Delaware Department of Education
Appendix: Labor Market Information (LMI) Review
Delaware CTE Program of Study Application

Table 1: LEA Information
(see instructions on page 2, LMI Instructions & Guidance Document)

Career Cluster:	Manufacturing
Career Pathway:	Manufacturing Production Process Development
CTE Program of Study:	Manufacturing Engineering Technology
High School and LEA Name:	
County:	

Table 2: Labor Market Information (LMI) Benchmarks by Geographic Region
(see instructions on page 3, LMI Instructions & Guidance Document)

Region	Employment 2014	Employment Change 2012-22	Employment Growth 2012-22	Avg. Wage 2014
United States	132,588,810	15,628,000	10.8%	$46,440
Delaware	412,140	40,900	9.4%	$49,254
District of Columbia	674,650	57,930	7.7%	$78,580
Maryland	2,557,510	189,370	6.1%	$53,470
New Jersey	3,869,260	313,190	7.5%	$53,920
Pennsylvania	5,653,840	467,940	7.7%	$45,750
Virginia	3,648,490	534,210	13.5%	$50,750

Table 3: LMI by Career Cluster & Pathway
(see instructions on page 4, LMI Instructions & Guidance Document)

Cluster Code	Cluster/Pathway Title	High Skill	High Wage	High Demand	2012-2022 Employment 2014	2012-2022 Employment Change 2012-2022	2012-2022 Employment Growth 2012-2022	2012-2022 Average Wage 2014
13	**Manufacturing Cluster**		•	•	**24,143**	1,886	**7.5%**	**$43,324**
	Rank Select Career Cluster by the Following Categories ->				*(9 of 16)*	*(10 of 16)*	*(10 of 16)*	*(12 of 16)*
13.02	**Manufacturing Production Process Development Pathway**	•	•		**2,272**	**229**	**9.2%**	**$62,953**
	Rank Select Career Pathway by the Following Categories ->				*(3 of *#)*	*(3 of *#)*	*(2 of *#)*	*(1 of *#)*
	Manufacturing Production Process Development Pathway – Mid-Atlantic States	•	•	•	105,800	4,549	4.1%	$64,067
	Manufacturing Production Process Development Pathway– United States	•	•	•	809,880	18,400	2.2%	$60,083
13.01	Production Pathway				12,909	798	6.0%	$36,685
13.03	Maintenance, Installation & Repair Pathway	•	•	•	8,402	793	9.4%	$48,580
13.04	Quality Assurance Pathway				1,560	66	7.3%	$41,190
13.05	Logistics & Inventory Control Pathway				*TBD	*TBD	*TBD	*TBD
13.06	Health, Safety & Environmental Assurance Pathway				*TBD	*TBD	*TBD	*TBD

Table 3: LMI by Career Cluster & Pathway (Questions/Analysis)
(see instructions on page 5, LMI Instructions & Guidance Document)

1. How does the employment, the employment change, the employment growth rate, and the average wage for the identified career cluster compare to LMI for other clusters in the State of Delaware? Is the career cluster rated as high wage and high demand?

The Manufacturing Career Cluster ranks in the top ten (10) for employment, employment change, and employment growth rate with a higher average wage ($43,324) in comparison to the Delaware all-industry statewide median wage ($37,490 in 2014). The career cluster is also rated as high wage and high demand.

2. How does the employment, the employment change, the employment growth rate, and the average wage for the identified career pathway compare to LMI at the cluster level? How does the identified pathway level LMI in Delaware compare to the pathway level LMI in the Mid-Atlantic and/or the United States? How does the identified pathway level LMI in Delaware compare to the other pathway level LMI in Delaware?

   The employment growth for the cluster is less than the pathway. However, pathway is on par with the overall growth rate in Delaware and the pathway demand is greater when reviewing LMI for most of the Mid-Atlantic region. The average wage for the pathway is nearly $20,000 higher for the manufacturing production process development pathway than for the manufacturing career cluster. LMI data also demonstrates that both regionally and across the country there is a high demand for careers in the manufacturing cluster. There is also the potential for students who complete the program of study to enroll in related degree programs or seek employment in SOCs found throughout the entire manufacturing cluster.

   **Note: LMI has not yet been fully aggregated at the cluster or SOC level by the EDEPS system developers for the manufacturing cluster. Additional LMI for the health, safety and environmental assurance pathway as well as the logistics and inventory control pathway based on relevant SOC data is in development by EDEPS staff.*

Table 4: LMI by Standard Occupation Code (SOC)
(see instructions on page 6, LMI Instructions & Guidance Document)

					2012-2022			
SOC Code	**Occupation Title**	**High Skill**	**High Wage**	**High Demand**	**Employment 2014**	**Employment Change 2012-2022**	**Employment Growth 2012-2022**	**Average Wage 2014**
11-9041	Architectural and Engineering Managers	●	●		493	17	4.3%	$145,980
17-2199	Engineers, All Other	●	●		53	2	4.5%	$100,260
17-2141	Mechanical Engineers	●	●	●	721	63	8.5%	$96,670
17-2112	Industrial Engineers	●	●	●	523	49	8.3%	$90,650

49-1011	First-Line Supervisors of Mechanics, Installers, and Repairers		●	●	1,449	82	6.2%	$69,490
49-2029	Electrical and Electronics Repairers, Commercial and Industrial Equipment	●	●		270	20	9.2%	$62,820
17-3027	Mechanical Engineering Technicians	●	●		40	15	12.0%	$62,610
51-1011	First-Line Supervisors of Production and Operating Workers	●	●		1,307	17	1.2%	$62,380
19-4031	Chemical Technicians	●	●	●	945	118	14.2%	$62,280
17-3013	Mechanical Drafters	●	●		166	10	5.5%	$62,120
17-3026	Industrial Engineering Technicians	●	●		136	25	11.3%	$61,440
17-3012	Electrical and Electronics Drafters	●	●		90	25	12.9%	$59,800
17-3023	Electrical and Electronics Engineering Technicians	●	●		164	23	10.4%	$55,410
51-4011	Machinists	●	●	●	487	111	16.5%	$52,440
49-9041	Industrial Machinery Mechanics	●	●	●	886	109	12.4%	$51,220

Table 4: LMI by Standard Occupation Code (SOC) (Questions/Analysis)
(see instructions on page 7, LMI Instructions & Guidance Document)

3. How closely related to the program of study are the identified occupations (SOCs)?

The Industrial Engineering Technician, Mechanical Engineering Technician, Chemical Technician and Electrical and Electronics Engineering Technicians SOCs are closely related to the program of study and have strong connections to post-secondary programs in the state. The LMI and SOC review for Delaware further demonstrates a clear connection to the SOC families of 17-0000 (Architecture and Engineering Occupations) and 49-0000 (Installation, Maintenance and Repair Occupations). Both of which are additionally supported by EDEPS data for being high skill, high wage occupations throughout the United States.

4. Are there adequate state-level projected job openings or employment growth projections at the occupation level to justify starting a new program of study? Do the occupations related to the program of study rank as high skill, high wage and/or high demand?

   The number of job openings projected for the cluster and pathway as well as the related SOCs will support a manufacturing engineering technology program of study. All related SOCs and the cluster and pathway are rated as high skill, high wage. In addition, Chemical Technicians for Delaware are identified to be in high demand.

Table 5: LMI Supply Indicators by Secondary & Post-Secondary Levels
(see instructions on page 7, LMI Instructions & Guidance Document)

Program Code (CIP)	Program (CIP) Title	School	Program Completion/Enrollment 2010-11	2011-12	2012-13	2013-14
Total Secondary Programs of Study						
14.01	Manufacturing Engineering Technology (EbD)	NA				
Total Post-Secondary Programs of Study						
48.0501	Machine Tool Technology/Machinist	Delaware Technical Community College-Stanton/Wilmington	5	2	2	
41.0301	Chemical Technology/Technician	Delaware Technical Community College-Stanton/Wilmington	2	5	6	
15.1306	Mechanical Drafting and Mechanical Drafting CAD/CADD	Delaware Technical Community College-Owens	6	7	9	
15.1304	Civil Drafting and Civil Engineering CAD/CADD	Delaware Technical Community College-Stanton/Wilmington	5	2	0	
15.1302	CAD/CADD Drafting and/or Design Technology/Technician	Delaware Technical Community College-Stanton/Wilmington	5	3	2	
15.1301	Drafting and Design Technology/ Technician, General	Delaware Technical Community College-Owens	10	4	3	
15.1201	Computer Engineering Technology/ Technician	Delaware Technical Community College-Stanton/Wilmington/Terry	4	4	8	

15.0805	Mechanical Engineering/Mechanical Technology/Technician	Delaware Technical Community College-Stanton/Wilmington	11	12	13	
15.0403	Electromechanical Technology/ Electromechanical Engineering Technology	Delaware Technical Community College-Terry	2	5	0	
15.0399	Electrical and Electronic Engineering Technologies/Technicians, Other	Delaware Technical Community College-Stanton/Wilmington/Owens/ Terry	12	12	9	
15.0303	Electrical, Electronic and Communications Engineering Technology/Technician	Delaware Technical Community College-Stanton/Wilmington/Owens/ Terry	23	17	11	
15.0201	Civil Engineering Technology/ Technician	Delaware Technical Community College-Stanton/Wilmington/Owens/ Terry	7	6	4	
15.0101	Architectural Engineering Technology/Technician	Delaware Technical Community College-Stanton/Wilmington/Owens/ Terry	22	19	24	
14.1901	Mechanical Engineering	University of Delaware	102	108	106	
14.1201	Engineering Physics/Applied Physics	Delaware State University	0	0	3	
14.1001	Electrical and Electronics Engineering	University of Delaware	31	25	34	
14.0801	Civil Engineering, General	University of Delaware	87	68	91	

Table 5: LMI Supply Indicators by Secondary & Post-Secondary Levels (Questions/Analysis)

(see instructions on page 9, LMI Instructions & Guidance Document)

5. How is the secondary program of study articulated to or in any way related to the identified post-secondary program(s)?

The manufacturing engineering technology program of study is a broad program that connects to many related post-secondary degree and certification programs at both two- and four- year institutions of higher education. Specifically, the manufacturing engineering technology program of study will prepare students for related study in engineering and engineering technology post-secondary programs.

6. How does the annual completion data at the secondary and post-secondary level compare to the projected career pathway-related projected job openings in Table 4?

   As illustrated by the number of enrolled students, there is high interest in engineering and engineering technology programs at the postsecondary level. Therefore, a manufacturing engineering technology program of study at the secondary level will better prepare students with the skills and knowledge to enter post-secondary programs. This work will lead to students achieving articulated credit while in high school and lessening the amount of time required to enter the workforce.

Table 6: Other LMI Data Including Real-Time LMI (Questions/Analysis)
(see instructions on page 10, LMI Instructions & Guidance Document)

7. Are there additional LMI data (demand & supply) at the local, county, state, or Mid-Atlantic region that support starting a new program of study in this pathway? This includes additional occupations for which there is not an SOC, any other analysis of LMI data, and any additional information on demand & supply factors that influence employment which can include real-time labor market information.

   Real-Time LMI Report will be published in the summer of 2016, prior to program start-up.