-14 to 14-15	Percent Change: 13-14 to 14-15
		Total	Change	%	Total	Change	%	Total	Change	%
AMT 101	Rock Creek	1.8	-0.7	-28.2	1.7	-0.1	-6.4	1.5	-0.2	-12.5
AMT 102	Rock Creek	6.9	0.5	8.3	6.7	-0.2	-2.6	6.7	0.0	0.0
AMT 105	Rock Creek	7.2	0.7	10.8	6.5	-0.7	-9.8	6.7	0.2	2.7
AMT 106	Rock Creek	7.4	0.2	2.4	7.1	-0.4	-4.8	6.7	-0.4	-5.0
AMT 107	Rock Creek	7.1	0.4	5.3	6.9	-0.2	-2.5	6.9	0.0	0.0
AMT 108	Rock Creek	3.3	-0.2	-5.4	3.7	0.4	11.4	3.2	-0.5	-12.4
AMT 109	Rock Creek	6.5	0.7	12.1	6.0	-0.5	-8.1	6.0	0.0	0.0
AMT 115	Rock Creek	6.2	0.2	2.9	5.5	-0.7	-11.4	5.5	0.0	0.0
AMT 117	Rock Creek	6.0	0.2	3.0	6.2	0.2	2.9	6.2	0.0	0.0
AMT 120	Rock Creek	5.3	-1.1	-16.7	5.8	0.5	10.0	5.1	-0.7	-12.1
AMT 121	Rock Creek	5.8	-0.4	-5.7	5.6	-0.2	-3.0	5.1	-0.5	-9.4
AMT 123	Rock Creek	5.5	-0.4	-6.1	5.8	0.4	6.5	5.5	-0.4	-6.1
AMT 124	Rock Creek	5.3	-0.7	-11.8	5.5	0.2	3.3	4.9	-0.5	-9.7
AMT 203	Rock Creek	6.7	0.4	5.6	6.2	-0.5	-7.9	6.5	0.4	5.7
AMT 204	Rock Creek	6.5	0.2	2.8	6.4	-0.2	-2.7	6.7	0.4	5.6
AMT 208	Rock Creek	5.8	-0.2	-2.9	6.7	0.9	15.2	6.0	-0.7	-10.5
AMT 211	Rock Creek	5.8	0.0	0.0	5.6	-0.2	-3.0	5.3	-0.4	-6.3
AMT 212	Rock Creek	5.8	-0.7	-10.8	5.8	0.0	0.0	5.5	-0.4	-6.1
AMT 213	Rock Creek	6.0	-0.2	-2.9	5.8	-0.2	-2.9	5.5	-0.4	-6.1
AMT 214	Rock Creek	6.5	0.4	5.7	6.5	0.0	0.0	6.0	-0.5	-8.1
AMT 216	Rock Creek	3.7	0.7	21.9	2.9	-0.8	-21.2	3.3	0.4	13.1
AMT 218	Rock Creek	6.4	1.8	38.5	5.3	-1.1	-16.7	5.8	0.5	10.0
AMT 219	Rock Creek	5.5	-0.7	-11.4	5.8	0.4	6.5	4.9	-0.9	-15.2

(Continued)

Source: Banner End-of-Term Extracts, Excluding Campus 6 and HS dual credit

The SAS System

Aviation Maint Technology

CAMPUS TABLES: Full-Time Equivalent (Student FTE) Enrollment, by Course		2012-13	11-12 to 12-13	Percent Change: 11-12 to 12-13	2013-14	12-13 to 13-14	Percent Change: 12-13 to 13-14	2014-15	13-14 to 14-15	Percent Change: 13-14 to 14-15
		Total	Change	%	Total	Change	%	Total	Change	%
AMT 222	Rock Creek	**5.6**	0.0	*0.0*	**6.2**	0.5	*9.4*	**5.1**	-1.1	*-17.1*
AMT 225	Rock Creek	**2.5**	-0.1	*-2.4*	**3.2**	0.7	*26.0*	**1.9**	-1.3	*-39.7*
AMT 228	Rock Creek	**.**	.	.	**0.0**	.	.	**.**	.	.

Aviation Maint Technology

CAMPUS TABLES: Unduplicated Headcount Enrollment and % Change	2010-11	Percent Change: 09-10 to 10-11	2011-12	Percent Change: 10-11 to 11-12	2012-13	Percent Change: 11-12 to 12-13	2013-14	Percent Change: 12-13 to 13-14	2014-15	Percent Change: 13-14 to 14-15
	Total	%	Total	%	Total	%	Total	%	Total	%
Rock Creek	**170**	*-1.7*	**212**	*24.7*	**188**	*-11.3*	**178**	*-5.3*	**167**	*-6.2*

Aviation Maint Technology

CAMPUS TABLES: Enrollment (Seats Taken), by Course		2012-13	11-12 to 12-13	Percent Change: 11-12 to 12-13	2013-14	12-13 to 13-14	Percent Change: 12-13 to 13-14	2014-15	13-14 to 14-15	Percent Change: 13-14 to 14-15
		Total	Change	%	Total	Change	%	Total	Change	%
AMT 101	Rock Creek	**94**	-37	*-28.2*	**88**	-6	*-6.4*	**77**	-11	*-12.5*
AMT 102	Rock Creek	**39**	3	*8.3*	**38**	-1	*-2.6*	**38**	0	*0.0*
AMT 105	Rock Creek	**41**	4	*10.8*	**37**	-4	*-9.8*	**38**	1	*2.7*
AMT 106	Rock Creek	**42**	1	*2.4*	**40**	-2	*-4.8*	**38**	-2	*-5.0*
AMT 107	Rock Creek	**40**	2	*5.3*	**39**	-1	*-2.5*	**39**	0	*0.0*
AMT 108	Rock Creek	**35**	-2	*-5.4*	**39**	4	*11.4*	**36**	-3	*-7.7*
AMT 109	Rock Creek	**37**	4	*12.1*	**34**	-3	*-8.1*	**34**	0	*0.0*
AMT 115	Rock Creek	**35**	1	*2.9*	**31**	-4	*-11.4*	**31**	0	*0.0*

(Continued)

Source: Banner End-of-Term Extracts, Excluding Campus 6 and HS dual credit

The SAS System

Aviation Maint Technology

CAMPUS TABLES: Enrollment (Seats Taken), by Course		2012-13	11-12 to 12-13	Percent Change: 11-12 to 12-13	2013-14	12-13 to 13-14	Percent Change: 12-13 to 13-14	2014-15	13-14 to 14-15	Percent Change: 13-14 to 14-15
		Total	Change	%	Total	Change	%	Total	Change	%
AMT 117	**Rock Creek**	**34**	1	*3.0*	**35**	1	*2.9*	**35**	0	*0.0*
AMT 120	**Rock Creek**	**30**	-6	*-16.7*	**33**	3	*10.0*	**29**	-4	*-12.1*
AMT 121	**Rock Creek**	**33**	-2	*-5.7*	**32**	-1	*-3.0*	**29**	-3	*-9.4*
AMT 123	**Rock Creek**	**31**	-2	*-6.1*	**33**	2	*6.5*	**31**	-2	*-6.1*
AMT 124	**Rock Creek**	**30**	-4	*-11.8*	**31**	1	*3.3*	**28**	-3	*-9.7*
AMT 203	**Rock Creek**	**38**	2	*5.6*	**35**	-3	*-7.9*	**37**	2	*5.7*
AMT 204	**Rock Creek**	**37**	1	*2.8*	**36**	-1	*-2.7*	**38**	2	*5.6*
AMT 208	**Rock Creek**	**33**	-1	*-2.9*	**38**	5	*15.2*	**34**	-4	*-10.5*
AMT 211	**Rock Creek**	**33**	0	*0.0*	**32**	-1	*-3.0*	**30**	-2	*-6.3*
AMT 212	**Rock Creek**	**33**	-4	*-10.8*	**33**	0	*0.0*	**31**	-2	*-6.1*
AMT 213	**Rock Creek**	**34**	-1	*-2.9*	**33**	-1	*-2.9*	**31**	-2	*-6.1*
AMT 214	**Rock Creek**	**37**	2	*5.7*	**37**	0	*0.0*	**34**	-3	*-8.1*
AMT 216	**Rock Creek**	**39**	7	*21.9*	**31**	-8	*-20.5*	**35**	4	*12.9*
AMT 218	**Rock Creek**	**36**	10	*38.5*	**30**	-6	*-16.7*	**33**	3	*10.0*
AMT 219	**Rock Creek**	**31**	-4	*-11.4*	**33**	2	*6.5*	**28**	-5	*-15.2*
AMT 222	**Rock Creek**	**32**	0	*0.0*	**35**	3	*9.4*	**29**	-6	*-17.1*
AMT 225	**Rock Creek**	**34**	1	*3.0*	**34**	0	*0.0*	**27**	-7	*-20.6*
AMT 228	**Rock Creek**	**.**	.	.	**1**	.	.	**.**	.	.

Source: Banner End-of-Term Extracts, Excluding Campus 6 and HS dual credit

The SAS System

Aviation Maint Technology

CAMPUS TABLES: Gender Distribution			Female	Male
		N	%	%
Collegewide, Excl Campus 6				
	2012-2013	186	7.0	93.0
	2013-2014	175	9.7	90.3
	2014-2015	164	10.4	89.6
Rock Creek	2012-2013	186	7.0	93.0
	2013-2014	175	9.7	90.3
	2014-2015	164	10.4	89.6

Aviation Maint Technology

CAMPUS TABLES: Race/Ethnicity Distribution		Total	Foreign National	Multi-Racial	African American	Pacific Islander	Asian	American Indian/Alaska Native	Hispanic	White Non-Hispanic
		N	%	%	%	%	%	%	%	%
Collegewide, Excl Campus 6										
	2012-2013	164	4.9	3.7	1.2	0.6	6.1	0.6	3.0	79.9
	2013-2014	160	3.8	1.9	1.3	0.6	6.3	.	5.0	81.3
	2014-2015	151	2.6	3.3	2.6	.	6.6	0.7	5.3	78.8
Rock Creek	2012-2013	164	4.9	3.7	1.2	0.6	6.1	0.6	3.0	79.9
	2013-2014	160	3.8	1.9	1.3	0.6	6.3	.	5.0	81.3
	2014-2015	151	2.6	3.3	2.6	.	6.6	0.7	5.3	78.8

The SAS System

Aviation Maint Technology

CAMPUS TABLES: Age Distribution			14-17	18-20	21-25	26-30	31-40	41-50	51-60
		N	%	%	%	%	%	%	%
Collegewide, Excl Campus 6									
	2012-2013	188	.	18.1	24.5	25.5	20.7	7.4	3.7
	2013-2014	178	1.7	17.4	29.8	21.3	17.4	9.6	2.8
	2014-2015	166	3.6	18.1	27.7	16.3	25.9	6.6	1.8
Rock Creek	2012-2013	188	.	18.1	24.5	25.5	20.7	7.4	3.7
	2013-2014	178	1.7	17.4	29.8	21.3	17.4	9.6	2.8
	2014-2015	166	3.6	18.1	27.7	16.3	25.9	6.6	1.8

Aviation Maint Technology

CAMPUS TABLES: Percent Distribution of Students who Indicate they are Degree-Seeking or Non-Degree-Seeking		All	Degree Seeking	Non-Degree Seeking
		N	%	%
Collegewide, Excl Campus 6				
	2012-2013	188	98.4	1.6
	2013-2014	178	98.9	1.1
	2014-2015	167	98.2	1.8
Rock Creek	2012-2013	188	98.4	1.6
	2013-2014	178	98.9	1.1
	2014-2015	167	98.2	1.8

Source: Banner End-of-Term Extracts, Excluding Campus 6 and HS dual credit

The SAS System

Aviation Maint Technology

CAMPUS TABLES: Percent Distribution of Students in the Subject Area who are Enrolled Full-, Half-, or Part-Time at PCC in Credit Courses (in this or other subject areas): Fall Term Only			Full Time Credit Courseload	Half Time Credit Courseload	Part Time Credit Courseload
			%	%	%
Rock Creek					
	Fall	2012-2013	58.8	25.2	16.0
		2013-2014	62.1	21.4	16.5
		2014-2015	68.5	18.5	13.0

Aviation Maint Technology

CAMPUS TABLES: Percent Distribution of Students by the Area in which they Reside	Academic Year	
	2013-2014	2014-2015
	Campus	Campus
	Rock Creek	Rock Creek
	%	%
Upper North/Northeast Portland	3.4	2.4
Inner City/Holladay Park	2.8	2.4
Central East County	2.8	3.0
Southeast Portland	5.1	4.2
Lake Oswego/SW Portland	5.6	2.4
Downtown/Inner NW/Inner SW Portland	1.7	2.4
Outer SW Portland/Beaverton	3.4	6.0
Aloha/Farmington	12.4	10.2

(Continued)

Source: Banner End-of-Term Extracts, Excluding Campus 6 and HS dual credit

The SAS System

Aviation Maint Technology

CAMPUS TABLES: Percent Distribution of Students by the Area in which they Reside	Academic Year	
	2013-2014	2014-2015
	Campus	Campus
	Rock Creek	Rock Creek
	%	%
Tigard/Tualatin/King City	3.9	6.6
Hillsboro/Forest Grove	9.6	13.2
Yamhill County/Sherwood	1.7	3.0
Rock Creek/West District	0.6	1.8
Columbia County/Hwy 30 Corridor	2.8	3.0
Outer Northwest/St. Johns	7.3	5.4
Other Oregon	23.0	21.0
Washington State	11.8	12.0
Other/Unknown	2.2	1.2
All	**100.0**	**100.0**

Aviation Maint Technology

CAMPUS TABLES: Grades (Credit Courses Only), History		Total	A	B	C	D	P	F/NP	W	Other/Incomp/Audit
		N	%	%	%	%	%	%	%	%
Collegewide, Excl Campus 6										
	2012-2013	**938**	45.4	35.5	9.5	0.6	0.1	6.5	1.0	1.4
	2013-2014	**918**	49.0	32.5	10.7	0.3	.	5.9	0.9	0.8

(Continued)

Source: Banner End-of-Term Extracts, Excluding Campus 6 and HS dual credit

The SAS System

Aviation Maint Technology

CAMPUS TABLES: Grades (Credit Courses Only), History		Total	A	B	C	D	P	F/NP	W	Other/Incomp/Audit
		N	%	%	%	%	%	%	%	%
Collegewide, Excl Campus 6										
Collegewide, Excl Campus 6	2014-2015	870	45.6	35.5	11.3	0.5	.	5.7	0.5	0.9
Rock Creek	2012-2013	938	45.4	35.5	9.5	0.6	0.1	6.5	1.0	1.4
	2013-2014	918	49.0	32.5	10.7	0.3	.	5.9	0.9	0.8
	2014-2015	870	45.6	35.5	11.3	0.5	.	5.7	0.5	0.9

Aviation Maint Technology

CAMPUS TABLES: Grades (Credit Courses Only) for 2014-15, by Course		Total	A	B	C	D	F/NP	W	Other/Incomp/Audit
		N	%	%	%	%	%	%	%
AMT 101	Rock Creek	77	37.7	26.0	9.1	.	26.0	.	1.3
AMT 102	Rock Creek	38	36.8	44.7	13.2	.	5.3	.	.
AMT 105	Rock Creek	38	18.4	47.4	28.9	.	5.3	.	.
AMT 106	Rock Creek	38	39.5	36.8	15.8	.	7.9	.	.
AMT 107	Rock Creek	39	61.5	25.6	7.7	2.6	.	2.6	.
AMT 108	Rock Creek	36	47.2	33.3	5.6	.	13.9	.	.
AMT 109	Rock Creek	34	52.9	32.4	8.8	2.9	.	.	2.9
AMT 115	Rock Creek	31	41.9	48.4	9.7	.	.	.	.
AMT 117	Rock Creek	35	14.3	48.6	17.1	2.9	17.1	.	.
AMT 120	Rock Creek	29	41.4	55.2	3.4	.	.	.	.
AMT 121	Rock Creek	29	51.7	34.5	10.3	.	3.4	.	.

(Continued)

Source: Banner End-of-Term Extracts, Excluding Campus 6 and HS dual credit

The SAS System

Aviation Maint Technology

CAMPUS TABLES: Grades (Credit Courses Only) for 2014-15, by Course		Total	A	B	C	D	F/NP	W	Other/Incomp/Audit
		N	%	%	%	%	%	%	%
AMT 123	Rock Creek	31	29.0	54.8	12.9	.	3.2	.	.
AMT 124	Rock Creek	28	42.9	42.9	14.3	.	.	.	.
AMT 203	Rock Creek	37	35.1	43.2	16.2	.	5.4	.	.
AMT 204	Rock Creek	38	23.7	28.9	26.3	.	10.5	.	10.5
AMT 208	Rock Creek	34	44.1	29.4	26.5	.	.	.	.
AMT 211	Rock Creek	30	80.0	20.0	.	.	.	.	.
AMT 212	Rock Creek	31	51.6	38.7	6.5	.	3.2	.	.
AMT 213	Rock Creek	31	38.7	48.4	9.7	.	.	3.2	.
AMT 214	Rock Creek	34	58.8	20.6	17.6	.	2.9	.	.
AMT 216	Rock Creek	35	51.4	42.9	.	2.9	.	.	2.9
AMT 218	Rock Creek	33	39.4	42.4	9.1	.	3.0	3.0	3.0
AMT 219	Rock Creek	28	67.9	28.6	3.6	.	.	.	.
AMT 222	Rock Creek	29	82.8	13.8	.	.	3.4	.	.
AMT 225	Rock Creek	27	88.9	7.4	.	.	.	3.7	.

Source: Banner End-of-Term Extracts, Excluding Campus 6 and HS dual credit

Technical Skills Assessment

2012

CIP Code	cip 7 + 8	Test Name	Test Type	Test Date	Test Result
470607		AFPPMECHOP	PAIRCL****	20130610	M
470607		AFPPMECHOP	PAIRCL****	20120818	M
470607		AFPPMECHOP	PAIRCL****	20101016	M
470607		AFPPMECHOP	PAIRCL****	20130610	M
470607		AFPPMECHOP	PAIRCL****	20110714	M
470607		AFPPMECHOP	PAIRCL****	20120920	M
470607		AFPPMECHOP	PAIRCL****	20120803	M
470607		AFPPMECHOP	PAIRCL****	20120817	M
470607		AFPPMECHOP	PAIRCL****	20120513	M
470607		AFPPMECHOP	PAIRCL****	20100727	M
470607		AFPPMECHOP	PAIRCL****	20111217	M
470607		AFPPMECHOP	PAIRCL****	20111202	M
470607		AFPPMECHOP	PAIRCL****	20111205	M
470607		AFPPMECHOP	PAIRCL****	20121001	M
470607		AFPPMECHOP	PAIRCL****	20120427	M

2013

CIP Code	cip 7 + 8	Test Name	Test Type	Test Date	Test Result
470607		AFPPMECHOP	PAIRCL****	20121217	M
470607		AFPPMECHOP	PAIRCL****	20091120	M
470607		AFPPMECHOP	PAIRCL****	20120820	M
470607		AFPPMECHOP	PAIRCL****	20120125	M
470607		AFPPMECHOP	PAIRCL****	20130328	M
470607		AFPPMECHOP	PAIRCL****	20121015	M
470607		AFPPMECHOP	PAIRCL****	20121207	M
470607		AFPPMECHOP	PAIRCL****	20130316	M
470607		AFPPMECHOP	PAIRCL****	20121128	M
470607		AFPPMECHOP	PAIRCL****	20121205	M

Technical Skills Assessment

2013-2014

CIP Code	Test Name	Test Type	Test Date	Test Result
470607	SKILLS008*	PAIRCL****	20131126	M
470607	SKILLS008*	PAIRCL****	20130727	M
470607	SKILLS008*	PAIRCL****	20131125	M
470607	SKILLS008*	PAIRCL****	20121228	M
470607	SKILLS008*	PAIRCL****	20140617	M
470607	SKILLS008*	PAIRCL****	20131210	M
470607	SKILLS008*	PAIRCL****	20140618	M
470607	SKILLS008*	PAIRCL****	20130723	M
470607	SKILLS008*	PAIRCL****	20130316	M
470607	SKILLS008*	PAIRCL****	20131203	M
470607	SKILLS008*	PAIRCL****	20131113	M
470607	SKILLS008*	PAIRCL****	20130723	M
470607	SKILLS008*	PAIRCL****	20131121	M
470607	SKILLS008*	PAIRCL****	20131203	M
470607	SKILLS008*	PAIRCL****	20131126	M
470607	SKILLS008*	PAIRCL****	20131206	M
470607	SKILLS008*	PAIRCL****	20130729	M
470607	SKILLS008*	PAIRCL****	20121215	M
470607	SKILLS008*	PAIRCL****	20130727	M
470607	SKILLS008*	PAIRCL****	20130801	M
470607	SKILLS008*	PAIRCL****	20130725	M
470607	SKILLS008*	PAIRCL****	20131203	M
470607	SKILLS008*	PAIRCL****	20140514	M
470607	SKILLS008*	PAIRCL****	20130705	M
470607	SKILLS008*	PAIRCL****	20131123	M
470607	SKILLS008*	PAIRCL****	20131121	M

2014-2015

CIP Code	Test Name	Test Type	Test Date	Test Result
470607	SKILLS008*	PAIRCL****	20150124	M
470607	SKILLS008*	PAIRCL****	20150626	M
470607	SKILLS008*	PAIRCL****	20141220	M
470607	SKILLS008*	PAIRCL****	20130729	M
470607	SKILLS008*	PAIRCL****	20140729	M
470607	SKILLS008*	PAIRCL****	20140825	M
470607	SKILLS008*	PAIRCL****	20141205	M
470607	SKILLS008*	PAIRCL****	20141206	M
470607	SKILLS008*	PAIRCL****	20150806	M
470607	SKILLS008*	PAIRCL****	20150518	M
470607	SKILLS008*	PAIRCL****	20121129	M
470607	SKILLS008*	PAIRCL****	20140811	M
470607	SKILLS008*	PAIRCL****	20141206	M
470607	SKILLS008*	PAIRCL****	20140731	M
470607	SKILLS008*	PAIRCL****	20140728	M
470607	SKILLS008*	PAIRCL****	20141122	M
470607	SKILLS008*	PAIRCL****	20141120	M
470607	SKILLS008*	PAIRCL****	20131217	M
470607	SKILLS008*	PAIRCL****	20140731	M

The following are SAC-level questions added to all "AMT" course evaluations:

- I can perform the course outcomes of the class just finished as stated on the syllabus.
- I can perform the projects of the class just finished to their appropriate level.
- The instructor delivered well-planned and efficient lessons and make them available for independent study and/or review.
- The instructor led you through guided practice so you can process provide answers with an understanding of the thought process (how/why).
- The instructor provided the support necessary (i.e. availability, equipment and time) for the projects and outcomes of the course.

I. Executive Summary Back to Top

a. Summary of the Proposed Rule

This proposed rule would amend the regulations governing Aviation Maintenance Technician Schools (14 CFR part 147) to both update the existing curriculums and provide an efficient means of changing specific course items under each main subject heading, when needed, by including them in each school's operations specifications. The proposal sets forth both a description of operations specifications and a process for amending, suspending, or terminating them. In addition, the proposed amendments would clarify existing requirements, remove gender-specific references, and eliminate duplication found in some sections of the current rules.

The FAA has updated its regulations governing aviation maintenance technician schools only infrequently since 1962, when they were re-codified from the former Civil Air Regulations (CAR) part 53 into current Title 14 of the Code of Federal Regulations (14 CFR) part 147. (27 FR 6669, Jul. 19, 1962). The agency last amended part 147 in 2011 to add a new § 147.8 that placed restrictions on the employment of former FAA employees, however the agency has made no curriculum changes since 1992. Based on recent studies and reports (which are discussed below in more detail), the FAA has determined that the current school curriculums are dated and do not provide students with the skills necessary for maintaining modern aircraft.

When the FAA first shaped the basic training curriculum during the 1962 recodification, the use of advanced materials, advanced electronic operating systems, computers, high bypass propulsion systems, and smart aircraft did not exist in civilian aviation. Since the 1992 rule changes, the industry has produced larger, state of the art transport aircraft (such as the Boeing 787 and Airbus A380) that incorporate very advanced technologies and complex systems. Similar advancements in technology have also evolved in all other levels of aircraft such as general aviation aircraft and business aircraft. The FAA has also not updated part 147 to account for recent advances in rotorcraft technology, composites, unmanned aerial vehicles, glass panels, light sport aircraft (LSA), and the spread of electronics into every other aspect of aircraft.

In view of the expected continued rapid pace of technological change in the aviation industry, part 147 curriculums will need to be updated frequently and quickly. However, because these curriculums are currently specified in the part 147 appendices, the FAA can change them only through notice and comment rulemaking, which is a time-consuming and inefficient means of modernizing the curriculum. As a consequence, without the proposed changes, the school curriculums will always be several years behind what is needed to effectively train aviation maintenance technician students. By including the curriculums in each school's operations specifications, they may be updated expeditiously to keep pace with emerging technologies.

b. Summary of Costs and Benefits

The FAA finds the proposed rule's benefits would accrue from changing curriculum hours, which would lower the more costly laboratory/workshop time (while offset by increasing classroom time) and also from eliminating the exemptions currently issued for aviation mechanic

testing requirements. The estimated total benefits of this rule are about $10 million ($7 million, present value at 7%).

The two major compliance costs of the rule are initial curriculum revisions and subsequent curriculum revisions. The latter may be divided into FAA-proposed recommendations for amendments to the technician school curriculum, and technician school submissions to request amendments to their curriculum. The estimated total costs are about $4 million ($3 million, present value at 7%). Net benefits equal approximately $7 million ($3 million, present value at 7%).

Instructor Qualification FORM

Use this form to add or change instructor qualifications.

- *include **the entire entry** for your SACs current instructor qualifications (including those for Imbedded Related Instruction, if applicable) into the space for "Current Instructor Qualifications," (you should be able to cut and paste this directly from the website)*
- *include **the entire entry** for the revised set of qualification in the "Proposed Instructor Qualifications" section (please use simple formatting, as our options when posting are limited), and*
- *please highlight the changes, or put them in a different font color. (for minor changes especially, highlighting to show clearly what is changing will very much help speed approval!)*

Once completed, please forward as an attachment through the approval pathway (see signature page). ***The signatures can be "virtual" – names typed into the "signature" box will be accepted as valid if received from the signer.***

Subject Area Prefix: AMT

Reason for change: Update to better address Related Instruction

Current Instructor Qualifications: *Complete entry for **current instructor qualifications**, which can be copied from* http://www.pcc.edu/resources/academic/instructor-qualifications/index.html

AMT Instructor Requirements:

Associate of Applied Science in Aviation Maintenance Technology or other vehicle service field AND a valid FAA Mechanic certificate with both Airframe and Powerplant Ratings*
AND
A minimum of five years experience exercising the privileges of both the Airframe and Powerplant mechanic ratings, **OR** five years experience teaching at the college level or in an aviation maintenance training department or a combination of experience may be substituted, year for year, for aviation mechanic experience.

*Part time Instructors: An AMT Instructor presenting a certificate with a single rating will be limited to teaching only the subject material related to that rating. The above AMT Instructor education and experience requirements still apply appropriately to the single rating.

Approved: February 2011

Related Instruction:

An AMT instructor presenting valid evidence of a minimum of five years' experience exercising the privileges of an Airframe and Powerplant mechanic, or an appropriately related aviation industry, qualifies to teach the Related Instruction content regarding Computation, Communication, and Human Relations as described in the CCOGS for courses listed below:

Computation, Communication and Human Relations: AMT 102. 107, 115, 120, 123, 203, 208, 212, 213 and 222
Communication and Human Relations: AMT 101, 105, 117, 121, 204, 218, 219
Computation and Communication: AMT 106

Proposed Instructor Qualifications:

Identify Subject Area(s) for qualifying degrees and if appropriate, related subject areas that would be acceptable given additional education in the main subject area. Identify the nature and/or site of experience. Qualifications applicable to Demonstrated Competency and/or Provisional Approval may be included here.

AMT Instructor Requirements:

Associate of Applied Science in Aviation Maintenance Technology or other vehicle service field AND a valid FAA Mechanic certificate with both Airframe and Powerplant Ratings*
AND
A minimum of five years experience exercising the privileges of both the Airframe and Powerplant mechanic ratings, **OR** five years of experience teaching at the college level or in an aviation maintenance training department or a combination of experience may be substituted, year for year, for aviation mechanic experience.

*Part time Instructors: An AMT Instructor presenting a certificate with a single rating will be limited to teaching only the subject material related to that rating. The above AMT Instructor education and experience requirements still apply appropriately to the single rating.

Approved: February 2011

Related Instruction:

The following list of AMT classes include embedded Related Instruction in Computation, Communications and Human Relations.

Computation, Communication and Human Relations: AMT 102. 107, 115, 120, 123, 203, 208, 212, 213 and 222
Communication and Human Relations: AMT 101, 105, 117, 121, 204, 218, 219
Computation and Communication: AMT 106

In order to teach these courses, instructor must have:

- Math 60 or tested into higher than Math 60 (for Computation)
- Writing 121 or Writing 227 or demonstrated writing competency with a professional writing sample (for Communication)
- Documented 2 years of supervisory work experience or served in a customer service/support/management position (for Human Relations)

Approval for Instructor qualifications – Signature Page

Subject Area Prefix: AMT

Note: For approval, this page may be "signed" electronically by typing your name in the "Signature" box. When you send it to the next signatory, they will see that it is from you, and that will validate the "signature".

Regardless of whether you print this for real signatures, or send it forward electronically, please forward an electronic copy of this entire form to the Dean of Instructional support (kcawley@pcc.edu).

Recommended:	Print Name	"Signature" ***(Entering your name signifies recommendation)***	Date "signed":
SAC Chair:	Steven H. Phillips	Steven H. Phillips	02/12/2016
SAC Admin Liaison [1]			
Dean of Instruction [2]			
Approved VPASA [3]	Christine Chairsell		

[1] *For multi campus SAC, the SAC Administrative will consult with all Division Deans involved with the program or discipline.*

[2] *For multi-campus SACs, any one of the DOIs may receive and sign this form -- all will review it.*

[3] *When approved, please forward to Dean of Academic Affairs for posting. kcawley@pcc.edu*

Meeting Notes: Industry Partner Team (Advisory Committee)
Aviation Maintenance Technology program
Date: 08-OCT-2014

In Attendance:

Seth Hansen - Hillsboro Aviation, Inc., Hillsboro, OR
Michael Fogarty - PCC AMT PT Faculty
David Allen - Alaska / Horizon, Portland
Matt Fortin - Alaska/Horizon, Seattle
Greg Hart - IAM/Boeing Joint Programs, Gresham, OR
Dave Ackerman - IAM/Boeing Joint Programs, Gresham, OR
Scott Sloat - Columbia Helicopters, Inc., Aurora, OR
Irene Giustini - PCC, MAIT Division Dean
Dave Kercher - PCC, AMT FT Faculty
Anders Rasmussen - PCC, AMT FT Faculty
Marshall Pryor - PCC, AMT FT Faculty / Dept. Chair

Noted Abscences:
Steve Phillips, PCC, AMT FT Faculty
Brian

This was an ad hoc meeting, taking advantage of the representatives of a significant number of AMT hiring companies in greater Portland area on site for the AMT Career Day.

Marshall - asked all in attendance to share their aviation backgrounds, the company and position they represented and their future aspirations, within the company each represented, with regard to future engagement with the AMT program at PCC.

The following are summaries of each company representative's thoughts. The focus of these notes is to capture the input of the company representatives. All from PCC AMT expressed appreciation of the companies' participation with PCC AMT over the years, currently and with the students on AMT Career Day.

Seth Hansen, HAI- Identified additional focus needed on helicopter training elements within the curriculum of the AMT program, either inside or as an addendum to the current certificates and degrees. HAI is very willing and able to work with PCC on curriculum content, possible equipment resources and possible on-site HAI instruction.

Matt Fortin, Alaska - Identified the focus within Alaska Air Group for needed 'pipelines' for graduates to move through, into Alaska/Horizon employment. Identified that Dave Allen, stationed at PDX Horizon will be focus point person for continued development of PCC pipeline. Both Matt and Dave have been involved, very successfully, with these types of efforts at other airlines.

Greg Hart, IAM/Boeing - Identified significant success with PCC AMT in two years of internship classes over past two years. Anticipates future discussions regarding expanded calendar of internship offerings, multiple times per year.

Dave Ackerman, IAM/Boeing - Concurred with Greg Hart regarding success of internship opportunities. Dave identified honing skills and knowledge as an item of possible focus in the AMT curriculum.

Scott Sloat, CHI - Articulated CHI discussions regarding the need for a 'pipeline' into Columbia. Scott, as HR lead, has been with CHI less than three months, but has been with other companies that developed extensive interaction with local colleges for better development of student and graduate engagement within specific training programs. Scott echoed comments by Seth Hansen, HAI, regarding need for additional elements of rotary wing specific training in AMT curriculum. Additionally, Scott spoke to efforts of CHI in area of Aircraft Electronics.

Marshall Pryor - Acknowledged theme of 'pipelines' and rotary wing training element development. In acknowledging the commitment of HAI in allowing Seth Hansen to participate as a member the PCC AMT Industry Partner Team, Marshall asked that all representatives present discuss with company leaders regarding their companies' more affirmative participation with the PCC AMT.

No date was set for the next PCC AMT IPT meeting. Consultation with identified IPT members ITP Chair, Andy Fitzgerald and Member, Brian Lockhart and Member, Seth Hansen.

Respectfully submitted,

Marshall Pryor

Aviation Maintenance Training

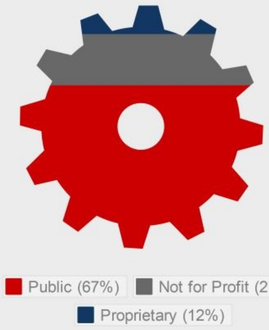
Overview

The Aviation Technician Education council (ATEC) surveyed all aviation maintenance technician schools (AMTS) holding an FAA part-147 certificate in order to assess key trends in the industry and gather data about both student and institutional needs in order to plan future council programs and initiatives.

The survey period closed on Jan. 16, 2015. Out of the 172 AMTS contained in the FAA certification database, 54 responded - nearly one third of the entire population. This strong participation rate makes the survey a reliable snapshot of the AMTS community.

The Typical AMTS

The typical AMTS is likely to be public (67 percent) and operates as part of a larger educational institution (87 percent). It has 8 staff members, including instructors and administrative support, total enrollment of 72 students and 28 graduates.

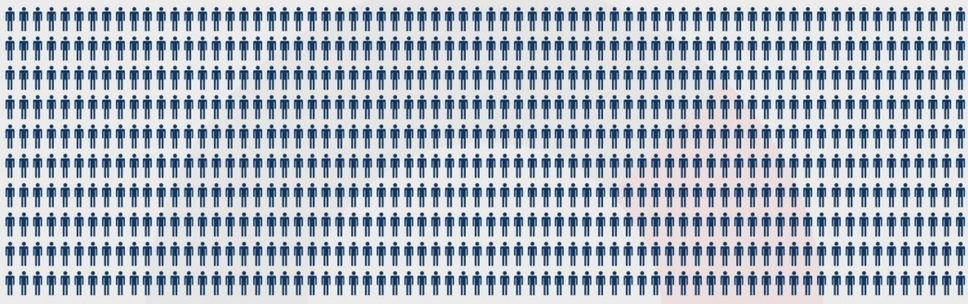


The community is composed mostly of smaller institutions, with 80 percent of survey respondents (43 schools) reporting a total enrollment of fewer than 150 students, with four out of ten (24 schools) enrolling fewer than 50.

The few larger schools dominate overall enrollment. The ten largest AMTS that provided a survey response reported a combined enrollment of more than 3,000 students and more than 1,700 graduates in 2013. This means that the top 19 percent of institutions in terms of size account for roughly half of the total number of students and six out of every ten graduates.

Workforce Bleed

The loss of graduates from AMTS programs into other technical fields is a key challenge facing the aviation maintenance community. Based on survey data, respondents estimate that one out of four graduates does not pursue an aviation career. This means that from the respondent group alone, roughly 700 graduates in 2013 were lost to other industries.



Institution size may have some impact on the retention of graduates by the aviation community. A student coming out of one of the 10 largest schools noted above is 10 percent less likely to pursue a career in aviation.

Predicting the Future

The vast majority of respondents (75 percent) indicated their institution's enrollment has either held level or increased over the past three years. Of those who provided a prediction for the future, almost all expect the number of students in attendance to at least stay the same and more than half (55 percent) believe it will increase. Only one respondent indicated that enrollment will shrink.

Based on anecdotal discussions with ATEC members, such predictions are heavily dependent on economic conditions. Institutions might exhibit "wishful thinking" regarding future enrollment expansion, but educators believe general trend during the nation's slow recovery period has been towards growth. Considering MRO market sentiments regarding the future demand for workers, it appears that there will be demand for AMTS graduates into the foreseeable future.

ATEC
Aviation Technician Education Council

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Alexandria, VA 22314-2903
T: 703 548 2030 F: 703 299 0254
atec@atec-amt.org www.atec-amt.org

ATEC is a partnership of over 150 FAA-certificated training schools across the country. The council is dedicated to fostering aviation maintenance education and providing industry with skilled labor. To learn more, visit www.atec-amt.org.

AVIATION WEEK NETWORK

Aviation Week 2015 Workforce Study:

A Reality Check as Competition for Talent Increases

July 2015

Carole Rickard Hedden
Carla Sands

2015 Aviation Week Workforce Study Advisory Boards

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Executive Summary

Since 1997 Aviation Week has tracked employment opportunity and compensation in the aerospace and defense (A&D) industry. Beginning in 2005 this expanded to include:

- Identifying what matters most to professionals overall, young professionals and engineering students in making career decisions.
- Analyzing demographics of the workforce by gender, ethnic background, and age to inform industry, policy makers, and educators.
- Involving executives, educators and young professionals in review and analysis of data.

The 2015 Aviation Week Workforce Study surveyed corporations, 1,156 university engineering students and 1,371 young professionals. The data indicates that 55,000 jobs will be filled this year, despite an overall reduction in the A&D workforce population. As with other high technology industries, A&D is struggling to reflect the face of America in terms of gender and ethnicity. Despite this, significant improvement has been seen in terms of gender and ethnic diversity in the executive suite.

Key findings of the study also found that while technological challenge and the ability to contribute to high-profile projects remains a driving force in the career decisions made by students and employees, total compensation (pay, benefits, bonus structures, signing bonuses) has moved up to top the list of considerations among young professionals.

During the analysis and review meeting with the Workforce Study Advisory Boards, the following issues and recommendations were developed on the basis of the information compiled:

Issues

- Advisory Board members report 2015 will see an increase in retirement rates, based on the first half of the year. However, note that retirement means *withdrawal from active/work life*—it is doubtful this generation of retirees will actually quit working but rather are trending toward transitions to new active, and frequently working, roles.

- Competition for specific engineering skills is broadening and becoming more intense as automotive, high tech and oil and gas industries begin to overlap to a greater extent in terms of technology development.

- Sixty-seven percent of those who voluntary left jobs last year had 0-5 years of service; the leading reason for leaving was “new opportunity” as young professionals (YPs) express frustration with the pace of career advancement by seeking new jobs. Of the YPs who changed jobs in 2014, 14% left the industry entirely. Despite this, voluntary attrition for the industry for all age categories is a mere 5.7%—far below that of other technology-based industry sectors.

- Despite increases in engineering enrollment in U.S. universities to close to half a million students and annual graduation of right at 100,000 students, the percentages of African-American and female students have not increased. Latino engineering enrollment—and Latinos as a percent of the YP population— has increased slightly.

- Student loans remain an issue for close to half of young professionals and students; the rate of student loan exposure is significantly higher among African-American students and YPs.

- Work/life balance gains traction as an issue for the workforce, but it also is a function of age and family situation (children, elder care, etc.). And these variations in need affect a company, depending on the culture of the organization. It is important to understand these needs and ensure knowledge is available to professionals of all ages to enable them to make appropriate choices, preferably within the industry.

Recommendations

- Establish plan to use what is learned from the study
  - Set goals as an industry
    - Voluntary attrition for employees with 0-5 years of service
      - As percentage of total voluntary attrition
      - As percentage of age category
    - Diversity with regard to people of color and gender
      - Increase in population of college engineering students enrolled/graduate
    - Returning active-duty military hiring
    - New graduate hiring
  - Develop profile of what attracts/retains young professionals to A&D
    - Provide to all partners and participants for use by companies/agencies in marketing/recruiting efforts
    - Apply to collaborative initiatives
      - Add to current initiatives between AIAA and Aviation Week, Aviation Week and Wings Club, AIA and U.S. Commerce Department

- Increase fidelity of voluntary separation data
  - Ask for voluntary exits at each age range
  - Continue to ask for voluntary exits by years of service

- A&D needs to do a better job of appealing to the hearts and minds of YPs and the next generation if it intends to compete with other high technology sectors for top talent.

- Recognize that the important factors "new challenge" and "career opportunity" have multiple meanings—new assignments, special projects, lateral movement, change of title to reflect change in tasks, as well as increase in salary and develop systems to support opportunities for change every 24-36 months.

- Define ways, through specific processes, to bridge the leadership gap that results from voluntary attrition among young professionals and the opportunities on the other side of the "gap" that exists in the 35-45 age group. Advisory boards view this gap as a function of the industry as it has persisted for two decades and has been smoothed significantly over the past 10 years.

- Universities estimate that fully one-third of their students who are foreign nationals do not qualify for A&D employment. U.S. government regulations need to be updated to reflect an industrial base that operates globally, to engage U.S.-educated foreign graduates in U.S.-owned companies, and to minimize the unnecessary "export" of talent.

This study is sponsored by the Aviation Week Network, Aerospace Industries Association (AIA), Korn Ferry and Strategy&/PwC, and is conducted in association with the American Institute of Aeronautics and Astronautics, National Defense Industries Association, and NASA.

Training

2015 Pilot & Technician Outlook

BOEING EDGE
Flight Services

Training

Pilot & Technician Outlook

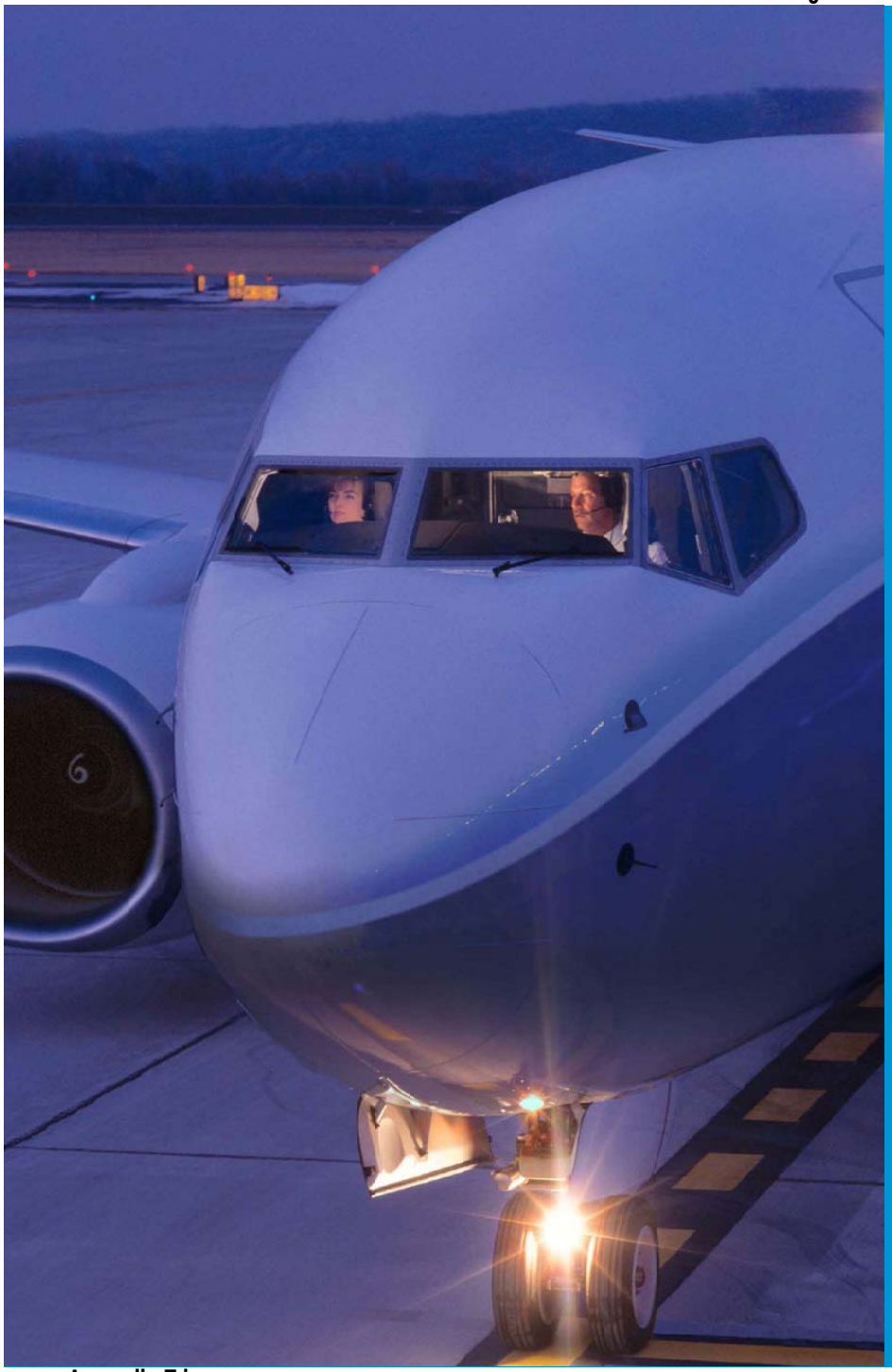
As global economies expand and airlines take delivery of tens of thousands of new commercial jetliners over the next 20 years, there is and will continue to be unprecedented demand for personnel to fly and maintain those airplanes.

In support of this tremendous growth, the aviation industry will need to supply more than one million new commercial airline pilots and maintenance technicians between now and 2034.

The 2015 Boeing Pilot & Technician Outlook, a respected industry forecast of personnel demand, projects that 558,000 new commercial airline pilots and 609,000 new maintenance technicians will be needed to fly and maintain the world fleet over the next 20 years.

Meeting this exponential demand will require innovative solutions—focused on new, digital technology—to match the learning requirements of a new generation. The growing diversity of aviation personnel will also require instructors to have cross-cultural and cross-generational skills to engage tomorrow's workforce. Training providers will focus more on enabling airplane operators to gain optimal advantage of the advanced features of the latest generation of airplanes, such as the 787 Dreamliner, 737 MAX, and the 777X.

Although Asia Pacific remains the region with the highest overall demand—40 percent of the world's required pilots and technicians—there has been a significant increase in the expected number of skilled resources required in other parts of the world, such as the Middle East and Latin American markets.



Training

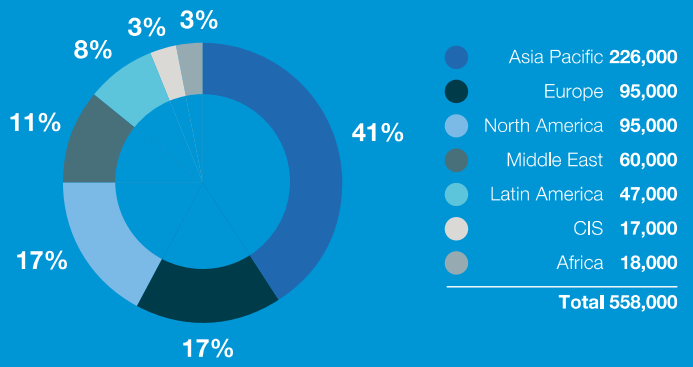
2015 Pilot Outlook

Airlines across the globe are expanding their fleets and flight schedules to meet the global economic expansion. The aviation industry continues to work on addressing these challenges and creating a balanced, sustainable solution to filling the future pilot and technician pipeline.

Regional markets that have relied heavily on recruiting pilots from outside their home locations will increasingly need a strong foundation for developing and training qualified pilots locally.

Over the next 20 years, the largest projected growth in pilot demand is in the Asia Pacific region, with a requirement for 226,000 new pilots. Europe will require 95,000; North America, 95,000; the Middle East, 60,000; Latin America, 47,000; the Commonwealth of Independent States (CIS), 17,000; and Africa, 18,000.

New Pilots by Region 2015–2034



Training

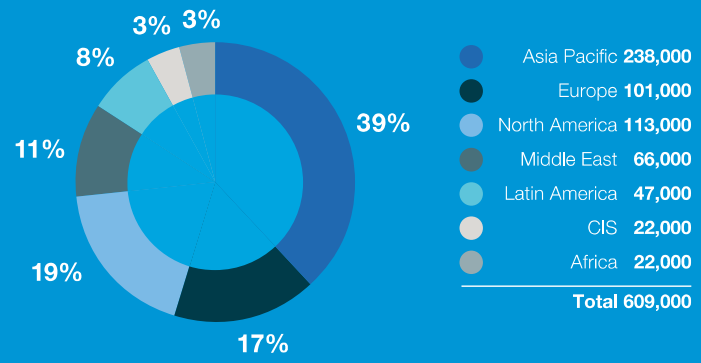
2015 Technician Outlook

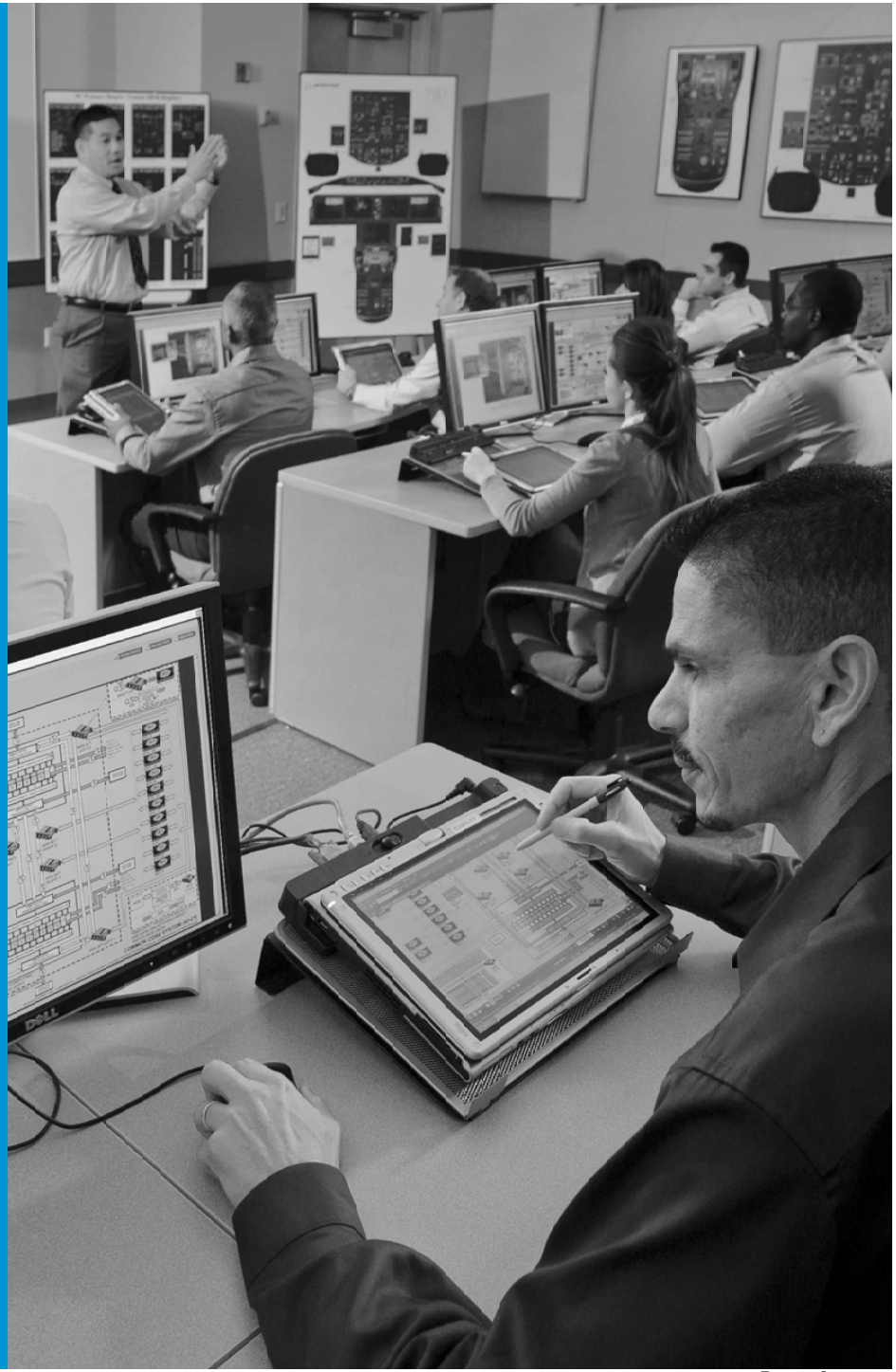
As newer-generation airplanes become more prevalent in worldwide aviation fleets over the next 20 years, airplane reliability will improve, and maintenance check intervals will lengthen. Although this trend will moderate demand growth somewhat, the global need for technicians will remain strong.

The overall global fleet growth—along with an increasing trend in outsourcing maintenance, repair, and overhaul activities to third-party providers in emerging markets—will drive an increased overall need for qualified technicians sourced from an expanded number of locations.

The need for maintenance personnel is largest in the Asia Pacific region, which will require 238,000 new technical personnel. Airlines in Europe will require 101,000; North America, 113,000; the Middle East, 66,000; Latin America, 47,000; the CIS, 22,000; and Africa, 22,000.

New Technicians by Region 2015–2034





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June 4, 2015

Delivered via email; read receipt requested: soc@BLS.gov

Standard Occupational Classification Policy Committee
Bureau of Labor Statistics, Suite 2135
2 Massachusetts Avenue NE
Washington DC 20212

Re: Comments for the 2018 SOC Revision
OMB-2014-0005-0001

Dear Standard Occupational Classification Policy Committee Members:

The undersigned organizations represent various sectors of the aviation industry; all have a strong interest in ensuring that occupational data in the aviation maintenance field is accurate and reliable.

The organizations respectfully request that the current detailed occupation Aircraft Mechanics and Technicians (49-3011) be replaced with three distinct detailed occupations, as follows:

49-3011 Certificated Maintenance Technicians - Mechanics
Performs or supervises maintenance, preventive maintenance, inspection or alterations of an aircraft, aircraft engine, propeller or appliance (or part thereof) for which s/he is rated, and approves that work for return to service under the authority of an FAA-issued certificate. Requires federally-issued mechanic certificate with an airframe and/or powerplant rating. Excludes "Certificated Maintenance Technicians – Repairmen" (49-3012), "Non-certificated Maintenance Technicians" (49-3013), and "Transportation Inspectors" (53-6051).

49-3012 Certificated Maintenance Technicians - Repairmen
Performs or supervises specific maintenance, preventive maintenance, or alterations of an aircraft, aircraft engine, propeller or appliance (or part thereof) for the certificate holder by whom s/he is employed and may approve that work for return to service under the authority of an FAA-issued certificate. Requires federally issued repairman certificate. Excludes "Certificated Maintenance Technicians – Mechanics" (49-3011), "Non-certificated Maintenance Technicians" (49-3013), and "Transportation Inspectors" (53-6051).

49-3013 Non-certificated Maintenance Technicians
Performs maintenance, preventive maintenance, or alterations of an aircraft, aircraft engine, propeller or appliance (or part thereof) under the supervision or control of a certificated person. Excludes "Certificated

> Maintenance Technicians – Mechanics" (49-3011), "Certificated Maintenance Technicians – Repairmen" (49-3012), and "Transportation Inspectors" (53-6051).

Additionally, the organizations request that the detailed occupation "49-2091 Avionics Technicians" be eliminated. To distinguish avionics technicians from certificated mechanics and repairmen or non-certificated technicians is illogical. The newly requested classifications allow for a more accurate and useful representation of the aviation maintenance career field.

Furthermore, the organizations request that the following detailed occupation be updated to include the underlined language:

> **53-6051 Transportation Inspectors**
> Inspect equipment or goods in connection with the safe transport of cargo or people. Includes rail transportation inspectors, such as freight inspectors; rail inspectors; and other inspectors of transportation vehicles, not elsewhere classified. Excludes "Transportation Security Screeners" (33-9093), <u>"Certificated Maintenance Technicians – Mechanics" (49-3011), "Certificated Maintenance Technicians – Repairmen" (49-3012), "Non-certificated Maintenance Technicians" (49-3013).</u>

Under the current SOC framework, nearly all aviation maintenance professionals fall under the same major group, minor group, broad group, and detailed occupation.[1] Virtually all aviation maintenance professionals are lumped into one category regardless of certification,[2] with two misleading and inappropriate exceptions. Avionics technicians[3] and transportation inspectors[4] each represent an ultra-specific and very small subset of tasks performed by aviation maintenance professionals, leaving the vast majority lumped together under "Aircraft Mechanics and Service Technicians" without mandatory, realistic, or useful distinction or explanation.

[1] Aviation maintenance professionals are all categorized as:
Major Group 49-0000: Installation, Maintenance, and Repair Occupations
Minor Group 49-3000: Vehicle and Mobile Equipment Mechanics, Installers, and Repairers
Broad Occupation 49-3010: Aircraft Mechanics and Service Technicians
Detailed Occupation 49-3011: Aircraft Mechanics and Service Technicians

[2] Several other transportation occupations within the SOC acknowledge the requirement for certification or licensing. For example, 53-2011 Airline Pilots, Copilots, and Flight Engineers; 53-2012 Commercial Pilots; 53-3032 Truck Drivers, Heavy and Tractor-Trailer classifications all reflect the requirements for appropriate ratings, certificates, and/or licenses.

[3] Avionics technicians fall under 49-2000 Electrical and Electronic Equipment Mechanics, Installers, and Repairers (minor group); 49-2090 Miscellaneous Electrical and Electronic Equipment Mechanics, Installers, and Repairers (broad occupation); 49-2091 Avionics Technicians (detailed occupation).

[4] Transportation inspectors fall under 53-0000 Transportation and Material Moving Occupations (major group); 53-6000 Other Transportation Workers (minor group); 53-6050 Transportation Inspectors (broad occupation); 53-6051 Transportation Inspectors (detailed occupation). Note that aviation inspectors are included in the definition for transportation inspectors, and do not have a separate detailed occupation. This adds to the confusion, and the inability to track those workers.

The disjointed classifications highlight the fact that the SOC framework fails to accurately reflect the occupational opportunities or responsibilities within aviation maintenance. This has created a statistical void, leading to misinformation on the current state of employment and an inability to forecast future needs.

Without distinguishing the types of tasks certificated and non-certificated "Aircraft Mechanics and Service Technicians" are allowed to accomplish, incomplete data is being used by agencies, Congress, international bodies, students, educators and employers. The lack of specific and reality-based information directly affects both aviation safety and industry growth.

Adding the proposed classifications will ensure the SOC structures adhere to its classification principles. Principle 2 dictates that "Occupations are classified based on work performed and, in some cases, on the skills, education, and/or training needed to perform the work at a competent level." For the reasons detailed below, the singular treatment of aviation maintenance workers regardless of their varying tasks, responsibilities, skills, and training is problematic.

The undersigned organizations urge the SOCPC to consider the critical importance of this issue to the highly regulated aviation safety industry, and in turn to the flying public. Please find specific responses to the BLS request for public input in Appendix A.

Sincerely,

Laura Vlieg
Regulatory Affairs Manager
Aviation Technician Education Council

Walter Desrosiers
Vice President of Engineering & Maintenance
General Aviation Manufacturers Association

John Goglia
Former Member
National Transportation Safety Board

Ken McTiernan
Director
Aerospace Maintenance Council

Robert Ireland
Managing Director, Engineering and Maintenance
Airlines for America

George Paul
Director of Technical Services
National Air Carrier Association

John McGraw
Director, Regulatory Affairs
National Air Transport Association

Sarah MacLeod
Executive Director
Aeronautical Repair Station Association

Stacey Bechdolt
Vice President-Safety & Operations
Regulatory Counsel
Regional Airline Association

Yvette Rose
Senior Vice President
Cargo Airline Association

Appendix A
Responses to Specific BLS Information Request

1. ***Nature of the work performed.*** **What duties do the workers in the occupation perform? Which duties are common to all jobs in the occupation and would therefore appear in the "required duties" statement in the occupation definition. […] What duties are frequent but not performed by all workers and might be identified in "may" statements in the occupation definition? Are there supervisory or management duties? If so, what types of workers are supervised and what types of management activities are performed? For revisions to existing occupations, is the work described in the SOC definition accurate and up to date? Addressing the nature of the work performed is the most important type of information the SOCPC will use when considering comments.**

49-3011 Certificated Maintenance Technicians – Mechanics
A wide range of tasks must be (exclusively) performed by certificated mechanics, including supervisory functions and approval for return to service of the work performed on civil aircraft, airframes, aircraft engines, propellers, appliances, or component parts (articles) covered by the mechanic's rating(s).

Therefore, the "required duties" statement include supervising and approving for return to service the maintenance, preventive maintenance, or alteration of civil aviation articles by non-certificated individuals, for which the mechanic is rated.

The "may" statements would include tasks that can only be performed by appropriately qualified certificated mechanics, such as performance of annual inspections; and performance or supervision of progressive inspections. Supervisory duties will extend to direct oversight of non-certificated maintenance technicians.

49-3012 Certificated Maintenance Technicians – Repairmen
Tasks performed by certificated repairmen are similar to those performed by certificated mechanics, with the primary distinction that repairmen privileges only extend to functions performed in connection with duties for the individual's certificated employer.

The "required duties" statement would include the performance, supervision or approval for return to service of maintenance, preventive maintenance, or alteration of civil aviation articles appropriate to the job for which the repairman is employed and certificated, but only in connection with duties for the certificate holder by whom the individual is employed and recommended.

The "may" statement would include performance of inspections of experimental aircraft and/or inspections or maintenance of light sport aircraft as appropriately certificated and rated.

Supervisory duties may extend to supervision of non-certificated maintenance technicians, and only in connection with duties for the repairman's employer.

49-3013 Non-certificated Maintenance Technicians
The tasks performed by non-certificated maintenance technicians are limited, and must be performed under the supervision of a certificated person, whether a mechanic or repairman or other certificated maintenance provider. The "required duties" statement would include the performance of maintenance, preventive maintenance, or alterations of civil aviation articles under the direct supervision of a certificated person.

The work described in the current SOC definition is inaccurate and misleading; it ignores the mandated distinctions between the privileges of certificated mechanics and repairmen, and non-certificated maintenance technicians. The ability to supervise and/or approve work for return to service, for instance, are critical tasks that can only be accomplished by certificate holders. Without data on the numbers of individuals who are able to perform such important tasks, forecasting labor supply is nearly impossible.

2. ***Attributes of the work performed that make the occupation distinct from other detailed occupations in the SOC.*** **Does the same or similar work appear in other SOC occupations? If so, how is the proposed occupation distinct? What changes should be made to existing SOC occupations that have the same or similar work?**

The aviation safety rules governing civil operations dictate precisely who is allowed to perform maintenance, preventive maintenance and alteration tasks. Within aviation maintenance, the proposed detailed occupations (Certificated Maintenance Technicians – Mechanics, Certificated Maintenance Technicians – Repairmen, and Non-certificated Maintenance Technicians) align with the specific tasks and responsibilities allowed to be performed by individuals. These proposed occupations cover the spectrum of work performed in the field while remaining distinct from one another, and from existing SOC occupations.

3. ***Job titles.*** **What job titles are commonly used by workers in this occupation? Are these titles unique to the proposed occupation? Are titles listed in the Direct Match Title File actually in use? Are there other titles that should be included in the file?**

The current Direct Match Title File includes the following job titles:
- A&P Mechanic
- Aircraft Engine Mechanic

- Aircraft Engine Specialist
- Airframe and Powerplant Mechanic
- Flight Test Mechanic
- Helicopter Mechanic
- Jet Engine Mechanic
- Propeller-Driven Airplane Mechanic

Because the Direct Match Title File only includes job titles that fall exclusively under one SOC detailed occupation, that list will no longer be applicable if the proposed detailed occupations are implemented. Thus, the undersigned organizations propose the following direct matches:

49-3011 Certificated Maintenance Technicians - Mechanics

- Airframe and Powerplant Mechanic (A&P)
- Airframe Mechanic
- Powerplant Mechanic

49-3012 Certificated Maintenance Technicians - Repairmen

- Repairman

4. *Indications of the number of jobs or workers in the occupation.* Employment size and expected growth are helpful in evaluating collectability. Please provide references for the sources of this information.

The primary reason why the detailed occupations need to be added is to accurately reflect the number of jobs in the field. A 2014 Report by the U.S. Government Accountability Office (GAO-14-237) highlighted the inadequacies of the current occupational classification with respect to collection of workforce data and forecasting future needs. The report notes:

> [M]any employers may require employees to hold an A&P certificate. However, BLS's occupational classification for aircraft mechanics includes both certificated and non-certificated mechanics. As a result, labor market data may overestimate the number of available mechanics for certain employers.[5]

The report further states:

> BLS reports data on median earnings for aviation professionals in all stages of their careers, so we could not examine whether starting earnings

[5] Government Accountability Office, GAO-14-237 "Aviation Workforce," p. 12 (Feb. 28, 2014)

> have increased, an examination that would be more likely to indicate if wages were rising to attract entry-level workers.[6]

While the FAA tracks mechanic and repairman certificates, the figures are not indicative of employment or career choices.[7] As of December 31, 2014 FAA reported that it registered 341,409 mechanic certificates and 39,566 repairmen certificates. However, as highlighted by GAO, without a separate occupational classification for certificated mechanics and repairmen, the FAA numbers cannot be used for workforce development or tracking. The employment of certificated individuals is unknown and many certificate holders work outside the aviation industry.

A 2014 study by the Aeronautical Repair Station Association and the Aviation Technician Education Council fought similar headwinds investigating trends in the civil aviation technical workforce. Data limitations and the lack of adequate tracking mechanisms resulted in an inability to substantively analyze developments in employment and forecast needs. The report highlights the challenges facing aviation firms seeking to attract and retain technically skilled workers, which makes the need for accurate data pressing:

> [G]iven the strong demand for technical skill sets, there is increasing competition among industries. Therefore, students are completing the aviation maintenance programs but electing to take jobs in other industries where wage or opportunity is greater. This is made possible by a desirable and transferable skill set.[8]

According to the most recent Current Population Survey (CPS)[9] there are 127,000 aircraft mechanics and service technicians. Without information on how many of those individuals hold either a mechanic or repairman certificate, the industry is flying blind. As previously explained, there are very specific regulations[10] governing who may perform, supervise, inspect, and approve work for return to service on civil aviation articles. Without statistical data on how many certificated mechanics and repairmen are currently employed, forecasting workforce needs is problematic. This statistical haze has both economic and safety implications: it is the aviation maintenance industry that keeps this nation's fleet flying safely.

[6] *Id.*
[7] *See, e.g.* U.S. Civil Airmen Statistics, FEDERAL AVIATION ADMINISTRATION, http://www.faa.gov/data_research/aviation_data_statistics/civil_airmen_statistics/
[8] "Policy Solutions for a Stronger Technical Workforce" p. 64
[9] "Labor Force Statistics from the Current Population Survey," BUREAU OF LABOR STATISTICS, *Available at*, http://www.bls.gov/cps/cpsaat11.htm.
[10] *See generally* 14 C.F.R. part 43.

5. ***Types of employers.*** **In what industries does this occupation occur? This information can help clarify the nature of the work performed and assist evaluation of collectability.**

These occupations are required by and occur within the civil aviation maintenance industry. Certificated companies and other employers of certificated mechanics, certificated repairmen, and non-certificated maintenance technicians include fixed based operators, aviation maintenance technician schools, technical colleges and universities, repair stations, product and parts manufacturers and distributers, private companies with business aircraft, individual aircraft owners and operators and air carriers. Additionally, certificated mechanics can work independently as private businesspersons.

6. ***Education and training.*** **What education and training are typically required for workers to be able to perform this occupation? What types of schools or training providers offer this education or training? How long does the education or training take? What degrees or other credentials are generally required, if any? Identification of specific education and training programs and institutions is helpful.**

The training and education requirements are vastly different for certificated individuals than for non-certificated technicians. Certificated mechanics have the most intensive education and training requirements.

To obtain certification as a mechanic under Title 14 Code of Federal Regulations (14 CFR) part 65, an applicant must have either (1) graduated from an FAA-approved aviation maintenance technician school, or (2) completed 18 months of practical experience relating to the airframe or powerplant rating sought, or 30 months of concurrent practical experience if the applicant seeks both ratings. Once those experience requirements are met, the applicant must pass written, oral, and practical tests. Consequent to this heightened level of required education and experience, certificated mechanics are able to perform a broader range of tasks. Time frames to graduate from an aviation maintenance technician school vary by program, but typically last between 15 months and 2 years. The programs are designed to prepare students to pass the certification exams required by the FAA to obtain a mechanic certificate with airframe and/or powerplant ratings and for the career field.

To obtain a repairman certificate under 14 CFR part 65, an applicant must be specially qualified to perform maintenance on civil aviation articles, and be employed for a specific job requiring those special qualifications by an entity certificated under 14 CFR parts 121, 135 or 145. Additionally, the applicant must be recommended for certification by the employer, and must have either at least 18 months of relevant practical experience, or formal training designed to qualify the applicant for the job. Certification as a repairman allows the individual to perform very specific sets of tasks, and

accordingly places limitations on the scope of work that the individual may supervise or approve for return to service and the location where the repairman is authorized to work.

Non-certificated individuals, on the other hand, have no formal training requirements and may only perform aviation related work under the supervision of an individual or entity certificated under 14 CFR with maintenance authority. Consequently, these individuals are much more limited in tasks and responsibilities.

Helpful resources for training programs and institutions include:

- Aviation Technician Education Council (ATEC) website: http://www.atec-amt.org/
- Directory of FAA-approved schools: http://av-info.faa.gov/MaintenanceSchool.asp

7. *Licensing.* Are licenses usually required? Identification of specific licenses and licensing agencies is helpful.

The Federal Aviation Administration (FAA) issues mechanic and repairman certificates based upon the requirements codified in 14 CFR part 65.[11] Only specifically certificated persons may perform, supervise, inspect, and approve maintenance, preventive maintenance and alterations for return to service on civil aviation articles.

8. *Tools and technologies.* What tools and technologies are generally used by workers in performing the occupation? Are the tools and technologies mentioned in existing SOC occupation definitions accurate and up to date?

Currently, the tools and technology listed under the SOC definition for aircraft mechanics and technicians (49-3011) include:

- Integrated maintenance information systems—Aircraft maintenance management systems; LTB/400 maintenance management system; MxManager; S.M.A.R.T aircraft maintenance tracking
- Metal cutters—Offset left aviation snips; Offset right aviation snips; Sheet metal breakers; Straight cut aviation snips
- Punches or nail sets or drifts—Brass punches; Center punches; Pin punches; Taper punches
- Screwdrivers—Flat blade screwdrivers; Phillips head screwdrivers; Ratcheting screwdrivers
- Wearable computing devices—Portable maintenance aids mobile computing devices; Wearable computers; Wearable point and click devices
- Analytical or scientific software—CaseBank SpotLight; CynapSys Virtual DER; Engine analysis software

[11] 14 CFR part 65.

- Data base user interface and query software—Metis Systems MainTrack; Mxi Technologies Maintenix; Pentagon 2000SQL; Sacramento Sky Ranch Mechanic's Toolbox
- Facilities management software—Access Software AIRPAX; Maintenance information databases; Maintenance planning software; Maintenance record software
- Information retrieval or search software—Computerized aircraft log manager CALM software; Technical manual database software
- Inventory management software—Supply system software

The undersigned organizations propose adding the following:

- Electrical/electronic test equipment (oscilloscopes, volt/ohm/ammeters, etc.)
- Non-destructive inspection equipment (magnetic particle, dye penetrant, etc.)
- Wrenches, sockets, torque wrenches, other fastener tooling
- Precision measurement tooling (micrometers, vernier calipers, etc.)
- Power metal cutting, forming and riveting tooling
- Welding equipment
- Aircraft ground operation
- Powerplant specialized tooling (reciprocating & turbine engines)
- Proper handling of hazardous materials (solvents, paints, lubricants, etc.)
- Composite structural equipment (hot bonding, vacuum bagging, graphite, Kevlar,etc.)
- High pressure fluid fabrication equipment (fuel, hydraulics, pressurized gases, etc.)

9. *Professional or trade associations and unions.* Are there professional or trade associations or labor unions related to the proposed occupation? Identification of specific associations or unions is helpful.

Certificated mechanics, repairmen and non-certificated technicians are represented by labor unions, but typically only those working for air carriers. There are also several trade associations that, because of involvement in the aviation community, have a vested interest in the health of the aviation maintenance workforce. These groups include, but are not limited to:

- Aeronautical Repair Station Association (http://arsa.org/)
- Aerospace Industries Association (http://www.aia-aerospace.org/)
- Aerospace Maintenance Council (http://aerospacemaintenancecompetition.com/)
- Airlines for America (http://airlines.org)
- Aircraft Electronics Association (http://www.aea.net/)
- Aircraft Mechanics Fraternal Association (http://www.amfanational.org/)
- Aircraft Owners and Pilots Association (http://www.aopa.org/)
- Association for Women in Aviation Maintenance (http://www.awam.org/)

- Aviation Suppliers Association (http://www.aviationsuppliers.org/)
- Aviation Technician Education Council (http://www.atec-amt.org)
- Cargo Airline Association (http://www.cargoair.org/)
- General Aviation Manufacturers Association (http://www.gama.aero/)
- Helicopter Association International (http://www.rotor.org/)
- Modification and Replacement Parts Association (http://www.pmamarpa.com/)
- National Air Carrier Association (http://www.naca.cc/)
- National Air Transportation Association (http://www.nata.aero/)
- National Business Aviation Association (http://www.nbaa.org/)
- Professional Aviation Maintenance Association (http://www.pama.org)
- Regional Airline Association (http://www.raa.org/)
- Teamsters Airline Division (http://teamsterair.org/)
- Transport Workers Union (http://www.twu.org/)

The SAS System

Aviation Maint Technology

COLLEGEWIDE TABLES (Excl Campus 6 & HS dual credit): Full Time Equivalent (Student FTE) Enrollment and % Change	2010-11	Percent Change: 09-10 to 10-11	2011-12	Percent Change: 10-11 to 11-12	2012-13	Percent Change: 11-12 to 12-13	2013-14	Percent Change: 12-13 to 13-14	2014-15	Percent Change: 13-14 to 14-15
	Total	%	Total	%	Total	%	Total	%	Total	%
Collegewide, Excl Campus 6	126.4	*3.8*	140.4	*11.0*	141.2	*0.6*	139.5	*-1.2*	132.6	*-4.9*

Aviation Maint Technology

COLLEGEWIDE TABLES (Excl Campus 6 & HS dual credit): Unduplicated Headcount Enrollment and % Change	2010-11	Percent Change: 09-10 to 10-11	2011-12	Percent Change: 10-11 to 11-12	2012-13	Percent Change: 11-12 to 12-13	2013-14	Percent Change: 12-13 to 13-14	2014-15	Percent Change: 13-14 to 14-15
	Total	%	Total	%	Total	%	Total	%	Total	%
Collegewide, Excl Campus 6	170	*-1.7*	212	*24.7*	188	*-11.3*	178	*-5.3*	167	*-6.2*

Aviation Maint Technology

COLLEGEWIDE TABLES (Excl Campus 6 & HS dual credit): Gender Distribution			Female	Male
		N	%	%
Collegewide, Excl Campus 6	2012-2013	186	7.0	93.0
	2013-2014	175	9.7	90.3
	2014-2015	164	10.4	89.6

Source: Banner End-of-Term Extracts, Excluding Campus 6 and HS dual credit

The SAS System 2

Aviation Maint Technology

COLLEGEWIDE TABLES (Excl Campus 6 & HS dual credit): Race/Ethnicity Distribution		Total	Foreign National	Multi-Racial	African American	Pacific Islander	Asian	American Indian/Alaska Native	Hispanic	White Non-Hispanic
		N	%	%	%	%	%	%	%	%
Collegewide, Excl Campus 6										
	2012-2013	164	4.9	3.7	1.2	0.6	6.1	0.6	3.0	79.9
	2013-2014	160	3.8	1.9	1.3	0.6	6.3	.	5.0	81.3
	2014-2015	151	2.6	3.3	2.6	.	6.6	0.7	5.3	78.8

Aviation Maint Technology

COLLEGEWIDE TABLES (Excl Campus 6 & HS dual credit): Age Distribution			14-17	18-20	21-25	26-30	31-40	41-50	51-60
		N	%	%	%	%	%	%	%
Collegewide, Excl Campus 6									
	2012-2013	188	.	18.1	24.5	25.5	20.7	7.4	3.7
	2013-2014	178	1.7	17.4	29.8	21.3	17.4	9.6	2.8
	2014-2015	166	3.6	18.1	27.7	16.3	25.9	6.6	1.8

Source: Banner End-of-Term Extracts, Excluding Campus 6 and HS dual credit

The SAS System

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COLLEGEWIDE TABLES (Excl Campus 6 & HS dual credit): Percent Distribution of Students who Indicate they are Degree-Seeking or Non-Degree-Seeking		All	Degree Seeking	Non-Degree Seeking
		N	%	%
Collegewide, Excl Campus 6				
	2012-2013	188	98.4	1.6
	2013-2014	178	98.9	1.1
	2014-2015	167	98.2	1.8

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COLLEGEWIDE TABLES (Excl Campus 6 & HS dual credit): Percent Distribution of Students in the Subject Area who are Enrolled Full-, Half-, or Part-Time at PCC in Credit Courses (in this or other subject areas): Fall Term Only			Full Time Credit Courseload	Half Time Credit Courseload	Part Time Credit Courseload
			%	%	%
Collegewide, Excl Campus 6					
	Fall	2012-2013	58.8	25.2	16.0
		2013-2014	62.1	21.4	16.5
		2014-2015	68.5	18.5	13.0

Source: Banner End-of-Term Extracts, Excluding Campus 6 and HS dual credit

The SAS System

Aviation Maint Technology

COLLEGEWIDE TABLES (Excl Campus 6 & HS dual credit): Grades (Credit Courses Only) for 2014-15, by Course	Total	A	B	C	D	F/NP	W	Other/Incomp/Audit
	N	%	%	%	%	%	%	%
AMT 101	77	37.7	26.0	9.1	.	26.0	.	1.3
AMT 102	38	36.8	44.7	13.2	.	5.3	.	.
AMT 105	38	18.4	47.4	28.9	.	5.3	.	.
AMT 106	38	39.5	36.8	15.8	.	7.9	.	.
AMT 107	39	61.5	25.6	7.7	2.6	.	2.6	.
AMT 108	36	47.2	33.3	5.6	.	13.9	.	.
AMT 109	34	52.9	32.4	8.8	2.9	.	.	2.9
AMT 115	31	41.9	48.4	9.7	.	.	.	.
AMT 117	35	14.3	48.6	17.1	2.9	17.1	.	.
AMT 120	29	41.4	55.2	3.4	.	.	.	.
AMT 121	29	51.7	34.5	10.3	.	3.4	.	.
AMT 123	31	29.0	54.8	12.9	.	3.2	.	.
AMT 124	28	42.9	42.9	14.3	.	.	.	.
AMT 203	37	35.1	43.2	16.2	.	5.4	.	.
AMT 204	38	23.7	28.9	26.3	.	10.5	.	10.5
AMT 208	34	44.1	29.4	26.5	.	.	.	.
AMT 211	30	80.0	20.0	.	.	.	.	.
AMT 212	31	51.6	38.7	6.5	.	3.2	.	.
AMT 213	31	38.7	48.4	9.7	.	.	3.2	.
AMT 214	34	58.8	20.6	17.6	.	2.9	.	.

(Continued)

Source: Banner End-of-Term Extracts, Excluding Campus 6 and HS dual credit

The SAS System 5

Aviation Maint Technology

COLLEGEWIDE TABLES (Excl Campus 6 & HS dual credit): Grades (Credit Courses Only) for 2014-15, by Course	Total	A	B	C	D	F/NP	W	Other/Incomp/Audit
	N	%	%	%	%	%	%	%
AMT 216	35	51.4	42.9	.	2.9	.	.	2.9
AMT 218	33	39.4	42.4	9.1	.	3.0	3.0	3.0
AMT 219	28	67.9	28.6	3.6	.	.	.	.
AMT 222	29	82.8	13.8	.	.	3.4	.	.
AMT 225	27	88.9	7.4	.	.	.	3.7	.

Aviation Maint Technology

CAMPUS TABLES: Full Time Equivalent (Student FTE) Enrollment and % Change	2010-11	Percent Change: 09-10 to 10-11	2011-12	Percent Change: 10-11 to 11-12	2012-13	Percent Change: 11-12 to 12-13	2013-14	Percent Change: 12-13 to 13-14	2014-15	Percent Change: 13-14 to 14-15
	Total	%	Total	%	Total	%	Total	%	Total	%
Rock Creek	126.4	*3.8*	140.4	*11.0*	141.2	*0.6*	139.5	*-1.2*	132.6	*-4.9*

Source: Banner End-of-Term Extracts, Excluding Campus 6 and HS dual credit

The SAS System

Aviation Maint Technology

CAMPUS TABLES: Full-Time Equivalent (Student FTE) Enrollment, by Course		2012-13	11-12 to 12-13	Percent Change: 11-12 to 12-13	2013-14	12-13 to 13-14	Percent Change: 12-13 to 13-14	2014-15	13-14 to 14-15	Percent Change: 13-14 to 14-15
		Total	Change	%	Total	Change	%	Total	Change	%
AMT 101	Rock Creek	1.8	-0.7	-28.2	1.7	-0.1	-6.4	1.5	-0.2	-12.5
AMT 102	Rock Creek	6.9	0.5	8.3	6.7	-0.2	-2.6	6.7	0.0	0.0
AMT 105	Rock Creek	7.2	0.7	10.8	6.5	-0.7	-9.8	6.7	0.2	2.7
AMT 106	Rock Creek	7.4	0.2	2.4	7.1	-0.4	-4.8	6.7	-0.4	-5.0
AMT 107	Rock Creek	7.1	0.4	5.3	6.9	-0.2	-2.5	6.9	0.0	0.0
AMT 108	Rock Creek	3.3	-0.2	-5.4	3.7	0.4	11.4	3.2	-0.5	-12.4
AMT 109	Rock Creek	6.5	0.7	12.1	6.0	-0.5	-8.1	6.0	0.0	0.0
AMT 115	Rock Creek	6.2	0.2	2.9	5.5	-0.7	-11.4	5.5	0.0	0.0
AMT 117	Rock Creek	6.0	0.2	3.0	6.2	0.2	2.9	6.2	0.0	0.0
AMT 120	Rock Creek	5.3	-1.1	-16.7	5.8	0.5	10.0	5.1	-0.7	-12.1
AMT 121	Rock Creek	5.8	-0.4	-5.7	5.6	-0.2	-3.0	5.1	-0.5	-9.4
AMT 123	Rock Creek	5.5	-0.4	-6.1	5.8	0.4	6.5	5.5	-0.4	-6.1
AMT 124	Rock Creek	5.3	-0.7	-11.8	5.5	0.2	3.3	4.9	-0.5	-9.7
AMT 203	Rock Creek	6.7	0.4	5.6	6.2	-0.5	-7.9	6.5	0.4	5.7
AMT 204	Rock Creek	6.5	0.2	2.8	6.4	-0.2	-2.7	6.7	0.4	5.6
AMT 208	Rock Creek	5.8	-0.2	-2.9	6.7	0.9	15.2	6.0	-0.7	-10.5
AMT 211	Rock Creek	5.8	0.0	0.0	5.6	-0.2	-3.0	5.3	-0.4	-6.3
AMT 212	Rock Creek	5.8	-0.7	-10.8	5.8	0.0	0.0	5.5	-0.4	-6.1
AMT 213	Rock Creek	6.0	-0.2	-2.9	5.8	-0.2	-2.9	5.5	-0.4	-6.1
AMT 214	Rock Creek	6.5	0.4	5.7	6.5	0.0	0.0	6.0	-0.5	-8.1
AMT 216	Rock Creek	3.7	0.7	21.9	2.9	-0.8	-21.2	3.3	0.4	13.1
AMT 218	Rock Creek	6.4	1.8	38.5	5.3	-1.1	-16.7	5.8	0.5	10.0
AMT 219	Rock Creek	5.5	-0.7	-11.4	5.8	0.4	6.5	4.9	-0.9	-15.2

(Continued)

Source: Banner End-of-Term Extracts, Excluding Campus 6 and HS dual credit

The SAS System

Aviation Maint Technology

CAMPUS TABLES: Full-Time Equivalent (Student FTE) Enrollment, by Course		2012-13	11-12 to 12-13	Percent Change: 11-12 to 12-13	2013-14	12-13 to 13-14	Percent Change: 12-13 to 13-14	2014-15	13-14 to 14-15	Percent Change: 13-14 to 14-15
		Total	Change	%	Total	Change	%	Total	Change	%
AMT 222	Rock Creek	**5.6**	0.0	*0.0*	**6.2**	0.5	*9.4*	**5.1**	-1.1	*-17.1*
AMT 225	Rock Creek	**2.5**	-0.1	*-2.4*	**3.2**	0.7	*26.0*	**1.9**	-1.3	*-39.7*
AMT 228	Rock Creek	**.**	.	.	**0.0**	.	.	**.**	.	.

Aviation Maint Technology

CAMPUS TABLES: Unduplicated Headcount Enrollment and % Change	2010-11	Percent Change: 09-10 to 10-11	2011-12	Percent Change: 10-11 to 11-12	2012-13	Percent Change: 11-12 to 12-13	2013-14	Percent Change: 12-13 to 13-14	2014-15	Percent Change: 13-14 to 14-15
	Total	%	Total	%	Total	%	Total	%	Total	%
Rock Creek	**170**	*-1.7*	**212**	*24.7*	**188**	*-11.3*	**178**	*-5.3*	**167**	*-6.2*

Aviation Maint Technology

CAMPUS TABLES: Enrollment (Seats Taken), by Course		2012-13	11-12 to 12-13	Percent Change: 11-12 to 12-13	2013-14	12-13 to 13-14	Percent Change: 12-13 to 13-14	2014-15	13-14 to 14-15	Percent Change: 13-14 to 14-15
		Total	Change	%	Total	Change	%	Total	Change	%
AMT 101	Rock Creek	**94**	-37	*-28.2*	**88**	-6	*-6.4*	**77**	-11	*-12.5*
AMT 102	Rock Creek	**39**	3	*8.3*	**38**	-1	*-2.6*	**38**	0	*0.0*
AMT 105	Rock Creek	**41**	4	*10.8*	**37**	-4	*-9.8*	**38**	1	*2.7*
AMT 106	Rock Creek	**42**	1	*2.4*	**40**	-2	*-4.8*	**38**	-2	*-5.0*
AMT 107	Rock Creek	**40**	2	*5.3*	**39**	-1	*-2.5*	**39**	0	*0.0*
AMT 108	Rock Creek	**35**	-2	*-5.4*	**39**	4	*11.4*	**36**	-3	*-7.7*
AMT 109	Rock Creek	**37**	4	*12.1*	**34**	-3	*-8.1*	**34**	0	*0.0*
AMT 115	Rock Creek	**35**	1	*2.9*	**31**	-4	*-11.4*	**31**	0	*0.0*

(Continued)

Source: Banner End-of-Term Extracts, Excluding Campus 6 and HS dual credit

The SAS System

Aviation Maint Technology

CAMPUS TABLES: Enrollment (Seats Taken), by Course		2012-13	11-12 to 12-13	Percent Change: 11-12 to 12-13	2013-14	12-13 to 13-14	Percent Change: 12-13 to 13-14	2014-15	13-14 to 14-15	Percent Change: 13-14 to 14-15
		Total	Change	%	Total	Change	%	Total	Change	%
AMT 117	Rock Creek	34	1	*3.0*	35	1	*2.9*	35	0	*0.0*
AMT 120	Rock Creek	30	-6	*-16.7*	33	3	*10.0*	29	-4	*-12.1*
AMT 121	Rock Creek	33	-2	*-5.7*	32	-1	*-3.0*	29	-3	*-9.4*
AMT 123	Rock Creek	31	-2	*-6.1*	33	2	*6.5*	31	-2	*-6.1*
AMT 124	Rock Creek	30	-4	*-11.8*	31	1	*3.3*	28	-3	*-9.7*
AMT 203	Rock Creek	38	2	*5.6*	35	-3	*-7.9*	37	2	*5.7*
AMT 204	Rock Creek	37	1	*2.8*	36	-1	*-2.7*	38	2	*5.6*
AMT 208	Rock Creek	33	-1	*-2.9*	38	5	*15.2*	34	-4	*-10.5*
AMT 211	Rock Creek	33	0	*0.0*	32	-1	*-3.0*	30	-2	*-6.3*
AMT 212	Rock Creek	33	-4	*-10.8*	33	0	*0.0*	31	-2	*-6.1*
AMT 213	Rock Creek	34	-1	*-2.9*	33	-1	*-2.9*	31	-2	*-6.1*
AMT 214	Rock Creek	37	2	*5.7*	37	0	*0.0*	34	-3	*-8.1*
AMT 216	Rock Creek	39	7	*21.9*	31	-8	*-20.5*	35	4	*12.9*
AMT 218	Rock Creek	36	10	*38.5*	30	-6	*-16.7*	33	3	*10.0*
AMT 219	Rock Creek	31	-4	*-11.4*	33	2	*6.5*	28	-5	*-15.2*
AMT 222	Rock Creek	32	0	*0.0*	35	3	*9.4*	29	-6	*-17.1*
AMT 225	Rock Creek	34	1	*3.0*	34	0	*0.0*	27	-7	*-20.6*
AMT 228	Rock Creek	.	.	.	1	.	.	.	.	.

Source: Banner End-of-Term Extracts, Excluding Campus 6 and HS dual credit

The SAS System

Aviation Maint Technology

CAMPUS TABLES: Gender Distribution			Female	Male
		N	%	%
Collegewide, Excl Campus 6				
	2012-2013	186	7.0	93.0
	2013-2014	175	9.7	90.3
	2014-2015	164	10.4	89.6
Rock Creek	2012-2013	186	7.0	93.0
	2013-2014	175	9.7	90.3
	2014-2015	164	10.4	89.6

Aviation Maint Technology

CAMPUS TABLES: Race/Ethnicity Distribution		Total	Foreign National	Multi-Racial	African American	Pacific Islander	Asian	American Indian/Alaska Native	Hispanic	White Non-Hispanic
		N	%	%	%	%	%	%	%	%
Collegewide, Excl Campus 6										
	2012-2013	164	4.9	3.7	1.2	0.6	6.1	0.6	3.0	79.9
	2013-2014	160	3.8	1.9	1.3	0.6	6.3	.	5.0	81.3
	2014-2015	151	2.6	3.3	2.6	.	6.6	0.7	5.3	78.8
Rock Creek	2012-2013	164	4.9	3.7	1.2	0.6	6.1	0.6	3.0	79.9
	2013-2014	160	3.8	1.9	1.3	0.6	6.3	.	5.0	81.3
	2014-2015	151	2.6	3.3	2.6	.	6.6	0.7	5.3	78.8

Source: Banner End-of-Term Extracts, Excluding Campus 6 and HS dual credit

The SAS System

Aviation Maint Technology

CAMPUS TABLES: Age Distribution			14-17	18-20	21-25	26-30	31-40	41-50	51-60
		N	%	%	%	%	%	%	%
Collegewide, Excl Campus 6									
	2012-2013	188	.	18.1	24.5	25.5	20.7	7.4	3.7
	2013-2014	178	1.7	17.4	29.8	21.3	17.4	9.6	2.8
	2014-2015	166	3.6	18.1	27.7	16.3	25.9	6.6	1.8
Rock Creek	2012-2013	188	.	18.1	24.5	25.5	20.7	7.4	3.7
	2013-2014	178	1.7	17.4	29.8	21.3	17.4	9.6	2.8
	2014-2015	166	3.6	18.1	27.7	16.3	25.9	6.6	1.8

Aviation Maint Technology

CAMPUS TABLES: Percent Distribution of Students who Indicate they are Degree-Seeking or Non-Degree-Seeking		All	Degree Seeking	Non-Degree Seeking
		N	%	%
Collegewide, Excl Campus 6				
	2012-2013	188	98.4	1.6
	2013-2014	178	98.9	1.1
	2014-2015	167	98.2	1.8
Rock Creek	2012-2013	188	98.4	1.6
	2013-2014	178	98.9	1.1
	2014-2015	167	98.2	1.8

Source: Banner End-of-Term Extracts, Excluding Campus 6 and HS dual credit

The SAS System

Aviation Maint Technology

CAMPUS TABLES: Percent Distribution of Students in the Subject Area who are Enrolled Full-, Half-, or Part-Time at PCC in Credit Courses (in this or other subject areas): Fall Term Only			Full Time Credit Courseload	Half Time Credit Courseload	Part Time Credit Courseload
			%	%	%
Rock Creek					
	Fall	2012-2013	58.8	25.2	16.0
		2013-2014	62.1	21.4	16.5
		2014-2015	68.5	18.5	13.0

Aviation Maint Technology

CAMPUS TABLES: Percent Distribution of Students by the Area in which they Reside	Academic Year	
	2013-2014	2014-2015
	Campus	Campus
	Rock Creek	Rock Creek
	%	%
Upper North/Northeast Portland	3.4	2.4
Inner City/Holladay Park	2.8	2.4
Central East County	2.8	3.0
Southeast Portland	5.1	4.2
Lake Oswego/SW Portland	5.6	2.4
Downtown/Inner NW/Inner SW Portland	1.7	2.4
Outer SW Portland/Beaverton	3.4	6.0
Aloha/Farmington	12.4	10.2

(Continued)

Source: Banner End-of-Term Extracts, Excluding Campus 6 and HS dual credit

The SAS System

Aviation Maint Technology

CAMPUS TABLES: Percent Distribution of Students by the Area in which they Reside	Academic Year	
	2013-2014	2014-2015
	Campus	Campus
	Rock Creek	Rock Creek
	%	%
Tigard/Tualatin/King City	3.9	6.6
Hillsboro/Forest Grove	9.6	13.2
Yamhill County/Sherwood	1.7	3.0
Rock Creek/West District	0.6	1.8
Columbia County/Hwy 30 Corridor	2.8	3.0
Outer Northwest/St. Johns	7.3	5.4
Other Oregon	23.0	21.0
Washington State	11.8	12.0
Other/Unknown	2.2	1.2
All	**100.0**	**100.0**

Aviation Maint Technology

CAMPUS TABLES: Grades (Credit Courses Only), History		Total	A	B	C	D	P	F/NP	W	Other/Incomp/Audit
		N	%	%	%	%	%	%	%	%
Collegewide, Excl Campus 6										
	2012-2013	**938**	45.4	35.5	9.5	0.6	0.1	6.5	1.0	1.4
	2013-2014	**918**	49.0	32.5	10.7	0.3	.	5.9	0.9	0.8

(Continued)

Source: Banner End-of-Term Extracts, Excluding Campus 6 and HS dual credit

The SAS System

Aviation Maint Technology

CAMPUS TABLES: Grades (Credit Courses Only), History		Total	A	B	C	D	P	F/NP	W	Other/Incomp/Audit
		N	%	%	%	%	%	%	%	%
Collegewide, Excl Campus 6										
Collegewide, Excl Campus 6	2014-2015	870	45.6	35.5	11.3	0.5	.	5.7	0.5	0.9
Rock Creek	2012-2013	938	45.4	35.5	9.5	0.6	0.1	6.5	1.0	1.4
	2013-2014	918	49.0	32.5	10.7	0.3	.	5.9	0.9	0.8
	2014-2015	870	45.6	35.5	11.3	0.5	.	5.7	0.5	0.9

Aviation Maint Technology

CAMPUS TABLES: Grades (Credit Courses Only) for 2014-15, by Course		Total	A	B	C	D	F/NP	W	Other/Incomp/Audit
		N	%	%	%	%	%	%	%
AMT 101	Rock Creek	77	37.7	26.0	9.1	.	26.0	.	1.3
AMT 102	Rock Creek	38	36.8	44.7	13.2	.	5.3	.	.
AMT 105	Rock Creek	38	18.4	47.4	28.9	.	5.3	.	.
AMT 106	Rock Creek	38	39.5	36.8	15.8	.	7.9	.	.
AMT 107	Rock Creek	39	61.5	25.6	7.7	2.6	.	2.6	.
AMT 108	Rock Creek	36	47.2	33.3	5.6	.	13.9	.	.
AMT 109	Rock Creek	34	52.9	32.4	8.8	2.9	.	.	2.9
AMT 115	Rock Creek	31	41.9	48.4	9.7	.	.	.	.
AMT 117	Rock Creek	35	14.3	48.6	17.1	2.9	17.1	.	.
AMT 120	Rock Creek	29	41.4	55.2	3.4	.	.	.	.
AMT 121	Rock Creek	29	51.7	34.5	10.3	.	3.4	.	.

(Continued)

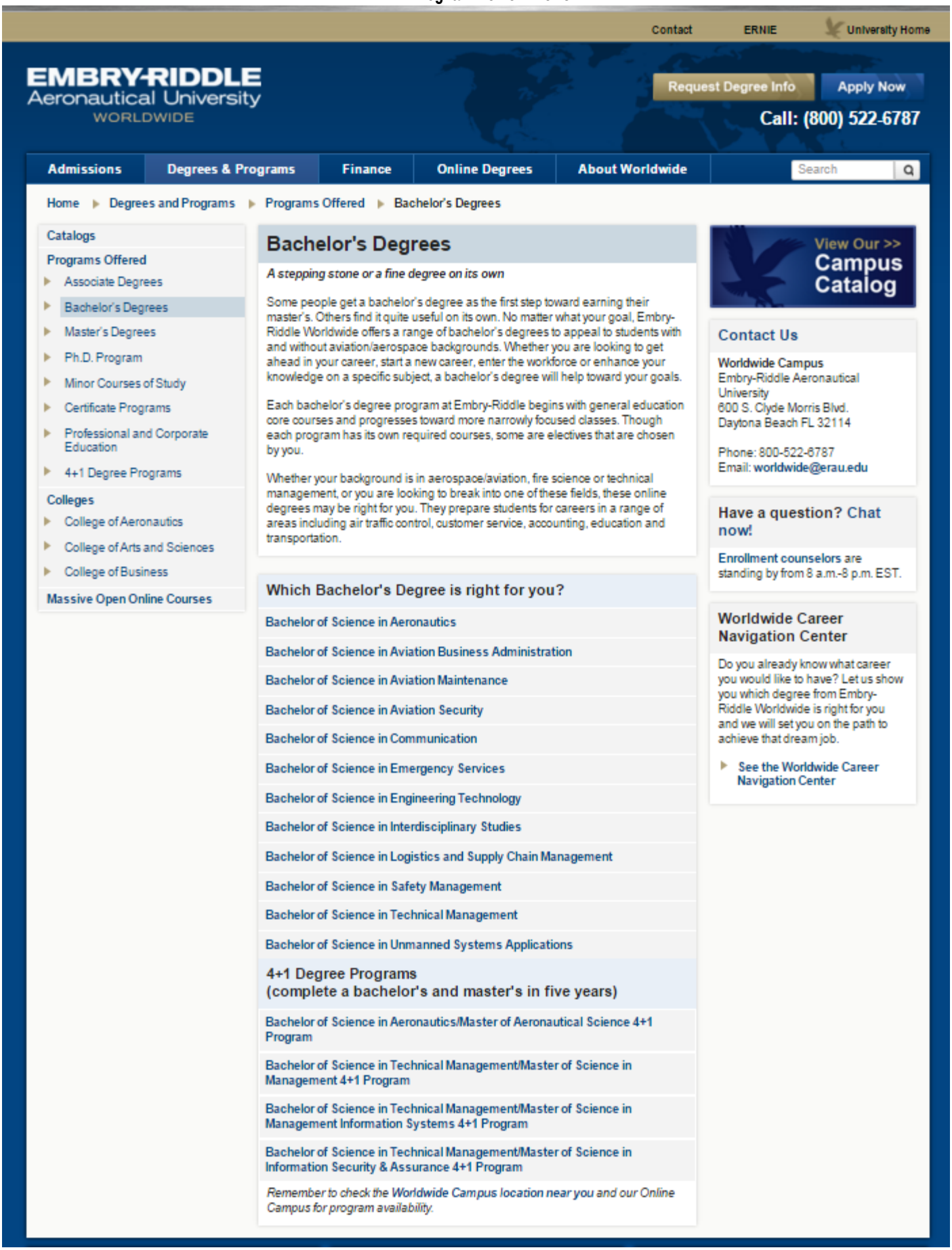
Source: Banner End-of-Term Extracts, Excluding Campus 6 and HS dual credit

The SAS System

Aviation Maint Technology

CAMPUS TABLES: Grades (Credit Courses Only) for 2014-15, by Course		Total	A	B	C	D	F/NP	W	Other/Incomp/Audit
		N	%	%	%	%	%	%	%
AMT 123	Rock Creek	31	29.0	54.8	12.9	.	3.2	.	.
AMT 124	Rock Creek	28	42.9	42.9	14.3	.	.	.	.
AMT 203	Rock Creek	37	35.1	43.2	16.2	.	5.4	.	.
AMT 204	Rock Creek	38	23.7	28.9	26.3	.	10.5	.	10.5
AMT 208	Rock Creek	34	44.1	29.4	26.5	.	.	.	.
AMT 211	Rock Creek	30	80.0	20.0	.	.	.	.	.
AMT 212	Rock Creek	31	51.6	38.7	6.5	.	3.2	.	.
AMT 213	Rock Creek	31	38.7	48.4	9.7	.	.	3.2	.
AMT 214	Rock Creek	34	58.8	20.6	17.6	.	2.9	.	.
AMT 216	Rock Creek	35	51.4	42.9	.	2.9	.	.	2.9
AMT 218	Rock Creek	33	39.4	42.4	9.1	.	3.0	3.0	3.0
AMT 219	Rock Creek	28	67.9	28.6	3.6	.	.	.	.
AMT 222	Rock Creek	29	82.8	13.8	.	.	3.4	.	.
AMT 225	Rock Creek	27	88.9	7.4	.	.	.	3.7	.

Source: Banner End-of-Term Extracts, Excluding Campus 6 and HS dual credit



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AMT Program - Prioritized Capital Equipment

Program	Item	Cost	5-year	Comments
AMT	Beechcraft KINGAIR series - Fixed-wing aircraft.	150,000	1	Turbine engine, modernization of fleet.
AMT	Support Equipment - Boroscopes/turbine engine	10,000	1	Support modernization of turbine technology.
AMT	Engine RUN STANDS - Turbo-prop/-shaft	35,000	1	Modernized instrumentation.
AMT	CUT-AWAY Teaching station - Pratt & Whitney PT6Turbine Engine	10,000	1	Supports modernization.
		205,000		
AMT	Robinson R22 Series Helicopter	85,000	2	Modern reciprocating powered helicopter.
AMT	MOCK-UP Teaching station - CABIN ATMOSPHERE,PRESSURIZATION	30,000	2	Support modernization
AMT	BELL Helicopter - 206 series	150,000	2	Turbine engine, modernhelicopter platform.
AMT	Simulator - Engine FADEC	35,000	2	Support modernization
AMT	AET/Avionics teaching/lab stations	255,000	2	
		555,000		
AMT	Engine RUN STANDS - Aviation Diesel	45,000	3	Introduction of Diesel intoAviation
AMT	Engine RUN STANDS - Dynomometer	125,000	3	Improved/modernized instruction.
AMT	Simulator- AVIONICS, Integrated Flat Panels	35,000	3	Support modernization
		205,000		
AMT	Support Equipment - OVERHEAD CRANE	150,000	4	Support modernization of turbine / helicopter technology
AMT	Support Equipment - Lifting Heads/Fixture	10,000	4	Support Crane
		160,000		
AMT	Engine RUN STANDS - Reciprocating	35,000	5	Modernized instrumentation.
AMT	CUT-AWAY Teaching station - Recip Engine(Lycoming & Continental)	20,000	5	Support modernization
AMT	Ion Exchange / waste-water treatment for SodaBlast machine	60,000	*	Health and Risk. High impacton course continuation.
		115,000		

GRAND Total: 1,240,000