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Labor Market Analysis

Packaging Technician Apprenticeship



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Prepared by the Central Valley/Mother Lode Center of Excellence

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COVID-19 Statement: This report includes employment projection data by Emsi. Emsi’s projections are modeled on recorded (historical) employment figures and incorporate several underlying assumptions, including the assumption that the economy during the projection period will be at approximately full employment or potential output. To the extent that a recession or labor shock, such as the economic effects of COVID-19, can cause long-term structural change, they may impact the projections. At this time, it is not possible to quantify the impact of COVID-19 on projections of industry and occupational employment. Other measures such as unemployment rates and monthly industry employment estimates will reflect the most recent information on employment and jobs in the state and, in combination with input from local employers, may help validate current and future employment needs as depicted here.

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Summary

Please note the COVID-19 statement on page 2 when considering this report's findings.

This study conducted by the Central Valley/Mother Lode Center of Excellence examines labor market demand, wages, skills, and postsecondary supply for packaging technician apprenticeship. Two occupations related to packaging technician apprenticeship were identified for Modesto Junior College:

- 49-9071, Maintenance and Repair Workers, General
- 51-9111, Packaging and Filling Machine Operators and Tenders

Key findings:

- **Occupational demand** — Nearly 9,070 workers were employed in jobs related to packaging technician apprenticeship in 2020 in the North Central Valley/Northern Mother Lode (NCV/NML) subregion. The largest occupation is maintenance and repair workers, general with 5,605 workers, a projected growth rate of 6% over the next five years, and 618 annual openings.
- **Wages** — Maintenance and repair workers, general earn the highest entry-level wage, \$15.75/hour in the subregion.
- **Employers** — Employers with the most job postings in the subregion are McDonald's, In Shape Health Clubs, and Foster Farms.
- **Occupational titles** — The most common occupational title in job postings in the subregion is Maintenance and Repair Workers, General. The most common job title is Maintenance Technician.
- **Skills and certifications** — The top baseline skill is troubleshooting, the top specialized skill is repair, and the top software skill is Microsoft Excel. The most in-demand certification is a driver's license.
- **Education** — A high school diploma or equivalent is typically required for the two occupations.
- **Supply** — Analysis of postsecondary completions shows that on average 168 awards were conferred in the Central Valley/Mother Lode region each year.

Based on a comparison of occupational demand and supply, there is an undersupply of 1,026 trained workers in the subregion and 2,413 workers in the region. The Center of Excellence recommends that Modesto Junior College work with the regional directors, the college's advisory board, and local industry in the expansion of programs to address the shortage of packaging technician workers in the region.

Introduction

The Central Valley/Mother Lode Center of Excellence was asked by Modesto Junior College to provide labor market information for packaging technician apprenticeship. The geographical focus for this report is the North Central Valley/Northern Mother Lode (NCV/NML) subregion, but regional demand and supply data has been included for broader applicability and use. The average living wage for a single adult in the NCV/NML subregion is \$12.65/hour.¹ Analysis of the program and occupational data related to packaging technician apprenticeship resulted in the identification of applicable occupations. The Standard Occupational Classification (SOC) System codes and titles used in this report are:

- 49-9071, Maintenance and Repair Workers, General
- 51-9111, Packaging and Filling Machine Operators and Tenders

The occupational titles, job descriptions, sample job titles, and knowledge and skills from the Bureau of Labor Statistics and O*NET OnLine are shown below.

Maintenance and Repair Workers, General

Job Description: Perform work involving the skills of two or more maintenance or craft occupations to keep machines, mechanical equipment, or the structure of a building in repair. Duties may involve pipe fitting; HVAC maintenance; insulating; welding; machining; carpentry; repairing electrical or mechanical equipment; installing, aligning, and balancing new equipment; and repairing buildings, floors, or stairs.

Knowledge: Mechanical, Building and Construction, English Language, Mathematics, and Production and Processing

Skills: Equipment Maintenance, Repairing, Troubleshooting, Critical Thinking, Active Learning

Packaging and Filling Machine Operators and Tenders

Job Description: Operate or tend machines to prepare industrial or consumer products for storage or shipment. Includes cannery workers who pack food products.

Knowledge: Production and Processing, Mechanical, Public Safety and Security, Education and Training, English Language

Skills: Operations Monitoring, Monitoring, Active Listening, Coordination, Operation and Control

Occupational Demand

The NCV/NML subregion employed 9,068 workers in packaging technician apprenticeship occupations in 2020 (Exhibit 1). The largest occupation is maintenance and repair workers, general with 5,605 workers. This occupation is projected to grow by 6% over the next five years and has the greatest number of projected annual openings, 618.

Exhibit 1. Packaging technician apprenticeship employment and occupational projections in the NCV/NML subregion

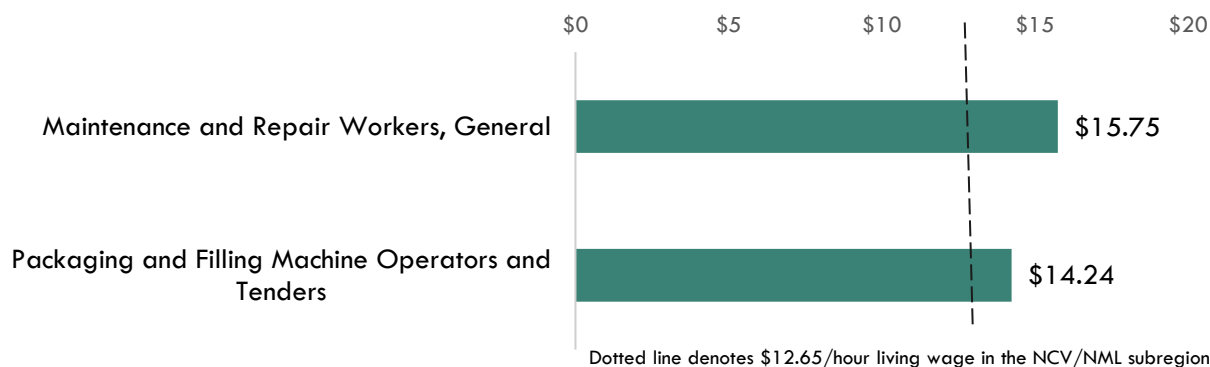
Occupation	2020 Jobs	2025 Jobs	5-Year Change	5-Year % Change	Annual Openings
Maintenance and Repair Workers, General	5,605	5,959	355	6%	618
Packaging and Filling Machine Operators and Tenders	3,464	3,599	135	4%	412
TOTAL	9,068	9,558	490	5%	1,030

¹ The term "living wage" in Center of Excellence reports is calculated by averaging the self-sufficiency wages from the Insight Center's California Family Needs Calculator for each county in the subregion: <https://insightccd.org/tools-metrics/self-sufficiency-standard-tool-for-california/>.

Wages

Exhibit 2 shows the entry-level hourly wages of the packaging technician apprenticeship occupations. Maintenance and repair workers, general earn the highest entry-level wage, \$15.75/hour in the subregion².

Exhibit 2. Packaging technician apprenticeship entry-level wages in the NCV/NML subregion



Job Postings

There were 1,347 job postings for the two occupations in the NCV/NML subregion from September 2021 to February 2022.³ The employers with the most job postings are listed in Exhibit 3.

Exhibit 3. Top employers of packaging technician apprenticeship by number of job postings

Employer	Job Postings	% Job Postings
McDonald's	33	3%
In Shape Health Clubs	17	2%
Foster Farms	14	1%
Fpi Management Incorporated	14	1%
Jones Lang Lasalle Incorporated	12	1%
The Home Depot Incorporated	12	1%
Conam Management Corporation	11	1%
Yosemite Community College District	11	1%
Sysco Corporation	10	1%
Hilmar Cheese Company Incorporated	9	1%

Exhibit 4 shows how job postings for the targeted occupations in the NCV/NML subregion are distributed across two O*NET OnLine occupations. The occupational title Maintenance and Repair Workers, General is listed in 1,265 job postings. Note how this occupational title dominates the job posting results. Common job

² Entry-level wages are derived from the 25th percentile.

³ Other than occupation titles and job titles, the categories below can be counted one or multiple times per job posting, and across several areas in a single posting. For example, a skill can be counted in two different skill types, and an employer can indicate more than one education level.

titles in postings include Maintenance Technician in 134 job postings, Field Service Technician in 83 job postings, and Service Technician in 67 job postings.

Exhibit 4. Top occupational titles in job postings for packaging technician apprenticeship

Occupational Title	Job Postings	% of Job Postings
Maintenance and Repair Workers, General	1,265	94%
Packaging and Filling Machine Operators and Tenders	82	6%

Salaries

Exhibit 5 shows the “Market Salaries” for packaging technician apprenticeship occupations. These are calculated by Burning Glass using a machine learning model built off of millions of job postings every year. This accounts for adjustments based on locations, industry, skills, experience, education requirements, among other variables.

Exhibit 5. Salaries for packaging technician apprenticeship occupations

Market Salary Percentile	Salary Amount
10th Percentile	\$27,302
25th Percentile	\$31,121
50th Percentile	\$35,532
75th Percentile	\$41,703
90th Percentile	\$48,827

Education

Of the 1,347 job postings, 677 listed an education level preferred for the positions being filled. Among those, 96% requested high school or vocational training, 18% requested an associate degree, and 1% requested a bachelor’s degree (Exhibit 6). A job posting can indicate more than one education level. Hence, the percentages shown in the chart below may total more than 100%.

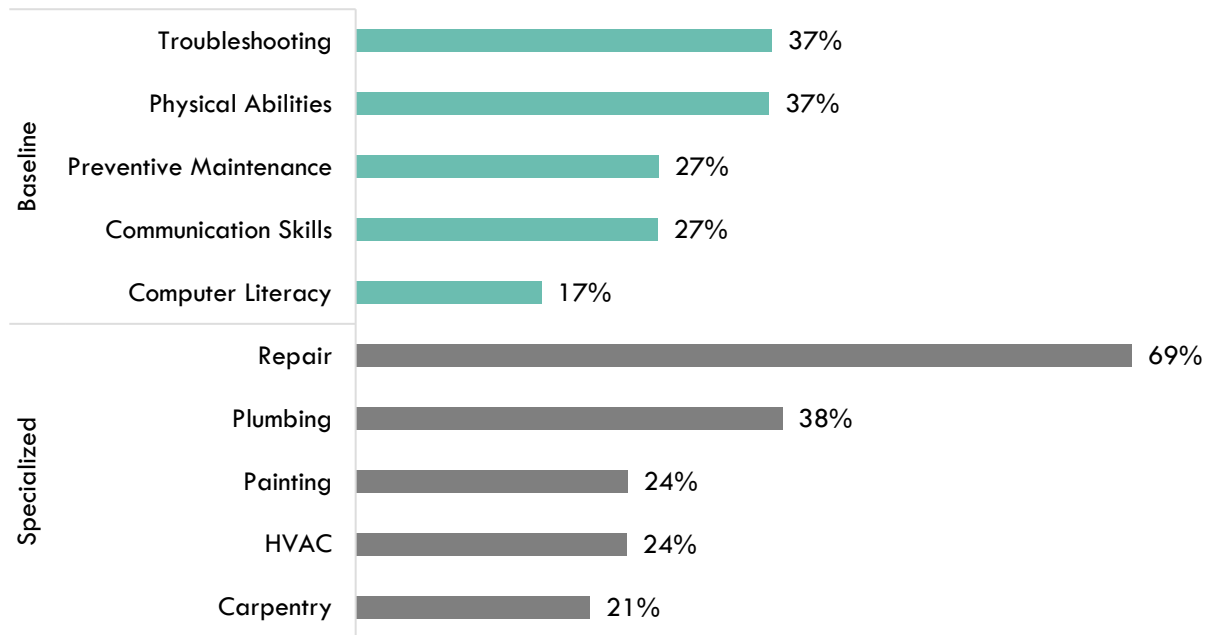
Exhibit 6. Education levels requested in job postings for packaging technician apprenticeship

Education Level	Job Postings	% of Job Postings
High school or vocational training	648	96%
Associate's degree	122	18%
Bachelor's degree	4	1%
Master's degree	1	0%
Doctoral degree	1	0%

Baseline and Specialized Skills

Exhibit 7 depicts the top baseline and specialized skills for the targeted occupations. The three most important baseline skills are troubleshooting, 37% of job postings, physical abilities, 37%, and preventive maintenance, 27%. The top three specialized skills are repair, 69% of job postings, plumbing, 38%, and painting, 24%.

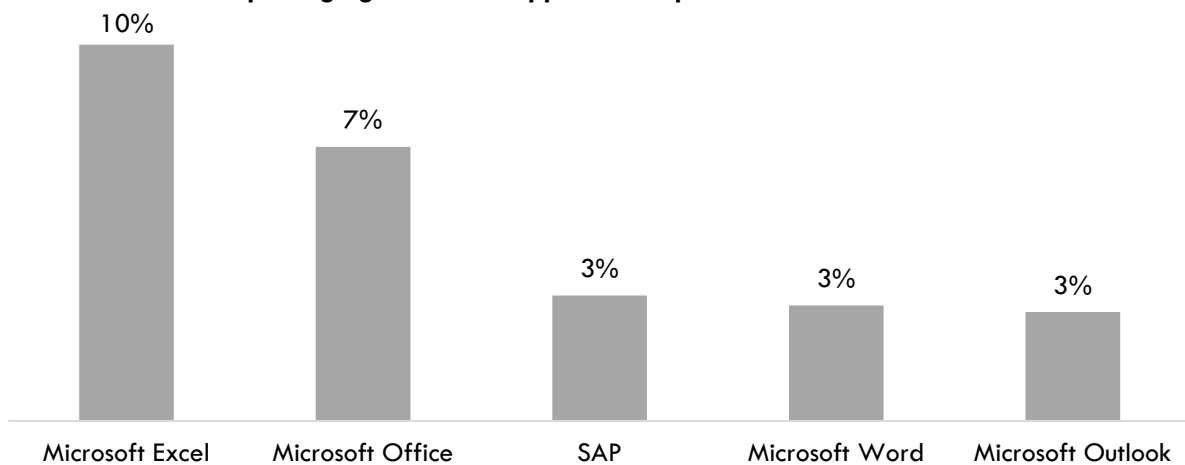
Exhibit 7. In-demand packaging technician apprenticeship baseline and specialized skills



Software Skills

Analysis also included the software skills most in demand by employers. Microsoft Excel and Office were the top two software skills identified in job postings (Exhibit 8).

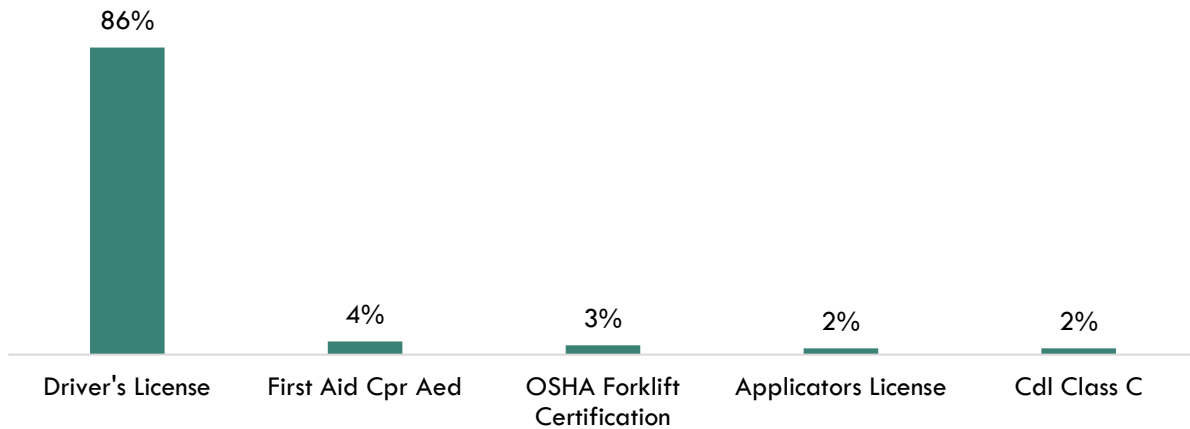
Exhibit 8. In-demand packaging technician apprenticeship software skills



Certifications

Of the 1,347 job postings, 731 contained certification data. Among those, 86% indicated a need for a driver's license. The next top certifications are first aid cpr aed and OSHA Forklift Certification (Exhibit 9).

Exhibit 9. Top packaging technician apprenticeship certifications requested in job postings



Education, Work Experience & Training

A high school diploma or equivalent is typically required for the two occupations (Exhibit 10).

Exhibit 10. Education, work experience, training, and Current Population Survey results for packaging technician apprenticeship occupations⁴

Occupation	Typical Entry-level Education	Work Experience Required	Typical On-The-Job Training	CPS
Maintenance and Repair Workers, General	High school diploma or equivalent	None	Moderate-term	37.6%
Packaging and Filling Machine Operators and Tenders	High school diploma or equivalent	None	Moderate-term	21.1%

⁴ "Labor Force Statistics from the Current Population Survey," Bureau of Labor Statistics, <https://www.bls.gov/cps/>.

Supply

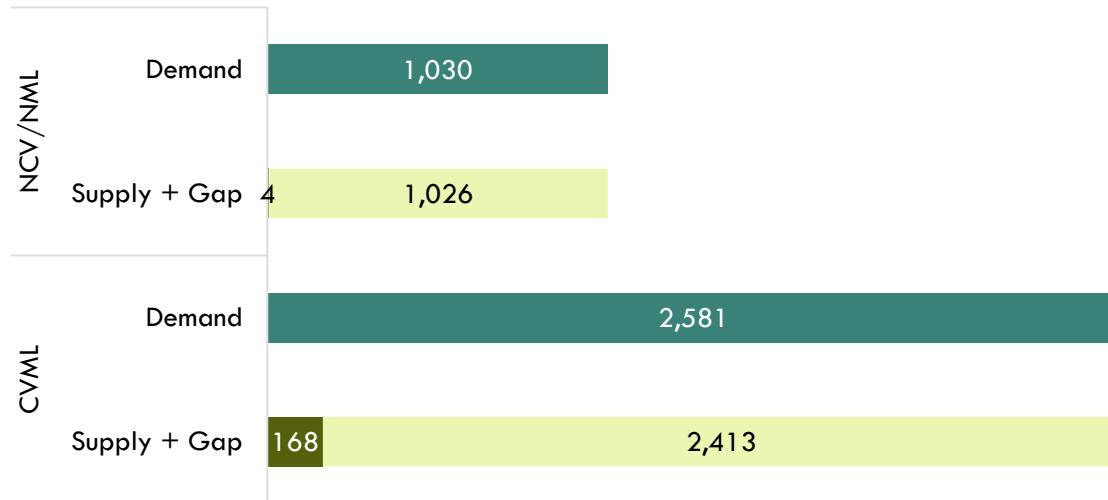
Analysis of program data from the Integrated Postsecondary Education Data System (IPEDS) included the TOP and CIP codes and titles: 095600 - Manufacturing and Industrial Technology and 15.0613 - Manufacturing Engineering Technology/Technician. Analysis of the last three years of data shows that, on average, 168 awards were conferred in the Central Valley/Mother Lode region each year (Exhibit 11).

Exhibit 11. Postsecondary supply for packaging technician apprenticeship occupations in the region

TOP/CIP Code- Title	College	Associate Degree	Award 1 < 2 Academic Years	Certificate 16 < 30 Semester Units	Certificate 18 < 30 Semester Units	Certificate 30 < 60 Semester Units	Certificate 6 < 18 Semester Units	Certificate 8 < 16 Semester Units	Noncredit Award 480 < 960 Hours	Subtotal
095600 - Manufacturing and Industrial Technology	Bakersfield	7				1				7
	Cerro Coso	1				1				2
	Fresno City	2				7			22	31
	Modesto			1	3				0	4
	Porterville			3	11		18			32
	Reedley College	1		37	53	1				91
15.0613 - Manufacturing Engineering Technology/Technician	Milan Institute-Bakersfield West	1	0							1
TOTAL		11	0	41	67	9	18	0	22	168

There is an undersupply of 1,026 packaging technician apprenticeship workers in the NCV/NML subregion and 2,413 workers in the region (Exhibit 12).

Exhibit 12. Packaging technician apprenticeship workforce demand (annual job openings), postsecondary supply of students (awards), and additional students needed to fill gap in the NCV/NML subregion and region



Student Outcomes

Exhibit 13 summarizes employment and wage outcomes from the California Community College Chancellor’s Cal-PASS Plus LaunchBoard for the TOP code related to packaging technician apprenticeship. Of note, 22 students received a degree or certificate or attained apprenticeship journey status; 75% of students obtained a job closely related to their field of study; 96% had a median change in earnings; and 75% of students attained a living wage.

Exhibit 13. Subregional metrics for the TOP code related to packaging technician apprenticeship

Metric	Manufacturing and Industrial Technology 095600
Students Who Got a Degree or Certificate or Attained Apprenticeship Journey Status	22
Number of Students Who Transferred	*
Job Closely Related to Field of Study	75%
Median Change in Earnings	96%
Attained a Living Wage	75%
* denotes data not available.	

Conclusion

The entry-level wages of the two occupations exceed the NCV/NML subregion's average living wage. There were 1,347 job postings in the past six months for occupations related to packaging technician apprenticeship in the subregion. Analysis of skills and certification requirements in job postings indicates:

- The top baseline skill is troubleshooting, and the top specialized skill is repair.
- The top software skill is Microsoft Excel.
- The top certification is a driver's license.

There is an undersupply of trained workers, a shortage of 1,026 in the NCV/NML subregion and 2,413 in the region.

Recommendation

Based on these findings, it is recommended that Modesto Junior College work with the regional director, the college's advisory board, and local industry in the expansion of programs to address the shortage of packaging technician workers in the region.

Appendix A: Methodology & Data Sources

Data Sources

Labor market and educational supply data compiled in this report derive from a variety of sources. Data were drawn from external sources, including the Economic Modeling Specialists, Inc., the California Community Colleges Chancellor’s Office Management Information Systems Data Mart and the National Center for Educational Statistics (NCES) Integrated Postsecondary Education Data System (IPEDS). Below is the summary of the data sources found in this study.

Data Type	Source
Labor Market Information/Population Estimates and Projections/Educational Attainment	Economic Modeling Specialists, Intl. (EMSI). EMSI occupational employment data are based on final EMSI industry data and final EMSI staffing patterns. Wage estimates are based on Occupational Employment Statistics (QCEW and Non-QCEW Employees classes of worker) and the American Community Survey (Self-Employed and Extended Proprietors). Occupational wage estimates also affected by county-level EMSI earnings by industry: economicmodeling.com .
Typical Education Level and On-the-job Training	Bureau of Labor Statistics (BLS) uses a system to assign categories for entry-level education and typical on-the-job training to each occupation for which BLS publishes projections data: https://www.bls.gov/emp/tables/educational-attainment.htm .
Labor Force, Employment and Unemployment Estimates	California Employment Development Department, Labor Market Information Division: labormarketinfo.edd.ca.gov .
Job Posting and Skills Data	Burning Glass: burning-glass.com/ .
Additional Education Requirements/ Employer Preferences	The O*NET Job Zone database includes over 900 occupations as well as information on skills, abilities, knowledge, work activities and interests associated with specific occupations: onetonline.org .

Key Terms and Concepts

Annual Job Openings: Annual openings are calculated by dividing the number of years in the projection period by total job openings.

Education Attainment Level: The highest education attainment level of workers age 25 years or older.

Employment Estimate: The total number of workers currently employed.

Employment Projections: Projections of employment are calculated by a proprietary Economic Modeling Specialists, Intl. (EMSI) formula that includes historical employment and economic indicators along with national, state and local trends.

Living Wage: The cost of living in a specific community or region for one adult and no children. The cost increases with the addition of children.

Occupation: An occupation is a grouping of job titles that have a similar set of activities or tasks that employees perform.

Percent Change: Rate of growth or decline in the occupation for the projected period; this does not factor in replacement openings.

Replacements: Estimate of job openings resulting from workers retiring or otherwise permanently leaving an occupation. Workers entering an occupation often need training. These replacement needs, added to job openings due to growth, may be used to assess the minimum number of workers who will need to be trained for an occupation.

Total Job Openings (New + Replacements): Sum of projected growth (new jobs) and replacement needs. When an occupation is expected to lose jobs, or retain the current employment level, number of openings will equal replacements.

Typical Education Requirement: represents the typical education level most workers need to enter an occupation.

Typical On-The-Job Training: indicates the typical on-the-job training needed to attain competency in the skills needed in the occupation.