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STATEWIDE ARTICULATION AGREEMENT

For the coordination of curricula between Maine's Career and Technical Education (CTE) Centers/Regions and the Colleges of the Maine Community College System

Statewide Articulation defined

Statewide Articulation is a systematically planned process linking a secondary Career and Technical Education school program to a postsecondary Career and Technical Education system program. Unlike the Articulation Agreement which can be institution to institution, the Maine Statewide Articulation Agreement is from secondary Career and Technical Education schools to postsecondary Career and Technical Education system which offer like career and technical programs. The postsecondary articulation will cross all community colleges which offer the like Career and Technical Education program. The secondary programs will have to meet the requirements of the community colleges system wide articulation to qualify. Maine State-wide Articulation Agreements between secondary career and technical programs and postsecondary institutions must allow students to earn a minimum of 3 college credits.

All secondary and postsecondary eligible recipients that offer the program chosen for State-wide articulation must participate.

Program Objectives

- To encourage Career and Technical Education students to pursue a postsecondary education.
- To reduce repetition of mastered competencies between secondary Career and Technical Education and community college.
- To provide a smooth transition from secondary Career and Technical Education to community college education.
- To reduce student and State costs.

- Allow secondary Career and Technical Education students in any part of the State of Maine to smoothly transition to postsecondary education within the State Community College system.

Role of the Institutions

The secondary Career and Technical Education schools and community college campuses are jointly responsible for developing and executing Maine State-wide Articulation Agreements. Secondary and postsecondary faculty should collaborate to identify competencies a student will need to successfully transition into the professional/technical program(s) being articulated. As the needs of students and the demands of business and industry change, this agreement will be reevaluated and updated every three (3) years.

Secondary and college faculties will identify competencies to be examined for the courses to be articulated. They will jointly develop a Maine State-wide Articulation Agreement listing the student requirements needed to achieve the articulated credits.

The Career and Technical Education centers/regions and community colleges will develop methods of publicizing the Maine Statewide Articulation Agreements to encourage students to take advantage of seamless transitions and advanced placement opportunities. To benefit from Statewide articulation, all community college admissions requirements must be met by the student.

The State requires that a contact/position be identified by the individual postsecondary community colleges and the individual secondary CTE schools to be responsible for the facilitation, record keeping, and reporting on Articulation, Maine State-wide Articulation and Program of Study Agreements.

Earning College Credit

College credits become available when the student satisfactorily completes the secondary CTE program and then requests the community college credit, once s/he is enrolled and has satisfied the community college requirements to complete the articulation. The college credit program is governed by a formal, written agreement that identifies courses or sequence of courses at a career and technical center upon which successful completion assures the community college that the student has the necessary background, instruction and preparation to progress to the next level of instruction at the community college. These college credits are applied to a degree, but do not carry quality points. They are listed on a transcript as "P" for passed.

Time Consideration

Secondary CTE students are encouraged to begin their continued program at their chosen Maine Community College the fall semester immediately following graduation from high school. To take advantage of the articulation credits offered through the State-wide Articulation Agreement students must enroll in the MCCS college no later than two fall semesters immediately following graduation from high school.

Statewide Articulation Agreement

1. Secondary institution name:
All Secondary CTE schools with Electrical programs
2. Postsecondary institution name:
All Maine Community Colleges with Electrical Technology programs
3. Secondary course of study: Two-year Electrical programs
4. Postsecondary course of study: Electrical Technology
5. Secondary course(s) to be used for articulation:
Successful completion of a CTE Two-Year Electrical Program with an overall grade of 85 or better.
6. Postsecondary course(s) to be waived because of articulation:
As each Electrical Technology program of the MCCS serves the specific needs of their region, each Electrical Technology program offers a different course structure. The secondary CTE students qualifying for this articulation will receive the following 3 to 6 credit course based on the college they choose to attend.

The following credit courses at MCCS institutions are considered for this articulation.

CMCC – ELT123 Electrical Controls I (3 credits)

EMCC – ELC151 Electrical Controls I (3 credits)

KVCC – ETL121 Electrical Wiring Practices I (5 credits)

NMCC – ELE112 Basic Residential Wiring (3 credits)

SMCC – ELEC160 Controls I (3 credits) OR ELEC175 Wiring Practices (3 credits)

WCCC – REY 120 Residential & Commercial Electricity I (6 credits)

7. What are the minimum and maximum number of credits a student may articulate from the postsecondary institution?

The number of credits awarded on successful completion of this Statewide Articulation agreement is three (3) at CMCC, EMCC, NMCC and SMCC, five (5) at KVCC and six (6) at WCCC.

8. How will the student demonstrate meeting the competencies?

Secondary CTE students must:

Successfully complete their CTE Two-Year Electrical Program with an overall grade of 85 or better or successfully complete their CTE Two-Year Electrical program by demonstrating mastery in a performance-based system by completing all the program requirements and third party assessments with an overall proficient (3.5) or advanced score (4.0), equivalent to 85 or better. Students who

complete all the secondary program requirements by either pathway listed above will be eligible for the articulation credits at the participating post-secondary institutions.

Learning Outcomes:

- identify and use common electrical trade terms as they apply to residential electrical areas.
- demonstrate a working knowledge of electrical wiring techniques as they relate to the residential field.
- demonstrate a working knowledge of the *National Electrical Code*® as it relates to residential wiring practices.
- demonstrate an understanding of the purpose of the *National Electrical Code*®.
- demonstrate an understanding of the arrangement of the *National Electrical Code*®.
- demonstrate an understanding of the shock hazard associated with electrical work.
- cite examples of rules from the *National Electrical Code*® pertaining to common residential electrical safety hazards.
- identify common electrical hazards and how to avoid them on the job.
- demonstrate an understanding of the purpose of OSHA.
- cite specific OSHA provisions pertaining to various general and electrical safety hazards associated with residential wiring.
- demonstrate an understanding of the personal protective equipment used by residential electricians.
- list several safety practices pertaining to general and electrical safety.
- demonstrate an understanding of material safety data sheets.
- demonstrate an understanding of various classes of fires and the types of extinguishers used on them.
- list several nationally recognized testing laboratories and demonstrate an understanding of the purpose of these labs.
- identify common box and enclosure types used in residential wiring.
- identify common conductor and cable types used in residential wiring.
- identify types of cable connectors, conductor terminals, and lugs.
- identify common raceway types used in residential wiring.
- identify common devices used in residential wiring.
- identify common box covers and plates used in residential wiring.
- identify common types of fuses and circuit breakers used in residential wiring.
- describe the operation of a fuse and a circuit breaker.
- identify common panel boards, load centers, and safety switches used in residential wiring.
- identify common types of fasteners, fittings, and supports used in residential wiring.

- identify common electrical hand tools and their uses in the residential electrical trade.
- identify common specialty tools and their uses in the residential electrical trade.
- identify common power tools and their uses in the residential electrical trade.
- list several guidelines for the care and safe use of electrical hand tools, specialty tools, and power tools.
- demonstrate an understanding of the procedures for using several common hand tools, specialty tools, and power tools.
- demonstrate an understanding of continuity testers and how to properly use them.
- demonstrate an understanding of the differences between a voltage tester and a voltmeter.
- connect and properly use a voltage tester and a voltmeter.
- demonstrate an understanding of the differences between an in-line ammeter and a clamp-on ammeter.
- connect and properly use a clamp-on ammeter.
- demonstrate an understanding of ohmmeters and megohmmeters.
- demonstrate an understanding of how to use a multimeter.
- demonstrate an understanding of the uses for a true RMS meter.
- demonstrate an understanding of how to read a kilowatt-hour meter.
- demonstrate an understanding of safe practices to follow when using test and measurement instruments.
- demonstrate an understanding of the proper care and maintenance of test and measurement instruments.
- demonstrate an understanding of residential building plans.
- identify common architectural symbols found on residential building plans.
- demonstrate an understanding of residential building plan specifications.
- demonstrate an understanding of basic residential framing methods and components.
- discuss the selection of appropriate wiring methods, conductor types, and electrical boxes for a residential electrical system rough-in.
- demonstrate an understanding of general requirements for wiring as they apply to residential rough-in wiring.
- demonstrate an understanding of general requirements for conductors as they apply to residential rough-in wiring.
- demonstrate an understanding of general requirements for electrical box installations as they apply to residential rough-in wiring.
- list several general requirements that pertain to wiring methods, conductors, and electrical boxes installed during the rough-in stage of a residential wiring system.
- select an appropriate electrical box type for a residential application.
- size electrical boxes according to the NEC.
- demonstrate an understanding of the installation of metal and nonmetallic electrical device boxes in residential wiring situations.
- demonstrate an understanding of the installation of lighting outlet and junction boxes in residential wiring situations.

- demonstrate an understanding of the installation of electrical boxes in existing walls and ceilings.
- select an appropriate cable type for a residential application.
- state several NEC requirements for the installation of the common cable types used in residential wiring.
- demonstrate an understanding of the proper techniques for preparing, starting and supporting a cable run in a residential wiring application.
- demonstrate an understanding of the proper installation techniques for securing the cable to an electrical box and preparing the cable for termination in the box.
- demonstrate an understanding of the common installation techniques for installing cable in existing walls and ceilings.
- select an appropriate switch type for a specific residential switching situation.
- select a switch with the proper rating for a specific switching application.
- list several National Electrical Code (NEC) requirements that apply to switches.
- demonstrate an understanding of the proper installation techniques for single-pole, three-way, and four-way switches.
- demonstrate an understanding of the proper installation techniques for switched duplex receptacles, combination switches, and double pole switches.
- demonstrate an understanding of the proper installation techniques for installing dimmer switches and ceiling-suspended paddle fan/light switches.
- demonstrate an understanding of the proper way to splice wires together using a wire nut.
- demonstrate an understanding of the proper way to terminate circuit conductors to a switch or receptacle device.
- select the proper receptacle for a specific residential application.
- demonstrate an understanding of the proper installation techniques for receptacles.
- select the proper switch type for a specific residential application.
- demonstrate an understanding of the proper installation techniques for switches.
- demonstrate an understanding of GFCI receptacle installation.
- demonstrate an understanding of TVSS devices.
- demonstrate an understanding of lighting basics.
- demonstrate an understanding of common lamp and lighting fixture terminology.
- demonstrate an understanding of the different lamp types used in residential applications.
- select a lighting fixture for a specific residential living area.
- demonstrate an understanding of the installation of common residential lighting fixtures.
- demonstrate an understanding of an overhead and an underground residential service entrance.
- demonstrate an understanding of how to establish temporary and permanent power with an electric utility company.
- define common residential service entrance terms.
- demonstrate an understanding of National Electrical Code (NEC) requirements for residential service entrances.

- demonstrate an understanding of grounding and bonding requirements for residential service entrances
- list several NEC requirements that pertain to residential service entrances.
- demonstrate an understanding of common electric utility company requirements.
- determine the minimum number and type of branch circuits required for a residential wiring system.
- demonstrate an understanding of the basic NEC requirements for calculating branch-circuit sizing and loading.
- calculate the minimum conductor size for a residential service entrance.
- determine the proper size of the service entrance main disconnecting means.
- determine the proper size for a panel board used to distribute the power in a residential wiring system.
- calculate the minimum-size feeder conductors delivering power to a subpanel.
- demonstrate an understanding of the steps required to calculate a residential service entrance using the standard or optional method as outline in Article 220 of the NEC.
- identify common overhead service entrance equipment and materials.
- identify common underground service entrance equipment and materials.
- demonstrate an understanding of common installation techniques for overhead services.
- demonstrate an understanding of common installation techniques for underground services.
- demonstrate an understanding of panel board installation techniques.
- demonstrate an understanding of subpanel installation techniques.
- demonstrate an understanding of existing service entrance upgrade techniques.
- select the proper over current protection device for a specific residential branch circuit.
- demonstrate an understanding of common fuses and circuit breakers used in residential wiring.
- demonstrate an understanding of installing circuit breakers or fuses in a panel.
- demonstrate an understanding of the common techniques for trimming out a residential panel.
- demonstrate an understanding of the installation of general lighting branch circuits.
- demonstrate an understanding of the installation of small appliance branch circuits.
- demonstrate an understanding of the installation of electric range branch circuits.
- demonstrate an understanding of the installation of countertop cook unit and wall-mounted oven branch circuits.
- demonstrate an understanding of the installation of a garbage disposal branch circuit.
- demonstrate an understanding of the installation of a dishwasher branch circuit.
- demonstrate an understanding of the installation of the laundry branch circuit.
- demonstrate an understanding of the installation of an electric clothes dryer branch circuit.

- demonstrate an understanding of the installation of branch circuits in a bathroom.
- demonstrate an understanding of the installation of a water pump branch circuit
- demonstrate an understanding of the installation of an electric water heater branch circuit.
- demonstrate an understanding of the installation of branch circuits for heating and air conditioning.
- demonstrate an understanding of the installation of branch circuits for electric heating.
- demonstrate an understanding of the installation of a branch circuit for smoke detectors.
- demonstrate an understanding of the installation of a low-voltage chime circuit.

9. How will the secondary instructor document the student as meeting the competencies?

Each CTE Center must validate student completion. A student passing is defined as achieving an overall grade of 85 or better constitutes successful completion.

10. What are the education, training, and/or experience requirements for the secondary instructor?

To be eligible for these credits the secondary program completed must be aligned with NCCER or NAHBI and following the NEC and Maine Electrical Journeymen's sequence hours training. The CTE Electrical Instructor must be a Maine certified instructor (820 endorsement), hold a valid State of Maine Master Electrician or Limited House Wiring license, and have at least 3 years experience in residential electrical construction.

11. What college entrance requirements must be met by the student?

1. Student must meet all criteria for admission to the MCCS institution's Electrical Technology program at the college of their choice; and
2. Be formally admitted into an MCCS Institution's Electrical Technology program to receive credit for the course listed above as part of the Statewide Articulation Agreement between the MCCS institutions and the MDOE CTE Centers.
3. Enroll in their chosen MCCS institution no later than two fall semesters after graduation from high school.

The Maine Community College System, upon the recommendation of the Academic Affairs Council (AAC) and Presidents Council, authorizes the establishment of this Maine Statewide Articulation Agreement as defined above through the collaborative work of the AAC and representatives of the Maine Department of Education/Career and Technical Education to provide secondary CTE Electrical Technology students a seamless transition from high school instruction to Community College instruction under the guideline of the current Carl D. Perking grant. It is understood that in order to receive Perkins funding the MCCS colleges which offer an Electrical Technology program must participate and adhere to this Maine Statewide Articulation Agreement. This agreement will be reviewed periodically but no less frequently than three year intervals to review its effectiveness and to adjust as necessary to reflect appropriate enhancements and curriculum changes. The first required review with signatory endorsements will occur before August 15, 2018.

 6/15/15
Maine Community College System President / Date

 6-22-15
Maine Community College System Chief Academic Officer / Date

We, the secondary Career and Technical Education (CTE) Center/Region, agree to enter into this Maine Statewide Articulation Agreement and to abide by the conditions set forth within in order to provide our secondary CTE Electrical Technology students a seamless transition from high school instruction to Community College instruction. It is understood that in order to receive Perkins funding all schools which offer an Electrical Technology program must participate and adhere to this Maine Statewide Articulation Agreement.

Career and Technical Education Center Director / Date

District Superintendent of Schools / Date