

# ACADEMIC SUPPLY FOR OCCUPATIONAL DEMAND REPORT



2026

**TN** Department of  
Economic &  
Community Development

**TN** Department of  
Education

**TN** Department of  
Labor & Workforce  
Development

 Tennessee Higher  
Education Commission

## Table of Contents

Introduction .....	3
In-Demand Occupations and Aligned Academic Supply .....	6
Data Sources and Methodology.....	11
<i>In-Demand Occupations</i> .....	11
<i>Aligned Academic Programs</i> .....	12
<i>Limitations</i> .....	14
<i>How to Make the Most of the Report</i> .....	15
Cluster Highlights.....	17
<i>Advanced Manufacturing</i> .....	18
<i>Construction</i> .....	19
<i>Supply Chain &amp; Transportation</i> .....	21
<i>Education</i> .....	22
<i>Healthcare &amp; Human Services</i> .....	24
<i>Public Service &amp; Safety</i> .....	26
<i>Arts, Entertainment, &amp; Design</i> .....	28
<i>Hospitality, Events, &amp; Tourism</i> .....	28
<i>Digital Technology</i> .....	29
<i>Management &amp; Entrepreneurship</i> .....	30
<i>Marketing &amp; Sales</i> .....	31
<i>Agriculture</i> .....	32
<i>Energy &amp; Natural Resources</i> .....	33
<i>Financial Services</i> .....	34

## Introduction

The *2026 Academic Supply for Occupational Demand Report* is a joint report between the Tennessee Higher Education Commission (THEC), Tennessee Department of Labor and Workforce Development (TDLWD), Tennessee Department of Economic and Community Development (TNECD), and Tennessee Department of Education (TDOE). The Tennessee Department of Finance and Administration's Office of Evidence and Impact (OEI) supports this project by linking K-12 and postsecondary graduates to employment data in Tennessee's integrated, longitudinal data system, Tennessee Data Analytics for Transparency and Accountability (TN DATA) Secure Data Hub.

This report is prepared pursuant to Tennessee Code Annotated § 49-7-112(b), which directs THEC, in partnership with TDLWD, TNECD, and TDOE, to “produce an annual report regarding state workforce need projections and credential production.” While each agency has a distinct mission, all have connected goals in preparing Tennesseans for careers and building the talent pipeline of Tennessee's workforce.

### **This Report:**

- Identifies in-demand occupations and aligned academic programs at the postsecondary and secondary levels and registered apprenticeships organized across 14 career clusters. New this year, career clusters used represent a new framework adopted by TDOE in 2025-2026.
- Includes information for additional resources to further explore Tennessee's in-demand occupations and aligned academic programs.
- Identifies aligned academic programs whose graduates enjoy high employment and high wages, signaling increased labor force need. Programs where Tennessee employment rates are 60% or higher and confer first-year wages exceeding the state median wage (\$46,120 in 2024) have been labeled as programs that are meeting unmet needs. There are 99 programs that have been identified for this report using these thresholds developed by TDLWD.
  - These programs include 1 career and technical education program, 19 certificate programs, 15 associate degree programs, 19 bachelor's degree programs, and 45 advanced degree programs across 13 of the 14 career clusters. Programs meeting unmet needs are highlighted in each cluster.
  - There are 27 occupations that do not align with academic programs that meet the criteria developed by TDLWD, but are in-demand in all nine of Tennessee's local workforce development areas (LWDAs). These occupations are highlighted in each cluster.



The Tennessee Department of Education's (TDOE) mission is *to set all students on a path to success*. As part of this vision, TDOE seeks to increase the number of students on-track to meet their postsecondary goals. 56.4% of the class of 2024 were Ready Graduates, which are the share of graduating students who demonstrate readiness for postsecondary education and/or a career after high school. There are several criteria to be a Ready Graduate, including a qualifying ACT score, and participation in early postsecondary opportunities (EPSOs), among other criteria. Tennessee high school students earned 64,100 industry credentials in the 2023-24 school year, which is a Ready Graduate indicator. The State Board of Education's (SBOE) Master Plan outlines the goal to increase the share of Ready Graduates by 4 percentage points annually.



The mission of the Tennessee Higher Education Commission (THEC) is *to build a strong higher education landscape that provides opportunities for all individuals to pursue high-quality education and high-value credentials*. In pursuit of this mission, the Tennessee Higher Education Commission is committed to expanding educational access and success for all students by cultivating seamless alignment between all Tennessee institutions, honoring state and student investments in education, and driving Tennessee students, institutions, and communities toward a thriving future.



The mission of the Tennessee Department of Labor and Workforce Development (TDLWD) is *to work as a team to promote workforce and economic development and improve workplace safety and health throughout Tennessee*. TDLWD oversees several functions to promote training and employment for individuals to increase family-sustaining wages, meet employer demand, and enhance productivity and competitiveness in Tennessee. This is done through a high-quality workforce development system, aligning workforce investment, education, and economic development. In 2024, TDLWD established a goal of increasing the Labor Force Participation Rate (LFPR) by one percentage point annually to reach 65 percent by 2027; however, due to year-over-year fluctuations and recent declines in LFPR, annual adjustments have been made to reflect actual performance trends. As of December 2025, Tennessee's Labor Force Participation rate was 60.4%.

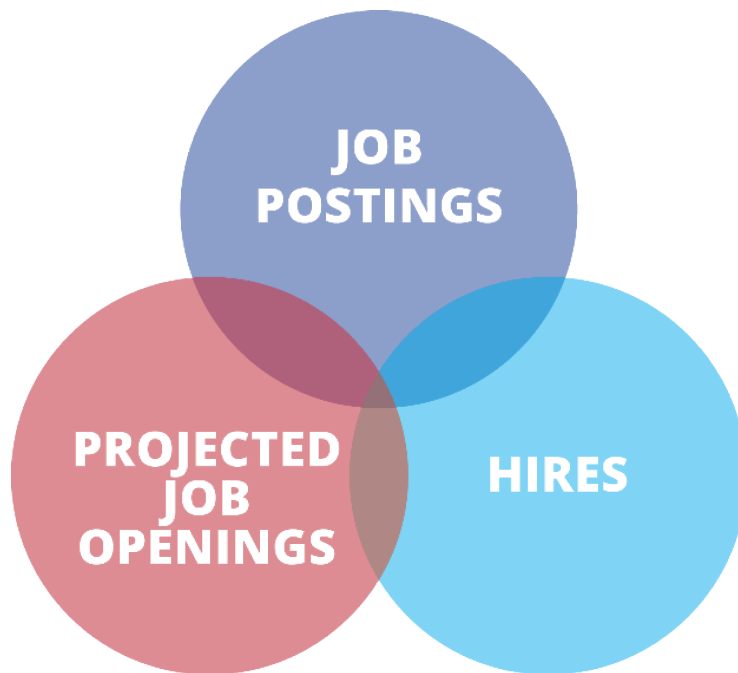


The Tennessee Department of Economic and Community Development's (TNECD) mission is to *generate economic growth by fostering job creation and community development*. As part of this mission, TNECD seeks to increase economic opportunity for all Tennesseans and support the state's efforts to attract and grow business in the state for job growth and economic vitality. A core goal to their strategic plan is to support companies and education stakeholders in closing workforce gaps.

## In-Demand Occupations and Aligned Academic Supply

This section details how the 2026 in-demand occupations across Tennessee and the aligned secondary and postsecondary academic programs are determined. An **in-demand occupation** is a job that Tennessee employers have a high demand to fill. An occupation is measured as in-demand when two of three measures of demand (job postings, projected job openings, and hires) are above the median relative to other occupations within the region.

### Measures for In-Demand Occupational Analysis



An **aligned academic program**<sup>1</sup> is a training program preparing students for careers in an in-demand occupation. The skills and knowledge developed through completion of an aligned academic program are matched with the skills and knowledge required for success in an occupation. These matches are informed by TDOE's career clusters framework which organizes occupations and training programs providing common pathways for prospective students to occupations (and vice versa).<sup>2</sup> Tennessee's Department of Finance and Administration's Office of Evidence and Impact (OEI) analyzes the aligned academic programs for public and select private

---

<sup>1</sup> This report includes registered apprenticeships, high school CTE completers, and postsecondary degree completers in data for aligned academic programs. There are other training initiatives, like industry certifications, that are not currently captured.

<sup>2</sup> Tennessee Department of Education's Career Cluster Framework is available at: [https://www.tn.gov/content/dam/tn/education/ccte/2025-26\\_CTE\\_Career\\_Cluster\\_Framework.pdf](https://www.tn.gov/content/dam/tn/education/ccte/2025-26_CTE_Career_Cluster_Framework.pdf).

postsecondary completers<sup>3</sup>, secondary concentrators<sup>4</sup>, and employment outcomes captured in this report.

TDOE has adopted a new career clusters framework starting in 2025-2026. The new framework is informed by the work of the national organization Advance CTE<sup>5</sup>, which has worked with industry and education leaders across the country to produce their new career cluster framework. A key feature of the new framework is built-in flexibility that allows Tennessee to customize the framework to align with the realities of industry and workforce needs in the state.

The old framework featured 16 clusters that were derived from educational Classification of Instructional Programs (CIP)<sup>6</sup> codes that were mapped onto Standard Occupational Classification (SOC)<sup>7</sup> codes via the career cluster. The new demand-driven framework starts with North American Industry Classification System (NAICS)<sup>8</sup> codes to identify leading industries, then maps those codes onto SOC codes, and finally to CIP codes to align occupations and academic programs into 14 career clusters. The new structure enhances the ability to respond to evolving industry demands, allowing for more accurate career planning and program alignment.

The 14 career clusters are grouped into six meta-clusters that speak to broad trends in the national workforce. Many occupations are in clusters that are receiving a naming update, while many others are moving into one or more clusters to reflect the demands of modern industry. A few notable changes in the updated cluster framework compared to the previous framework:

- Natural Resources has been uncoupled from Agriculture and will now be paired with Energy in the updated cluster to reflect the growing importance of energy innovation and its ties to natural resource management.
- The STEM (Science, Technology, Engineering, and Mathematics) cluster in the previous framework has been dissolved, and these occupations have been distributed to various clusters to reflect the increased use of technology in those industries.
- Three clusters (Management & Entrepreneurship, Marketing & Sales, and Digital Technology) are in the meta-cluster called Cross-Cutting Sectors. These clusters reflect that

---

<sup>3</sup> Select Tennessee Independent Colleges and Universities Association (TICUA) institutions report to TN DATA and those completers and their associated job market outcomes are included.

<sup>4</sup> For purposes of this report, high school CTE concentrators reflect a student completing two course credits within a CTE program of study.

<sup>5</sup> Read more about Advance CTE's work on the National Career Clusters Framework (<https://careertech.org/career-clusters/>).

<sup>6</sup> The Classification of Instructional Programs (CIP) (<https://nces.ed.gov/ipeds/cipcode/Default.aspx?y=56>) is a taxonomic scheme that supports the accurate tracking and reporting of fields of study and program completions activity.

<sup>7</sup> The Standard Occupational Classification (SOC) (<https://www.bls.gov/soc/>) is a federal statistical standard used by federal agencies to classify workers into occupational categories for the purpose of collecting, calculating, or disseminating data.

<sup>8</sup> The North American Industry Classification System (NAICS) (<https://www.census.gov/naics/>) is the standard used by Federal statistical agencies in classifying business establishments for the purpose of collecting, analyzing, and publishing statistical data related to the U.S. business economy.

professions in these fields are not limited to any discrete industry sector but exist across many industries and sectors.

- In-demand occupations might be included in more than one cluster. This reflects the reality that many occupations utilize skillsets that are needed across the modern economy.

**Table 1** shows the mapping between NAICS 2-digit codes that represent the highest level of aggregation (Sectors) and Career Clusters. Several sectors are represented by a range of 2-digit codes.

**Table 1: Career Cluster and Corresponding NAICS Codes**

<b>Cluster</b>	<b>NAICS Codes</b>
Advanced Manufacturing	31-33
Construction	23
Supply Chain & Transportation	42, 48-49
Education	61, 92
Healthcare & Human Services	62, 81
Public Service & Safety	56, 92
Arts, Entertainment & Design	71
Hospitality, Events, & Tourism	72, 44-45
Digital Technology	51, 54
Management & Entrepreneurship	55
Marketing & Sales	54
Agriculture	11
Energy & Natural Resources	21, 22
Financial Services	52, 53

**Figure 1** displays the 14 career clusters on the outer ring of the chart and the six meta-clusters on the inner ring.

Figure 1: Tennessee Department of Education Career Clusters Framework 2025-2026



The in-demand occupations tables also highlight occupations in TNECD’s target industry clusters.<sup>9</sup> TNECD has nine prioritized clusters for business expansion and recruitment. TNECD configures its incentives to support specific business segments, systematically chosen to align with the state’s distinctive economic competencies. This strategic alignment is designed to stimulate job creation and foster investment in industries where Tennessee exhibits a competitive advantage.<sup>10</sup>

<b>TNECD Target Industry Sectors</b>		
<b>Aerospace &amp; Defense</b>	<b>Automotive</b>	<b>Chemicals</b>
<b>Distribution &amp; Logistics</b>	<b>Electrical Equipment &amp; Appliances</b>	<b>Food &amp; Beverage</b>
<b>Healthcare &amp; Life Sciences</b>	<b>HQ, Finance, &amp; Tech</b>	<b>Rubber, Ceramics, &amp; Glass Products</b>

<sup>9</sup> More information on each target industry sector is available at <https://tneecd.com/>.

<sup>10</sup> More information on TNECD’s OpenECD Tax Incentives is available at: <https://www.tn.gov/eecd/resources/openecd/openecd-tax-incentives.html>.

## Data Sources and Methodology

This section outlines the data sources and methods for identifying in-demand occupations and aligned academic programs.

### In-Demand Occupations

To measure **in-demand occupations**, the Center for Economic Research in Tennessee (CERT) at TNECD analyzes postings, openings, and hires for an occupation relative to the total number of individuals employed in the occupation. This analysis is completed at the statewide level and for each of the nine local workforce development areas (LWDAs). Occupations which meet at least two of these three requirements are considered in-demand:

- The ratio of job postings (2024) to the number of individuals employed in an occupation is greater than or equal to the median ratio for all occupations in the region.
- The ratio of hires (2024) to the number of individuals employed in an occupation is greater than or equal to the median ratio for all occupations in the region.
- The ratio of projected annual job openings from 2022 to 2032 to employment for an occupation is greater than or equal to the median ratio for all occupations in the region or statewide.

To encourage job creation and skill development in high-quality jobs, occupations must meet a minimum wage threshold. All occupations identified as in-demand have a median wage which is at least 80% of the median wage for the region. To ensure the identification of in-demand occupations across diverse regional economies, the methodology implements a minimum employment threshold of 0.04% of a region's total employment. This parameter is used to evaluate the significance of each occupation within the local labor market, facilitating a nuanced understanding of regional workforce needs, and supporting targeted economic development strategies.

### Data Definitions and Sources:

**Employment and Wage:** Employment and wage data for each occupation and region are sourced primarily from the TDLWD's May 2024 release of the Occupational Employment and Wages Survey (OEWS). OEWS publication standards require redaction for these figures for some occupations. In cases where OEWS has redacted employment information, the 2022 employment estimate from the TDLWD Long-Term Occupational Projections was used, if available. In cases where OEWS has redacted wage information at the LWDA level, the 2024 state level median wage was used, if available. These metrics took the place of the redactions to maximize the number occupations that are fully analyzed.

**Unique Job Postings:** Unique job postings denote the number of de-duplicated job advertisements listed by companies on online career sites or job boards. De-duplication is a

process used to count a job posting only once even if there are listings of the same job on multiple career websites or online jobs boards. The source for this data is TDLWD.<sup>11</sup>

**Projected Annual Openings:** A projected annual opening for an occupation is the average annual employment change over ten years from the Tennessee Department of Labor and Workforce Development’s Long-Term Occupational Projections added to the expected openings due to transfers and exits from the occupation.<sup>12</sup> For statewide and LWDA regional analyses, 2022-2032 projections are used.

**Hires:** A hire is reported by the Census Bureau’s Quarterly Workforce Indicators (QWI) dataset when an individual’s Social Security number appears on a company’s payroll and was not there the quarter before. The QWI program produces a comprehensive tabulation of employment and wage information at the industry-level for workers covered by state unemployment insurance laws. Hires data in this report are sourced from Lightcast, a labor market analysis firm, using a combination of proprietary job data, Bureau of Labor Statistics separation rates, and Census Bureau’s QWI. This method models occupational hires by matching job growth with turnover rates, transforming industry hires into detailed occupational estimates for regional employment trend analysis.<sup>13</sup>

## Aligned Academic Programs

An **aligned academic program**<sup>14</sup> is a training program preparing students for careers in an in-demand occupation. The skills and knowledge developed through completion of an aligned academic program are matched with the skills and knowledge required for success in an occupation informed by the Classification of Instructional Programs (CIP) to Standard Occupation Code (SOC) crosswalk developed in partnership between the Bureau of Labor Statistics and National Center for Education Statistics.<sup>15</sup> The educational programs are aligned with occupational completers in programs of study for the purpose of identifying shortages and surpluses of trained personnel within the workforce system.

This report uses Tennessee’s TN DATA statewide longitudinal data system. OEI analyzes postsecondary and high school career and technical education (CTE) concentrators alongside TDLWD unemployment insurance (UI) employment records and wages.

---

<sup>11</sup> Advertised Job Data can be found at [jobs4tnwfs.tn.gov](https://jobs4tnwfs.tn.gov) by following the path: Labor Market Information > Supply and Demand Data > Menu (in the top left-hand corner of the webpage) > Data Trends > Advertised Job Trends.

<sup>12</sup> The Tennessee Department of Labor & Workforce Development’s 2022 – 2032 Long-Term Occupational Projections can be found at [jobs4tnwfs.tn.gov](https://jobs4tnwfs.tn.gov) by following the path: Scroll down the page to Labor Market Information > Long-Term Occupational Projections.

<sup>13</sup> Lightcast, Hires Methodology, <https://kb.lightcast.io/en/articles/6957581-hires-methodology>

<sup>14</sup> This report includes registered apprenticeships, high school CTE Concentrators, and postsecondary degree completers in data for aligned academic programs. There are other training initiatives, like Industry Certifications, that are not currently captured due to data limitations.

<sup>15</sup> More information about BLS and NCES CIP to SOC Crosswalk is available at: <https://nces.ed.gov/ipeds/cipcode/post3.aspx?y=56>.

Student outcome data at the postsecondary level for the 2023-24 academic year include all public colleges: the Tennessee Colleges of Applied Technology (TCATs), thirteen TBR community colleges, six locally governed institutions, and five University of TN system colleges.<sup>16</sup> Twenty-two members of the Tennessee Independent Colleges and Universities Association (TICUA) are also included. All degree levels, from less than one- year certificates through doctoral and professional degrees are included and disaggregated by the six-digit CIP code. Cells with less than 10 awards are suppressed.

Student outcome data at the secondary level reflect 2023-2024 high school career and technical education concentrators. For purposes of this report, concentrators reflect a student completing at least two course credits within a CTE program of study or career cluster.<sup>17</sup> Cells with less than 10 credentials are suppressed.

Tennessee completers of registered apprenticeships in 2024 are also included. As they are not currently in the TN DATA system, no wage or employment data are available. Registered Apprenticeship programs<sup>18</sup> are those approved by the U.S. Department of Labor or a State Apprenticeship Agency<sup>19</sup> with an employer that has an occupational objective and standards for implementation and completion of the apprenticeship.<sup>20</sup>

OEI matches high school and postsecondary completers to Tennessee's UI data to identify graduates who are working in Tennessee and their wages two quarters after graduation. Graduates must be found employed in Tennessee for two quarters to be included in the share employed in Tennessee and wage outcomes. In cases where a graduate was found in only one quarter, they would be included in the graduates count but dropped for the measures of employed in Tennessee and wages.<sup>21</sup> The sum of two quarters of wages is multiplied by two, then a median is found to estimate an annual wage for completers. This annual wage represents a first-year wage for degree completers. Individuals who remain enrolled in an education program are excluded from these wage figures.

---

<sup>16</sup> This includes UT Health Science Center and UT Southern.

<sup>17</sup> CTE Concentrators have been defined by the U.S. Department of Education. As part of the Strengthening Career and Technical Education for the 21st Century Act (Perkins V), this definition changed, lessening the required course credit requirements from three to two. More detail about the changes to this definition is available at: [https://careertech.org/wp-content/uploads/sites/default/files/SecondaryConcentratorBackground\\_2019.pdf](https://careertech.org/wp-content/uploads/sites/default/files/SecondaryConcentratorBackground_2019.pdf).

<sup>18</sup> More information about Registered Apprenticeship Programs can be found is available at: <https://www.apprenticeship.gov/employers/registered-apprenticeship-program>.

<sup>19</sup> More information about the Tennessee Apprenticeship program is available at: <https://www.tn.gov/apprenticeshiptn.html>.

<sup>20</sup> More information about Registered Apprenticeships in Tennessee is available at: <https://www.tn.gov/workforce/jobs-and-education/training-opportunities/training-opportunities-redirect/paying-for-training/registered-apprenticeship.html>. This analysis is limited to Federal Registered Apprenticeships.

<sup>21</sup> This methodological improvement began with 2023 reporting. As a result, approximately 20% of graduates are not included in employment outcomes because of the more stringent criteria: employed in two terms (instead of employed in only one term).

## Limitations

While this report illustrates the connection between in-demand occupations and academic supply, it is not an explicit gap analysis.<sup>22</sup> Reporting agencies will continue to evaluate new data sources to enhance the comprehensiveness of Tennessee’s supply for in-demand occupations.

- OEWS is a semiannual survey collecting data on wage and salary workers in nonfarm establishments and excludes self-employed individuals. The exclusion of self-employed individuals may disproportionately impact select occupational areas which tend to have a high number of self-employed workers.<sup>23</sup>
- Limitations in data availability can impact the appearance of an occupation in this report. Teachers are one example of this. Teachers are under-represented in the data on job postings, which is one of the three indicators used in this report to identify demand.<sup>24</sup> Job postings data for teachers are decentralized at the local school district level. While there is a TN Education Job Board, hosted by the TDOE, this is not a required space to post teacher jobs and is not a comprehensive listing of all teacher vacancies. As a result, teachers are under-represented among the in-demand occupations of this report.
- Currently, academic supply is measured by degree completers, CTE Concentrators, and registered apprenticeships. As noted above, this measure does not include the current workforce. Additionally, this does not include other measures of occupational readiness, like industry certifications.<sup>25</sup> Tennessee does not have a centralized collection of all industry certification test takers or completers. Future reports will seek to improve the comprehensiveness of Tennessee’s supply for in-demand occupations.

### Note on the 2025 Report Data

Discrepancies in unemployment tax data from Q2 2023 through Q2 2024 resulted from the TDLWD’s modernization of the unemployment tax system. During the transition, data was not entered into the legacy system to prevent migration issues. These discrepancies reflect methodological changes associated with the system transition and do not indicate errors in program administration or labor market conditions.

---

<sup>22</sup> Several academic programs provide training for specific occupations, and in some cases, a single academic program can provide training for multiple occupations, resulting in many possible training opportunities for occupations. Occupations without any clear connected training remain in in-demand clusters.

<sup>23</sup> Bureau of Labor Statistics, Small-business options: Occupational outlook for self-employed workers (May 2018), [https://www.bls.gov/careeroutlook/2018/article/self-employment.htm?view\\_full](https://www.bls.gov/careeroutlook/2018/article/self-employment.htm?view_full)

<sup>24</sup> This occupation is used as an example and is not meant to be exhaustive. These occupations illustrate how the methodology and occupational conditions relate to the three metrics for demand, which impact whether occupations are on the in-demand occupation list.

<sup>25</sup> An industry certification is a credential recognized by business and industry at the local, state, or national level. It could be an assessment, an examination or a license that is administered and recognized by an industry third-party or governing board. Industry certificates measure competency in an occupation, and they validate the knowledge base and skills that show mastery in a particular industry or mastery of a particular competency needed in a certain industry.

## How to Make the Most of the Report

This year's report utilizes the new career cluster structure, grouping occupations and aligned training programs in one place. In-demand occupations and aligned academic programs — including postsecondary degrees, high school CTE concentrators, and apprenticeships — are organized by career cluster. Accompanying dashboards and data downloads localize this information by LWDA and are available for readers who prefer to work with the data directly.

In the following pages, the report will provide an overview of the 14 career clusters under the new framework and provide the total number of in-demand occupations, total number of aligned academic programs within each cluster, and a high-level description of each cluster. Where applicable, tables presenting aligned academic programs that meet **unmet needs** and in-demand **occupations that are in-demand in all nine LWDA**s across the state will also be displayed for each cluster. The threshold used to identify academic programs that meet unmet needs are those where graduates have a Tennessee employment rate of 60% or higher **and** wages exceeding the state median wage of \$46,120 in 2024 are conferred. These indicators demonstrate that graduates from these programs are in high demand, alongside the occupations in that cluster that show high demand across the state's geographic regions.

For more information on in-demand occupations and aligned academic programs, explore the additional resources that accompany this report:

- Supply & Demand Dashboard (<https://www.tn.gov/thec/data-research-reports/reports-studies-pub/supply-and-demand-report.html>) – This dashboard displays the full list of in-demand jobs and the aligned academic programs for each of the 14 new career clusters. Each column can be sorted, and filters on the right side of the dashboard allow users to filter data based on select variables. A download button on each page allows users to download the data for each cluster; alternatively, there is also a download available on the first page for all data across all clusters. The in-demand jobs tables include the following fields:
  - **SOC Code** - The six-digit code denotes the Standard Occupational Classification (SOC) Code for the in-demand occupation.
  - **Occupation** - The name of the in-demand job.
  - **In-Demand TN** - Denotes if an occupation is in-demand statewide in Tennessee.
  - **In-Demand Total # of Regions** - The total number of LWDA regions, a number from one to nine, for which an occupation is in-demand. There are nine LWDA's composed of groups of counties within Tennessee.
  - **Statewide Entry-Level Wage** - The median entry-level yearly wage for employees in an occupation as of FY2024.

- **Typical Entry-Level Education** - Represents the typical education level most workers need to enter an occupation, as assigned by the U.S. Bureau of Labor Statistics (BLS).<sup>26</sup>
- **Key to TNECD Industry Sectors** - Denotes the occupation is important to one or more of TNECD's target industry sectors.
- **STEM** - Denotes the occupation as a Science, Technology, Engineering, and Math field, as defined by the U.S. Bureau of Labor Statistics.<sup>27</sup>

The academic supply tables include the following fields:

- **CIP Code** - The six-digit code denotes the Classification of Instructional Program (CIP Code) for the academic program.
- **Program Title** - The name of the academic or registered apprenticeship program.
- **Education Award Level** - Represents the degree level completed, including high school CTE concentrators or registered apprenticeships.
- **Unmet Need** - Academic programs that meet TDLWD's definition of unmet need are marked with a "Y". These programs are ones where Tennessee employment rates are 60% or higher and confer wages exceeding the state median wage of \$46,120 in 2024.
- **Number of Grads** - For postsecondary programs, the number of graduates from 2023-24 by CIP code and degree level. For high school CTE programs, the number of high school graduates who completed two or more courses in a CTE program of study or a career cluster during 2023-24. For apprenticeships, the number of registered apprenticeship completers in 2024. Cells less than ten are suppressed.
- **% Employed in TN** - The percentage of graduates found in two quarters of Tennessee's Unemployment Insurance (UI) records two quarters after graduation. This excludes individuals who remain enrolled in education. Not available for registered apprenticeship completers.
- **Estimated First Year Wage** - The estimated first year average annual wages of Tennessee graduates found in UI data. Two quarters of wages are pulled two quarters after graduation and are calculated by multiplying the sum of quarterly wages by two then finding the median. Not available for registered apprenticeship completers.
- **In-Demand Occupations Dashboard** (<https://www.tn.gov/eecd/resources/openecd/tneecd-performance-metrics/workforce/leap-in-demand-occupations-report.html>) - This dashboard presents occupations throughout the state that are in-demand among Tennessee's business community. The analysis was conducted for the state of Tennessee as a whole, and for each of the state's nine regions. This dashboard and accompanying materials are tools to aid local, regional, and state policy decision-making regarding alignment of workforce, education, and industry. The dashboard can be filtered to view in-

---

<sup>26</sup> More information about education training levels in BLS data is available at: <https://www.bls.gov/emp/documentation/education/tech.htm>.

<sup>27</sup> More information about the STEM definition is available at: <https://www.bls.gov/oes/additional.htm>.

demand jobs within broad occupational groups by LWDA, to view in-demand jobs within STEM fields, or to view in-demand jobs that support TNECD's target industry sectors. Explore additional details for each position such as wages, educational and training requirements, and indicators of demand.

- Tennessee Program Providers for Demand Occupations Dashboard ([https://data.tn.gov/t/Public/views/TennesseeProvidersforDemandOccupations/TennesseeProvidersforDemandOccupations?%3AshowAppBanner=false&%3Adisplay\\_count=n&%3AshowVizHome=n&%3Aorigin=viz\\_share\\_link&%3Atoolbar=yes&%3Aembed=yes](https://data.tn.gov/t/Public/views/TennesseeProvidersforDemandOccupations/TennesseeProvidersforDemandOccupations?%3AshowAppBanner=false&%3Adisplay_count=n&%3AshowVizHome=n&%3Aorigin=viz_share_link&%3Atoolbar=yes&%3Aembed=yes)) – This dashboard presents details of academic programs that are aligned with in-demand occupations across regional, divisional, and statewide job markets. This dashboard allows users to filter by area, occupation code, in-demand occupation title, and program title.
- In-Demand Jobs Data Download (<https://www.tn.gov/thec/data-research-reports/reports-studies-pub/supply-and-demand-report.html>) – This downloadable data set shows the data used to derive the in-demand occupations list and provides analysis by each of the nine local workforce development areas and at the state level.

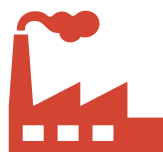
## Cluster Highlights

This section presents the 14 career clusters of the new framework. The total number of in-demand occupations and aligned academic programs for each cluster is displayed. Aligned academic programs include postsecondary programs, high school CTE programs, and apprenticeships. As part of the new framework, occupations and academic programs can be in multiple clusters. Therefore, the number of occupations and academic programs per cluster will be higher than in previous reports that used the old cluster framework model.

Each cluster will include a description of the cluster and will be followed by two tables. The first includes academic programs that produce graduates to meet unmet needs. TDLWD has set thresholds to identify programs where there is greater demand for trained individuals. These thresholds are academic programs where graduates are employed in Tennessee at 60% or higher **and** confer wages exceeding the state median wage of \$46,120 in 2024. The second table is a list of the occupations within the cluster that are in-demand in all nine of the LWDAs within Tennessee. Full lists of in-demand occupations and aligned academic programs for each cluster are available in the accompanying dashboard.

To obtain detailed information on the demand occupations and the programs available, visit the Supply and Demand Dashboard at: <https://www.tn.gov/thec/data-research-reports/reports-studies-pub/supply-and-demand-report.html>.

## Advanced Manufacturing



**51 In-Demand Occupations | 165 Aligned Academic Programs**

The Advanced Manufacturing Career Cluster blends innovative technologies and practices to enhance design and production. It covers areas such as engineering, research and development, automation and artificial intelligence, equipment maintenance, safety protocols, and quality control. This cluster aims to increase efficiency, reduce waste, ensure safety, and produce high-quality goods, driving the industry's growth and adapting to modern demands.

Aligned programs in manufacturing had some of the highest employment rates among clusters, with graduates of certificate programs in mechanical engineering technology or technician and engineering technologies or technicians and an associate program in environmental health achieving greater than 90% employment in Tennessee.

**Table 2: Programs Meeting Unmet Needs<sup>28</sup>**

Program Title	CIP Code	Education Award Level
Engineering, General	14.0101	Bachelor's degree
Mechatronics, Robotics, and Automation Engineering	14.4201	Bachelor's degree
Engineering Technologies/Technicians, General	15.0000	Certificate less than one year
Engineering Technologies/Technicians, General	15.0000	Associate degree
Engineering Technologies/Technicians, General	15.0000	Bachelor's degree
Electrical, Electronic, and Communications Engineering Technology/Technician	15.0303	Certificate less than one year
Electrical, Electronic, and Communications Engineering Technology/Technician	15.0303	Associate degree
Electromechanical/Electromechanical Engineering Technology/Technician	15.0403	Certificate less than one year
Electromechanical/Electromechanical Engineering Technology/Technician	15.0403	Associate degree
Electromechanical/Electromechanical Engineering Technology/Technician	15.0403	Bachelor's degree
Automation Engineer Technology/Technician	15.0406	Certificate less than one year
Industrial Technology/Technician	15.0612	Certificate less than one year
Manufacturing Engineering Technology/Technician	15.0613	Certificate one to two years

<sup>28</sup> The academic programs listed in this table are aligned with in-demand occupations, have graduates who are employed in Tennessee at a rate of 60% or higher, and earn wages exceeding the state median wage of \$46,120 in 2024. These indicators signal that these programs fill unmet needs in Tennessee's labor force. The same applies to the remaining program tables throughout the report.

Program Title	CIP Code	Education Award Level
Chemical Engineering Technology/Technician	15.0615	Associate degree
Mechanical/Mechanical Engineering Technology/Technician	15.0805	Certificate less than one year
Engineering/Industrial Management	15.1501	Bachelor's degree
Heavy Equipment Maintenance Technology/Technician	47.0302	Certificate one to two years
Industrial Mechanics and Maintenance Technology/Technician	47.0303	Certificate one to two years
Machine Shop Technology/Assistant	48.0503	Certificate one to two years
Environmental Health	51.2202	Associate degree
Business Administration and Management, General	52.0201	Certificate less than one year

**Table 3: In-Demand Occupations in All Nine LWDAs<sup>29</sup>**

Occupation	SOC Code
Electrical and Electronic Engineering Technologists and Technicians	17-3023
Occupational Health and Safety Specialists	19-5011
Installation, Maintenance, and Repair Workers, All Other	49-9099

## Construction



**41** In-Demand Occupations | **87** Aligned Academic Programs

The Construction Career Cluster focuses on professions involved in designing, planning, managing, and executing projects in the built environment. It emphasizes sustainable building practices to ensure that structures are both environmentally responsible and resilient. Careers in this cluster are pivotal in creating durable infrastructure that meets present needs without compromising future generations' ability to meet their own, covering a range of roles from architects and engineers to construction managers and skilled tradespeople.

Among the six programs with the highest employment rates in construction in the state were two programs awarding one-to-two-year certificates, two which awarded a one-year certificate, and

<sup>29</sup> The in-demand occupations in this table are in-demand in all nine of Tennessee's LWDAs according to the in-demand methodology described on page 6. The same applies to the remaining occupation tables throughout the report.

two associate degrees, all of which can shorten the amount of time required to enter the workforce.

**Table 4: Programs Meeting Unmet Needs**

<b>Program Title</b>	<b>CIP Code</b>	<b>Education Award Level</b>
Architectural and Building Sciences/Technology	04.0902	Master's degree
Civil Engineering, General	14.0801	Bachelor's degree
Electrical, Electronic, and Communications Engineering Technology/Technician	15.0303	Certificate less than one year
Electrical, Electronic, and Communications Engineering Technology/Technician	15.0303	Associate degree
Construction Engineering Technology/Technician	15.1001	Associate degree
Urban Studies/Affairs	45.1201	Bachelor's degree
Heavy Equipment Maintenance Technology/Technician	47.0302	Certificate one to two years
Industrial Mechanics and Maintenance Technology/Technician	47.0303	Certificate one to two years
Business Administration and Management, General	52.0201	Certificate less than one year
Construction Management, General	52.2001	Bachelor's degree

**Table 5: In-Demand Occupations in All Nine LWDAs**

<b>Occupation</b>	<b>SOC Code</b>
Construction Managers	11-9021
Cost Estimators	13-1051
Carpenters	47-2031
Construction Laborers	47-2061
Heating, Air Conditioning, and Refrigeration Mechanics and Installers	49-9021
Helpers - Installation, Maintenance, and Repair Workers	49-9098
Installation, Maintenance, and Repair Workers, All Other	49-9099

## Supply Chain & Transportation



30 In-Demand Occupations | 60 Aligned Academic Programs

The Supply Chain & Transportation Career Cluster encompasses the transfer, coordination, and management of goods from production to consumption, ensuring efficient movement across various modes of transportation including air, ground, and water, as well as maintenance of the respective transport modes. This cluster integrates logistics and distribution networks to facilitate the seamless flow of materials and products, playing a crucial role in global commerce, economic development, and community health.

Certificate programs in engineering technologies had the highest employment rates (91%) in this cluster, and they commanded the fourth highest first-year wages among this cluster's programs.

**Table 6: Programs Meeting Unmet Needs**

Program Title	CIP Code	Education Award Level
Engineering Technologies/Technicians, General	15.0000	Certificate less than one year
Engineering Technologies/Technicians, General	15.0000	Associate degree
Engineering Technologies/Technicians, General	15.0000	Bachelor's degree
Construction Engineering Technology/Technician	15.1001	Associate degree
Heavy Equipment Maintenance Technology/Technician	47.0302	Certificate one to two years
Aviation/Airway Management and Operations	49.0104	Master's degree
Truck and Bus Driver/Commercial Vehicle Operator and Instructor	49.0205	Certificate less than one year
Business Administration and Management, General	52.0201	Certificate less than one year
Logistics, Materials, and Supply Chain Management	52.0203	Certificate less than one year
Logistics, Materials, and Supply Chain Management	52.0203	Master's degree

**Table 7: In-Demand Occupations in All Nine LWDAs**

Occupation	SOC Code
Industrial Truck and Tractor Operators	53-7051

## Education



**12 In-Demand Occupations | 526 Aligned Academic Programs**

The Education Career Cluster spans careers aimed at fostering learning from early childhood to adulthood, including teaching, instructional design, counseling services, community engagement, learner support, and educator training. This cluster emphasizes quality education standards and lifelong learning, preparing individuals for success through all life stages by nurturing knowledge, skills, and critical thinking and encouraging personal and societal growth in a constantly evolving world.

In the new cluster framework, aligned academic programs can appear in multiple clusters showcasing the many routes employees can take to enter a field. Nowhere is this more apparent than the education cluster where graduates of programs from veterinary medicine to nuclear engineering to management science are employed in in-demand education occupations earning wages over \$100,000 annually.

**Table 8: Programs Meeting Unmet Needs**

Program Title	CIP Code	Education Award Level
Architectural and Building Sciences/Technology	04.0902	Master's degree
Data Modeling/Warehousing and Database Administration	11.0802	Post-baccalaureate certificate
Curriculum and Instruction	13.0301	Post-baccalaureate certificate
Curriculum and Instruction	13.0301	Master's degree
Curriculum and Instruction	13.0301	Education Specialist
Curriculum and Instruction	13.0301	Doctoral degree
Educational Leadership and Administration, General	13.0401	Post-baccalaureate certificate
Educational Leadership and Administration, General	13.0401	Master's degree
Educational Leadership and Administration, General	13.0401	Education Specialist
Educational Leadership and Administration, General	13.0401	Doctoral degree
Educational, Instructional, and Curriculum Supervision	13.0404	Education Specialist
Educational, Instructional, and Curriculum Supervision	13.0404	Doctoral degree
Educational/Instructional Technology	13.0501	Post-baccalaureate certificate
Educational Evaluation and Research	13.0601	Doctoral degree
Counselor Education/School Counseling and Guidance Services	13.1101	Master's degree
Counselor Education/School Counseling and Guidance Services	13.1101	Education Specialist

<b>Program Title</b>	<b>CIP Code</b>	<b>Education Award Level</b>
College Student Counseling and Personnel Services	13.1102	Doctoral degree
Teacher Education, Multiple Levels	13.1206	Bachelor's degree
Teacher Education, Multiple Levels	13.1206	Master's degree
Early Childhood Education and Teaching	13.1210	Master's degree
Teacher Education and Professional Development, Specific Subject Areas, Other	13.1399	Master's degree
Teacher Education and Professional Development, Specific Subject Areas, Other	13.1399	Education Specialist
Teaching English as a Second or Foreign Language/ESL Language Instructor	13.1401	Post-baccalaureate certificate
Engineering, General	14.0101	Bachelor's degree
Civil Engineering, General	14.0801	Bachelor's degree
Mechatronics, Robotics, and Automation Engineering	14.4201	Bachelor's degree
Child Development	19.0706	Bachelor's degree
General Studies	24.0102	Bachelor's degree
General Studies	24.0102	Master's degree
Statistics, General	27.0501	Bachelor's degree
Educational Psychology	42.2806	Post-baccalaureate certificate
Fire Services Administration	43.0202	High School CTE Completer
Social Work	44.0701	Master's degree
Social Work, Other	44.0799	Post-baccalaureate certificate
Geographic Information Science and Cartography	45.0702	Post-baccalaureate certificate
Urban Studies/Affairs	45.1201	Bachelor's degree
Truck and Bus Driver/Commercial Vehicle Operator and Instructor	49.0205	Certificate less than one year
Speech-Language Pathology/Pathologist	51.0203	Master's degree
Audiology/Audiologist and Speech-Language Pathology/Pathologist	51.0204	Master's degree
Dental Hygiene/Hygienist	51.0602	Associate degree
Dental Hygiene/Hygienist	51.0602	Bachelor's degree
Emergency Medical Technology/Technician (EMT Paramedic)	51.0904	Certificate less than one year
Emergency Medical Technology/Technician (EMT Paramedic)	51.0904	Certificate one to two years
Emergency Medical Technology/Technician (EMT Paramedic)	51.0904	Associate degree
Medical Radiologic Technology/Science - Radiation Therapist	51.0907	Certificate one to two years
Medical Radiologic Technology/Science - Radiation Therapist	51.0907	Associate degree

Program Title	CIP Code	Education Award Level
Respiratory Care Therapy/Therapist	51.0908	Associate degree
Respiratory Care Therapy/Therapist	51.0908	Bachelor's degree
Surgical Technology/Technologist	51.0909	Associate degree
Radiologic Technology/Science - Radiographer	51.0911	Bachelor's degree
Clinical/Medical Laboratory Technician	51.1004	Associate degree
Clinical/Medical Social Work	51.1503	Post-baccalaureate certificate
Environmental Health	51.2202	Associate degree
Public Health, Other	51.2299	Master's degree
Occupational Therapy/Therapist	51.2306	Doctoral degree
Physical Therapy/Therapist	51.2308	Doctoral degree
Registered Nursing/Registered Nurse	51.3801	Associate degree
Registered Nursing/Registered Nurse	51.3801	Bachelor's degree
Registered Nursing/Registered Nurse	51.3801	Post-baccalaureate certificate
Registered Nursing/Registered Nurse	51.3801	Master's degree
Psychiatric/Mental Health Nurse/Nursing	51.3810	Post-baccalaureate certificate
Business Administration and Management, General	52.0201	Certificate less than one year
Logistics, Materials, and Supply Chain Management	52.0203	Certificate less than one year
Logistics, Materials, and Supply Chain Management	52.0203	Master's degree
Accounting	52.0301	Bachelor's degree
Accounting	52.0301	Master's degree
Finance, General	52.0801	Master's degree
Human Resources Management/Personnel Administration, General	52.1001	Post-baccalaureate certificate
Management Information Systems, General	52.1201	Bachelor's degree
Digital Marketing	52.1404	Master's degree

## Healthcare & Human Services



**53** In-Demand Occupations | **263** Aligned Academic Programs

The Healthcare & Human Services Career Cluster promotes whole health in individuals and communities through a diverse array of services. This sector includes technical, mental, and therapeutic services and personal care, supported by medical and social sciences. By addressing social determinants of health and leveraging health data and science, this cluster aims to enhance the overall health and resilience of individuals, families, and communities.

Among the programs with the highest percentage of graduates employed in Tennessee are the polysomnography and environmental health programs.

**Table 9: Programs Meeting Unmet Needs**

<b>Program Title</b>	<b>CIP Code</b>	<b>Education Award Level</b>
Educational Leadership and Administration, General	13.0401	Post-baccalaureate certificate
Educational Leadership and Administration, General	13.0401	Master's degree
Educational Leadership and Administration, General	13.0401	Education Specialist
Educational Leadership and Administration, General	13.0401	Doctoral degree
Educational, Instructional, and Curriculum Supervision	13.0404	Education Specialist
Educational, Instructional, and Curriculum Supervision	13.0404	Doctoral degree
Counselor Education/School Counseling and Guidance Services	13.1101	Master's degree
Counselor Education/School Counseling and Guidance Services	13.1101	Education Specialist
College Student Counseling and Personnel Services	13.1102	Doctoral degree
Child Development	19.0706	Bachelor's degree
Statistics, General	27.0501	Bachelor's degree
Educational Psychology	42.2806	Post-baccalaureate certificate
Human Services, General	44.0000	Master's degree
Social Work	44.0701	Master's degree
Social Work, Other	44.0799	Post-baccalaureate certificate
Speech-Language Pathology/Pathologist	51.0203	Master's degree
Audiology/Audiologist and Speech-Language Pathology/Pathologist	51.0204	Master's degree
Dental Hygiene/Hygienist	51.0602	Associate degree
Dental Hygiene/Hygienist	51.0602	Bachelor's degree
Health Information/Medical Records Administration/Administrator	51.0706	Master's degree
Physical Therapy Assistant.	51.0806	Associate degree
Emergency Medical Technology/Technician (EMT Paramedic)	51.0904	Certificate less than one year
Emergency Medical Technology/Technician (EMT Paramedic)	51.0904	Certificate one to two years
Emergency Medical Technology/Technician (EMT Paramedic)	51.0904	Associate degree
Medical Radiologic Technology/Science - Radiation Therapist	51.0907	Certificate one to two years
Medical Radiologic Technology/Science - Radiation Therapist	51.0907	Associate degree

Program Title	CIP Code	Education Award Level
Respiratory Care Therapy/Therapist	51.0908	Associate degree
Respiratory Care Therapy/Therapist	51.0908	Bachelor's degree
Surgical Technology/Technologist	51.0909	Associate degree
Radiologic Technology/Science - Radiographer	51.0911	Bachelor's degree
Clinical/Medical Laboratory Technician	51.1004	Associate degree
Clinical/Medical Social Work	51.1503	Post-baccalaureate certificate
Environmental Health	51.2202	Associate degree
Public Health, Other	51.2299	Master's degree
Occupational Therapy/Therapist	51.2306	Doctoral degree
Physical Therapy/Therapist	51.2308	Doctoral degree
Clinical Nutrition/Nutritionist	51.3102	Master's degree
Registered Nursing/Registered Nurse	51.3801	Associate degree
Registered Nursing/Registered Nurse	51.3801	Bachelor's degree
Registered Nursing/Registered Nurse	51.3801	Post-baccalaureate certificate
Registered Nursing/Registered Nurse	51.3801	Master's degree
Psychiatric/Mental Health Nurse/Nursing	51.3810	Post-baccalaureate certificate
Licensed Practical/Vocational Nurse Training	51.3901	Certificate one to two years
Business Administration and Management, General	52.0201	Certificate less than one year

**Table 10: In-Demand Occupations in All Nine LWDAs**

Occupation	SOC Code
Social and Human Service Assistants	21-1093
Pharmacy Technicians	29-2052
Licensed Practical and Licensed Vocational Nurses	29-2061
Physical Therapist Assistants	31-2021
Dental Assistants	31-9091
Medical Assistants	31-9092

## Public Service & Safety



**20 In-Demand Occupations | 113 Aligned Academic Programs**

The Public Service & Safety Career Cluster encompasses roles in local, state, and federal government; legal and justice systems; security; and military operations, all aimed at promoting

civic responsibility and ensuring the well-being, security, functionality, and resilience of communities, states, and countries.

Graduates of advanced degree programs in public administration and civil engineering had the highest annual earnings in the cluster at \$109,418 and \$89,437, respectively.

**Table 11: Programs Meeting Unmet Needs**

<b>Program Title</b>	<b>CIP Code</b>	<b>Education Award Level</b>
Educational Leadership and Administration, General	13.0401	Post-baccalaureate certificate
Educational Leadership and Administration, General	13.0401	Master's degree
Educational Leadership and Administration, General	13.0401	Education Specialist
Educational Leadership and Administration, General	13.0401	Doctoral degree
Educational, Instructional, and Curriculum Supervision	13.0404	Education Specialist
Educational, Instructional, and Curriculum Supervision	13.0404	Doctoral degree
Educational Evaluation and Research	13.0601	Doctoral degree
Civil Engineering, General	14.0801	Bachelor's degree
Statistics, General	27.0501	Bachelor's degree
Fire Services Administration	43.0202	High School CTE Completer
Crisis/Emergency/Disaster Management	43.0302	Bachelor's degree
Social Work	44.0701	Master's degree
Urban Studies/Affairs	45.1201	Bachelor's degree
Environmental Health	51.2202	Associate degree
Accounting	52.0301	Bachelor's degree
Accounting	52.0301	Master's degree
Finance, General	52.0801	Master's degree
Human Resources Management/Personnel Administration, General	52.1001	Post-baccalaureate certificate

**Table 12: In-Demand Occupations in All Nine LWDAs**

<b>Occupation</b>	<b>SOC Code</b>
Managers, All Other	11-9199
Dispatchers, Except Police, Fire, and Ambulance	43-5032

## Arts, Entertainment, & Design



**15 In-Demand Occupations | 107 Aligned Academic Programs**

The Arts, Entertainment, & Design Career Cluster combines creative roles in visual and performing arts, film, journalism, fashion, interior design, and creative technologies. This cluster focuses on creating, producing, and sharing artistic and design work across multiple platforms, aiming to entertain, inform, beautify, and inspire.

In this highly competitive industry, seven of the eight highest-paying positions all require a graduate-level degree.

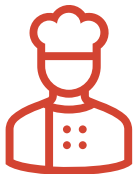
**Table 13: Programs Meeting Unmet Needs**

Program Title	CIP Code	Education Award Level
Business Administration and Management, General	52.0201	Certificate less than one year

**Table 14: In-Demand Occupations in All Nine LWDAs**

Occupation	SOC Code
Managers, All Other	11-9199

## Hospitality, Events, & Tourism



**12 In-Demand Occupations | 59 Aligned Academic Programs**

The Hospitality, Events, & Tourism Career Cluster encompasses a broad range of services and experiences related to food and beverage, lodging, travel, events, and conferences. This cluster focuses on delivering quality customer service, memorable experiences, and seamless logistics to cater to the needs and preferences of guests, tourists, and event participants. The cluster is characterized by its diversity, including everything from luxury hotels and international travel to local dining, cultural events, and business conferences, aiming to enhance the overall experience of visitors and attendees.

Three different certificate programs and one associate degree program in culinary arts related studies boast Tennessee employment rates of over 70% for their graduates.

**Table 15: Programs Meeting Unmet Needs**

Program Title	CIP Code	Education Award Level
Business Administration and Management, General	52.0201	Certificate less than one year

**Table 16: In-Demand Occupations in All Nine LWDAs**

Occupation	SOC Code
Food Service Managers	11-9051
First-Line Supervisors of Food Preparation and Serving Workers	35-1012
First-Line Supervisors of Housekeeping and Janitorial Workers	37-1011

## Digital Technology



**13 In-Demand Occupations | 94 Aligned Academic Programs**

The Digital Technology Career Cluster focuses on developing digital systems for communication and data storage using critical technologies such as artificial intelligence (AI), data analytics, and cybersecurity. This cluster builds skills necessary for all careers to navigate and lead in the constantly evolving tech landscape and drives innovation across all industries to tackle complex challenges and opportunities in communities and economies.

Graduates obtaining advanced degrees in this cluster earned the highest wages in their first year of employment, such as the graduates of the master’s program in management science (\$128,562) and master’s program in computer engineering (\$95,616).

**Table 17: Programs Meeting Unmet Needs**

Program Title	CIP Code	Education Award Level
Data Modeling/Warehousing and Database Administration	11.0802	Post-baccalaureate certificate
System, Networking, and LAN/WAN Management/Manager	11.1002	Certificate one to two years

Program Title	CIP Code	Education Award Level
Computer and Information Systems Security/Auditing/Information Assurance	11.1003	Certificate less than one year
Child Development	19.0706	Bachelor's degree
Statistics, General	27.0501	Bachelor's degree
Management Information Systems, General	52.1201	Bachelor's degree
Digital Marketing	52.1404	Master's degree

## Management & Entrepreneurship



27 In-Demand Occupations | 222 Aligned Academic Programs

The Management & Entrepreneurship Career Cluster involves skills and occupations that are essential across all industries, focusing on business administration, operations optimization, strategic planning, workforce management, and entrepreneurship. It merges key areas such as data management and analysis, human resources, general operations, administrative support, project management, and organizational leadership. This cluster ensures that businesses across all industries efficiently meet their goals, adapt to market changes, and maintain competitive advantage. By emphasizing entrepreneurship, this cluster supports the creation of new ventures, driving economic growth, and innovation making it a cornerstone of modern economies.

Graduates of the doctoral degree in business administration and management earn first year wages of over \$135,000 across a multitude of industries as part of the Management & Entrepreneurship cross-cutting cluster.

**Table 18: Programs Meeting Unmet Needs**

Program Title	CIP Code	Education Award Level
Educational/Instructional Technology	13.0501	Post-baccalaureate certificate
Educational Evaluation and Research	13.0601	Doctoral degree
Engineering/Industrial Management	15.1501	Bachelor's degree
Statistics, General	27.0501	Bachelor's degree
Educational Psychology	42.2806	Post-baccalaureate certificate
Fire Services Administration	43.0202	High School CTE Completer
Crisis/Emergency/Disaster Management	43.0302	Bachelor's degree
Geographic Information Science and Cartography	45.0702	Post-baccalaureate certificate
Urban Studies/Affairs	45.1201	Bachelor's degree

Program Title	CIP Code	Education Award Level
Business Administration and Management, General	52.0201	Certificate less than one year
Accounting Technology/Technician and Bookkeeping	52.0302	Associate degree
Finance, General	52.0801	Master's degree
Human Resources Management/Personnel Administration, General	52.1001	Post-baccalaureate certificate

**Table 19: In-Demand Occupations in All Nine LWDAs**

Occupation	SOC Code
Construction Managers	11-9021
Managers, All Other	11-9199
Business Operations Specialists, All Other	13-1199
Occupational Health and Safety Specialists	19-5011
Public Relations Specialists	27-3031

## Marketing & Sales



**15 In-Demand Occupations | 28 Aligned Academic Programs**

The Marketing & Sales Career Cluster focuses on promoting products, understanding consumer needs, engaging with communities, and driving sales. It integrates digital marketing, data analysis, brand promotion, customer relationship management, strategic communications, human-centered design, and retail strategies to build strong customer connections and support business growth. This cluster is essential in all industries for creating value, effectively reaching and engaging target audiences, and achieving commercial success in a competitive marketplace.

The business administration and management certificate has the highest employment rate in the cluster at 78%. The certificate program in selling skills and sales operations has the second highest employment rate at 72%. Top annual wages in the cluster were earned by those with doctoral and master's degrees in business administration and management.

**Table 20: Programs Meeting Unmet Needs**

Program Title	CIP Code	Education Award Level
Statistics, General	27.0501	Bachelor's degree
Business Administration and Management, General	52.0201	Certificate less than one year
Digital Marketing	52.1404	Master's degree

**Table 21: In-Demand Occupations in All Nine LWDAs**

Occupation	SOC Code
Marketing Managers	11-2021
First-Line Supervisors of Retail Sales Workers	41-1011
Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	41-4011
Customer Service Representatives	43-4051

## Agriculture



**12 In-Demand Occupations | 40 Aligned Academic Programs**

The Agriculture Career Cluster concentrates on scientific advancement of agriscience, cultivation, processing, and distribution of agricultural products, employing advanced technologies and sustainable practices to optimize global food systems. This cluster also supports other plant- and animal-based industries including regenerative agriculture, sustainable logging, and fisheries. This cluster has meaningful connections with the Energy and Natural Resources Cluster, highlighting a symbiotic relationship that emphasizes stewardship and resilient communities.

Graduates of the chemistry doctoral degree program had the second highest salaries in this cluster, after those of veterinary medicine professional degree graduates. No programs in this cluster had graduates achieving placement rates of 60% or more and average salaries above the state median of \$46,120 and no occupations in-demand in all nine of the LWDAs.

## Energy & Natural Resources



17 In-Demand Occupations | 112 Aligned Academic Programs

The Energy & Natural Resources Career Cluster spans careers in traditional and renewable fuel production, power generation and energy conversion, utilities, environmental preservation, ecological research, and resource extraction. These industries focus on efficient and responsible resource management, including conservation, transmission, distribution and storage, to minimize environmental impacts and meet global energy needs. Careers in this cluster are dedicated to creating a sustainable future, innovating cleaner energy solutions, and preserving our planet's natural resources for generations to come.

Graduates of the materials engineering doctoral program had the highest salaries in the cluster, followed by graduates from the nuclear engineering master's degree program.

**Table 22: Programs Meeting Unmet Needs**

Program Title	CIP Code	Education Award Level
Engineering Technologies/Technicians, General	15.0000	Certificate less than one year
Engineering Technologies/Technicians, General	15.0000	Associate degree
Engineering Technologies/Technicians, General	15.0000	Bachelor's degree
Electrical, Electronic, and Communications Engineering Technology/Technician	15.0303	Certificate less than one year
Electrical, Electronic, and Communications Engineering Technology/Technician	15.0303	Associate degree
Industrial Technology/Technician	15.0612	Certificate less than one year
Statistics, General	27.0501	Bachelor's degree
Geographic Information Science and Cartography	45.0702	Post-baccalaureate certificate
Industrial Mechanics and Maintenance Technology/Technician	47.0303	Certificate one to two years
Environmental Health	51.2202	Associate degree

**Table 23: In-Demand Occupations in All Nine LWDAs**

Occupation	SOC Code
Electrical and Electronic Engineering Technologists and Technicians	17-3023

## Financial Services



17 In-Demand Occupations | 73 Aligned Academic Programs

The Financial Services Career Cluster encompasses careers in managing and advising financial transactions, including banking, lending, corporate finance, debt management, accounting, insurance, and real estate. These careers contribute to economic stability and growth by supporting the financial health of individuals and organizations.

Several programs boast high Tennessee employment rates with the bachelor's degree program in family resource management studies and the certificate program in accounting technology/technician and bookkeeping topping the cluster at 83% each.

**Table 24: Programs Meeting Unmet Needs**

Program Title	CIP Code	Education Award Level
Statistics, General	27.0501	Bachelor's degree
Business Administration and Management, General	52.0201	Certificate less than one year
Accounting	52.0301	Bachelor's degree
Accounting	52.0301	Master's degree
Accounting Technology/Technician and Bookkeeping	52.0302	Associate degree
Finance, General	52.0801	Master's degree
Human Resources Management/Personnel Administration, General	52.1001	Post-baccalaureate certificate