



Session 5: Registered Apprenticeship Programs

Thursday, April 20th, 2023: 1pm – 2:30 EST

REDF
An investment that works.

REDF's Upskilling Continuing Education Series



Sessions (1:00 - 2:30pm EST)	Definition	ESE Case Study
Monday, April 17 Direct Placement into Corporate Training Programs	Direct placement pipelines with employers that provide structured career paths and advancement opportunities to quality jobs that offer living wages, benefits, and ongoing skills training.	Chrysalis Litter Abatement into CalTRANS Service Assistance Maintenance Jobs
Tuesday, April 18 Skills Training	High quality, industry validated training programs that lead to recognized certificates or credentials and in-demand, quality jobs. These can be provided by public institutions of higher education or private training providers.	Civic Works Center for Sustainable Careers Solar Installation, Energy Retrofitting, and Brownfields Training Programs
Wednesday, April 19 Pre-Apprenticeship	Structured curriculum that prepares clients to enroll and successfully complete RAPs. These programs are often developed and/or validated by local Registered Apprenticeship Programs (RAPs) and are sometimes registered with state or federal apprenticeship agencies.	Rebuilding Exchange 6-week building & construction trades pre-apprenticeship
Thursday, April 20 Registered Apprenticeship	Structured training program that includes on-the-job training in a specific occupation combined with related classroom training, has an employer sponsor, and has approval from the US DOL or State Apprenticeship agency to operate.	Bitwise Industries Tech Registered Apprenticeship Programs
Friday, April 21 Upskilling Navigation	Formal role in a wider partnership helping students and workers explore, apply, enroll and complete upskilling training programs in a specific region or market.	Lancaster Works Referral and Support of the Career Ready Lancaster! initiative ²

Q1: False – REDF's Upskilling Maturity Framework



Upskilling Maturity Framework

Description

4. Transformative

Provide advanced learning and skill certification in competitive career fields that provide not just a permanent job but a high growth career path

3. Competitive

Offer opportunities to build technical and vocational skills, and learn skills outside of ESE's area to prepare for permanent job related to their experience or interests

2. Foundational

Offer opportunities to learn on-the-job skills related to their ESE role, begin building related credentials and achieving certifications, and offer job readiness training to prepare for job transition

1. Basic

Focus on building basic job readiness skills to help employees maintain their ESE role and begin to demonstrate employability, learning the basic components and function of employment



In this session, we will:

- Review previous session (10 minutes)
- Define Registered Apprenticeship Program models, ESE roles ESEs are participating in across the US (20 minutes)
- Review the Bit Wise Registered Apprenticeship case study (30 minutes)
- Discuss key considerations, opportunities, and challenges related to financing, measuring, and operationalizing this model (30 minutes)



Unit 5.1: Review Session 4 – Pre-Apprenticeship Programs

(10 minutes)



Session 4 Review Quiz

- Question 1: What was your first job and what did you learn?



Pre-Apprenticeship Programs:

Structured curriculum that prepares clients to **enroll and successfully complete Registered Apprenticeship Programs, or RAPs.**

These programs are often developed and/or validated by RAPs and are sometimes registered with state or federal apprenticeship agencies.

The five components of Pre-Apprenticeships

- Training and curriculum that aligns with the skill needs of employers in the economy of the State or region involved
- Access to educational and career counseling and other supportive services, directly or indirectly
- Hands-on, meaningful learning activities that are connected to education and training activities, such as exploring career options, and understanding how the skills acquired through coursework can be applied toward a future career
- Opportunities to attain at least one industry-recognized credential
- A partnership with one or more Registered Apprenticeship programs that assists in placing individuals who complete the pre-apprenticeship program into a Registered Apprenticeship program.



Upskilling Model 3

Pre-Apprenticeship

REDF

1

Provide curriculum directly, informed by local registered apprenticeship partners

2

Navigation and enrollment support services

3

Provide wrap around support and stipends while client take pre-apprenticeship

4

Facilitate apprenticeship enrollment after completion

Focusing on Employment Pathways





Unit 5.2: Define Registered Apprenticeship Program models and how ESEs are participating in them across the US

(20 minutes)

Registered Apprenticeship Programs (RAPs)

Structured training program that includes on-the-job training in a **specific occupation** combined with related classroom training, **has an employer sponsor**, and has **approval** from the US DOL or State Apprenticeship agency **to operate**.

Registered Apprenticeship Programs (RAPs)

- Must work for at least 2,000 hours (about one year)
- 144 hours of related technical instruction for every 2,000 hours of work
- Three types of programs and standards:
 - 1) time-based
 - 2) competency-based
 - 3) hybrid

Three Types of Registered Apprenticeship

1) Time-based



Traditional approach that takes 1-6 years.

Apprentices are required to complete a minimum number of hours of on-the-job learning and related technical instruction based on requirements listed in an occupational standard defined by their employer.

2) Competency-Based



An apprentice's progress through the on-the-job learning portion of their apprenticeship is measured solely on their attainment of required competencies, verified by the employer.

Apprentices must also complete related supplemental instruction.

3) Hybrid




Blend of the previous two approaches.

Employers define the required competencies and the range of hours within which they believe apprentices should gain those competencies.


BROWSE BY INDUSTRY

Many of the nation's most recognizable companies have effectively integrated apprenticeship into their workforce development strategy. Explore industries to learn more about success stories of occupations companies are leveraging in apprenticeship and to access valuable resources.




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Construction

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Cybersecurity

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- Hospitality
- Information Technology
- Telecommunications
- Transportation

Advanced manufacturing companies face complex workforce challenges in an increasingly competitive global marketplace. Registered Apprenticeship is employers' proven solution for recruiting, training, and retaining world-class manufacturing talent in good, quality jobs. In 2021, there were 23,899 registered apprentices in advanced manufacturing occupations, increasing 73% over the last eight years⁽¹⁾

"Through customized training, our apprentices build their skill sets working directly with our equipment, enabling them to become very efficient in supporting the Mack Trucks manufacturing facility as they progress through and complete the program."

Thomas Combos, Maintenance Manager, Mack Trucks Lehigh Valley Operations

High-Demand Apprenticeship Occupations



- [Aerospace Engineer](#)
- [CNC Machine Operator](#)
- [Tool and Die Maker](#)
- [Plastics Fabricator](#)
- [Mechanical Engineering Technician](#)
- [Mechatronics Technician](#)
- [Precision Machinist](#)
- [Industrial Manufacturing Technician](#)
- [Maintenance Mechanic](#)
- [Robotics Technician](#)
- [Quality Technician](#)

To explore more apprenticeship occupations in the Advanced Manufacturing industry, view our [Occupation Finder](#)

Competency-Based Occupational Frameworks

In collaboration with the Urban Institute, we offer national frameworks for occupations in this industry that are consensus based, meaning they are drafted in cooperation with employers, educators, and other workforce and training experts. Employers and businesses can use these frameworks to fast-track the development of their registered apprenticeships. The frameworks are competency based rather than time based, meaning that abilities are emphasized over memorized knowledge or skills. The result is high-quality, competency-based occupational frameworks (CBOFs) that are freely available for all to use. CBOFs are available for the following occupations:

- [Additive Manufacturing Technician \(MS Word\)](#)
- [Industrial Maintenance Mechanic \(MS Word\)](#)
- [Industrial Manufacturing Technician \(MS Word\)](#)
- [Mechatronics Technician Engineer Basic \(MS Word\)](#)
- [Mechatronics Technician Engineer \(Intermediary\) \(MS Word\)](#)
- [Stamping Press Operator \(MS Word\)](#)
- [Tool and Die Maker \(MS Word\)](#)



Work Process Schedule

Additive Manufacturing Technician

Job Description: Apprentices will learn to maintain and repair additive manufacturing and 3-D printing equipment in their industry.

RAPIDS Code: 2097CB

O*NET Code: 17-3029.09

Estimated Program Length: 1.5 years

Apprenticeship Type: ☒ Competency-Based ☐ Time-Based ☐ Hybrid

Suggested On-the-Job Learning Outline

Protects self and other workers from accidents and injuries

Competencies	Date Completed	Initial
A. Adheres to personal grooming requirements in the facility		
B. Uses personal protective equipment		
C. Follows fire safety procedures		
D. Works around energy sources and performs lockout/tag-out procedures		
E. Handles and stores hazardous materials as assigned		
F. Demonstrates both emergency and standard shutdown of all required equipment		
G. Uses and locates eyewash sinks and first-aid kits		
H. Demonstrates, reports, and responds promptly, safely, and appropriately to emergency or hazard situations and troubleshoots any issues that may arise		
I. Handles dense material		
J. Adheres to National Electric Code (NEC) safety procedures for tightening, disconnecting, or connecting electrical conductors and components		
K. Adheres to hazard avoidance procedures when in contact with live electrical systems		
L. Resets circuit breakers		

Demonstrates workplace skills and plans and controls work processes

Competencies	Date Completed	Initial
A. Procures and evaluates information		
B. Conducts discussions with line managers and colleagues and within the team in a situation appropriate manner; presents facts and circumstances		
C. Communicates in a timely manner using available modes of communication		
D. Uses opportunities to resolve conflicts		
E. Selects proper software		

F. Handles technical computer systems and, in particular, deploys software and connects and uses peripheral devices		
G. Prepares protocols and reports using standard software		
H. Demonstrates proficiency in mathematical processes		
I. Schedules time to run machine		

Selects the proper materials, tools, and equipment for the job

Competencies	Date Completed	Initial
A. Chooses and applies a type of material to render parts		
B. Compares the differing properties and characteristics of common materials used for additive manufacturing models		
C. Ensures proper parts are in stock and orders parts, supplies, or equipment from catalogs or suppliers		
D. Plans and lays out repair work		
E. Demonstrates fluency in using technology to assess and troubleshoot issues		
F. Initiates a formal bid process for materials		
G. Evaluates supplier capabilities against a standard set of well-documented criteria		
H. Demonstrates proper storage of additive materials (i.e., powders)		

Prepares for installation

Competencies	Date Completed	Initial
A. Builds or assembles additive manufacturing equipment devices or systems		
B. Engages, as part of the engineer team, in the design, configuration, or application of additive manufacturing equipment systems		
C. Fabricates housings, fittings, or fixtures, using metalworking machines		
D. Develops three-dimensional simulations and models of automation systems		
E. Evaluates the efficiency and reliability of industrial additive manufacturing equipment systems		

Installs and assembles machine

Competencies	Date Completed	Initial
A. Sets up and commissions a 3-D printer and supporting equipment		
B. Installs, programs, or repairs programmable controllers, robot controllers, end-of-arm tools, or conveyors		
C. Documents additive manufacturing equipment test procedures and results		
D. Aligns, fits, or assembles component parts		
E. Terminates wires between controllers		
F. Assembles, installs, or repairs key components		
G. Sets up and operates machine tools to repair or fabricate machine parts, fixtures, or tools		

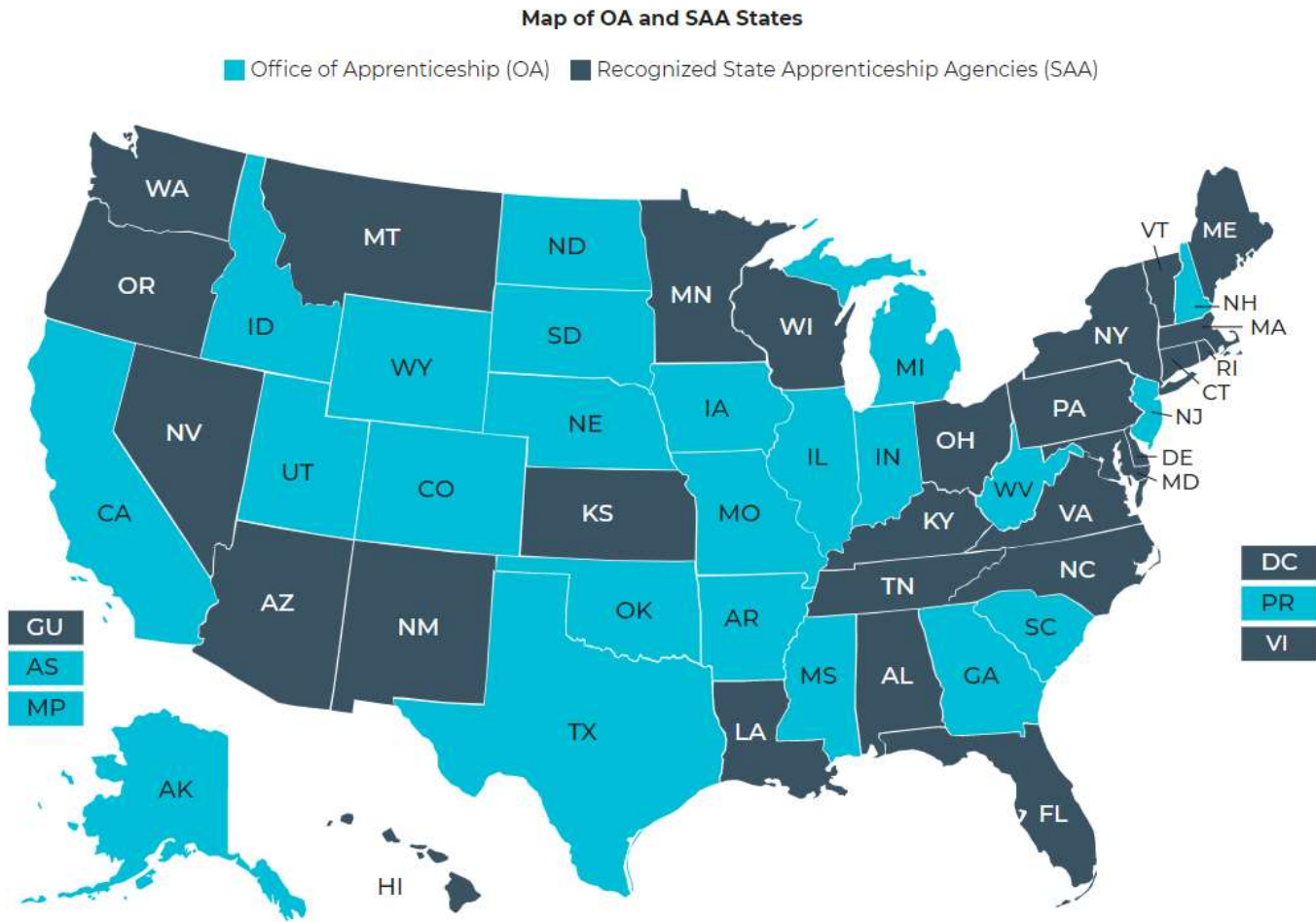
Required Partners: *Potential ESE Roles*

- **Employer sponsor(s):** Hires apprentice and provides on-the-job training.
- **Local Education Agency (LEA):** Provide or sanction the classroom hours.
- **US DOL or State Apprenticeship Agencies:** Help construct standards, register apprentices, and (sometimes) provide formula and grant funding.

Optional Partners:

- **Training provider:** Provide classroom hours, sanctioned by LEA.
- **Intermediary:** Project management, partner coordination, talent sourcing, wrap around services
- **Community-based organization:** Pre-apprenticeship, talent sourcing, wrap around services
- **Workforce development boards:** Funding, coordination, talent sourcing, wrap around services.
- **Federal/state/philanthropic agencies:** One-time or ongoing formula funding

Federal and State Apprenticeship Regulatory Agencies



Unit 5.3: Peer Case Study

Bitwise Technology Registered Apprenticeship Programs

(30 minutes)

Breakouts

What is one thing your ESE
can do to partner or explore
with a Registered
Apprenticeship?

(10 minutes)

Required Partners: *Potential ESE Roles*

- **Employer sponsor(s):** Hires apprentice and provides on-the-job training.
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Unit 5.4: Measuring Registered Apprenticeship Success

(10 minutes)

Measuring Impact of Registered Apprenticeship Programs



Definition

Structured training program that includes on-the-job training in a specific occupation combined with related classroom training, has an employer sponsor, and has approval from the US DOL or State Apprenticeship agency to operate.

Potential Measures

- # of clients that complete RAP
- Wage progression
- Outcomes disaggregated by race and gender (ESE value proposition)

Measuring Impact of Registered Apprenticeship Programs – US DOL Example



Did You Know?

Registered Apprenticeship programs offer access to hundreds of occupations, in high-growth and emerging industries.

\$77K

Average Starting Salary

Average starting salary after an apprentice completes an apprenticeship program



93%

Employment Retention

Percentage of apprentices who retain employment after apprenticeship completion



800,000+

Apprentices Annually Across the Nation



\$300K+

Lifetime Earning Advantage

Apprentice graduates earn more over their lifetime compared to peers who don't



Unit 5.5: Financing Registered Apprenticeship Programs

(10 minutes)

Recommended uses and applications for each category



Category 1: One Time Grants and Contracts
<ul style="list-style-type: none">• Planning and partner building• Developing curriculum• Purchasing equipment or other capital expenditures for classroom and simulated training environments• Running pilots

Category 2: Earned Revenue
<ul style="list-style-type: none">• Placement fees• Staffing firm models• Outsourced model

Category 3: Recurring Public Sector Funds
<ul style="list-style-type: none">• State Related Supplemental Instruction (RSI) and other formula funds• US Department of Education Federal Student Aid (e.g., Pell Grants, Federal Work Study)• GI Bill / Veteran's Affairs Educational Assistance (e.g., "Skill Bridge")• WIOA Individual Training Accounts (ITAs): ~\$4,000 - \$10,000 scholarships paid to approved providers• WIOA On-the-Job Training: Up to 50% of wages• SNAP E&T: 50% reimbursement for non-federal funds (for transitional employment portion)

The Federal Resources Playbook for Registered Apprenticeship



EMPLOYMENT AND TRAINING ADMINISTRATION
UNITED STATES DEPARTMENT OF LABOR



- 1 U.S. Department of Labor: Federal Workforce Development Funds, including Workforce Innovation and Opportunity Act, Trade Adjustment Act, H1B and Women in Apprenticeship in Non-Traditional Occupations
- 2 U.S. Department of Education: Federal Student Aid Funds, Title IV Student Aid including Pell Grants and Federal Work Study
- 3 U.S. Department of Veterans Affairs: GI Bill® and Veterans Affairs Educational Assistance
- 4 U.S. Department of Agriculture: Supplemental Nutrition Assistance Program Education and Training Funds
- 5 U.S. Department of Transportation: Federal Highway Administration On-the-Job Training and Supportive Services Program
- 6 U.S. Department of Housing and Urban Development: Financial Assistance Programs

<https://www.apprenticeship.gov/sites/default/files/playbook.pdf>

WIOA Eligible Training Provider List Eligibility



*“Under WIOA, title I, Registered Apprenticeship program sponsors are **automatically eligible for placement on the state-approved ETP list** and will remain on the list as long as the program is registered or until the program sponsor notifies the State that it no longer wants to be included on the list.*

*Registered Apprenticeship programs are not subject to the same application and performance information requirements or to a period of initial or continued eligibility as other providers **because they go through an extensive application and vetting process** to become a Registered Apprenticeship program sponsor with the USDOL or the SAA.*

US DOL Training & Guidance Letter (TEGL) 13-16 (2017)

Unit 5.6: Wrap Up and Next Session

(10 minutes)



- What is one thing you can take away from today?
- What is one thing you wish you heard more about?
- Session 6: Preview – Upskilling Navigation

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End of Session 5