Program Information & Skill Alignment Chart for:
Heavy Equipment Operations & Basic Maintenance – CIP Code 49.0202
Brownstown Campus

Form to be submitted to IU 13 with PIF

Program Description	The Heavy Equipment Operations Program is designed to provide students with the theory and hands-on skills relevant to the fundamentals of operation and preventive maintenance of various types of heavy equipment. Specialized classroom and lab experiences are designed to provide instruction in operation and preventive maintenance of mobile machinery used by heavy equipment operators.	
Program Information (costs, certifications, uniform)	Textbooks- (Provided to Students): NCCER Core Curriculum Trainee Guide, Heavy Equipment Operations Level 1 Trainee Guide Uniforms- 2 or more program shirts (available through link on school website), 2 or more Dickies type work pants, Steel toed work boots, required safety vest. Program Opportunities/Certifications OSHA 10 Certification NCCER Level 1 Apprenticeship	
Program Outline & Pathways	State Program of Study Task Outline • Safety in Heavy Equipment • Hand Tools • Introduction for Power Tools • Basic Rigging • Employability Skills • Heavy Equipment Safety • Preventative Maintenance • Major Division 8 Grades • Major Division 9 Dump Trucks • Vibratory Rollers • Skid Steer Loaders • Crawler loaders • Wheel loaders • Dozers • Backhoe loaders • Excavators	Careers Pathways: • Paving, Surfacing, and Tamping Equipment Operation • Operating Engineers and Other Construction Equipment Operators • Highway Maintenance Workers • Agricultural Equipment Operator • Construction Equipment Operator • Highway Maintenance Works • Equipment Operators • Foreman • Engineer Post-Secondary and Continuing Education Options: • Pennsylvania College of Technology • Thaddeus Stevens Civil Engineering Program
Other Information *Include Articulation Agreements*	• Student to teacher ratio is 20:1 SOAR Articulation SOAR is a Pennsylvania Department of Education (PDE) program which enables high school students who successfully complete a PDE approved career and technical program to earn college credits. The number of credits available varies by school, program and from one school year to another. Please discuss these options with your counselor.	

Student Name: _____ District: _____

Skill Alignment Chart for:

Heavy Equipment Operations and Basic Maintenance - CIP Code: 49.0202

Educational and Physical Attributes	Program Expectations	Present Education Level and Current Supports
Program Safety / Physical Considerations	• Ability to work independently and in a team • Good hand-eye coordination • Mechanical aptitude • Ability to be attentive to what is happening around their work area • Ability to work in a variety of work conditions (hot and cold temperatures, noise, wind) • Ability to concentrate with numerous activities occurring at the same time • Positive attitude concerning safety • Ability to lift 50 pounds • Ability to tolerate confined spaces • A fear of heights will make this program and many jobs within this field difficult	
Action/Need:		
Program Environment Indoor/outdoor Dust/dirt/fume/noise etc. Layout of room – theory/lab	• Students in this program will work in the shop and classroom some days and will work outside in a variety of weather other days • Noisy environment with multiple pieces of equipment running and being used simultaneously	
Action/Need:		
Typical level of support	IU13 support teachers and paraeducators check in on classrooms for brief periods of time throughout the day, often once or twice a day. IU13 learning support teachers may support 4-6 programs. IU13 emotional support teachers support their students in all programs throughout the building. Paraeducators may support 7-10 programs. The learning center is available at designated times for testing accommodations, study groups, work completion support, and instructional groups on	

	IEP goal areas. Time spent in the learning center limits time spent in labs, so students must make the most of their brief time in the learning center. Services are at an itinerant level. IU13 teachers and paraeducators are unable to be in every program all day due to the itinerant nature. It is not a co-taught structure.	
Action/Need:		
Reading / ELA Levels: *Examples:* Reading procedures for adjustment of a variety of items on machines	• Textbook is written at a grade 12+ level • The frequent use of service and operator's manuals requires the reading and understanding of technical information	
Action/Need:		
Writing Levels: *Examples* The creation of estimates for customers. Generation of invoices for work completed. Explanation of procedures used to complete a project.	• The ability to communicate in writing what work was completed. • Customer communications are a part of many jobs in this field.	
Action/Need:		
Math Levels: *Examples* A small track loader has a ground pressure of 7.7 psi and an operating weight of 20,908 lbs. If the same track loader increased its operating weight to 22,605 lbs., what would be its ground pressure? A machine is capable of moving 44 tons of material per hour. Working at this rate, how much time will it	• Basic math skills including addition, subtraction, multiplication and division are necessary to find solutions to daily problems. • The calculation of both area and volume are regular tasks. • The use of project blueprints will require the application of slope calculations to the worksite.	

take to move 1568 tons of material to complete a job?		
Action/Need:		
Theory time	• Overall, theory is approximately 25% of the instructional time in this program. • This can vary some days or weeks depending on the information that is being covered, weather, equipment breakdowns etc.	
Action/Need:		
Homework *Amount per night*	• NCCER textbook modules may require some time (two to three hours per week) outside of class to complete	
Action/Need:		
Lab Time *Guided vs Independent Work*	• Demonstrations and guided practice-20% of lab time • Independent practice-50% of lab time, • Observation and critique of the work of other students 30% of lab time	
Action/Need:		
Tests *NOCTI testing – Y/N* *Frequency of tests/quizzes*	• Module tests for NCCER one per week, most weeks • NOCTI Pretest (written only) • NOCTI Posttest (written and hands on) • Equipment Safety test (1 or 2 per week, 1st half of the year)	

Action/Need:		
Behavioral Expectations *Executive Function* *Organizational skills*	• Time management skills to meet deadlines • Continuous effort to maintain safety for everyone • Respectful interactions with students and teacher • Good attendance • Ability to work effectively alone or as part of a team • Attention to detail	
Action/Need:		
Other *Technology skills specific to the program.* *Additional skills that are valuable for program success.*	• Proficient use of school issued laptop. • Learn to access and communicate through email • Learn to access and navigate our online teaching platform, "Canvas"	
Action/Need:		

*District Representative Signature*_____ *Date* _____