

## Comprehensive Program Review Self-Study Report

Please provide the following information. Respond NA to questions which are not applicable to your division/discipline/area. The self-study reports of all divisions/areas will include responses to Parts 1-7. Self-study reports of academic divisions will include a division overview in Part 1 and analysis of each discipline in Parts 2-7.

Questions with an asterisk (\*) were addressed in last year's program review report. The question numbers do not correspond with the numbers in last year's report.

Division/Area Name : Technical Education Division/Aircraft Fabrication & Assembly Technician Program (AFAB)

Year: 2013-2014 Academic Year

### **Part 1 - Division or Area Overview**

1.1 Briefly describe how the division or area contributes to the district mission.

The mission of the Aircraft Fabrication and Assembly program is to provide inexperienced students with the preparation for entry-level skills and experienced students with upgraded skills for the aerospace industry. The AFAB program stresses practical, hands-on experience using industry standard equipment with state-of-the-art laboratories. Our faculty members bring a wealth of knowledge into the classroom, combining their college education with real-world experience.

1.2 Place an "X" by each Institutional Learning Outcome (ILO) supported by the division or area.

- Analyze diverse perspectives from a variety of disciplines and experiences that contribute to the development of self-awareness.
- Value and apply lifelong learning skills required for employment, basic skills, transfer education, and personal development.
- Demonstrate a breadth of knowledge and experiences from the humanities, social and behavioral sciences, arts, natural sciences, and mathematics.
- Solve problems using oral and written communication, critical thinking and listening skills, planning and decision-making skills, information literacy, and a variety of technologies.
- Demonstrate good citizenship and teamwork through respect, tolerance, cultural awareness, and the role of diversity in modern society.
- Identify career opportunities that contribute to the economic well-being of the community.

1.3 After completing Parts 2-7, prepare a one page summary of the division/area. Interpret the significance of the findings. Note successes in supporting district strategic goals and where improvements are needed.

1.4 Name of person leading this review: Maria Clinton

1.5 Names of all participants in this review: Harold Bloemendaal, Ronald Coleman, Randy Durfee, Robert Browne, and Jeff Bryant

## **Part 2 - Data Analysis and Use**

The following data is provided on the Program Review website. Additional data is available from the Department of Institutional Research and Effectiveness (DIERP).

### Longitudinal data

- District headcount and FTES
- Division headcount and FTES
- Discipline headcount and FTES
- Number of sections offered by location/distance education
- PT/FT faculty ratio by LHE
- Efficiency (measured as FTES/FTEF)

### Data about student progress

- Student achievement: success, retention, and term to term persistence
- Progression through remedial courses
- Program completion
- Degree/certificate completion rate
- Transfer rates to 4-year institutions
- Licensure exam results
- Job placement/post training

All division/areas will complete Parts 2-7. In academic divisions Parts 2-7 will be completed by each discipline; please identify the discipline:

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2.1 Please review the five year headcount and FTES enrollment data provided on the web link. Comment on trends and how they affect your program.\*

Annual district headcount decreased 21.9 percent from 2008-2009 to 2012-2013 and during that time, the AFAB Program's headcount decreased 17 percent.

District FTES decreased 12 percent in the past five years while, the AFAB Program's FTES decreased by 10 percent. These decreases both in headcount and FTES are due to the programs reduction in courses being offered every semester.

The Program has had to reduce course offerings due to the budget crisis. This is affecting the ability of students to complete the program.

2.2 Report and analyze program/area data showing the quantity of services provided over the past four years (e.g. number of students served, books sold, employees hired, acreage maintained).

N/A

2.3 Please review the five year data on sections offered, faculty ratios, and efficiency data provided on the web link. Comment on trends and how they affect your program.

Sections offered by the district decreased 27.5 percent from 2008-2009 to 2012-2013. That reflects a 33 percent decrease in Lancaster sections, a 61 percent increase in Palmdale sections, and a 66 percent decrease in sections offered elsewhere. During that time sections in the AFAB program have decreased 28 percent due to the fiscal crisis and having to cut courses from the schedule. There is an anomaly in the 2009/2010 academic year where there was a 28 percent increase this was due to the grant associated with Northrop Grumman. Several additional courses (paid by the grant) were offered at the Northrop Grumman facility to Northrop Grumman employees, which has ended with the ending of the grant.

Fall district PT/FT faculty ratio increased 5.9 percent and spring district PT/FT faculty ratio increased 8.8 percent from 2008-2009 to 2012-2013. During that time the AFAB Program's PT/FT ratio increased 25 percent and in the spring the program's PT/FT faculty ratio decreased by 6 percent due to part time faculty leaving the adjunct pool.

District efficiency in the fall increased 15.9 percent and efficiency in the spring increased 6.7 percent over the past five years. The AFAB Program's efficiency in the fall increased 18 percent and efficiency in the spring increased 13 percent over the past five years.

2.4 Using the discipline student success data provided by web link, please comment on any similarities or differences between race, gender, location, and modality groups in meeting the Institutional Standard of 68% for student success (students earning grades of A, B, C, Pass, or Credit). Identify what actions are planned to address trends and achievement gaps in the current academic year.\*

The success of Mexican/Central or South American students in the district increased from 68 percent to 72 percent between 2008-2009 and 2012-2013, similar to the increase in Other/Unknown which increased from 69 percent to 73 percent. The success of Mexican/Central or South American students for the AFAB Program was unchanged over the past five years between 91 percent in 2008-2009 and 92 percent in 2012-2013.

The success of Asian and White students in the district was unchanged over the past five years at 78 and 76 percent respectively. The success of Asian students in the AFAB Program decreased 10 percent from 100 to 91 percent over the past five years. The success of White students in the AFAB Program decreased 6 percent from 94 to 88 percent over the past five years.

The success of American Indians/AK Native students in the district decreased from 68 to 67 percent and the success of Pacific Islander students decreased from 69 to 64 percent.

both groups falling below the Institutional Standard of 68 percent. The success of American Indians/AK Native students in the AFAB Program increased 33 percent from 67 to 100 percent, while the success of Pacific Islander students remained unchanged 100 to 100 percent over the last five years.

The success of Black or African American students in the AFAB Program increased 6 percent from 82 percent to 87 percent over the last five years.

The success of Other/Unknown in the district increased from 69 percent to 73 percent. The success of Other/Unknown for the AFAB Program increased 11 percent from 89 to 100 percent over the last five years.

69 percent of female students in the district were successful in 2008-2009; 71 percent were successful in 2012-2013. 68 percent of male students in the district were successful in 2008-2009; 69 percent were successful in 2012-2013. 92 percent of female students in the AFAB Program were successful in 2008-2009; 84 percent were successful in 2012-2013. 90 percent of male students in the district were successful in 2008-2009; 89 percent were successful in 2012-2013. The decrease in female student success is due partly to the fact that female students are a small majority in the program and they are usually first to be hired by aerospace companies thus inhibiting them from completing the program. The success of males students in the program remains relatively the same over the last five years, with a slight decrease due partly to students gaining employment.

Student success by location has changed little in recent years. Palmdale students achieved 66 percent success in 2012-2013, slightly lower than the Institutional Standard of 68 percent. That same year Lancaster students achieved 70 percent success and students in Other/Unknown locations achieved 80 percent success. The AFAB Program is located on the main campus in the TE7 building and has been there since its inception. Student success has decreased from 97 to 93 percent in the past five years partly due to students gaining employment and partly to course offerings being reduced making it difficult for students to complete the program. There is an anomaly in the 2009-2010 and 2010-2011 academic years due to the fact that several of the courses offered in the AFAB program were given at the Northrop Grumman facility (grant funded) and the success rate is relatively higher than at the AVC campus due mostly to the fact that the students in the grant funded classes were Northrop Grumman employees.

Students taking traditional courses in the district exceed the Institutional Standard of 68 percent success. 71 percent of students were successful in 2012-2013, down slightly from 72 percent the prior year but duplicating the success rates of 2011-12 and 2010-2011 and higher than the 69 percent success rate in 2008-2009. Students taking traditional courses in the AFAB Program exceed the Institutional Standard of 68 percent success. 93 percent of students were successful in 2012-2013, down slightly from 95 to 96 percent the prior year but duplicating the success rates of 2009-2010 and 2010-2011 and slightly lower than the 97 percent success rate in 2008-2009.

Students taking online courses in the district have not achieved the Institutional Standard of 68 percent success in any of the past five years. 56 percent were successful in 2012-2013, down from 58 percent in the two prior years and down from 57 percent in 2007-2008 and 2008-2009. The AFAB Program does not teach any of its courses in the online format.

- 2.5 Analyze and summarize trends in student progression through basic skills courses, if applicable.

N/A

- 2.6 List degrees and certificates currently offered in the discipline. Analyze how resource adjustments or other changes during the past four years have impacted degree and certificate completion rates.

Degrees granted by the district decreased 29.9 percent from 2008-2009 to 2012-2013 (or decreased by 23.9 percent from 2009-2010 to 2012-2013).

Degrees granted by the AFAB Program increased by 20 percent from 2008-2009 to 2012-2013. However there is a significant decrease from the 2012-2013 years to that of 2010-2011 and 2011-2012 in degree attainment. This is due partly to the reduction in class offerings due to the budget crisis and partly to students gaining employment.

Certificates granted by the AFAB Program increased by 41 percent from 2008-2009 to 2012-2013. However there is a significant decrease from the 2012-2013 years to that of 2009-2010 and 2010-2011 in degree attainment. This is due partly to the reduction in class offerings due to the budget crisis and partly to students gaining employment.

- 2.7 Using the data provided by web link, please comment on transfer rates to four-year institutions, license exam results, and job placement/post testing. If applicable, cite examples of using additional resources (e.g. human, facilities/physical, technology, financial, professional development) or making other changes during the past four years that have resulted in improvements in transfer rates to four-year institutions, license exam results, and job placement/post testing.

The district transfer rate decreased 38.4 percent from 2008-2009 to 2011-2012. Numbers for 2012-2013 are not available at writing time.

N/A for the AFAB Program.

- 2.8 Career Technical Education (CTE) programs: Review the labor market data on the California Employment Development Department website for jobs related to your discipline. Comment on the occupational projections for employment in your discipline for the next two years. Comment on how the projections affect your planning.  
<http://www.labormarketinfo.edd.ca.gov/Content.asp?pageid=1011>

**Labor Market Demand for the Aircraft Fabrication and Assembly Technician Program**

	2010 Jobs	2020 Anticipated Jobs	Percent Change	Average annual job opening
Aircraft assemblers	3000	3600	20.0%	60
Assemblers, fabricators, all others	6090	6520	7.1%	430

The occupational projections in both categories for the program indicate an increase in assembler jobs over the next two to six years. This information is also consistent with the information received during the AFAB Advisory Committee meetings attended by local aerospace company representatives in the Antelope Valley.

### Part 3 – Outcome Analysis and Use

- 3.1 Analyze changes in **student learning outcome (SLO)** and **program learning outcome (PLO)** assessment findings over the past five years. Cite examples of using data during that time as the basis for resource allocation (e.g. human, facilities/physical, technology, financial, professional development) or making other changes that resulted in or correlate with improved learning outcome findings over the past four years.\*

In reviewing the last Comprehensive Program Review, the AFAB program along with the Airframe & Powerplant were the first programs to develop their SLOs and PLOs. The Technical Education Division has been a leader in the development of PLOs with our format being adopted for use college-wide.

The AFAB program continues to assess all the SLOs in most of all the courses for the program every semester (dependent on if all courses in the program are offered that semester); the program has a 100% SLO assessment compliance rate. All the instructors (full time and adjunct) assess every SLO per course every semester. The findings are discussed with the faculty at the meetings. SLOs are also discussed at divisions meetings

The AFAB program is in the process of completing four full cycles of assessing all courses in the program. The results of the assessment have been examined and there have been minor adjustments to the SLOs for the AFAB 210 outcomes and assessment criteria. All the AFAB courses' assessment criteria have been updated.

One major result from reviewing the assessment data showed that students were not becoming as proficient in the lab courses; this was due because the shop air compressor was nonoperational for periods of time during the semester. Students were not being allowed sufficient time in the lab to develop their hands on skills. Once the air compressor was replaced the student proficiency rates (SLOs) increased. The SLO assessment data also indicate that students are meeting the proficiency level in all courses.

In addition, the assessment results show only that newly hired faculty or faculty teaching a new course need more support and mentoring to ensure that they are stressing instructors. It has no dedicated instructional assistant or other full-time faculty to help with program development and upkeep of the program equipment. The minimum requirement to keep the program at its current level of success is at least one full-time instructor and adjunct faculty that help with the upkeep of the labs and equipment. Currently there is one full-time faculty to five adjunct instructors. It is becoming more and more difficult to manage all aspects of the program, especially with the demand of the lab classes.

- 3.2 Analyze changes in **operational outcomes** (OO) findings over the past five years. Cite examples of using data during that time as the basis for resource allocation (e.g. human, facilities/physical, technology, financial, professional development) or making other changes that resulted in or correlate with improved OO findings over the past four years.\*  
N/A

#### **Part 4 - Stakeholder Assessment**

- 4.1 Assess how well the program serves the needs of the students, district, and community. Support statements with findings from student, employee, and/or community surveys. Include feedback from other sources if relevant (e.g. advisory committees, employers in the community, universities, scores on licensure exams, job placement).

The AFAB Program has not conducted any surveys to obtain stakeholder input. However, the AFAB program does conduct Advisory meetings at least once a semester. The AFAB advisory committee has representation from Northrop Grumman, Lockheed Martin, the Boeing Company, the Spaceship Company, Scaled Composites, General Atomics, and BAE. The AFAB Advisory committee goes over program requirements and meeting the needs of local industry. In the May 15, 2013 AFAB advisory meeting, the committee was informed that all the COR's for the AFAB program will need to be reviewed and updated for the upcoming academic year, and the Northrop Grumman representative Mr. Orville Dothage stated, "that he would like to set up a meeting with Ms. Clinton to go over the curriculum. Northrop would like to add additional items to the curriculum as well as emphasize certain structural requirements". The full-time faculty member did meet with Northrop Grumman supervisors during the 2013 summer semester to go over the requested changes and input concerning the program.

Northrop Grumman and Lockheed Martin are the two major companies in the valley that employ the students that are trained in the AFAB program. Both employers have given positive feedback in regards to the quality of students they have been seen from the program.

In addition, the Northrop Grumman representative indicated that there will be B-2 openings for structural technicians at Northrop Grumman. He also gave the committee an update concerning the job outlook for Northrop Grumman. He indicated that the two major

areas for the company will be located in Palmdale California and St. Augustine, Florida as well as a significant projected growth in the next 2 years.

## Part 5 - Goals and Objectives

- 5.1 Review the goals identified in your most recent comprehensive self-study report and last year's annual report. Indicate which have been completed and which have been eliminated.\*

In reviewing the last Comprehensive Program Review the goals for the AFAB program are listed in the order of priority at that time, and are still consistent in priority.

1. Hire a dedicated AFAB Instructional Assistant. (not completed)
2. Increase the supply budget for the program. (not completed)
3. Expand the course offerings to include pneudraulics and electrical wiring. (not completed)
4. Hire another full-time instructor for the AFAB program. (not completed)

All of the above objectives are contingent on the State's budget situation and out of the Technical Educations Division's control.

- 5.2 List discipline/area goals and objectives related to **improving outcome findings and/or the success of the various learner populations** in completing courses, certificates, degrees, and transfer requirements. Discipline/area goals must be guided by district Strategic Goals and Plan Summaries in the Educational Master Plan (EMP). They must be supported by an outcome action plan, data analysis, national or professional standards, and/or a requirement or guideline from an outside agency (e.g. legislation, Chancellor's Office, accrediting body, professional board). Consider curriculum, instruction, assessments, program services, operations, collaborations, scheduling, location, technology, etc.\*

Current (up to three years)

Goal: Increase the rate of certificate completion for the AFAB program by 10 percent.

- Guided by district Strategic Goal(s) #1
- Supporting action plan, data analysis, or other documentation  
After reviewing the certificate completion rate data, it is clear that certificate completions rates have dropped.
- Objectives: Significant steps or actions needed to achieve the goal  
Have students apply for the certificate in the classroom under the direction of the full-time instructor.



Near Term (three to five years)

Goal: Increase the rate of non-traditional students into the AFAB program by 5 percent.

- Guided by district Strategic Goal(s) **#3**
- Supporting action plan, data analysis, or other documentation  
After reviewing the student success and retention rates data, female student success rates are slightly less than that of the male students.
- Supporting action plan, data analysis, or other documentation

Objectives: Significant steps or actions needed to achieve the goal  
Get with the Dean of Institutional Research and Effectiveness an create a student survey to identify why these students are leaving the program before achieving certificates.

Long Term (five to ten years)

Goal: Increase AFAB Program certificate completion rate by 25%

- Guided by district Strategic Goal(s) **#1**  
After reviewing the certificate completion rate data, it is clear that certificate completions rates have dropped.
- Objectives: Significant steps or actions needed to achieve the goal  
Have students apply for the certificate in the classroom under the direction of the full-time instructor. In addition, get with the Dean of Institutional Research and Effectiveness to create a survey to identify why students are leaving the program before completing.

- 5.3 List discipline/area goals and objectives **directly related to advancing Strategic Goals.** Discipline/area goals must be guided by district Strategic Goals and Plan Summaries in the Educational Master Plan (EMP). They must be supported by data analysis or other documentation.

Current (up to three years)

Goal 1: Increase employer outreach for participation on the AFAB advisory committees and to enhance community partnerships.

- Guided by district Strategic Goal(s) **#3b and 6**
- Supporting data analysis or other documentation  
After reviewing the AFAB Advisory committee minutes and sign-in sheets, the participation by the industry representatives has declined.

Objectives: Significant steps or actions needed to achieve the goal

- The full-time faculty member needs to set up additional meetings with each representative in conjunction with the AFAB advisory meeting to keep the interest alive for the program. In addition, the full-time faculty member needs to solicit agenda items and discussion from the industry participants. Perhaps get with the Dean of Institutional Research and Effectiveness to create a survey to identify why participation has declined.

Goal 2: Obtain additional tools and equipment to update and replace tools that wear out or are broken.

- Guided by district Strategic Goal(s) **# 5b**
- The class sizes have increased several percent in the last few years and the technology and equipment needs have changed as well.

Objectives: Significant steps or actions needed to achieve the goal

- Increase the AFAB Budget and Perkins Funding

Goal 3: Obtain additional advanced training for AFAB full-time instructor.

- Guided by district Strategic Goal(s) **# 5b**
- The technology and techniques for the industry standards is in constant change and faculty need to be trained in these areas in order to provide students with the skills and knowledge necessary to be successful in the workplace.

Objectives: Significant steps or actions needed to achieve the goal

- Re-instate the district's faculty professional development funding source, and or increase Perkins funding.

Near Term (three to five years)

Goal: Revise AFAB curriculum to include the addition of classes requested by industry (wiring and advanced composite classes).

- Guided by district Strategic Goal(s) **#1**
- Supporting data analysis or other documentation  
After reviewing the AFAB Advisory committee minutes there is a theme that has persisted, and that is more training is needed for more advanced classes within the program.

Objectives: Significant steps or actions needed to achieve the goal

Another full-time faculty member needs to be on board to help in the development of the program and curriculum. A Dacum needs to be conducted with participation by industry representatives to gather data for required element of the curriculum.

Long Term (five to ten years)

Goal: Merge the AFAB program and Airframe & Power plant program facilities.

- Guided by district Strategic Goal(s) **#1**
- Supporting data analysis or other documentation  
This goal for a permanent facility was outlined in the Airframe & Powerplant's Program Learning Outcomes for Spring 2013. Both programs are closely related disciplines and should be merged together in order to work effectively with industry and the provide students with more opportunities. In addition, equipment's needs would not need to be duplicated.

Objectives: Significant steps or actions needed to achieve the goal

Work closely with industry to form a partnership that would allow for some or most of the cost of such a facility to be provided by our industry partners. Increase the District's support for a facility.

## Part 6 - Resource Needs

Identify significant resource needs that should be addressed currently (up to three years), near term (three to five years), and long term (five to ten years). If there may be safety issues, enrollment consequences, or other important concerns if a resource is not provided please make this known.\*

- 6.1 List needed human resources. List titles in priority order. Identify which discipline/area goal(s) guides this need.

Hire a dedicated AFAB Instructional Assistant. Currently the Instructional Assistant provides no assistance to the AFAB program. The full-time faculty member has to clean, repair, inventory, set up shop, etc... for the classes. Help during lab time to ensure the safety of students and proper use of equipment (this would also help reduce the cost of replacing broken equipment and tooling from improper student usage). Some of this work has been subsidized by the loaning of the Airframe and Powerplant Instructional Assistants during the spring 2009 semester. The assistants were available for a total combined of 8 hours a week (4 hours each). Although this was a help, it is not enough. The program's huge growth with all classes being offered during the summer (8-hour instruction days) has stressed the labs, equipment, and funds for the program.

Hire another full-time instructor for the AFAB program. Currently there is one full-time faculty to seven adjunct instructors. It is becoming more and more difficult to manage all aspects of the program, especially with the expansion of classes due to the dramatic increase in growth. Another full-time faculty member is needed to manage class scheduling, adjunct coordinating, SLO data collecting and assessment, repairing shop equipment and tooling, purchasing supplies, etc...

- 6.2 List needed technology resources in priority order. Identify which discipline/area goal(s) guides this need.

Need to obtain dvd training videos to replace videotapes that are old and quickly becoming obsolete (Current).

- 6.3 List facilities/physical resources (remodels, renovations, or new) needed to provide a safe and appropriate student learning and/or work environment. List needs in priority order. Identify which discipline/area goal(s) guides this need.

Need to be relocated the AFAB program with the Airframe & Powerplant program, when a permanent facility that meets the needs for both programs had been established.

- 6.4 List needed professional development resources in priority order. Identify which discipline/area goal(s) guides this need.

Need to send faculty to composite and sheet metal training courses in order to keep up with industry standards.

Need to replace the drill motors and rivet guns; and purchase new advanced tools and equipment to keep up with industry standards.

- 6.5 List any other needed resources in priority order. Identify which discipline/area goal(s) guides this need.

Need to replace the Vacuum Generators for the composites lab

Need to replace the drill motors and rivet guns; and purchase new advanced tools and equipment to keep up with industry standards.

The growth that the program has received in the last year has allowed more classes to be offered due to student and industry demand; however the current supply budget is inadequate. Alternate sources of funding are a necessity to the program at this point in time.

The program would like to expand of the course offerings to include pnuedraulics and electrical wiring. Northrop has expressed a need for this training. However the classroom/lab and time dedicated to developing these courses by the full-time faculty member is limited. The development of these courses will increase the AFAB classes to include the much needed training that industry (Northrop) is requesting.

## **Part 7 - Recommendations and Comments**

- 7.1 List recommended changes to the Educational Master Plan to:

- Address external issues or mandates such as legislation, industry, and professional standards, etc. N/A
- Respond to outcome findings. N/A
- Reflect changes in technology, methodology, and/or disciplines. N/A
- Address student achievement gaps and/or meet other student needs. N/A

- 7.2 What changes in the program review process would improve institutional effectiveness or make the results more helpful to the program?

Decrease the requirements for the annual updates for Program Review. As they are written, is that much information really necessary between the annual and comprehensive reports? Would a bi-annual review be better suited, to allow faculty the opportunity to see change over a two-year cycle versus every year, some programs do not complete a cycle but for every two years. Are we interested in quality data or quantity as an institution?