TRAINING AND EMPLOYMENT NOTICE	NO. 40-08
	DATE April 16, 2009

TO: STATE WORKFORCE AGENCY ADMINISTRATORS
STATE WORKFORCE LIAISONS
ONE-STOP CENTER SYSTEM LEADS
STATE WORKFORCE AGENGIES
LOCAL WORKFORCE INVESTMENT AREAS
STATE AND LOCAL WORKFORCE INVESTMENT BOARD CHAIRS

FROM: GAY M. GILBERT
Administrator
Office of Workforce Investment

SUBJECT: Industry Competency Models Initiative

1. **Purpose**. The purposes of this Training and Employment Notice are to: (1) Introduce the industry competency models and their value as resources that can support partnership development and engagement among business, the workforce investment system, and the continuum of education; (2) Illustrate a variety of uses for competency models for workforce investment system partners and industry organizations; and, (3) Share information about two interactive tools that enable workforce system partners to collaboratively develop customized industry competency models and career ladders/lattices.

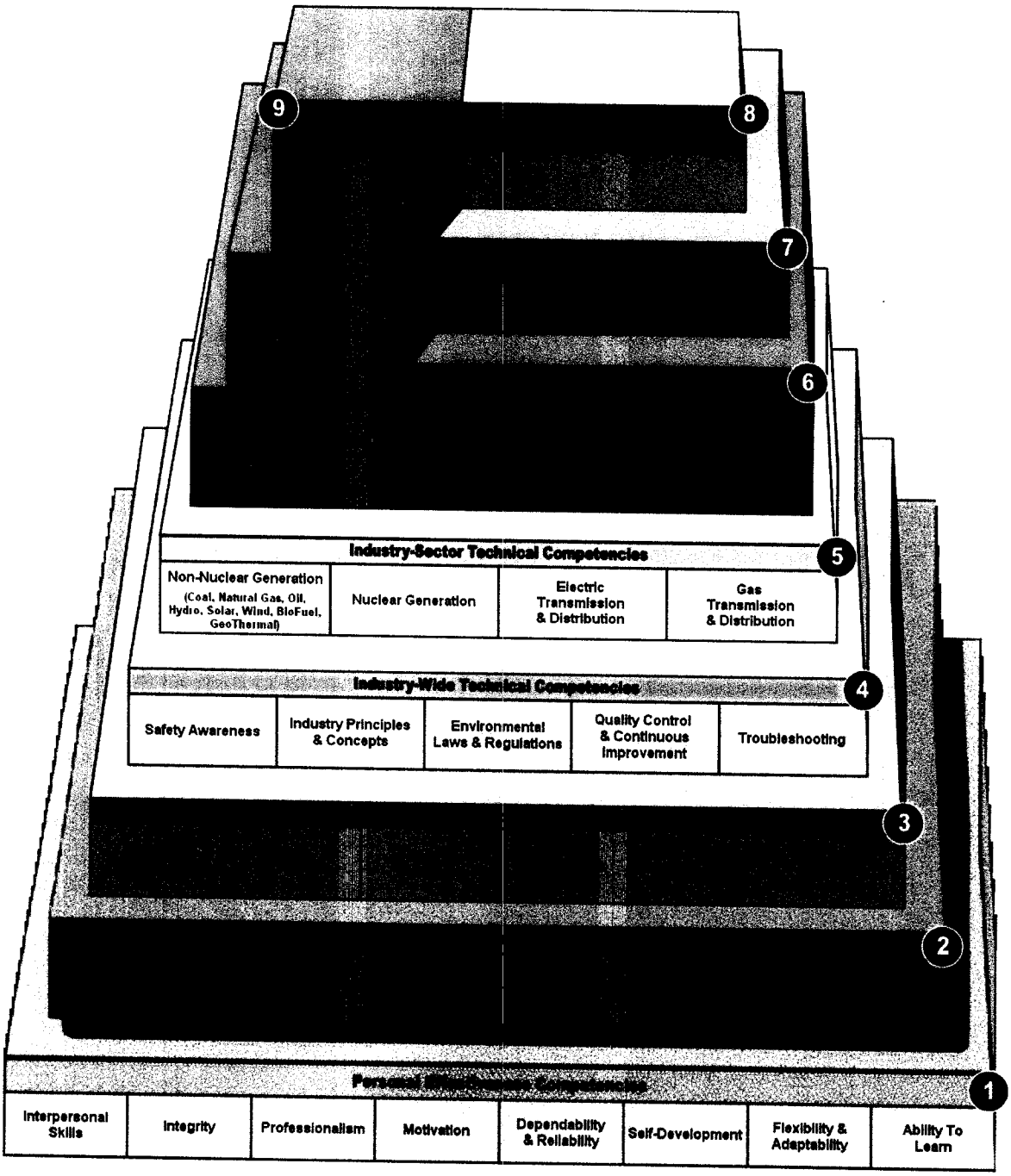
2. **Background**. In the 21st century global economy, industries in the United States are continually transformed by the impacts of globalization, innovation, and technology. Businesses require workers who can adapt to new skill demands throughout their careers. Workers who engage in lifelong learning to acquire new skills increase their employability along with their ability to transfer to new work when necessary. In response to this workforce challenge - to prepare, recruit, and retain a skilled workforce to meet emerging and changing needs - ETA and industry partners have collaborated to develop and maintain dynamic industry competency models as a resource for the workforce investment system. The goal of the Industry Competency Model Initiative is to promote an understanding of the skill sets and competencies that are essential to educate and train a globally competitive workforce.

3. **Competency Model Framework.** A *competency model* is a collection of competencies that taken together define successful performance in a particular work setting. Developed for specific jobs, job groups, organizations, occupations or industries, models typically include: competency names and definitions; descriptions of activities or behaviors associated with each competency; and a graphic diagram of the model. In support of the industry competency model initiative, experts developed a single reference source - a set of "building blocks" for competency model development.

The Building Blocks model is depicted in a graphic consisting of nine tiers. The arrangement of the tiers in a pyramidal shape is not meant to imply that competencies at the top are at a higher level of skill. The model's shape represents the increasing specificity in the application of skills as you move from Personal Effectiveness at the base through the Occupational Competencies at the top. The pyramid graphic used to display the major competency areas provides a clear visual model of the broad skill content areas required for growth and career advancement in an industry. See Figure 1 for a graphic of the Competency Model for Energy Generation, Transmission and Distribution. For more information on all of the industry competency models that have been developed see Section 4 and:
http://www.careeronestop.org/CompetencyModel/pyramid.aspx

Figure 1.

Energy/ Generation, Transmission and Distribution Competency Model



4. Uses of Industry Competency Models. Industry competency models provide a common framework to drive the dialogue on regional talent development among the workforce investment system, businesses, the education community, labor organizations, and economic developers. Competency models are not the end product, but a resource with multiple uses, as summarized in Figure 2.

Figure 2.

Uses of Competency Models for the Workforce Investment System	
Use	**Description**
Communicate Industry Needs	• Communicate industry expectations and demands to potential workers, career development professionals, training providers, and education partners. • See information about the Competency Model Clearinghouse and the interactive tools developed to facilitate customizing a national industry model in Section 5 -Competency Resources.
Career Exploration and Guidance	• Assist new entrants and incumbent workers to target career exploration efforts and identify career pathways to success. Provide career guidance and counseling to jobseekers to help them set career goals and obtain the appropriate training/education to reach those goals.

Career Paths, Ladders & Lattices	• Identify the foundation, academic, and industry technical competencies that underlie career ladders or lattices.
	  ○ Career ladders represent the upward movement of workers in progressively more complex positions throughout their careers (for example, from Assistant Mechanic to Mechanic to Senior Mechanic).
	  ○ Career lattices represent careers that do not follow a linear progression and include lateral moves.
	• Promote collaboration and alignment between Career and Technical Education Pathways and Programs of Study and workforce investment system investments in training for individuals to move along Career Ladders/Lattice (see Attachment).

Workforce Program Planning and Labor Pool Analysis	• Evaluate existing programs against competencies required by regional business and industry by providing a blueprint for identifying commonalities of skill needs across the employers in an industry and the programs available to train the workforce needed. • Conduct labor pool analyses to examine the skills in the available labor force. • Compare the skills of the labor pool to those required by regional business and industry.
Curriculum Evaluation, Planning, and Development	• Identify the foundation and technical competency areas that lead to satisfactory performance in an industry. • Develop competency-based training objectives and outcomes. • Tailor courses to specific student populations or industry needs.

Uses of Competency Models for the Workforce Investment System	
Human Resource Services to Business	• Articulate required knowledge, skills, and abilities in job descriptions. • Match candidates' qualifications to employer requirements to facilitate recruitment and selection. • Create competency-based position descriptions, job matches, and employee development plans and performance appraisals.
Certification, Licensure, and Assessment Development	• Inform the development of assessments by identifying the basic literacy, numeracy, and academic competencies required for success. • Provide a resource to ensure that professional certification and licensure requirements include the wide range of knowledge and skills needed. • Inform the development of achievement tests that measure desirable work-related knowledge and skills such as computer programming or statistical process control.
Industry Models and Registered Apprenticeship	• Award certificates of apprenticeship based on requiring the apprentice to demonstrate competence in defined knowledge and skill areas per new regulations. • Provide a resource for identifying the competencies that must be acquired through the combination of on-the-job training and related technical instruction in a Registered Apprenticeship program.

5. **Competency Resources**. Eleven industry models have been completed as of January 2009: Advanced Manufacturing; Aerospace; Automation; Construction—Heavy/Civil/Highway; Construction—Residential; Energy; Entrepreneurship; Financial Services; Hospitality—Hotel and Lodging; Information Technology; and Retail.

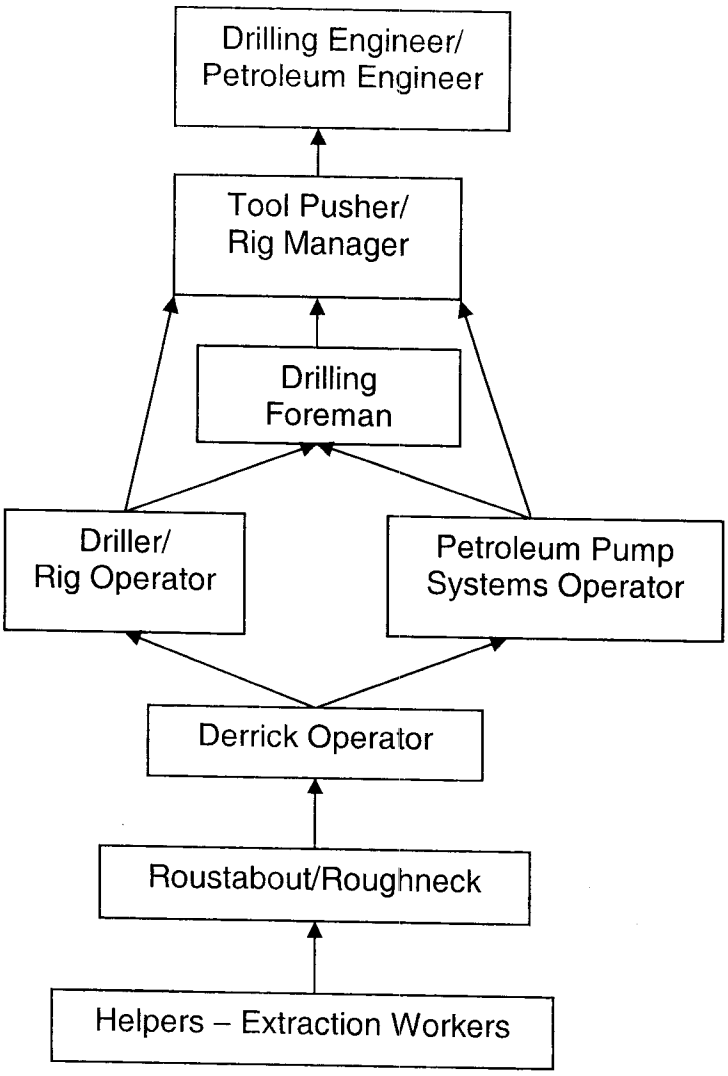
These models can be found on the Competency Model Clearinghouse (CMC) at http://www.careeronestop.org/CompetencyModel/. New models currently under development and any revisions to or updates of existing models will also be posted on the CMC.

In addition, under the Build a Model link, the CMC provides two interactive tools - Build a Competency Model and Build a Career Ladder/Lattice.

- The Build a Competency Model tool enables users to customize one of the national industry competency models to reflect specific workforce needs in a region. For example, a user can start with the framework for Advanced Manufacturing and customize it to reflect the competencies for pharmaceutical manufacturing.
- The Career Ladder/Lattice tool enables users to start with a national or customized industry competency model and then employ the Career Ladder/Lattice tool to display the sequence of jobs or occupations within specific careers in that industry. The tool results in a graphic that illustrates the progression and advancement potential in the career ladder/lattice and also contains documentation of the

requirements for each job as well as the critical developmental experiences needed to move between them. Figure 3 depicts the graphic only for a sample Career Ladder/Lattice within the Energy sector, the model itself provides additional detail.

Figure 3. Example Career Ladder for Energy Industry (Petroleum Sector)



To access these tools as well as other resources that will help you learn about and use competencies and career ladder/lattices to support workforce and talent development, visit the Competency Model Clearinghouse at http://www.careeronestop.org/CompetencyModel/. Instructions and online animated tutorials for both the Build a Competency Model and the Build a Career Ladder/Lattice tools are available in the lower left-hand corner of the Build a Model page. To start using the tools, click on "Build a Model."

The CMC Web site also offers developers and users of competency models a variety of resources, tools, and links including:

- a *Technical Assistance Guide: Developing and Using Competency Models*, available to be read online or downloaded for easy reference;
- a searchable database of over a thousand competency-based resources; and,
- Case in Point stories about promising practices around using competency models.

6. **Action Required**. Recipients are requested to share this Training and Employment Notice with workforce system partners in business, education, and elsewhere who could make use of and benefit from these competency model resources and tools. Users who develop customized industry competency models or career ladder/lattices for talent development in regional economies are encouraged to share final models with the workforce investment community and its strategic partners by posting them on www.Workforce3One.org .

7. **Inquiries**. Questions about the ETA Industry Competency Models Initiative and Competency Model Clearinghouse should be directed to Pam Frugoli at frugoli.pam@dol.gov.

8. **Attachment.** Relationship of Industry Competency Models to Career Clusters

Manufacturing

Manufacturing: Logistics and Inventory Control
Career Pathway Plan of Study for ▶ Learners ▶ Parents ▶ Counselors ▶ Teachers/Faculty

*This Career Pathway Plan of Study (based on the Logistics and Inventory Control Pathway of the Manufacturing Career Cluster) can serve as a guide, along with other career planning materials, as learners continue on a career path. Courses listed within this plan are only recommended coursework and should be individualized to meet each learner's educational and career goals. *This Plan of Study, used for learners at an educational institution, should be customized with course titles and appropriate high school graduation requirements as well as college entrance requirements.*

EDUCATION LEVELS	GRADE	English/ Language Arts	Math	Science	Social Studies/ Sciences	Other Required Courses Other Electives Recommended Electives Learner Activities	*Career and Technical Courses and/or Degree Major Courses for Logistics and Inventory Control Pathway	SAMPLE Occupations Relating to This Pathway
	Interest Inventory Administered and Plan of Study Initiated for all Learners							
SECONDARY	9	English/ Language Arts I	Algebra I	Earth or Life or Physical Science	State History Civics	All plans of study should meet local and state high school graduation requirements and college entrance requirements. Certain local student organization activities are also important including public speaking, record keeping and work-based experiences.	• Introduction to Manufacturing Occupations	▶ Communications, Transportation and Utilities Manager ▶ Dispatcher ▶ Freight, Stock, and Material Mover ▶ Industrial Truck and Tractor Operator ▶ Logistical Engineer ▶ Logistician ▶ Materials Associate ▶ Materials Handler ▶ Materials Mover ▶ Process Improvement Technician ▶ Quality Control Technician ▶ Traffic Manager ▶ Traffic, Shipping, and Receiving Clerk
SECONDARY	10	English/ Language Arts II	Geometry	Biology	U.S. History		• Information Technology Applications	
SECONDARY	11	English/ Language Arts III	Algebra II	Chemistry	World History Economics		• Employment in Manufacturing Occupations	
	College Placement Assessments-Academic/Career Advisement Provided							
SECONDARY	12	English/ Language Arts IV	Trigonometry or Statistics or other math course	Physics	Psychology		• Applications in Manufacturing Technology	
	Articulation/Dual Credit Transcripted-Postsecondary courses may be taken/moved to the secondary level for articulation/dual credit purposes.							
POSTSECONDARY	Year 13	English Composition English Literature	Algebra	Chemistry Physics	American Government Psychology	All plans of study need to meet learners' career goals with regard to required degrees, licenses, certifications or journey worker status. Certain local student organization activities may also be important to include.	• Safety in the Workplace • Workplace Communication	
POSTSECONDARY	Year 14	Speech/ Oral Communication	Computer Applications	Biological Science Physical Science	American History Geography		• Logistics • Inventory Management	
POSTSECONDARY	Year 15	Continue courses in the area of specialization.					• Continue Courses in the Area of Specialization	
POSTSECONDARY	Year 16						• Complete Manufacturing Major (4-Year Degree Program)	

Project funded by the U.S. Department of Education (VO51B020001)

Manufacturing: Logistics and Inventory Control
Tips for Creating a Career Pathway Plan of Study for ▶ Instructional Leaders ▶ Administrators ▶ Counselors ▶ Teachers/Faculty

Creating Your Institution's Own Instructional Plan of Study

With a team of partners (secondary/postsecondary teachers and faculty, counselors, business/industry representatives, instructional leaders, and administrators), use the following steps to develop your own scope and sequence of career and technical courses as well as degree major courses for your institution's plan of study.

1 Crosswalk the Cluster Foundation Knowledge and Skills (available at **http://www.careerclusters.org/goto.cfm?id=94**) to the content of your existing secondary and postsecondary programs/courses.

2 Crosswalk the Pathway Knowledge and Skills (available at **http://www.careerclusters.org/goto.cfm?id=64**) to the content of your existing secondary/postsecondary programs and courses.

3 Based on the crosswalks in steps 1 and 2, determine which existing programs/courses would adequately align to (cover) the knowledge and skills. These programs/courses would be revised to tighten up any alignment weaknesses and would become a part of a sequence of courses to address this pathway.

4 Based on the crosswalks in steps 1 and 2, determine what new courses need to be added to address any alignment weaknesses.

5 Sequence the **content** and **learner outcomes** of the existing programs/courses identified in step 3 and new courses identified in step 4 into a course sequence leading to preparation for all occupations within this pathway. (See list of occupations on page 1 of this document.)

6 The goal of this process would be a series of courses and their descriptions. The names of these courses would be inserted into the *Career and Technical Courses* column on the Plan of Study on page 1 of this document.

7 Below is a **sample result** of steps 1-6, and these course titles are inserted into the Plan of Study on page 1 of this document.

8 Crosswalk your state academic standards and applicable national standards (e.g., for mathematics, science, history, language arts, etc.) to the sequence of courses formulated in step 6.

Manufacturing: Logistics and Inventory Control
SAMPLE Sequence of Courses for ▶ Instructional Leaders ▶ Administrators ▶ Counselors ▶ Teachers/Faculty

Below are suggested courses that could result from steps 1-6 above. However, as an educational institution, course titles, descriptions and the sequence will be your own. This is a good model of courses for you to use as an example and to help you jump-start your process. Course content may be taught as concepts within other courses, or as modules or units of instruction.

The following course is based on the Cluster Foundation Knowledge and Skills found at http://www.careerclusters.org/goto.cfm?id=94. These skills are reinforced through participation in student organization activities.

#1

Introduction to Manufacturing Occupations: This course provides students an opportunity to experience various professional organized skill areas. These experiences are designed to be similar to occupations actually existing in the commercial/industrial workplace. This may be taught as a career exploration course in conjunction with other foundation Career Cluster courses.

The following course is based on the Cluster Foundation Knowledge and Skills as well as the Pathway Knowledge and Skills found at http://www.careerclusters.org/goto.cfm?id=64. These skills are reinforced through participation in student organization activities.

#2

Information Technology Applications: Students will use technology tools to manage personal schedules and contact information, create memos and notes, prepare simple reports and other business communications, manage computer operations and file storage, and use electronic mail and Internet applications to communicate, search for and access information.

The following courses expose students to Pathway Knowledge and Skills found at http://www.careerclusters.org/goto.cfm?id=64 and should include appropriate student activities.

#3

Employment in Manufacturing Occupations: Students will study the roles and responsibilities of various occupations related to manufacturing. Students will research available sources to acquire knowledge of how to maintain a safe and productive workplace including following local, federal and company regulations to perform environmental and safety inspections. Students will develop strategies for communicating with coworkers and/or external customers to ensure production meets business requirements and learn strategies for maintaining equipment, tools and workstations. A work-based learning component is provided.

#4

Applications in Manufacturing Technology: This course prepares students for careers in manufacturing and for postsecondary education. The main focus is a core structure study in hydraulics, pneumatics, electrical, material testing, sensors, electric and pneumatic robot operations, and an introduction to programmable logic controllers, measurement, and materials characterization. A work-based learning component is provided.

#5

Safety in the Workplace: Students will develop in-depth skills for maintaining a safe and productive environment including following regulations to perform inspections, participate in emergency response teams to perform emergency drills, identify unsafe conditions and take corrective actions, and provide a safety orientation to train other employees in safe practices and emergency procedures. Students will ensure that equipment is being used safely in the workplace by training others to use equipment safely; by suggesting processes and procedures to support safety; by fulfilling safety and health requirements for maintenance, installation and repair; and by monitoring equipment and operator performance to assure workplace safety and compliance with both company and national regulations.

#6

Workplace Communication: Students will develop verbal and visual skills for communicating with others to ensure that manufacturing maintenance and repairs meet business needs while increasing time efficiency.

#7

Logistics: This course provides fundamentals related to shipping and receiving products and materials. Students will learn the supply chain strategy and networks. They will also learn to check orders for accuracy, to package and unpackage materials and products, to load and unload materials and products, and to schedule transportation of products and materials to meet customer needs. Students will examine new and innovative methods of logistics and inventory management for products and information.

#8

Inventory Management: Students will develop skills of managing inventory to meet production requirements. The course content includes use of a plan to monitor the location of materials during the production process, preparation of documents that detail materials movement and inventory count, establishment of lot sizes and reorder points to meet production requirements, and conduction of on-site inventory to ensure productivity, safety, accuracy and teamwork. Students will also identify and report discrepancies in inventory audits in order to change logistics processes and update the inventory to respond to engineering changes.

Notes

Manufacturing

Planning, managing, and performing the processing of materials into intermediate or final products and related professional and technical support activities such as production planning and control, maintenance and manufacturing/process engineering.

Sample Career Specialties/Occupations	♦ *Assembler* ♦ *Automated Manufacturing Technician* ♦ *Bookbinder* ♦ *Calibration Technician* ♦ *Electrical Installer and Repairer* ♦ *Electromechanical Equipment Assembler* ♦ *Extruding and Drawing Machine Setter/Set-Up Operator* ♦ *Extrusion Machine Operator* ♦ *Foundry Worker* ♦ *Grinding, Lapping, and Buffing Machine Operator* ♦ *Hand Packers and Packager* ♦ *Hoist and Winch Operator* ♦ *Instrument Maker* ♦ *Large Printing Press Machine Setter and Set-Up Operator* ♦ *Machine Operator* ♦ *Manager, Supervisor* ♦ *Medical Appliance Maker* ♦ *Milling Machine Setter, Set-Up Operator* ♦ *Millwright* ♦ *Operator, Tender, Cutter/Brazer, Solderer, Machine Operator* ♦ *Painter* ♦ *Pattern & Model Maker* ♦ *Precision Layout Worker* ♦ *Precision Optical Goods Worker* ♦ *Production Associate* ♦ *Sheet Metal Worker* ♦ *Solderer and Brazer* ♦ *Tool and Die Maker* ♦ *Welder*	♦ *Design Engineer* ♦ *Electrical and Electronics Technician and Technologist* ♦ *Electronics Engineer* ♦ *Engineering and Related Technician and Technologist* ♦ *Engineering Technician* ♦ *Industrial Engineer* ♦ *Labor Relations Manager* ♦ *Manufacturing Engineer* ♦ *Manufacturing Technician* ♦ *Power Generating and Reactor Plant Operator* ♦ *Precision Inspector, Tester, and Grader* ♦ *Process Improvement Technician* ♦ *Production Manager* ♦ *Purchasing Agent* ♦ *Supervisor*	♦ *Biomedical Equipment Technician* ♦ *Boilermaker* ♦ *Communication System Installer/Repairer* ♦ *Computer Installer/Repairer* ♦ *Computer Maintenance Technician* ♦ *Electrical Equipment Installer/Repairer* ♦ *Facility Electrician* ♦ *Industrial Electronic Installer/Repairer* ♦ *Industrial Facilities Manager* ♦ *Industrial Machinery Mechanic* ♦ *Industrial Maintenance Electrician* ♦ *Industrial Maintenance Mechanic* ♦ *Industrial Maintenance Technician* ♦ *Instrument Calibration and Repairer* ♦ *Instrument Control Technician* ♦ *Job/Fixture Designer* ♦ *Laser Systems Technician* ♦ *Maintenance Repairer* ♦ *Major Appliance Repairer* ♦ *Meter Installer/Repairer* ♦ *Millwright* ♦ *Plumber, Pipefitter and Steamfitter* ♦ *Security System Installer/Repairer*	♦ *Calibration Technician* ♦ *Inspector* ♦ *Lab Technician* ♦ *Process Control Technician* ♦ *Quality Control Technician* ♦ *Quality Engineer* ♦ *SPC Coordinator*	♦ *Communications, Transportation and Utilities Manager* ♦ *Dispatcher* ♦ *Freight, Stock, and Material Mover* ♦ *Industrial Truck and Tractor Operator* ♦ *Logistical Engineer* ♦ *Logistician* ♦ *Material Associate* ♦ *Material Handler* ♦ *Material Mover* ♦ *Process Improvement Technician* ♦ *Quality Control Technician* ♦ *Traffic Manager* ♦ *Traffic, Shipping, and Receiving Clerk*	♦ *Environmental Engineer* ♦ *Environmental Specialist* ♦ *Health and Safety Representative* ♦ *Safety Coordinator* ♦ *Safety Engineer* ♦ *Safety Team Leader* ♦ *Safety Technician*
Pathways	***Production***	***Manufacturing Production Process Development***	***Maintenance, Installation & Repair***	***Quality Assurance***	***Logistics & Inventory Control***	***Health, Safety and Environmental Assurance***
Cluster K & S	***Cluster Knowledge and Skills*** ♦ *Academic Foundations* ♦ *Communications* ♦ *Problem Solving and Critical Thinking* ♦ *Information Technology Applications* ♦ *Systems* ♦ *Safety, Health and Environment* ♦ *Leadership and Teamwork* ♦ *Ethics and Legal Responsibilities* ♦ *Employability and Career Development* ♦ *Technical Skills*					