

Substantive Change Proposal

Proposal to Offer an
Airframe Manufacturing
Technology
Baccalaureate Degree



Antelope Valley College

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A. Concise description of the change and request to add a baccalaureate program

Antelope Valley College proposes to offer a baccalaureate degree in Airframe Manufacturing Technology. The proposed program meets the need in the aerospace industry for multi skilled individuals who understand, perform, and serve as first-line leads in the major processes of manufacturing the structural components of an aircraft for civilian and military specifications. The program's curriculum addresses airframe manufacturing, aircraft fabrication (structures and composites).

A. Evidence that the field of student for the degree is consistent with the institutional mission

A baccalaureate degree in Airframe Manufacturing Technology fits well with the Antelope Valley Community College District mission:

Antelope Valley College, a public institution of higher education, provides a quality, comprehensive education to a diverse population of learners. We are committed to student success offering value and opportunity, in service to our community.

[\(Attachment 1\)](#)

The proposed degree meets a proven need in the Antelope Valley community while offering an opportunity to our students to improve their standing in the workforce at an affordable cost.

B. Rationale for the change

The rationale for this substantive change proposal is based upon the approval of SB 850. On September 28, 2014, Governor Jerry Brown signed into law SB850, authorizing the Board of Governors of the California Community Colleges to establish a baccalaureate degree pilot program at no more than 15 California Community Colleges. On March 16, 2015, the Board of Governors of the California Community Colleges approved a baccalaureate degree program proposal at Antelope Valley College in Airframe Manufacturing Technology.

[\(Attachment 2\)](#)

The baccalaureate leadership team did due diligence to verify the need for an Airframe Manufacturing Technology program in the area. The team held advisory committee meetings with the industry advisory committee, including representatives from Lockheed

Martin, Northrop Grumman, Scaled Composites, and the Spaceship Company. Members unanimously agreed upon the need for training at this level. The leadership team also gathered student input by means of a student survey. Of 186 students who responded to the survey, 183 indicated that they would be interested in a bachelor's degree in this field. ([Attachment 3](#); [Attachment 4](#))

B. Description of the new program to be offered; level of rigor of upper division courses commonly accepted as appropriate to the baccalaureate degree; program length; identification of delivery modes for the courses

The Airframe Manufacturing Technology baccalaureate degree builds off of two existing high quality, successful programs that have provided well trained employees to meet the needs in our communities for many years. By expanding these programs to include the opportunity to earn a baccalaureate degree, Antelope Valley College will now fill the need of local employers for a highly skilled lead worker in the same field and will provide a valuable opportunity for both our students and our committee.

The Airframe Manufacturing Technology program will include courses in disciplines in which Antelope Valley College already offers degrees and certificates: Aircraft Fabrication and Assembly and Aviation Airframe. Entrance into the baccalaureate courses will require graduation from or substantial completion of one of those programs prior to admission to upper division courses.

The Airframe Manufacturing Technology program is designed to be cohort-based, with both a full and part-time track. The classes will be both lecture and laboratory including both upper-division general education and degree program requirements. The fulltime cohort will consist of 25 students and will be completed in two years.

Upon successfully completing the program, graduates will be able to:

1. Analyze and evaluate critical aspects of the aerospace manufacturing industries related to the planning design of plant facilities, which ensures both production efficiency and safe work practices/environment that ensure quality of production work.
2. Assess and evaluate composite tooling requirements to ensure quality and efficiency for manufactured parts.

3. Recognize engineering requirements in order to set-up and prepare facilities and workflow from the perspective of engineering needs and requirements as well as the needs and requirements of the technicians.
4. Produce an actual or simulated improvement plan to eliminate waste, production inefficiencies, and poor facility design using pertinent and statistical process control data.

Upper-division coursework

To fulfill the needs of industry for a multi skilled lead worker, the lower division courses will include courses in aircraft fabrication, aircraft structures, blueprint reading, electronics, vintage aircraft structures (to familiarize students with aircraft flight control systems), composite fabrication, aerospace ethics, aircraft production systems, computer aided design, and robotics. Upper division discipline work would include safety in aviation, foreign object elimination migration paths, lean manufacturing, testing and inspection, and airframe tooling. A capstone project that will take two semesters to design and complete will be used as verification of completion of the program learning outcomes. Northrop Grumman Corporation, Lockheed-Martin industry representatives have volunteered to mentor students who will be completing the capstone projects.

Upper division general education that would apply to this degree includes: Technical Writing for Aviation, Industrial and Organizational Behavior, Survey of Emerging and Re-emerging Infectious Disease, and Meteorology. The total number of units of upper division general education course work exceeds the nine unit minimum required by the CSUs.

AVMT XXX- Theory of Low Observables

Draft Course Description: This course provides an understanding behind the theory of low observable technology, the reduction of radar, optical and acoustic signatures which provide stealth. A basic knowledge of chemistry and physics is required on structural and low observable repair, modification, and corrosion protection treatment processes. A focus on the importance of proper coating application processes that ensure stealth capabilities, along with facilities, equipment, and PPE requirements for applying coatings will also be covered.

AVMT XXX -FOD/FOE Migration Paths

Draft Course Description: This course provides supervisors/leads/technicians with aviation safety principles and practices needed to manage the problems associated with aircraft manufacturing/maintenance operations. In addition, it prepares students to assume safety responsibilities in their areas of operation. The Foreign Object Elimination Elements of Basic Awareness addresses twelve industry identified basic knowledge areas, activities and functions designed to prevent foreign objects from entering aerospace products. The standards are derived from NAS 412 - Foreign Object Damage / Foreign Object Debris (FOD) Prevention. Possible field trip opportunities to Northrop Grumman and other industry partners

AVMT XXX -Safety in Aviation

Draft Course Description: This course provides supervisors/leads/technicians with aviation safety principles and practices needed to manage the problems associated with aircraft manufacturing/maintenance operations. Aviation safety program development, aviation human factors issues, aviation safety management systems, and other areas and case studies relevant to aviation safety, such as aviation operation, maintenance, manufacturing, hazardous materials, airport environment issues, and issues related to aviation regulations and security. Identification and analysis of major problem areas and the impact of accidents on the aviation industry will be covered. Prepares students to assume safety responsibilities in their areas of operation.

AVMT XXX -Lean Management (Six Sigma and 5S's)

Draft Course Description: This course focuses on gaining an understanding of Lean principles, practices, and techniques from both technical and individual perspectives needed to effect the change and sustain improvement within the aviation industry. Emphasis will be placed on developing the individual skills needed to become a Lean thinker and champion building a roadmap for transitioning an organization from its current state to one of being a Lean operation. Six Sigma and the 5's systems will be covered. Classroom sessions will include exercises designed to simulate real world applications to clarify concepts and techniques.

Note: This class is a pre-requisite for both Capstone courses.

AVMT XXX -Manufacturing Testing & Inspection

Draft Course Description: This course provides an understanding and familiarization with the various inspection and testing methods for the materials and processes associated with aircraft structures. For example control surface rigging, high pressure fittings, seals, and reliable bonds are essential to the integrity of aircraft composite structures throughout their service life. Non-Destructive Inspections (NDI) and Non-Destructive Testing (NDT) are other methods employed by the aviation industry to detect defects. This course includes hands-on familiarization with testing equipment related to rigging, high pressure lines and fittings, seals, gases, fluids, and curing.

Note: The Aerodynamic Structural Development and Assembly Requirements course is a pre-requisite for this class

AVMT XXX -Airframe Composite Manufacturing 1

Draft Course Description: This course is designed and intended for advancing knowledge and skills of composite manufacturing for students desiring further understanding of the practical skills involved in producing quality composite structures. An intermediate level of understanding of composite layup and vacuum bagging techniques for complex shapes, fabrication of potted honeycomb core assemblies, manufacturing composite component parts, and a fundamental understanding of the documentation and record keeping required to support composite manufacturing.

Note: AFAB 120 Composite fabrication and Repair is a prerequisite for this course.

AVMT XXX- Airframe Composite Manufacturing II

Draft Course Description: This course is designed and intended for a further understanding of the practical skills involved in producing quality composite structures. The student will have an intermediate level knowledge of machining, trimming and drilling composite components using fixtures, surface preparation methods/secondary bonding of structures, component assembly methods and techniques, as well as acquire a fundamental knowledge of the resin vacuum infusion manufacturing process.

Note: Airframe Manufacturing Part A is a prerequisite for this class.

AVMT XXX - Airframe Manufacturing Producibility

Draft Course Description: This course provides an understanding and familiarization with Return on Investment (ROI) (Do changes fix a problem, do changes reduce cost). The growing demand for product performance, reliability, versatility, and miniaturization at a competitive price have imposed major challenges upon aviation manufacturing industries.

Note: This course is a prerequisite for Capstone I and Capstone II classes

AVMT XXX- Airframe Manufacturing Capstone I

Draft Course Description: This course is the proposal phase of the Lean Management/Project Management proposal that will consist of an actual unclassified or generic project that student teams would compete for. Possible ‘real world’ unclassified projects may come from Northrop, Lockheed, Scaled Composites, The Spaceship Company, etc The capstone course encompasses the assigning of teams, distribution of possible project proposal, assigning of faculty and/or industry mentors. These projects will focus on workflow analysis and project management.

Note: This class is the prerequisite for Capstone Part B class.

AVMT XXX- Airframe Manufacturing Capstone II

Draft Course Description: This course is the basis for either the unclassified Aviation Manufacturing Industry Partner (Northrop, Lockheed, Scaled, The SpaceShip Company, etc.) or generic improvement assignment final development and proposal presentation.

Note: Capstone Part A is a prerequisite for this class.

ENGL 315 – Applied Technical Writing

Draft Course Description: Building on skills learned in the lower division technical writing course, this course provides extended, guided practice and instruction in understanding and writing for multiple audiences and multiple purposes in a technical environment. Students will develop skills in language choice as an aid to clarity, and students will learn principles of document design in both digital and conventional communication situations. Students will learn advanced research techniques and strategies while working on extended writing projects. Learning to work on multi-staged, collaborative projects will be central to this course.

Note: English 101 and Introduction to Technical Communication are prerequisites for this course.

PSY 301 – Organizational Behavioral Psychology

Draft Course Description: This course offers an introduction and broad overview of the psychology of individual and group dynamics in the workplace. This course will examine topics such as organizational culture and structure, teamwork, group dynamics, managing change, conflict theory, motivation, and leadership. Emphasis is placed on applying course concepts to current workplace issues.

Note: PSY 101 is a prerequisite for this course.

PSCI 302 – Introduction to Quantitative Atmospheric Dynamics and Thermodynamics

Draft Course Description: This course provides a quantitative understanding of general meteorology. It introduces the physics and thermodynamics of the atmosphere to understand the horizontal and vertical transport of atmospheric heat and momentum which are directly related to the cyclones, anticyclones, hurricanes, weather fronts, mesoscale disturbances, severe storms, tornados, sea and land breezes, atmospheric boundary layer and turbulence. Insight into these mechanisms will be gained through the use of spread sheet based calculations by allowing relationships to be studied by plotting the data graphically and then explaining the meaning of those relationships using the graphs. Atmospheric thermodynamic processes will be quantified using various thermodynamic calculations and in some cases, computational diagrams such as the Skew-T and Stuve diagrams.

Note: Physics 101 and MATH 135 are prerequisites for this course.

BIO 304 - A Survey of Emerging and Re-emerging Infectious Diseases

Draft Course Description: This is an upper division General Education course, covering a survey of selected emerging and re-emerging infectious diseases, addressing the Biological, Historical, Sociological, Geographical, and Epidemiological factors that have had an impact on the human populations worldwide throughout history. The content will cover the basic concepts of infectious disease agents (Viruses, Prions, Bacteria, Protozoa, and Helminths), human biology, and the Public Health measures used to identify, treat, and prevent these diseases. Also covered are the various human factors that have influenced the trends of these diseases, including historical events, government politics, and cultural and sociological changes affecting human populations.

Semester One (fall)

| | | |
|----------|---|---------|
| PSCI 302 | Intro to Quantitative Atmospheric Dynamics and Thermodynamics | 3 units |
| ENGL 302 | Applied Technical Writing | 3 units |
| PSY 301 | Organizational Behavioral Psychology | 3 units |
| BIO 304 | Survey of Emerging and Re-emerging Infectious Disease | 3 units |
| BUS 101 | Introduction to Business | 3 units |

Semester Two (spring)

| | | |
|----------|--------------------------------------|---------|
| AVMT XXX | Safety in Aviation | 3 units |
| AVMT XXX | Lean Management | 3 units |
| AVMT XXX | Airframe Manufacturing Producibility | 3 units |
| ENGR 120 | Intro to 2-D CAD | 3 units |

Semester Three – (fall)

| | | |
|----------|---------------------------------------|---------|
| AVMT XXX | Theory of Low Observables | 3 units |
| AVMT XXX | Airframe Composite Manufacturing I | 6 units |
| AVMT XXX | Manufacturing Testing & Inspection | 3 units |
| AVMT XXX | Airframe Manufacturing Capstone I | 2 units |

Semester Four – (spring)

| | | |
|----------|--|---------|
| AVMT XXX | FOE/FOD Migration Paths | 3 units |
| AVMT XXX | Airframe Composite Manufacturing II | 6 units |
| AVMT XXX | Airframe Manufacturing Capstone II | 6 units |

C. Description of the planning process which led to the request for the change

In February, 2015, Governor Brown signed legislation to provide the opportunity to fifteen community colleges across the state to offer a single baccalaureate degree program. Under the leadership of the college president, Antelope Valley College administrators and faculty developed a leadership team and reviewed the needs of the community and strengths of the college and determined a baccalaureate degree in Airframe Manufacturing Technology best met the needs of our community and students. The leadership team met with their advisory group, gathered input from current students, and researched other programs that were similar, although none are offered currently within the state. Of particular interest was a program being developed by Metropolitan State University in Denver, Colorado in Advanced Manufacturing and the Aviation Business Administration, Aviation Maintenance Science, Aeronautical Science, and Aerospace Engineering program offered at Embry- Riddle. A faculty member and administrator also attended the Community College Baccalaureate Degree conference in March, 2015 to gain information on best practices on existing community college baccalaureate degree programs, as well as to learn issues to avoid.

To gather community input, the Executive Director of Public Information provided editorials online and in the local newspaper, informing the community of our intentions and asking for their input. The Antelope Valley College District Board of Trustees

requested community input at the December meeting, and the leadership team acquired letters of support from local industry leaders.

Antelope Valley College presented a Certification of Interest to develop and offer a baccalaureate degree on October 22, 2014. On November 6, 2014 the Academic Senate unanimously approved the proposal to offer a Baccalaureate Degree in Airframe Manufacturing Technology, and on December 8, 2014 the Board of Trustees of Antelope Valley College approved the proposal. The proposal was presented to the California Community College Chancellor's Office on December 19, 2015. On January 20, 2015, the Antelope Valley College proposal was selected as one of the 15 proposals to develop and offer a four-year degree, and on March 16, 2015, the California Community College Board of Governors gave final approval for the degree. ([Attachment 5](#); [Attachment 6](#); [Attachment 7](#); [Attachment 2](#))

D. Evidence that the institution has analyzed, has the capacity, and has provided for the adequate human, administrative, financial, and physical resources and processes necessary to initiate, maintain, and monitor the baccalaureate program and to assure that the activities undertaken are accomplished with acceptable quality

a. Human Resources

Antelope Valley College has qualified full and part time faculty who meet minimum qualification in the new discipline as well as faculty in Engineering and general education who meet the minimum qualification to teach upper division courses. In addition, Northrup Grumman, and Lockheed Martin Corporation industry representatives have volunteered to mentor students who will be completing capstone projects in the new program.

The Counselor who staffs the college's Transfer Center has been liaison between the students at the college and four year educational institutions for nineteen years and has been instrumental in the development of the baccalaureate proposal. The college is also committed to providing a designated counselor to support students pursuing the baccalaureate degree and priority counseling will be given to these students to ensure they meet the commencement timeline. Student Services support staff are committed to providing support programs such as Financial Aid, CalWORKS, EOPS/CARE, Disabled Student Services, Student Development, and the Career Center in order to serve students in the baccalaureate effectively.

The Dean of Career Technical Education oversees the administration of the areas above as well as the baccalaureate degree, and has experience working with Cal State University Bakersfield to bring a baccalaureate nursing degree to the Antelope Valley. An additional administrator will be provided by the college as the need arises. An administrative assistant supports the area, and a department chair who is also a faculty member in the program provides faculty leadership.

b. Physical Resources

Antelope Valley College has existing labs that will be used for the proposed program: composites lab, structures lab, engineering lab, drafting computer lab. The college leases two hangars at General William J. Fox Field in Lancaster for the airframe course. The college currently owns two aircraft and a helicopter that are used in the airframe course and tools for the Aircraft Manufacturing and Assembly program and aviation programs. Negotiations are also currently underway to expand the classroom space at Fox Field and build a larger hangar.

The college also receives generous donations of supplies from Lockheed Martin Corporation, Northrup Grumman Corporation and the Spaceship Company for composites material. Additional resources can be purchased to support the baccalaureate program when identified by faculty.

c. Financial Resources

Antelope Valley College District has remained on solid fiscal footings. The board of trustees recommended a no less than 8 percent reserve requirement, which is being re-evaluated at a higher level. Reserves for the past seven years have been: 8.28 percent (2008-9); 10.68 percent (2009-10); 15.04 percent (2010-11); 13.23 percent (2011-12); 16.82 percent (2012-13); 16.0 percent (2013-14); and 15.8 percent (estimated for 2014-15). ([Attachment 8](#))

For annual verification, the college contracts with an independent auditor who reviews the District's financial status. Various compliance tests are conducted by the auditor to ensure adherence to the applicable laws and regulations. In 2009-10, 2010-11, 2011-12, and 2012-13 audit years there were no audit findings on the district financials or Proposition 39 financials. ([Attachment 9](#))

The Board of Trustees of the Antelope Valley Community College District approved a resolution to support the Airframe Manufacturing Technology Program financially. The college will commit specific funding to the success of the baccalaureate degree, including

building on existing faculty professional development offered at the college and participation in national conferences, seminars and workshops on the community college baccalaureate. If necessary, the college will also augment the existing reassigned time of the industrial technology chair to ensure that the program will be implemented in a timely manner with appropriate resources. Additional costs for supplies, equipment, and software will be funded through the additional \$84.00/unit tuition fee for upper-division courses and additional funding recently approved in Sacramento.

E. Evidence that the institution has received all necessary internal and/or external approvals

a. The institution has received all necessary internal and/or external approvals

Internal approval

The Academic Senate approved the Antelope Valley College Airframe Manufacturing Technology degree at their regularly scheduled meeting on November 6, 2014. ([Attachment 5](#))

The Antelope Valley College District Board of Trustees approved the Airframe Manufacturing Technology baccalaureate proposal at their regularly scheduled meeting December 8, 2014. ([Attachment 6](#))

The Academic Policies and Procedures (AP&P) Committee will be reviewing the courses and program in Airframe Manufacturing Technology in fall, 2015.

External Approval

Antelope Valley College is fully accredited by the Accrediting Commission for Community and Junior Colleges (ACCJC). The most recent affirmation of accreditation was in 2010 and the next site visit is in fall, 2016.

Antelope Valley College presented a Certification of Interest to develop and offer a baccalaureate degree to the California Community College Chancellor's Office on October 22, 2014. The Proposal to offer an Airframe Manufacturing Technology Degree was presented to the Chancellor's Office on December 19, 2014. On January 20, 2015, the California Community College Chancellor's Office selected this proposal as one of the 15 to develop and offer a four-year degree.

b. The institution is authorized by its state/government to offer the proposed baccalaureate degree

On March 16, 2015, the California Committee College Board of Governors approved Antelope Valley College's baccalaureate degree program as one of fifteen to be offered in the state. ([Attachment 2](#))

c. There is sufficient demand for the program within the area served by the college

Antelope Valley College undertook a needs analysis to verify an Airframe Manufacturing Technology degree would support the community needs. Aerospace industries in the Antelope Valley represent a large sector of the employed population in the area. According to data supplied by the Greater Antelope Valley Economic Alliance (<http://kedc.com/wp-content/uploads/2013/11/GAVEA-2014-Round-Table-Report.pdf>), Edwards Air Force Base employs 10,647 and China Lake Naval Weapons Base employs 9,172. The private sector employs over 8,000 people in jobs that support both the military and civilian arenas of aircraft manufacturing. Among the major private employers in aircraft manufacturing in the Antelope Valley are Northrop Grumman Corporation (2,772 employees), Lockheed Martin Corporation (2,712 employees), Boeing, Mojave Air and Spaceport (2,500 employees among all employers). Mojave Air and Spaceport is the home of the first spaceport in the nation and base of Virgin Galactic and The Spaceship Company, private ventures engaged in making commercial space travel feasible.

Consistent data for a labor market analysis is difficult to compile. Data supplied by the Greater Antelope Valley Economic Alliance (GAVEA) is difficult to validate using the traditional methods of searching the California Economic Development Department website, the Bureau of Labor Statistics data, or data supplied by the Centers on Excellence. All three options were searched using the CIP Codes 49.0101 (Aeronautics/Aviation/Aerospace Science and Technology, General), 29.0401 (Aerospace Ground Equipment Technology), 49.0199 (Air Transportation, Other), 49.0104 (Aviation/Airway Management and Operations), the SOC Codes 17-3021 (Aerospace Engineering and Operations Technicians) and 11-3051 (Industrial Production Managers), and the NAICS Codes 336411 (Aircraft Manufacturing), 336413 (Other Aircraft Parts and Auxiliary Equipment Manufacturing), 336414 (Guided Missile and Space Vehicle Manufacturing), 336419 (Other Guided Missile and Space Parts and Auxiliary Equipment Manufacturing). None of the occupational descriptions associated with the CIP and SOC codes aligned with the interests expressed by the human resources and management representatives to the proposed program's advisory group. Depending on the source, employment opportunities in aerospace are either declining, holding steady, or slightly increasing in the Los Angeles-Glendale-Long Beach metropolitan area

or in California. For example, for Industrial Production Managers, the EDD website shows that there could be 360 average annual openings in 2012-2022 in California with an hourly mean income of \$52.44. There are 295 Aerospace Product and Manufacturing employers for this occupation in the state. Demand for Aerospace Engineering and Operations Technicians is projected to be 450 employees between 2012-2022 in California (This occupation involves aircraft maintenance and repair, not aircraft production). Data supplied by the Centers of Excellence showed a projection of 940 jobs lost in the NAICS Codes that were explored.

The baccalaureate degree leadership team held meetings with the industry advisory committee. Members unanimously agreed upon the need for training at this level. All representatives stated that there was a need for the multi skilled airframe manufacturing technology graduate who could fulfill the roles of lead technician, shop foreman or manufacturing director. The Spaceship Company representative stated that the company has eighty to one hundred employees who do not have bachelor's degrees who would benefit from the proposed degree and estimated that 20 percent of the employees might take advantage of work schedule accommodations to enroll in the program. The Spaceship Company currently has about 25 positions that could directly be recruited from the proposed bachelor's degree program at this time, and six to eight graduates would be needed annually to fill vacated positions and newly created positions. At Northrop Grumman Corporation, engineers are being trained in manufacturing processes on the job so that they understand the practical nature of what they are supposed to design. The Northrop Grumman representative stated that 100 of the company's current employees could benefit from graduation from the proposed bachelor's degree. ([Attachment 3](#))

Antelope Valley College also surveyed students who were enrolled in courses in aircraft fabrication and assembly, airframe and powerplant, and electronics for their potential interest in a baccalaureate degree in Airframe Manufacturing Technology. Of 186 students who responded to the survey, 180 indicated that they would be interested in a bachelor's degree in this field. Student comments included that they would save time and money by not having to travel for baccalaureate education; they would be building on solid educational programs that already exist at Antelope Valley College; they would be able to advance their job opportunities in the aerospace industry; and they would prefer to stay closer to home to complete their bachelor's degrees. In addition, Northrup Grumman has expressed interest in developing a 400 hour training program for students, veterans in particular, that will articulate with the Airframe Manufacturing Technology program. ([Attachment 4](#))

F. Evidence that each Eligibility Requirement will still be fulfilled, especially related to the change

1. Authority

Antelope Valley College is authorized to operate as a degree granting institution by all appropriate governmental organizations and agencies as required by each of the jurisdictions in which it operates. Antelope Valley College is accredited by the Accrediting Commission for Community and Junior Colleges of the Western Association of Schools and Colleges and is part of the California Community College system. (California Code of Regulations, Title 5, Division 6, Chapter 2, Subchapter 1, §51016).

The administration of the pilot program for baccalaureate degree in California Community Colleges is under the Authority of SB 850 and the Board of Governors of the California Community Colleges. At the March 16, 2015 meeting, The California Board of Governors approved Antelope Valley College to offer a baccalaureate degree program in Airframe Manufacturing Technology.

2. Operational Status

Antelope Valley College has been in continuous operation since 1929 with students actively pursuing degree programs.

The new Airframe Manufacturing Technology program is a natural progression of the existing Airframe Fabrication, Aviation Airframe Mechanics, and Electronics Technology programs at Antelope Valley College. Students will apply to the program utilizing the admission criteria for a baccalaureate degree program.

3. Degrees

A substantial portion of Antelope Valley College's educational offerings are programs that lead to degrees in accordance with Title 5 §55063 § 55070 of the California Code of Regulations. Students' goals and progress are monitored regularly through data gathered by Institutional Effectiveness, Research and Planning, and these data provide evidence of a significant number of successful students in programs leading to the baccalaureate degree.

4. Chief Executive Officer

The Superintendent/President of the College, Ed Knudson, serves as the chief executive officer with full-time responsibility to the college and district. He has been appointed by the Antelope Valley Community College Board of Trustees and has the requisite authority to administer board policies. The Superintendent/President has oversight for all

programs and support services implemented at the College, including the new Bachelor of Science in Airframe Manufacturing Technology.

5. Financial Accountability

Antelope Valley College undergoes regular/annual external audits by certified public accountants. The report is presented to the Board of Trustees with a monthly report that outlines a corrective action plan and progress towards resolving any audit exceptions. The District makes each final audit report available to the public on the AVC website link to audit findings. The Bachelor of Science in Airframe Manufacturing Technology program will follow the guidelines as all programs at the College.

6. Mission

The Antelope Valley Community College District mission statement was updated in fall of 2014 through a campus wide participatory process and was approved by the District Board of Trustees on November 10, 2014. The mission clearly delineates the college constituency and commitment to student learning and achievement:

Antelope Valley College, a public institution of higher education, provides a quality, comprehensive education to a diverse population of learners. We are committed to student success offering value and opportunity, in service to our community.

The Airframe Manufacturing Technology program clearly fits within the mission of Antelope Valley Community College District.

7. Governing Board

Antelope Valley College is governed by the Antelope Valley Community College District Board of Trustees. The board is an independent policy making body that ensures that the mission of the college is achieved, and is responsible for the academic quality, institutional integrity, and financial stability of the institution. The Board is sufficient in size and composition to fulfill its responsibilities and members are elected to the Governing Board for four-year terms from within the college district; one elected student serves on the board as the student trustee for a one year term. The Board of Trustees follows the Brown Act; the board holds open monthly meetings with agendas and notices that are posted widely in advance. Minutes are posted after each meeting. Additionally, the board conducts business according to the college's approved policies and procedures, maintaining a subscription to the Community College League of California to keep board policies and procedures current. The governance structure of the college provides for integrated planning efforts by all constituencies. The Antelope Valley Community College District Board of Trustees has authority for all programs and support services

implemented at the College, including the new proposed Bachelor of Science in Airframe Manufacturing Technology program.

8. Administrative Capacity

Antelope Valley College has sufficient staff with appropriate preparation and experience to provide the administrative services necessary to support its mission and purpose. Administrators are selected competitively, and all possess the appropriate preparation and experience to fulfill their assigned roles. The Dean of Career and Technical Education will have operational oversight for all aspects of the proposed Bachelor of Science in Airframe Manufacturing Technology.

9. Educational Programs

Antelope Valley College's principal degree programs are congruent with its mission, are based on recognized higher education fields of study, are of sufficient content and length, are conducted at levels of quality and rigor appropriate to the degrees offered, and culminate in identified student outcomes. Degree and certificate requirements are consistent with Title 5 in their extent, depth, rigor and intensity. Students completing degrees and certificates are required to demonstrate stated outcomes. These same standards are consistent throughout all programs, regardless of modality. ([Attachment 10](#))

The proposed Baccalaureate Degree in Airframe Manufacturing Technology will follow the same principles of relevance and rigor, including the general education and major preparation courses.

10. Academic Credit

Academic credit is based on California Administrative Code, Title 5, § 55002.5. The college awards academic credit based on generally accepted practices in degree-granting institutions of higher education and in accordance with statutory or system regulatory requirements. Antelope Valley College provides information about the awarding of academic credit in the college catalog.

Academic credit for the Airframe Manufacturing Technology coursework will be awarded in accordance with Title 5 of the California Code of Regulations and all related California Code requirements.

11. Student Learning and Achievement

Antelope Valley College has developed, implemented, assessed, and published student learning outcomes at the course, program, and institutional levels. The data resulting from these assessments are used in the planning process for both the institution and

individual programs and will include data from the Airframe Manufacturing Technology program.

The Antelope Valley College catalog annually updates and publishes the requirements for every degree and certificate offered by the college and will include information on the proposed Airframe Manufacturing Technology degree. This information will include prerequisites, course numbers, names, units, as well as descriptive program information and student learning outcomes.

12. General Education

Antelope Valley College defines and incorporates into all of its degree programs a substantial component of general education designed to ensure breadth of knowledge and promote intellectual inquiry. Degree credit for general education courses is consistent with levels of quality and rigor appropriate to higher education. Requirements are the same for all general education courses and proficiencies, regardless of location or mode of delivery.

General Education courses that will be part of the Airframe Manufacturing Technology baccalaureate program will be consistent with the rigor and quality appropriate to higher education. The General Education courses for the baccalaureate program offers students broad knowledge beyond the focus of the major. Upon completion of the Airframe Manufacturing Technology program, students will be able to demonstrate proficiency in:

- knowledge and understanding of themselves and their social and natural environment;
- written and oral communication and analytical skills;
- ability to think clearly and logically, to find and examine information, perform qualitative/quantitative analysis and ability to reason critically, to solve problems creatively;
- awareness of ethical and social concerns.

13. Academic Freedom

Antelope Valley College, through the participatory governance process, has designed an academic freedom philosophy statement that is identified in Board Policy 4030. Antelope Valley College faculty and students are free to examine and test all knowledge appropriate to their discipline or area of major study as judged by the academic/education community in general. The college maintains an atmosphere in which intellectual freedom and independence exist. This approval will apply BP 4030 regarding academic freedom to the Bachelor of Science in Airframe Manufacturing Technology. ([Attachment 11](#))

14. Faculty

Antelope Valley College has a substantial core of qualified faculty with full-time responsibility to the institution who meet the minimum qualifications to teach both upper and lower division courses. The core is sufficient in size and experience to support the institution's educational programs. Contract language includes faculty responsibilities in curriculum development and assessment of student learning. Through the December 8, 2014 Board approval of the Airframe Manufacturing Technology program, the program now falls under the governance of the collective bargaining agreement and all District policies.

15. Student Support Services

Antelope Valley College provides a wide range of student services that support student learning and development within the context of its mission. These services include Enrollment Services, Counseling and Matriculation, Financial Aid, Student Development and Activities, Career/Transfer Center, Job Placement, Veteran Services, Office of Students with Disabilities, Student Transfer and Academic Retention (STAR) Program, Extended Opportunity Program and Services (EOP&S), Cooperative Agencies Resources for Education (CARE), Assessment Center, Health Services, and Information and Welcome Center.

Students enrolled in the proposed Airframe Manufacturing Technology program will have access to the appropriate student services to meet their goals.

16. Admissions

Antelope Valley College has adopted and adheres to admission policies consistent with the college mission and specifies the qualifications of students appropriate for the programs offered. These policies are printed in the catalog. The Airframe Manufacturing Technology program will adhere strictly to the admission criteria as published in the catalog and on the website. In the spirit of the California Community College System, admissions to the Airframe Manufacturing Technology program will be on a "first-come, first served" basis upon the completion of prerequisites. ([Attachment 12](#))

17. Information and Learning Support Services

Antelope Valley College provides access to sufficient information and learning resources and services to support its mission and all instructional programs including those offered in a distance education modality. These resources include both print and electronic resources as well as Learning Center and tutorial services. All instructional programs,

including the new Airframe Manufacturing Technology program, in whatever format and wherever they are offered, may access these resources. In addition, to support the baccalaureate program, the library will enhance their collection to include additional print and database materials specifically for airframe manufacturing.

18. Financial Resources

The Antelope Valley District Board of Trustees has recommended a minimum 8 percent reserve, and this target has been met and surpassed since 2008/9. The district has a documented funding base, financial resources, and plans for financial development adequate to support student learning programs and services, to improve institutional effectiveness, and to ensure financial stability and support the college mission. The Antelope Valley College District has approved support of the proposed baccalaureate program, and funding through the additional tuition fee will ensure sustainability.

19. Institutional Planning and Evaluation

Antelope Valley College has utilized an extensive annual program review process. The information from these reviews is made public. Institutional planning and review are part of the ongoing evaluative responsibilities of the Strategic Planning Committee. Data from assessment action plans, annual program reviews, comprehensive program reviews, the Educational Master Plan, the Technology Master Plan, the Facilities Master Plan, and the annual College Planning Retreat are used to inform budget decisions, assess progress towards goals, and make decisions regarding improvements. The Airframe Manufacturing Technology program will be part of this process and participate in planning as an integral part of Antelope Valley College. ([Attachment 13](#))

Antelope Valley College evaluates and makes public its progress in accomplishing its purposes, including the assessment of student learning outcomes. The college provides evidence of planning for improvement of institutional structures and processes in the annual report and Educational Master Plan. The Airframe Manufacturing Technology program will follow the same practice.

20. Integrity in Communication with the Public

Antelope Valley College provides a print and electronic catalog containing accurate and current information. The catalog includes all information required by the Accrediting Commission, such as Antelope College's official name, address, telephone number, and website address; the mission, values and philosophy of the college; a representation of accredited status with ACCJC; all course, program and degree offerings with student learning outcomes, including the Airframe Manufacturing Technology degree; the academic calendar and program length; available student financial aid; academic freedom statement; available learning resources; the names and degrees of administrators and

faculty; and the names of the members of the Antelope Valley College District Board of Trustees. Requirements for admission, student fees and other financial obligations, and degree, certificate, graduation, and transfer requirements are also described in the catalog. Policies on academic honesty and other academic regulations, nondiscrimination, acceptance of transfer credit, transcripts, grievance and complaint procedures, sexual harassment, and refund of fees are provided to students through the catalog. Up-to-date information may also be found on the Antelope Valley College website. Information specific to the Airframe Manufacturing Technology program will be published initially in a catalog addendum in spring of 2016, and will then be incorporated into the college catalog for 2016/17.

21. Integrity in Relation to the Accrediting Commission

The Antelope Valley District Board of Trustees ensures that the College adheres to the Eligibility Requirements and Accreditation Standards and policies of the Commission for all certificates, associate degree and bachelor degree programs, describes itself in identical terms to all its accrediting agencies, communicates any changes in its accredited status, and agrees to disclose information required by the Commission to carry out its accrediting responsibilities. Moreover, the College complies with Commission requests, directives decisions and policies. This Substantive Change Report is submitted in light of the college's commitment to remain in compliance with the policies of the Commission.

G. Evidence that each Accreditation Standard will still be fulfilled, specifically related to the change and that all relative Commission policies are addressed

Standard I: Mission, Academic Quality and Institutional Effectiveness and Integrity

A. Mission

Antelope Valley College demonstrates strong commitment to a mission that emphasizes student learning and student achievement. Using analysis of quantitative and qualitative data, the institution continuously and systematically evaluates, plans, implements, and improves the quality of its educational programs and services. The institution demonstrates integrity in all policies, actions, and communication. The administration, faculty, staff, and governing board members act honestly, ethically, and fairly in the performance of their duties.

The mission of the Antelope Valley Community College District was revised in

November 2014, and is located on its website. It states:

Antelope Valley College, a public institution of higher education, provides a quality, comprehensive education to a diverse population of learners. We are committed to student success, offering value and opportunity, in service to our community.

The mission statement captures AVC's commitment to promoting best practices for its programs and services and support student success for its diverse communities. The college's vision, values, and ILOs are currently being reviewed by the Strategic Planning Committee (SPC) with recommendations being forwarded to other college groups via the President and the Strategic Planning Committee as details become available. The Airframe Manufacturing Technology program will meet these Institutional Level Outcomes as well.

AVC uses data from a variety of sources to determine how effectively it is accomplishing its mission, which are accessed by administration and faculty for review. Data elements are housed on the program review committee's website, and includes information such as student enrollment trends, FTES by subjects and other categories, student progress, grade distribution, retention rates, populations and demographics, and financial aid summary reports. Data elements for the Airframe Manufacturing Technology program will be gathered and housed in the same manner. ([Attachment 13](#))

B. Assuring Academic Quality and Institutional Effectiveness

The collective campus engagement in the use of research, data, and assessment as a foundation for understanding and improving college learning, as well as operational functions has been the focus of the Department of Institutional Effectiveness, Research and Planning (DIERP). Through the Academic Senate and its related participatory governance committees, faculty, and staff and students are afforded the opportunity to be proactive in discussions related to improving the teaching, learning, and operational environment of the college. These committees are all fully staffed and actively involved in maintaining the institutional effectiveness of AVC.

The Strategic Planning Committee provides oversight and monitoring of the various planning documents within the institution in order to accomplish the mission and goals of the district. SPC utilizes the Educational Master Plan, which is the district's strategic plan, to review the mission, vision, values, and practices of the institution and to monitor and modify the Strategic Goals and the Institutional Learning Outcomes.

In order to function most efficiently and to support and execute the Educational Master Plan, members of the Strategic Planning Committee are assigned to the following subgroups:

- **Facilities:** Based on the findings of the Educational Master Plan, responsible for developing and evaluating the effectiveness of the Facilities Master Plan, which oversees the district's long-range infrastructure, building, and parking needs.
- **Human Resources:** Responsible for creating a Human Resources Plan that includes a long-range Staffing Plan to support the program needs identified in the Educational Master Plan.
- **Communications:** Responsible for developing, implementing, and evaluating a marketing and communications plan with strategies to increase communications with our internal and external constituents. Responsible for disseminating information to the campus and general community through e-mail, the website, myAVC, and the SPC Annual Review.
- **Educational Master Plan:** Responsible for annually reviewing the Educational Master Plan to ensure that the District's ongoing needs are met.

Standard II: Student Learning Programs and Support Services

Antelope Valley College offers instructional programs, library and learning support services, and student support services aligned with its mission. The institution's programs are conducted at levels of quality and rigor appropriate for higher education. The institution assesses its educational quality through methods accepted in higher education, makes the results of its assessments available to the public, and uses the results to improve educational quality and institutional effectiveness.

The mission of the Antelope Valley College Learning Center is to provide "a one-stop facility designed to provide easy access to multiple academic support services for students and faculty." It is designed to support classroom instruction with a variety of services to promote student success in college and lifelong learning in the Lancaster and Palmdale campuses, as well as online. The Learning Center provides tutoring support, workshops, an open computer lab, and both a Writing and Math lab.

The Antelope Valley College Library provides access to periodical databases, print and electronic reference materials, and a collection of 50,000 print and electronic books to support the college curriculum and students' pursuit of educational goals. All Library databases and e-books are available both on and off campus through EBSCO Discovery Service. Library faculty are available to assist with basic and in-depth research and to offer instruction in the use and evaluation of library and internet resources.

A. Instructional Programs

All instructional programs, regardless of location or means of delivery, are developed and approved by the Academic Policies and Procedures Committee (AP&P), a standing committee of the Academic Senate. The committee is responsible for the development, review, renewal, and recommendation of curriculum to the Board of Trustees. AP&P policies and procedures ensure that all courses and programs are developed in accordance with the Education Code, Title 5 Regulations, Matriculation Regulations, the Chancellor's Office, and the State Academic Senate. All AP&P processes are fully documented in CurricUNET, ensuring that courses and programs are consistent with the college mission, reflective of AVC's dedication to lifelong learning, appropriate to higher education, assessed through attainment of student learning outcomes, and provide achievement of degrees, certificates, employment, or transfer to higher education programs. Once developed, courses and programs are regularly reviewed and updated to maintain consistency and currency with these standards.

All course and program outcomes support the college mission and correlate to Institutional Learning Outcomes. Additionally, program level outcomes are derived from a variety of sources specific to continued education and professional standards in related fields. The institution includes in all of its programs, student learning outcomes appropriate to the program level in communication competency, analytic inquiry skills, ethical reasoning, the ability to engage in diverse perspectives, and other program-specific learning outcomes.

The addition of the Airframe Manufacturing Technology baccalaureate program will complement the existing instructional programs on the campus and will be fully supported by the instructional, planning, and assessment processes already in place at Antelope Valley College.

B. Library and Support Services

AVC provides numerous forms of support for student learning and achievement through its Library, Learning Center, computer labs, instructional media center, and other services. There is ongoing growth in terms of offerings and updates to technologies, along with workshops and support services to give students adequate opportunities to learn to use these services.

The Antelope Valley College Library provides access to periodical databases, print and electronic reference materials, and a collection of 50,000 print and electronic books to support the college curriculum and students pursuit of educational goals. All Library databases and e-books are available both on and off campus through EBSCO Discovery

Service. Library faculty are available to assist with basic and in-depth research and to offer instruction in the use and evaluation of library and internet resources. In addition, the library is working with the faculty from the Airframe Manufacturing Technology program to enhance library resources through the purchase of new materials appropriate to the program.

C. Student Support Services

Antelope Valley College student support services consist of the Assessment Center, Associated Student Organization (ASO), CalWORKs, Career Center, Counseling and Matriculation, Enrollment Services (Admissions and Records, Transcripts, Graduation) Veterans, First Year Experience, International Students, Study Abroad, Extended Opportunity Program & Services (EOP&S), Cooperative Agencies Resources for Education (CARE), Financial Aid, Health Services, High Tech Center (Office for Students with Disabilities), Human Development classes (HD), Information and Welcome Center (including Outreach), Inter Club Council, Job Placement, Office for Students with Disabilities (OSD), STAR (TRIO Program), Student Activities, SOAR High School (early college high school), Law Scholars Program, Triumph Leaders, and Transfer Center.

All programs that provide student support services continually monitor student outcomes and evaluate ways in which student support services may be improved. Individual programs, course instructors and all of the counselors evaluate data and make recommendations through their department, their program reviews and the Education Master Plan.

Students enrolled in the Airframe Manufacturing Technology program will have access to the student support services necessary for success in the program. A one-stop-shop model will be employed with student services support specifically designed for the baccalaureate student, including degree specific support in admission, financial aid, and counseling. A counselor will be assigned to support the program individually.

Standard III: Resources

A. Human Resources

Antelope Valley College is committed to developing a diverse workforce that exemplifies excellence in our service to our students and community. The Human Resources and Equal Employment Opportunity Office maintains the responsibility to assure systematic selection of qualified personnel and evaluation based on the college's criteria consistent with its mission. Antelope Valley College's Human Resources web page invites applications for employment, shows current openings, and provides comprehensive information including policies and procedures.

The Vice President of Human resources and the Human Resources sub-committee provides guidance in an effort to equally distribute classified personnel for departments and divisions to support the academic schedule and to provide an appropriate level of support services to meet demands of students. Hiring prioritization processes at AVC ensure that the staffing needs that are identified through the program review, Educational Master Plan Update, and annual budget requests contribute to the mission of the college. With the newly implemented position prioritization processes for education administration, classified management, classified, and faculty positions, all new positions are evaluated as to each position's critical need and its effectiveness in supporting the mission and goals of AVC. Any new employees necessary for the baccalaureate degree program will be embedded in district planning and follow the existing position prioritization process. ([Attachment 14](#))

B. Physical Resources

Based upon the Educational Master Plan, the Facilities Master Plan provides an over-arching physical resources plan to support the District mission, and the Airframe Manufacturing Technology program will be embedded in this plan. Antelope Valley College has existing labs that will be used for the proposed program: composites lab, structures lab, welding shop, engineering lab, and drafting computer lab. The college leases two hangars at General William J. Fox Field in Lancaster for the airframe course. The college currently owns two aircraft and a helicopter that are used in the airframe course and the Aircraft Manufacturing and Assembly program and aviation programs. Negotiations are also currently underway to greatly expand the classroom space at Fox Field and build a larger hangar.

[Facilities Master Plan](#)

The college also receives generous donations of supplies from Lockheed Martin Corporation, Northrop Grumman Corporation and the Spaceship Company for composites materials. Additional resources can be purchased to support the baccalaureate program when identified by faculty.

C. Technological Resources

In order to support the Antelope Valley College Educational Master Plan and the Facilities Master Plan, Information Technology Services (ITS) and the Information Technology Committee produce the Technology Master Plan. The current plan, adopted in June of 2014, is due for revision in 2017 following the next Educational Master Planning and Facilities Master Planning cycles. Operationally, the annual planning cycle flows through Program Review and the Strategic Planning Committee. The annual funding requests, supported through Program Review, are brought through the Budget Committee. Technology proposals are then forwarded to ITS and the Information Technology Committee for evaluation, prioritization, and funding.

[Technology Master Plan](#)

The college maintains over sixty instructional computing labs. Some of these labs are dedicated to specific disciplines, like the Cyber Security Network and its segregated network and virtual infrastructure, Statistics and its SPSS Lab, or Digital Rendering Labs in support of the Digital Photography or Design Courses. Others are open access labs allowing drop in access allowing use of basic applications in support of online research or production of course work / assignments. Information Technology Services (ITS) supports these labs, as well as providing professional development for employees, support for distance education and internet access for instruction.

The Airframe Manufacturing Technology program will fit seamlessly into the current college processes to plan, purchase, support, and improve technology at both the Lancaster campus and Fox Field.

D. Financial Resources

The Antelope Valley College Financial Plan is based upon the Educational Master Plan and provides guidance for financial and budget planning. Antelope Valley College has remained on solid fiscal footings. The Board of Trustees recommended a no less than 8 percent reserve requirement, which is being re-evaluated at a higher level. Reserves for the past seven years have been: 8.28 percent (2008-19); 10.68 percent (2009-10); 15.04 percent (2010-11); 13.23 percent (2011-12); 16.82 percent (2012-13); 16.0 percent (2013-14); and 15.8 percent (estimated for 2014-15).

For annual verification, the college contracts with an independent auditor who reviews the District's financial status. Various compliance tests are conducted by the auditor to ensure adherence to the applicable laws and regulations. In 2009-10, 2010-11, 2011-12, 2012-13 and 2013-14 audit years there were no audit findings on the district financials or Proposition 39 financials. ([Attachment 8](#); [Attachment 9](#))

[Antelope Valley College Budget](#)

[Antelope Valley College Audits](#)

The Board of Trustees of the Antelope Valley College District approved a resolution to support the Airframe Manufacturing Technology program financially. The college will commit specific funding to the success of the baccalaureate degree, including building on existing faculty professional development and increasing the reassigned time of the Industrial Technology Chair to ensure the program will be implemented in a timely manner with appropriate resources. Additional costs for supplies, equipment, and software will be funded

through the additional \$84.00/unit tuition fee for upper division courses as well as the additional funding recently approved in Sacramento.

Standard IV: Leadership and Governance

A. Decision-Making Roles and Processes

Through Board Policy and Administrative Procedures, AVC has established policies and procedures that allow for faculty, staff, administration, and students the opportunity to voice their ideas, viewpoints, and concerns on an equal basis. Systematic reviews of Board Policy and Administrative Procedures by the College Coordinating Council ensures that opportunities continue to exist so that all constituent voices may continue to be heard.

Decision-making is guided by the Antelope Valley College Educational Master Plan, which is built upon Program Review and student outcomes data. The Facilities and Technology Plans are guided by the Educational Master Plan and are the basis for budgetary and planning decisions throughout the academic year. Faculty, staff, students and administrators are actively involved in the development and implementation of each plan. The Airframe Manufacturing Technology program will be embedded in these existing processes and plans.

[Educational Master Plan](#)

[Facilities Master Plan](#)

[Technology Master Plan](#)

B. Board and Administrative Organization

The Superintendent/President oversees and evaluates an administrative structure organized and staffed to reflect the purpose, size, and complexity of Antelope Valley College. The Superintendent/President delegates authority to administrators and others including the following: Assistant Superintendent/Vice President of Academic Affairs, Assistant Superintendent/President of Student Services, Assistant Superintendent/President of Human Resources, Executive Director of Institutional Advancement and Foundation, Executive Director of Institutional Research, Executive Director of Facilities, the Executive Director of Public and Governmental Relations Director And the Executive Director of Business Services.

The Antelope Valley College Board of Trustees and the Superintendent/President work together in ensuring that the quality, integrity, and effectiveness of the student learning programs and services, and the financial stability of the district are met through its board policy and administrative procedures. Board policies and administrative procedures

support the mission and require that quality and improvements in student learning programs and services are made.

Decisions made pertaining directly to the Airframe Manufacturing Technology program will be made primarily by the Dean of Career and Technical Education, the Department Chair of Industrial Technology, and the faculty.

H. Evidence that the baccalaureate program meets the minimum requirements for the degree (120 semester units or equivalent)

The proposed baccalaureate degree in Airframe Manufacturing Technology at Antelope Valley College will be composed of 120 total units. The 60 units of lower division work are currently completed through the current Aircraft Fabrication and Assembly associate degree or equivalent. These AA degrees include requirements for academic composition, communication, humanities, mathematics, and diversity studies. The baccalaureate degree will build upon these programs with 60 units of upper division coursework, starting originally as a two-plus-two program, and eventually becoming a baccalaureate program that allows students to move directly into the BS degree. Of these units, 41 units will be in Airframe Manufacturing Technology, with 12 units in upper-division general education, including Applied Technical Writing, Organizational Behavioral Psychology, Introduction to Quantitative Atmospheric Dynamics and Thermodynamics, and A Survey of Emerging and Re-emerging Infectious Diseases. The degree will require a two semester capstone project completed at a site in industry. This combination of upper-level major preparation courses, general education, and hands-on experience in industry will provide graduates with the requisite skills, knowledge and experience to be successful in Airframe Manufacturing Technology leadership.

I. Evidence that the baccalaureate program meets the minimum baccalaureate level General Education requirements

1. Thirty-six (36) semester units or equivalent

General Education components are required in both Associate and Baccalaureate level programs offered by Antelope Valley College. General education requirements are defined in AVCCD Policy 4025 and are consistent with Title 5 policy for California Community Colleges. They are consistent with state and district requirements regarding levels of quality and rigor appropriate to higher education. (Attachment 10)

The Airframe Fabrication and Assembly associate degree program is composed of 18 units of general education, while the baccalaureate degree consists of 12 units of upper-division general education and 8 units of lower division general education in the sciences.

2. Distributed across the major areas for General Education (arts/humanities, natural science, mathematics, social science, and oral/written communication)

General Education at Antelope Valley College is designed to introduce students to the basic principles, concepts and methodologies of study in a given discipline, provide an opportunity to examine values while proposing solutions to major social issues, provide a breadth of knowledge and experiences that contribute to a well-rounded education, and lead to a better self-understanding. General education courses in the associate degrees and baccalaureate degree provide instruction in major areas of knowledge.

3. Integrated throughout the curriculum (lower and upper division courses)

General education courses are integrated throughout the curriculum and in both lower and upper-division courses. Upper division General Education courses include Technical Writing, Industrial and Organizational Behavior, Survey of Emerging and Re-emerging Infectious Disease, and Introduction to Quantitative Atmospheric Dynamics and Thermodynamics. Lower division includes BUS 101 and ENGR 120.

J. Evidence that Library and learning resources are sufficient in quality, currency, variety, quantity, and depth to support the baccalaureate program

The Antelope Valley College Library provides access to periodical databases, print and electronic reference materials, and a collection of 50,000 print and electronic books to support the college curriculum and students' pursuit of educational goals. All Library databases and e-books are available both on and off campus through EBSCO Discovery Service. Library faculty are available to assist with basic and in-depth research and to offer instruction in the use and evaluation of library and internet resources.

The library faculty members are currently working with the faculty from the Airframe Manufacturing Technology program to enhance library resources through the purchase of new materials appropriate to the program. Particular attention is placed on updated and upper-level materials for the AERO, AFAB, and FOE/FOD and manufacturing areas, Industrial and Organizational Behavior, Engineering, ELTE (Robotics), and Human Sciences.

K. Evidence that faculty qualifications are rigorous and appropriate in regard to:

1. Discipline expertise

The following career technical education faculty members are among those who have the education preparation at or above the master's degree and currently teach in the disciplines that compose the proposed degree:

- Maria Clinton, EdD, Educational Leadership; Aircraft Fabrication and Assembly faculty member and department chair of Industrial Technology
- Ronald Coleman, MBA; adjunct instructor in Aircraft manufacturing and Assembly
- Tyrone Mettler, MS in Aeronautical Science; Aviation Airframe faculty
- Rick Motawakel, MBA; Electronics faculty
- Michael Sauve, MBA; Adjunct instructor in Drafting

All Counseling faculty at Antelope Valley College have Master's degrees or higher.

All faculty in the English, Physics, and Chemistry disciplines have Master's degrees or higher and would be qualified to teach upper division general education courses.

A pool of potential faculty is available at Edwards Air Force Base, NASA, Northrop Grumman Corporation, and Lockheed Martin Corporation, all located near the College's Lancaster campus.

2. Level of assignment

Minimum qualifications for faculty teaching in this program are a Master's degree in an appropriate discipline area that meets the California Academic Senate minimum qualifications.