

Detailed Core Curriculum Outline for Frontline Workers in Transit

Background

The purpose of developing a Core Curriculum Outline is to provide a resource for agencies, unions and educators that can be used to prepare young people and other community members for apprenticeship and training programs for frontline workers in transit. To understand the focus and audience for this outline as well as supplemental curricular materials that may be used, it is important first to refer to the Transportation, Distribution and Logistics Competence Model that has been developed jointly by the U.S. Department of Labor's Employment and Training Administration and the U.S. Department of Transportation. (<http://www.careeronestop.org/competencymodel/competency-models/transportation.aspx>) The Transportation Learning Center was involved in the development of this model, and has been cited as an "industry champion" for its role in the model's development and implementation.

(http://www.careeronestop.org/competencymodel/Info_documents/TDL-CaseSummary.pdf?utm_source=WU6.19.2014&utm_campaign=WU6.19.2014&utm_medium=email)

The competencies that create the Model's pyramid structure begin, at the base, with Personal Effectiveness Competencies. Academic Competencies populate the next level of the pyramid, followed by Workplace Competencies, Industry-Wide Technical Competencies and Industry-Sector Technical Competencies. All of these levels of the pyramid have been filled in with specific skills areas. The area of the pyramid that has not yet been filled in is the top level, which is split in half, depending on a worker's career trajectory, into Management Competencies and Occupation-Specific Requirements.

The primary materials discussed and attached in this Core Curriculum Outline were developed by the Educational Data Systems, Inc. (EDSI) for the Keystone Development Partnership (KDP,) and reviewed and expanded by trainers and mechanics from partners Southeastern Pennsylvania Transportation Authority (SEPTA) and the Transport Workers Union (TWU) Local 234. The curriculum discussed below is intended for use in the After-School program established at Philadelphia's Mastbaum Career and Technical Education (CTE) High School, with the support of Philadelphia Academies, Inc. This Core Curriculum Outline starts to fill in the area in the Competency Model Pyramid related to Occupation-Specific requirements for individuals who want to become frontline technical workers in transit, particularly in the areas of rail and bus vehicle maintenance. However, as with the entire pyramid, it must be noted that even these specific skills learned it can be used in a range of transportation-related occupations. These materials also further develop and reinforce competencies related to lower levels of the pyramid.

Core Curriculum Outline

Summary

Target Audience: High School Students 10th –12th grade or adults with an interest in future opportunities with SEPTA or other Public Transit organizations

Prerequisites: Mechanical aptitude and ability to pass the Test of Adult Basic Education (TABE) along with an interest in a career in transit maintenance. Other academic requirements to be determined.

Proposed Training Period: 2 class periods per day (45 minute for 2 class periods for 180 school days = 270 available training hours)

Environment: Classroom environment, training lab with bus and parts available for extensive hands-on training

Course Overview: This curriculum is to create opportunities for students to gain extensive training in transit technology and learn the basics of vehicle maintenance. The goal at the end of the course would be for students to have the qualifications to perform in an entry-level maintenance position or enter an apprenticeship for a public transit vehicle mechanic. In addition, the curriculum provides the foundation for many of the skills needed as a mechanic.

Course Content:

- **Basic Skills / Technical Preparation** (30 hours)
 - Industry history and background
 - Shop safety
 - Using math skills in the workplace (Shop Math)
 - Using reading skills in the workplace (technical manuals and glossaries, writing technical documentation)
 - Using basic computer skills
- **Mechanical Readiness** (72 hours)
 - Making measurements with basic gauges and tools
 - Demonstrating mechanical knowledge and reasoning
 - Threaded fasteners
 - Proper use of various hand tools
 - Introduction to power tools
 - Reading blueprints and mechanical drawings
- **General Helper / Basic Bus Maintenance** (120 hours)
 - Introduction to vehicle operation and features
 - Fueling procedures
 - Basic maintenance (fluid, filter changes)
 - Wheel and tire service
 - Battery service
 - Intro to using digital multimeters

- **Intermediate Bus Maintenance (48 hours)**

- How to use a pro-link or laptop to get readings
- Basic electricity
- Inspections – taking readings and measurements, filling out forms
- Chassis/Suspension/Brake familiarization
- Basic pneumatics
- Brake relines

Using the Core Curriculum

Effective implementation of the core curriculum requires a partnership between the educational program provider in collaboration with experienced industry trainers and mechanics. Together these organizations can work to:

- Recruit interested program participants
- Provide rigorous, interactive and experientially-based educational programs
- Ensure access to actual vehicle maintenance equipment at the education and agency facility for hands-on labs
- Establish learning and mentoring relationships with teachers, trainers and workers in the industry
- Create access to opportunities for those completing the program to careers in the industry, starting with training programs and apprenticeships

Depending on the length, format and setting of the actual delivery of the Core Curriculum, the use of the program can be linked to the following activities and initiatives:

- Supplemental materials and exercises, as appropriate, including the use of all or part of the "Transit Bus Exhaust Emissions and Costs" and "Highway Grade Crossing Safety and Costs" interactive modules, as well as the "Public Transportation" syllabus
- Field trips to transportation facilities
- Career Days and Career Conferences with participating transportation employers discussing and offering job opportunities
- Career counseling and placement services in the schools or other education provider, linked to transportations employers
- Paid summer youth programs and internships at transit agencies and other transit employers

Additional Materials

In addition to the Core Curriculum Outline, the Center has developed two new online interactive modules for the West Virginia State Department of Education's Division of Career and Technical Education. These modules, titled "Transit Bus Exhaust Emissions and Costs" (http://www.transittraining.net/careers/pathway_details/transit-bus-exhaust-emissions-and-costs-making-the-right-decision-for-a-sma) and "Highway Grade Crossing Safety and Costs,(" http://www.transittraining.net/careers/pathway_details/highway-grade-crossing-safety-and-costs-making-the-right-decision-for-a-sma) focus on the technical, financial and policy elements as well as analytical and communication skills needed to

make "the right decision for a small city." These modules can be used online or in physical classrooms in a variety of Career and Technical high school programs as well as community colleges and other education settings. These modules can be used to prepare potential young people and others for careers in transportation. As with the Core Curriculum Outline, the competencies developed in these modules connect to competencies noted at all levels of the pyramid, with an emphasis on competencies related to the four middle levels (Academic, Workplace, Industry-Wide and Industry-Sector.)

Finally, we include a link to a college-level Public Transportation syllabus for a course taught by Dr. Jill Hough based on a curriculum developed by Dr. Hough and others through the American Public Transportation Association. The course, which also touches on competencies at several levels of the Competency Model Pyramid, focuses on public transportation issues and models in both urban and rural settings. This syllabus can be accessed at http://www.transittraining.net/careers/pathway_details/public-transportation-syllabus.