MON VALLEY CAREER & TECHNOLOGY CENTER

Construction Tech

CIP 46.9999

PROGRAM OF STUDY

CURRICULUM MAPPING
WITH
CERTIFICATION OUTCOMES

Mon Valley Career & Technology Center prepares all students to attain their fullest potential for employment, to be life long learners, and to be productive and responsible members of an ever-changing society.

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Objective:

This document has been prepared to project student learning outcomes in a linear fashion over the approved 3-year program of study.

Overview:

This document provides a Pennsylvania Department of Education and Mon Valley CTC Occupational Advisory Committee approved list of tasks and learning objectives that are broken out into a linear form for a better understanding of learning outcomes over a three year period within each program. It also serves as curriculum map as students work towards completing knowledge and skill-based tasks in pursuit of industry credentials. The end goal within each program is to work towards completing all tasks at proficient and advanced levels, earning multiple (stackable) industry credentials, and successfully complete the NOCTI exam. Student's progression and completion of task(s) and industry certification(s) may vary.

Navigation:

Unit / Task # - This column indicates the Pennsylvania Department of Education or Mon Valley CTC local unit or task numbers given to each task within a given duty area.

Task Description – This column explains what knowledge-based or skill-based task that a student is working on for completion.

Level / Marking Period – This column indicates the learning level and timeframe at which the specific task(s) will be introduced to the student(s). Note that some tasks may be taught and completed individually while others may be taught in groups. (i.e. 1.1 would signify a first year student being introduced to this task(s) in the first marking period, 2.3 would signify a second year student being introduced to this task(s) in third marking period, etc.)

Industry Certification:

Students successfully progressing through the curriculum and tasks have opportunity to test for industry credentials. Industry credentials are listed on the right side of the document at the appropriate time within the curriculum that a student would be fully prepared to test for that certification.

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Program of Study Mapping with Certification Outcomes

Construction Trades, Other

Classification of Industrial Programs 46.9999

Unit / Task #	Task Description	Level / Marking Period
103	Demonstrate knowledge of working safely with hazardous materials.	1.1
104	Describe and demonstrate the use of personal protective equipment.	1.1
105	Follow rules and regulations for fire protection.	1.1
106	Safely handle and store construction materials.	1.1
111	Demonstrate and follow procedures that protect workers from falling from elevated structures.	1.1
115	Use ladder and scaffolding	1.1
201	Identify and follow all basic safety rules for using hand tools.	1.1
202	Identify and demonstrate the proper use of layout tools.	1.1
203	Identify and demonstrate the proper use cutting tools.	1.1
204	Identify and demonstrate the proper use shaping tools.	1.1
205	Identify and demonstrate the proper use fastening tools.	1.1
206	Identify and demonstrate the proper use dismantling tools.	1.1
301	Operate a circular saw safely and accurately.	1.1
302	Operate battery and electric drills safely and accurately.	1.1
304	Operate reciprocating saws safely and accurately.	1.1
307	Operate a power miter box safely and accurately.	1.1
308	Operate a table saw safely and accurately.	1.1
309	Operate an electric planer.	1.1
310	Operate a grinder.	1.1
502	Square a structure using Pythagorean Theorem or by measuring diagonals.	1.1
701	Describe the most common types of masonry units.	1.1
702	Identify concrete block by size and type.	1.1

Certification Testing:
SP2-Construction

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703	Estimate masonry units needed for block construction.	1.1
704	Demonstrate masonry cutting techniques.	1.1
705	Lay out and construct a block laying project to specifications.	1.1
706	Describe various masonry positions and bonds.	1.1
707	Lay block to a line.	1.1
708	Describe the function of wall ties.	1.1
709	Describe installation of anchor bolts.	1.1
710	Mix mortar to proper proportions and consistency.	1.1
711	Describe different mortar types and applications.	1.1
712	Demonstrate proper brick and block laying techniques.	1.1
713	Install block or brick walls.	1.1
101	Demonstrate knowledge of OSHA and its mission of safety in the work place.	1.2
102	Demonstrate knowledge of hazard communications.	1.2
110	Demonstrate knowledge of "stuck-by" and "caught-in-between" hazards.	1.2
116	Explain and follow safety procedures for working in confined spaces.	1.2
401	Demonstrate the ability to references building codes as needed.	1.2,2.1,3.1
402	Demonstrate a need to know zoning regulations.	1.2,2.1,3.1
403	Read and interpret plans, sketches and blueprints.	1.2,2.1,3.1
404	Recognize and identify basic blueprint terms, components, abbreviations and symbols.	1.2,2.1,3.1
405	Interpret architectural specifications.	1.2,2.1,3.1
406	Use an Architect scale.	1.2,2.1,3.1
407	Identify structural components.	1.2,2.1,3.1
408	Interpret Americans with Disabilities Act (ADA) regulations.	1.2,2.1,3.1
801	Identify different types of framing materials and systems.	1.2
802	Demonstrate how to install girders and sills.	1.2
803	Demonstrate and perform layout of floor joists and openings.	1.2
804	Demonstrate how to install various floor joists and band joists.	1.2
805	Demonstrate how to install various types of bridging.	1.2
806	Demonstrate how to install various types of columns and supports.	1.2

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807	Demonstrate how to install various types of subfloor materials.	1.2
303	Operate belt and hand sanders safely and accurately.	1.3
305	Operate routers safely and accurately.	1.3
901	Describe and demonstrate how to install various components of interior and exterior walls.	1.3
902	Describe and demonstrate how to install various ceiling joists.	1.3
903	Describe and demonstrate how to install various steel framing components.	1.3
904	Identify and estimate different types of framing materials and systems.	1.3
112	Describe and demonstrate safety procedures to follow when working around excavations.	1.4
1001	Describe how to identify various roof types.	1.4
1002	Demonstrate how to install various roof components for gable roofs.	1.4
1003	Install various types of roof trusses.	1.4
1004	Demonstrate how to install various types of roof sheathing materials.	1.4
1006	Calculate, layout and cut roof rafters.	1.4
1101	Demonstrate how to install various types of asphalt shingles.	1.4
1102	Describe and demonstrate how to install various types of underlayment materials.	1.4
1103	Describe and demonstrate how to install various types of flashing.	1.4
1104	Estimate various roof covering materials.	1.4
1401	Use and maintain basic plumbing tools.	1.4
1403	Identify and estimate different types of pipes and fittings.	1.4
1405	Install various types of pipes, fittings, valves and devices.	1.4
1406	Install faucets and drain assemblies.	1.4
1409	Install water supply systems.	1.4
1410	Install drain, waste and vent systems.	1.4
1411	Install fixtures and equipment.	1.4
1412	Troubleshoot and repair common plumbing problems.	1.4
114	Describe and follow safety rules for working with concrete and masonry construction.	2.1
306	Operate a pneumatic nailer safely and accurately.	2.1
311	Operate powder-actuated tools.	2.1

Certification Testing:
OSHA

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Program of Study Mapping with Certification Outcomes

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501	Use a builder's level, transit and/or laser level to determine site and building elevations.	2.1
601	Use modern concrete materials.	2.1
602	Determine appropriate concrete finishing processes and equipment.	2.1
603	Estimate the amount of concrete needed for footers and slabs.	2.1
604	Lay out and build concrete forms.	2.1
605	Use equipment and tools for concrete.	2.1
606	Prep and place concrete.	2.1
607	Perform basic concrete finishing processes.	2.1
608	Use tools to edge, groove, and cut concrete.	2.1
109	Follow electrical safety procedures.	2.2
1301	Install various types of horizontal sidings.	2.2
1302	Install various types of vertical sidings.	2.2
1304	Identify and estimate different types of exterior finish materials.	2.2
1305	Install various types of windows.	2.2
1306	Install various types of exterior doors.	2.2
1307	Install various types of soffit and fascia.	2.2
1308	Install house wrap.	2.2
1501	Identify electrical hazards and practice electrical safety.	2.2
1502	Apply the National Electric Code (NEC) to common residential installations.	2.2
1503	Interpret electrical drawings.	2.2
1504	Apply electrical theory.	2.2
1505	Construct electrical circuits.	2.2
1506	Use various wire types and sizes.	2.2
1507	Use electrical tools.	2.2
1508	Install ground fault circuit interrupters.	2.2
1509	Install arc fault circuit interrupters.	2.2
1510	Install over current protection devices.	2.2
1511	Install various electrical boxes.	2.2
1513	Install various light fixtures.	2.2

Certification Test:
Forklift Operator

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1514	Install various receptacle circuits.	2.2
1515	Install various switch circuits.	2.2
1516	Install a 220-volt circuit.	2.2
1518	Trim out and finish electrical circuits.	2.2
1519	Identify service entrance installation.	2.2
1520	Install low voltage electrical circuits.	2.2
1521	Install electrical panel installation.	2.2
1201	Install various types of insulation and ventilation.	2.3
1202	Identify and estimate different types of insulation and ventilation materials.	2.3
1601	Install various wall surfaces (including drywall).	2.3
1602	Install various interior moldings.	2.3
1603	Identify and estimate various materials for wall surfaces.	2.3
1604	Identify and estimate various types of interior moldings.	2.3
1701	Identify and estimate different types of paints, stains and their uses.	3.1
1702	Apply different paints and stains to different surfaces.	3.1
1703	Clean painting tools.	3.1
1705	Apply various types of caulking.	3.1
1706	Install ceramic tile.	3.1
1801	Identify and estimate different types of stairways and components.	3.1
1802	Calculate, layout and cut stair stringers.	3.2
1803	Install stairways and components.	3.2
MVCTC	Task Remediation / NOCTI Test Prep	3.3 - 3.4

Certification Testing:
NCCER Construction