

Maine Department of Education
Career and Technical Education
23 State House Station
Augusta, ME 04333-0023
(207) 624-6730
<http://www.maine.gov/doe/cte/>

Maine Community College System
323 State Street
Augusta, ME 04330
(207) 629-4000
www.mccs.me.edu

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

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

CMCC – PMT 101 (3 credits)

KVCC –PMT 101 (3 credits)

NMCC – MTT 106 (4 credits)

SMCC – MACH 105 (4 credits)

YCCC – PMT 110 (4 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 and KVCC and four (4) at NMCC, SMCC and YCCC.
8. How will the student demonstrate meeting the competencies?
Secondary CTE students must:
Successfully complete their CTE Two-Year Precision Machining Technology Program with an overall grade of 85 or better or successfully complete their CTE Two-Year Precision Machining Technology 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:

NIMS 1 Standards:

- Measurement, Materials & Safety
- Job Planning, Benchwork & Layout
- Manual Milling Skills I
- Turning Operations: Turning Between Centers
- Turning Operations: Turning Chucking Skills
- Grinding Skills I
- Drill Press Skills I
- CNC Turning: Programming Setup & Operations
- CNC Milling: Programming Setup & Operations
- CNC Turning: Operations
- CNC Milling: Operations

Course Objectives:

Lecture:

Upon successful completion of this course the student will be able to:

- Observe and practice safe working habits.
- Learn the design and construction of machines.
- Understand metal cutting machines and basic operations and tool grinding.
- Demonstrate proper machining techniques.
- Read most common measuring instruments and applying proper techniques.
- Understand the value of good human relations with fellow workers.

Lab Objectives:

- Upon successful completion of this course the student will be able to:
- Practice safe work habits.
- Grind and select correct cutting tools with the proper geometry to perform various tasks.
- Set up various lathes mills, drill press and surface grinders to perform assigned task.
- Select correct cutting fluids.
- Use proper techniques to setup and operate various metal cutting machines.
- Read and use proper measuring tools.
- Calculate proper speeds and feeds.
- Select and cut stock to proper size.

9. How will the secondary instructor document the student as meeting the competencies?
Each CTE Center must validate student completion by completing the attached Competency Checklist. In addition, a student 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 articulation credits the secondary program completed must be aligned with NIMS. The CTE Precision Machining Instructor must be a Maine certified instructor (820 endorsement) and have at least 3 years of experience in precision machining.

11. What college entrance requirements must be met by the student?
 - a) Student must meet all criteria for admission to the MCCS institution's Precision Machining Technology program at the college of their choice; and
 - b) Be formally admitted into an MCCS Institution's Precision Machining 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.
 - c) Enroll in their chosen MCCS institution no later than two fall semesters after graduation from high school.

Precision Machining Level I Competencies

SKILL
Follows general workplace safety procedures.
Uses ergonomically correct work methods.
Follows emergency safety procedures.
Maintains safe work area.
Identifies hazardous and potentially hazardous conditions.
Uses protective clothing.
Uses vision and hearing protection when needed or when necessary
Uses proper lifting techniques.
Uses machine safety guards.
Follows all machine and work center safety procedures.
Uses OD micrometers to an accuracy of +/- .001"
Uses ID micrometers to an accuracy of +/- .001"
Uses ID/OD vernier calipers to an accuracy of +/- .001"
Uses dial indicators to the maximum accuracy of the instrument.
Uses various comparison measuring instruments such e.g. scales, gauges etc.
Uses vernier height gauges to an accuracy of +/- .001"
Cares for and uses gauge blocks appropriately and in accordance with manufacturer recommendations.
Uses thread wires, triangles, or micrometer.
Uses offset edge finder.
Maintain and stores precision measuring equipment in accordance with manufacturer recommendations.
Uses Digital Readout (DRO) according to manufacturer specifications.
Identifies lathe nomenclature and functions.
Calculates proper speeds and feeds.
<i>Uses three-and four-jaw chucks.</i>

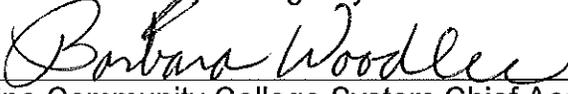
SKILL
Uses draw collets.
Uses dead centers, and live centers.
Uses face plates.
Identifies and performs specified geometry on single-point cutting tools.
Bores holes to an accuracy of +/- .001" with a lathe.
Turns diameters to an accuracy of +/- .001" with a lathe.
Drills holes to specifications and finishes with a lathe.
Faces workpiece so that surface is smooth, true, and square, in accordance with specifications.
Produces smooth, reamed holes to specifications.
Performs single-point threading, internal, external, right-hand, and left-hand in accordance with specifications and fits.
Performs knurling to produce a uniform knurl.
Turns taper with compound slide, offset tailstock, and taper attachment
Performs eccentric boring and turning to specifications.
Set up, align, and use parting tools.
Set up, align, and use steady rests.
Set up, align, and use follower rests.
Identifies nomenclature and function of milling machines vertical and horizontal.
Trams the head on a vertical milling machine.
Selects work-holding devices.
Calculates proper speeds and feeds.
Accurately aligns vise with table or saddle axis and secures workpiece ensuring maximum possible contact area.
Set up and align dividing head performing simple indexing to specifications.
Set and align rotary tables to required specifications.
Identifies climb milling vs. conventional milling.
Compensates for backlash whenever appropriate.
Set up, align, and perform face-milling to an accuracy of +/- .001"

SKILL
Set up, align and use end mills, drills, center drills, countersinks, counterbores, taps, reamers, offset boring head, to workpiece specifications and appropriate speeds and feeds.
Select the proper cutter for the job.
Set up, align, and perform slab-milling.
Set up, align, and perform slot-milling
Set up, align, and perform angle-milling.

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 Precision Machining Technology students a seamless transition from high school instruction to Community College instruction under the guideline of the current Carl D. Perkins grant. It is understood that in order to receive Perkins funding the MCCS colleges which offer a Precision Machining 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 Precision Machining 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 a Precision Machining Technology program must participate and adhere to this Maine Statewide Articulation Agreement.

Career and Technical Education Center Director / Date

District Superintendent of Schools / Date