



# AERO-FLEX

## PRE-APPRENTICESHIP

### PROGRAM DESCRIPTION - AUGUST 2017

The Aero-Flex Unilateral Apprenticeship Committee has created a flexible model for implementing an Engineering Pre-Apprenticeship for Advanced Manufacturing.





## PROGRAM DESCRIPTION

### INTRODUCTION

The field of Advanced Manufacturing, and more specifically Aerospace & Defense Manufacturing, is facing multiple workforce and pipeline development challenges. The need to develop a pipeline of skilled workers as well as to upskill the existing workforce are frequently identified as key challenges due to: increasing number of current and near-term retirements draining the knowledge base; lack of sufficient numbers of millennials interested in the fields of engineering and manufacturing; increased customer demands; pricing pressures and the need to develop new products and utilize new technologies.

In response, the Aero-Flex Unilateral Apprenticeship Committee (A-F UAC) was formed with two major objectives in mind:

1. Develop an employer-driven pre-apprenticeship framework that would meet the workforce development needs common to its industry partners
2. Provide a customized layer to allow each employer to design (*flex*) its own program within the framework.

In this manner, the Aero-Flex Pre-Apprenticeship program would meet not only the needs of industry, but of each participating manufacturer.

### Background

There are many programs, internships and academies aimed at engineering and manufacturing across California. The Aero-Flex Pre-Apprenticeship seeks to connect these relevant programs and models as well as to create a new channel of skill development. Aero-Flex Pre-Apprenticeship expects to serve high school and post-secondary students, veterans,

### HIGHLIGHTS OF PRE-APPRENTICESHIP

- Explore and learn about exciting careers
- Benefit from classroom, online and hands-on training
- Get a start on career-specific training with viable career pathway opportunities
- Build work-readiness skills employers desire
- Receive industry-recognized credentials
- Free membership to Society of Manufacturing Engineers
- May include paid work experience
- Opportunity to advance into a Registered Apprenticeship

**An  
Employer -Centric  
Earn and Learn  
Model**



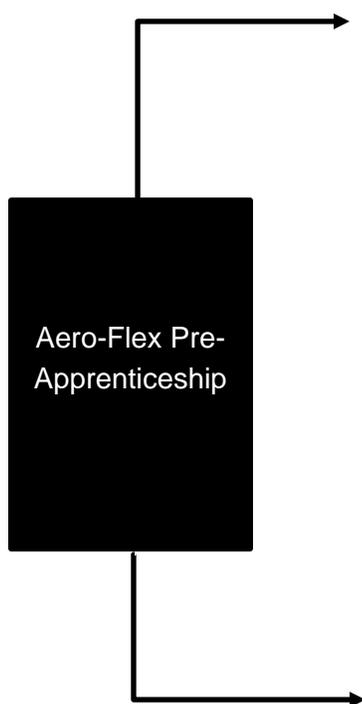
returning service personnel as well as other under-served or under-employed populations. These future employees would have access to a structured entry point into advanced manufacturing career pathways.

## Defining a Quality Pre-Apprenticeship

Pre-apprenticeship is defined by the Department of Labor (DOL) Employment and Training Administration (ETA) as a program or set of strategies designed to prepare individuals to enter and succeed in a Registered Apprenticeship program, along with a documented partnership with at least one, if not more, Registered Apprenticeship program(s).

Quality pre-apprenticeship programs play a valuable role in preparing qualified entry-level workers for Registered Apprenticeship careers and/or baccalaureate degree programs, while contributing to the development of a diverse and skilled workforce. Through a variety of unique program designs and approaches, pre-apprenticeships can be adapted to meet the needs of diverse populations being trained, the various employers and sponsors they serve, and specific opportunities within the local labor market.

Currently there is no Engineering Apprenticeship in the state of California that provides a formalized “earn and learn” model; however, the A-F UAC has embarked on the design of this logical next step. Additionally, to link with other career pathways within advanced manufacturing, the Aero-Flex Pre-Apprenticeship program has aligned with the Strong Workforce Apprenticeship Group (SWAG), for a non-direct entry partnership, which has registered the below registered apprenticeship models.



- Aerospace Engineer (future)
- Electrical Engineer (future)
- Additional Engineering roles (future)



- Tool Programmer, Numerical O\*Net – SOC Code: 51-4012
- Numerical Control Machine Operator O\*Net – SOC Code: 51-4011.00
- Metal Fabricator O\*Net – SOC Code: 51-2041.00
- Machinist O\*Net – SOC Code: 51-4041.00
- Machine Operator I O\*Net – SOC Code: 51-4081.01
- Industrial Manufacturing Technician O\*Net – SOC Code: 17-3029.09
- Assembler, Metal Building O\*Net – SOC Code: 47-2221.00
- Cyber Security Support Technician – SOC Code: 15-1122.00
- Quality Inspector – SOC Code: 51-9061.01

## Pre-Apprenticeship Quality Framework

A quality pre-apprenticeship program is one that incorporates the following elements:

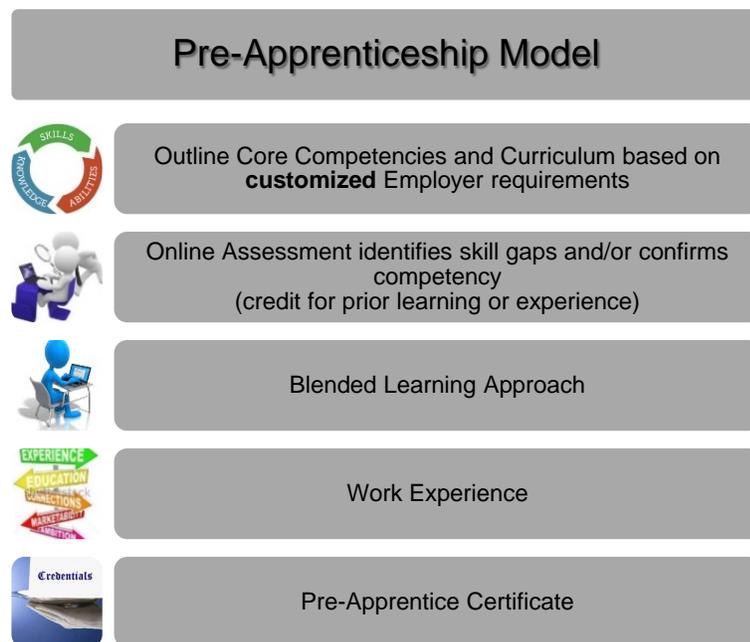
- Approved training and curriculum
- Strategies for long-term success
- Appropriate support services
- Promotes greater use of registered apprenticeship
- Meaningful hands-on training
- Facilitated entry and/or articulation

In addition to the quality framework above, ETA supports expanded partnership efforts in model pre-apprenticeship training that are a collaboration among:

- Registered apprenticeship sponsors
- Workforce development agencies
- Economic development agencies
- Business and industry partners
- Community colleges and other education partners
- Community and faith-based organizations
- Advocacy organizations that represent underserved populations

## Aero-Flex Pre-Apprenticeship Framework

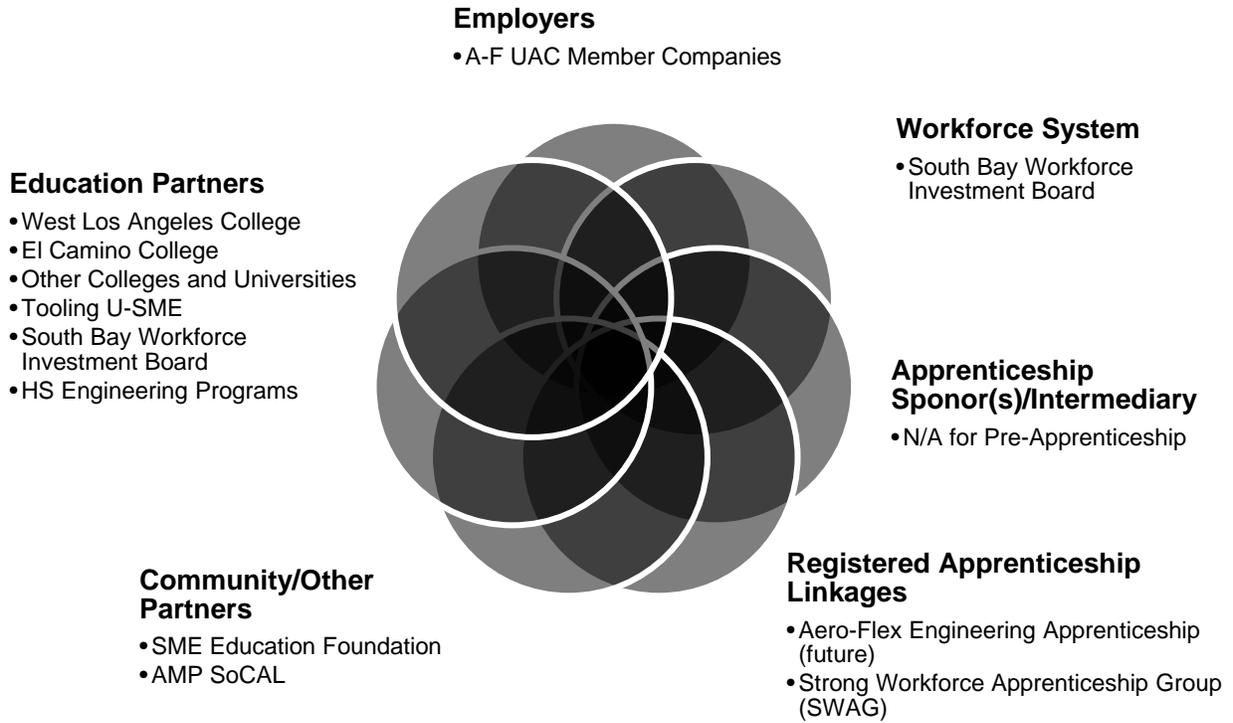
The Aero-Flex Pre-Apprenticeship will provide an online skills assessment, a blended learning plan driven by employer requirements, work experience and stackable credentials that are industry-recognized and are additive to the Pre-Apprentices resume.



- I. An Aero-Flex Pre-Apprentice will be registered with the South Bay Workforce Investment Board and any additional support services that can be provided will be offered by SBWIB.
- II. The detailed training curriculum is available in the Training Plan Supplement however an overview of the training plan includes the following tracks:
  - a. Each pre-apprentice may take the applicable Aero-Flex online assessment which will confirm competency in multiple skill areas and/or identify skill gaps.
    -  i. Blueprint I assessment (see track I below)
    - ii. Blueprint II assessment (see track I below)
    - iii. Industry-specific occupational skills assessment (see track II below)
  - b. Track I – Employability - Work Readiness Skills
    - i. This core set of skills will prepare the pre-apprentice for the work environment.
    - ii. Training will be provided in a combination of in-person and online training and will be delivered at the high school, junior college, employer site and/or Workforce Investment Board.
  - c. Track II - Industry-Specific Occupational Skills
    -  i. Each employer may determine which set of pre-defined competencies they want to include in their pre-apprenticeship or if they want to custom-select this flexible component of the curriculum.
    - ii. Training may be delivered online or in a blended learning approach depending upon the competency or competencies selected by the employer.
  - d. Track III - Work-Based learning (OJT)
    -  i. Each employer will provide the work-based learning experience, or on-the-job training component.
      1. This may include project work, job shadowing and other activities as deemed appropriate by the employer.
- III. Earn and Learn - The pre-apprentice may receive wage payments throughout the work experience component or a stipend at completion of the program. The wages and the stipend may be paid by the employer and/or may be subsidized by SBWIB, or other partners and grant sources.
- IV. Other Benefits
  - a. Pre-apprentices who are high school students will receive a free membership to the Society of Manufacturing Engineers (“SME”). This membership provides access to SME’s mentor program, SME Connect, scholarships, SME knowledge and resources, competitions and more. The membership fee for College students is \$20 annually and may be subsidized by employers, the workforce board or other partners and sources.

- b. Credentials – Pre-apprentices who complete the program can earn one or more industry-recognized, stackable credentials that can be added to their college application/resume.
- c. Work experience – Pre-apprentices who complete the program will have gained real work experience to add to their college application/resume.

**AERO-FLEX PARTNER**



**AERO-FLEX EMPLOYERS**

