

**Administrative Response to Aviation Maintenance Technology**  
**Prepared by Dr. Birgitte Ryslinge**  
**November 26, 2011**

On February 18, 2011 the Aviation Maintenance Technology (AMT) SAC presented their Program Review (PR) findings to an audience of PCC administrators and others with an interest in the discipline. Both the written report and the presentation were highly professional, informative and thought provoking. Your presentation provided ample opportunity for questions and discussion, which was enlightening for us all. We are impressed by the commitment of the AMT SAC to their mission *to train high-quality graduates to enter the field of aviation maintenance . . .to enter an industry with both local and global career opportunities.*

This Administrative Response will: A) note particular highlights of the AMT Program and Program Review, B) review your approach to outcomes and assessment, and C) provide the administrative response to the SAC recommendations.

**Of Note**

We were particularly impressed by the following accomplishments:

- Professionalism in Program Review, both the presentation and the written report were thorough, completed to high standards, and helped us understand your work.
- AMT's long history and tradition of excellence, since FAA certification in 1969.
- Very well developed statements of mission, values and goals.
- Students are getting jobs: key local and regional aviation firms with technician workforce of 50% to 80% AMT grads.
- Program certified by the Federal Aviation Administration, approved by the Veterans Administration, and accredited by State Division of Vocational Education.
- Facilities which are very impressive, effectively organized and well-maintained: 26,000 square-foot, two-hangar complex with 16 aircraft used exclusively for AMT instruction, including five helicopters.
- Instruction and program which adheres closely to the experience students will encounter in industry
- Connection with cross-section of industry professionals that meets semi-annually to reassess our curriculum.
- Clear path to completion: students are able to finish the program in 23 months, including summer sessions.
- Practicum courses help students prepare for the FAA Mechanic's certificate Oral, Written and Practical exams. The overall FAA exam pass rate for PCC AMT program completers is exceptionally high.
- Outcomes and assessment is thoroughly addressed in this program review, including assessment driven change.

- Willingness to engage with campus administration in order to explore the potential of collaboration with China for AMT training.
- Your work with Distance Learning: adding the hybrid components to AMT 101 (program prerequisite), which appears to have increased enrollments.
- Responding effectively to a changing environment
  - Maintained quality instruction during reduction in the annual AMT budget by \$250,000 in 2004; several course offerings were eliminated and other content was shifted.
  - A major effort at improving the wording of course outcome statements (19 of 24 courses) to better reflect skills and knowledge for the workplace.
  - Revision to the Degree and Certificate Outcomes as a follow through to the evaluation of Embedded Related Instruction within the AMT curriculum; better alignment of the course outcome wording, enhancing the clarity for outside evaluators.
  - Keeping instructor qualifications up to date and consistent with industry requirements (most recently updated June 2011).
- Diversity: women constitute generally between 5-7 percent of AMT student group (higher than industry work force ratios), robust enrollments of international students over time.
- Continued professional development of faculty, resulting in enhanced curriculum in terms of exposure to current technology / trends and awareness of issues that affect the industry.
- Having the AMT Resource Center for students to access specialized resources on aviation from media including hardcover aircraft manuals, textbooks, microfiche, CD ROM, electronic aircraft maintenance information, and the Internet.
- Faculty advising of students.

In summary, the AMT program has accomplished a great deal for which to be commended. Throughout its long history, the AMT faculty and staff have continued to provide a high quality experience for students, and ensured that PCC AMT graduates are in high demand for employment.

### **Outcomes and Assessment**

Assessment was identified as an area of focus for PCC during our very recent accreditation visit, and the April 2010 Interim Accreditation Report noted that: PCC must document *“progress in demonstrating, through regular and systematic assessment, that students who complete their programs have achieved the intended learning outcomes of degrees and certificates. Further, the college must begin to demonstrate, in a regular and systematic fashion, how the assessment of student learning leads to the improvement of teaching and learning.”*

Given the importance of this work to the college, we like to acknowledge SACs as they undertake the work of outcomes and assessments. The AMT program review reflects authentic engagement with the work of identifying outcomes and using assessment to

ensure the program adequately prepares students for the professional expectations that await them. The AMT SAC has effectively identified course and program level outcomes, and designed student assessments that ensure that students are learning what is promised. Additionally, the AMT SAC has clearly identified where and how offerings address the college core outcomes.

**College Core Outcomes** are thoroughly addressed, and documented as such with an up-to-date Core outcome mapping.

<http://www.pcc.edu/resources/academic/core-outcomes/amt.html>

Very well developed **Program Outcomes** for all degrees and certificates are provided in Appendix D, for:

- AAS: Aviation Maintenance Technology
- Two-Year Certificate: Aviation Maintenance Technology
- One-Year Certificate: Aviation Maintenance Technology – Airframe
- One-Year Certificate: Aviation Maintenance Technology - Powerplant

Outcomes are also developed and documented for the **Course Level**. The PR shows that individual course outcomes are assessed by three general methods, written, oral and practical examination. An example of the course outcome being addressed in the CCOG is found in Appendix D for AMT 102:

*Identify and apply basic strategies for the use of electrical test or monitoring instruments during the testing, monitoring and troubleshooting of basic aircraft electrical circuits*

### **Evidence that students are meeting course outcomes**

The AMT SAC notes very appropriately that the ultimate indicator that students are meeting core outcomes is the evidence provided by the data points of the SCHOOL NORMS VS. NATIONAL PASSING NORMS provided by the FAA. Written test results are published and show that graduates of the PCC AMT program are achieving a near 100% first time take pass rate with an average test score of 89%, (well above the national norm) and have been doing so for a significant period.

Additionally:

- Lab projects on aircraft and aviation equipment based upon the content and outcomes for each course are evaluated by instructors, and documented in the student's progress records.
- Course final testing required by the FAA curriculum, with results also recorded in the students' progress records.
- Program review, confirmation of competencies, and identification of student weaknesses is accomplished in the Practicum portion of the program that is scheduled at the end of the program courses for each certification rating (Airframe, Powerplant).

### **Assessment Driven Change**

The AMT program review provides an example of assessment driven change in 2007, when the department made three minor adjustments in the AMT Practicum series, moving content from two practicums to a total of three, providing for a more even distribution of the capstone evaluation coursework, and noted, "Within the year following implementation, this change proved beneficial for student success and retention. This was demonstrated by significantly higher completion."

While this is a good example of change responding to student or industry needs, it is not clear what assessment led to this change. Based on the extensive range of assessments described above, it is quite likely that the AMT SAC has made a variety of such changes. As part of their assessment planning, the AMT SAC should be sure to capture and document any assessment driven changes.

### **Administrative Response to AMT Recommendations**

We concur with many of the AMT recommendations, and in fact PCC administration has already acted upon some. In those areas of agreement, we 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. Overall, we have the usual challenge of supporting worthwhile and effective disciplines in a time of growing competition for limited resources. The question becomes, what can we do with the resources we have now? In that spirit, here are administrative responses to the SAC recommendations contained within the AMT Program Review

1. **Lab Technicians:** The AMT department needs two part-time lab technicians.
  - a. To support the repair and maintenance of our tools and training aids.
  - b. To support the tool counter during the afternoon practicum classes

*While AMT does have a full-time instructional technician, the arguments for additional support presented in the PR do carry weight. Student enrollments have been high, adding wear and tear on a relatively "mature" teaching fleet. If AMT wishes to make a case for such position(s) they need to complete the paperwork associated with requests for new permanent campus staffing, and these positions will be prioritized among other CTE needs, all of which will be subject to available funding. Additionally, if the China collaboration is fruitful, such staffing needs must be addressed, given that we are already at capacity in tech support.*

2. **Internships:** Securing internships for AMT students with local or regional aviation maintenance services providers despite barriers related to liability and need for supervision.
  - a. Work with local or regional aviation industry partners to affect the establishment of at least two continuing student internships of one term duration each, by the end of academic year 2011-2012.
  - b. Request additional, non-traditional assistance from PCC administration and college legal resources to creatively address liability concerns.

*We agree with and support the program goal to increase internship opportunities for students. Please work with your Division Dean on this goal, and also involve the campus DOI as needed to provide “non-traditional assistance.”*

3. **Enhance Industry Interface** by addressing barriers
  - a. The global aviation industry has been affected by the severe economic recession.
  - b. Within AMT, change in faculty leadership with associated spool-up time.
  - c. Significant college requirements associated with accreditation, program review and GCAC China partnership.
  - d. Re-establishment of the industry Advisory Committee, following the revised guidelines Advisory Committee Guidelines. Further, this effort will also assist in renewing the AMT program connectedness with our local and regional industry partners.

*Absolutely, strong and vital industry interface is critical for a program such as AMT. We understand that your efforts to reconstitute the Advisory Committee are underway, and that the new membership will be meeting this fall. Please let your Division Dean and DOI know how we can support this effort to connect with industry.*

4. **Equipment and facility needs**
  - a. Turbofan powered Aircraft
  - b. Overhead crane
  - c. Both turbine and reciprocating engine run stands.
  - d. Office furniture

*Finding the funding for CTE equipment is always a challenge, and particularly so in high-expense programs such as aviation. We will do what we can with margin funds as they become available. In the last year, we invested \$50,000 in equipment for the AMT program: a five-bladed propeller, a parts test unit, propeller stands and 7 Dell notebooks for the student lab. Please work with your Division Dean to ensure that AMT equipment requests continue to be well-developed and documented to ensure that they are appropriately prioritized.*

5. **Curricular support:** New FAA and industry emphasis on transport category aircraft, electronics/avionics, equipment, NDT, and composites will require significant additional resources as these changes are implemented. The program lacks necessary storage areas at the hangar to store and provide common, identifiable storage for course training aids.

*Please get specs on what is needed for storage, and present to your Division Dean.*

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. The AMT faculty is developing a long-term plan for taking advantage of professional development opportunities, local and national.

*We appreciate your frustration in finding sufficient funding to stay current in a changing discipline. Local budgets for training are also a campus resource, to be negotiated with the Division Dean, who must balance the needs of all the programs in the divisions. There are supplemental funds for professional development available through staff development and the TLC's, and yes, there is some paperwork involved in the application process. These supplemental funds are outside of the instructional budgets, and are an important resource for many different programs and groups. Our best advice at this moment is to work closely with the available funding sources and look for opportunities where funding can be combined and leveraged.*

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.
  - a. Revisit and update Aviation Marketing Plan. Some "action" items are needed in the area of recruitment such as another mailing to the military bases. A budget needs to be developed for the marketing plan "action" items.
  - b. We already take advantage of some workforce training opportunities, but need to do more of this, such as the Employment Skills Training Certificates.

*Program outreach, marketing and public relations are most certainly an area where CTE programs need support and assistance. Rock Creek has made a permanent investment in staff to focus on public relations/community outreach (Janis Nichols) as well as student/high school outreach (David Martinez). Please ensure that you work with both as resources to your outreach efforts and to possibly identify additional leveraged opportunities.*

## **Closing**

We want to again thank the Aviation Maintenance Technology SAC for sharing the results of your program review with us. We very much enjoyed learning about new developments for the AMT discipline, your successes and your plans for the future. We look forward to supporting your on-going work on continuous program improvement.

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