MASSACHUSETTS
STATE ARTICULATION AGREEMENT

BETWEEN

MASSACHUSETTS COMMUNITY COLLEGES
AND
MASSACHUSETTS CHAPTER 74 APPROVED SECONDARY CAREER/VOCATIONAL TECHNICAL PROGRAMS

DRAFTING

Effective Date: December 2, 2010

MASSACHUSETTS STATE ARTICULATION AGREEMENT

From:	***To:***
A Chapter 74 Approved Secondary Career/Vocational Technical Program	***Community College Course(s)***

In this Program:	**One or more of the following course(s) or equivalent:**
Drafting	Introduction to Drafting (e.g. Architectural, Mechanical) Introduction to Computer Aided Drafting (CAD)

In accordance with the definition of an articulation agreement found in the Carl D. Perkins Career and Technical Education Improvement Act of 2006, this state level articulation agreement has been established between all Massachusetts Community Colleges and all Massachusetts high schools having Chapter 74 approved secondary career/vocational technical programs in *Drafting* to provide students with a non-duplicative sequence of progressive achievement leading to technical skill proficiency, a credential, a certificate, or a degree linked through this credit transfer agreement

The principles, policies, and guidelines in this transfer agreement shall apply uniformly to all students attempting to transfer credits earned in Massachusetts secondary CVTE programs.

SECTION I: ADMISSION CRITERIA AND PROCEDURES APPLY

1) Students eligible for credit are subject to the same application and admission requirements as all other students. The graduation requirements will be no different from the graduation requirements for all other students.

2) The minimum high school grade point average (GPA) of 2.0 plus an average grade of B (3.0/80% or higher) earned in the technical course/s that comprise the Massachusetts Chapter 74 approved Secondary Career/Vocational Technical program listed above.

3) Massachusetts students who have completed the Chapter 74 approved secondary career/vocational technical program covered by this agreement shall provide evidence (transcript) that he/she earned a 3.0 GPA/80% or higher in the technical courses that will be awarded advanced credit at all 15 Massachusetts Community Colleges.

SECTION II: AWARDING OF CREDIT

1) Articulated credits accepted by a community college pursuant to this agreement shall be placed on the student's college transcript prior to the end of the first semester. When possible the posting will be within 60 days of receiving the student's high school transcript but no later than 30 days after the semester add-drop deadline.

2) The credit *shall not* be held in escrow or be dependent upon the results of the college placement test results, required prerequisites, etc.

3) Student will receive credit regardless of their college major.

4) The student will be awarded up to 4 credits or the number of credits (3–4 credits) that will allow the student to move to the next class level without penalty. The intent of this section is to award the student the appropriate number of credits so that he/she will be in sync with the native student who attends the community college and who has completed the introductory class.

SECTION III: SECONDARY SCHOOL ELIGIBILITY FOR ADVANCED CREDIT

The 15 Massachusetts Community Colleges will honor this agreement for two years after the student's date of high school graduation. In cases where a student's graduation exceeds 2 years, the community college will determine eligibility on a case by case basis.

This agreement is contingent upon a high school with Chapter 74 approved programs maintaining:

1) Current accreditation by the New England Association of Schools and Colleges; and

2) Current approval by the Massachusetts Department of Elementary and Secondary Education pursuant to Massachusetts General Law Chapter 74 and the Vocational Technical Education Regulations.

SECTION IV: APPEAL PROCESS

Matriculated students have the right to petition the college responsible for certifying credit (e.g. college transfer coordinator, academic dean or other person/s) if credit is not awarded under this agreement. Students may appeal or grieve denial of credit with any community college by referring to the grievance process in that college student handbook. If a student prevails on appeal the college must place the credit on the student's college transcript prior to the end of the first semester – within 60 days of receiving the student's high school transcript but no later than 30 days after the add-drop deadline.

SECTION V: GENERAL CONDITIONS OF THIS AGREEMENT

1) Students receiving articulated credits are strongly advised to review all enrollment, transfer and graduation requirements for four-year post-secondary schools prior to making plans to apply to any Massachusetts Community College.

2) The transferability of the associate degree credit to a baccalaureate program is determined by each four year institution and cannot be guaranteed.

3) This agreement is endorsed by the Executive Office of Community Colleges on behalf of Massachusetts Community College Presidents' and the Massachusetts Association of Vocational Administrators.

4) This agreement will be reviewed when a substantive change in the framework occurs by the framework's review committee.

SECTION VI: FAIR NOTICE OF MATERIAL MODIFICATION

1) A fair notice period of 24 months by a community college will provide confidence to students and parents that the agreement will be in effect when the student graduates from high school. It is intended that this section not be combined with any other section for the purpose of extending the warning period to be more than 24 months.

SECTION VII: COLLEGES ARE ENCOURAGED TO DEVELOP ARTICULATION

1) Individual colleges are encouraged to continue the practice of developing individual articulation agreements in a variety of classes/programs.

2) Colleges are encouraged to consider adopting this agreement to apply to secondary non-chapter 74 programs where appropriate.

3) The community colleges continue to have the discretion to award advanced credit in cases not specifically covered by this agreement. This agreement may apply to students in secondary non-chapter 74 approved programs or in cases where a word or course title or program title may vary from this agreement, etc.

4) Program or class title changes alone will not impact this agreement because the agreement is based upon student achievement of knowledge and skills in this area as outlined in the Massachusetts frameworks.

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DRAFTING

Effective Date: December 2, 2010

Paul Raverta
President, Berkshire Community College and
Chair, Massachusetts Community Colleges Council of Presidents

David J. Ferreira
Executive Director
Massachusetts Association of Vocational Administrators

Massachusetts Community Colleges

Berkshire Community College
Bristol Community College
Bunker Hill Community College
Cape Cod Community College
Greenfield Community College
Holyoke Community College
Mass Bay Community College
Massasoit Community College
Middlesex Community College
Mt. Wachusett Community College
North Shore Community College
Northern Essex Community College
Quinsigamond Community College
Roxbury Community College
Springfield Tech Community College

Massachusetts Chapter 74 Approved Secondary Career/Vocational Technical Programs (Drafting)

Assabet Valley Regional Vocational Technical
Blackstone Valley Regional Vocational Technical
Blue Hills Regional Vocational Technical
Bristol-Plymouth Regional Vocational Technical
Chicopee Comprehensive High School
Dighton-Rehoboth High School
Doherty High School
Greater Fall River Regional Vocational Technical
Greater Lowell Regional Vocational Technical
Greater New Bedford Regional Vocational Technical
Leominster High School
Minuteman Regional Vocational Technical
Montachusett Regional Vocational Technical
Newton High School
Northeast Metropolitan Regional Vocational Technical
Northern Berkshire Regional Vocational Technical
Old Colony Regional Vocational Technical
Pathfinder Regional Vocational Technical
Plymouth High School
Shawsheen Valley Regional Vocational Technical
Somerville High School
Southeastern Regional Vocational Technical
South Shore Regional Vocational Technical
Southern Worcester County Regional Vocational Technical
Tantasqua High School
Weymouth High School
Whittier Regional Vocational Technical
Worcester High School

Basic Drafting Course Objective Comparisions

POST SECONDARY PROGRAM OBJECTIVES	CHAPTER 74 DRAFTING FRAMEWORKS	
Manage files using both CAD and utilities and Windows	2.L.05	Minimize file size using compression and/or purge functions.
	2.O.09	Save, use, and modify template.
	Strand 6	Technical Knowledge & Skills
Controlling Screen Display	2.0.01	Control coordinates and display scale.
	2.0.02	Use view commands (dynamic rotation, zooming, panning).
	2.0.03	Use display commands for clarity.
Drawing & Modifying Commands	2.M.01	Construct geometric figures
	2.M.06	Create non-analytic entities.
	2.M.07	Create feature based geometry (holes, slots, rounds).
	2.N.01	Utilize geometry editing commands (trimming, extending, scaling).
	2.N.04	Create offset surfaces.
	2.N.05	Create joined, filleted, and/or blended surfaces.
Plotting Drawings	2.O.06	Plot drawings on media using correct layout and scale
Modifying Objects	2.P.01	Use query commands to interrogate database (entity characteristics, distance, area, status).
Obtaining Drawing Information	2.M.04	Use and control accuracy enhancement tools (snap, grid, etc).
	2.N.03	Change entity properties (color, line type).
	2.P.01	Use query commands to interrogate database (entity characteristics, distance, area, status).
Layers	2.L.01	Set up layers/levels
	2.L.02	Load proper line types and fonts
	2.L.05	Save, use, and modify template
	2.O.07	Use layering techniques
Linetypes and Lineweight	2.G.05	Identify the alphabet of lines
Text	2.L.02	Load proper line types and fonts.
	2.L.03	Create text styles.
	2.M.02	Apply appropriate text style and size to annotate drawings.
	2.N.02	Utilize non-geometric editing commands (text, drawing format).
Dimensioning (Inch and Metric)	2.K.01	Use correct dimension line terminators.
	2.K.02	Dimension objects that use lines, arcs, angles, circles.
	2.K.03	Dimension features from a center line.
	2.K.04	Demonstrate the use of size and location dimension practices.
	2.K.05	Demonstrate the use of dimensioning styles (Cartesian and polar coordinates, ordinate, leader, base-line/datum, chain).
	2.K.06	Identify appropriate standard symbols.
	2.K.07	Apply aligned and unidirectional methods.
	2.K.08	Apply general notes to a drawing.
	2.K.09	Demonstrate the use of a tabular system.
	2.L.04	Set up dimension styles.
	2.M.03	Dimension with appropriate style and size.
Create Orthographic Projections	2.I.01	Identify, create, and place appropriate orthographic views.
Create an Auxiliary View	2.I.02	Identify, create, and place appropriate auxiliary views.
Create Sectional Views	2.I.03	Identify, create, and place appropriate section views.
	2.O.10	Create cut sections for plane-line, full view, and apply hatching where necessary.
Pictorial Drawings	2.J.01	Identify axonometric (isometric, diametric, trimetric), and oblique projections.
	2.J.02	Identify 1, 2, and 3-point perspectives.
	2.J.03	Create isometric drawings.
	2.J.04	Create oblique drawings (e.g., cabinet, cavalier).
	2.J.05	Create 1-point and 2-point perspectives.
Working Drawings	2.S.01	Draw detail drawings (machined parts, castings, forging, etc).
	2.S.02	Develop detail layout and/or assembly drawings.
	2.S.03	Identify assembly drawing terminology.
	2.S.04	Call off specifications using resources (standard/purchased items, machinery's handbooks, ASTM and ANSI standards, etc).
	2.S.05	Apply dimensions using the rules for mechanical drawings.
	2.S.06	Apply dual dimensioning for product and/or manufacturing drafting needs.
	2.S.07	Identify and use appropriate standard symbols.
	2.S.08	Construct and label 2-D exploded assembly drawings.
	2.W.01	Identify sheet metal terminology and gages.
	2.W.02	Develop basic shapes (e.g., prism, cylinder, cones, multi-piece elbow, rectangular to round transition).
	2.W.03	Develop a flat pattern.
	2.X.01	Identify welding processes.
	2.X.02	Identify various types of welded joints applicable to the design process.
	2.X.03	Identify and apply welding symbols to drawing.

Basic Drafting Course Objective Comparisions

POST SECONDARY PROGRAM OBJECTIVES	CHAPTER 74 DRAFTING FRAMEWORKS	
Create Assembly Drawings	2.S.01	Draw detail drawings (machined parts, castings, forging, etc).
	2.S.02	Develop detail layout and/or assembly drawings.
	2.S.03	Identify assembly drawing terminology.
	2.S.04	Call off specifications using resources (standard/purchased items, machinery's handbooks, ASTM and ANSI standards, etc).
	2.S.06	Apply dual dimensioning for product and/or manufacturing drafting needs.
	2.S.07	Identify and use appropriate standard symbols.
	2.S.08	Construct and label 2-D exploded assembly drawings.
Introduction to Blocks	2.M.05	Identify, create, store, and use appropriate. symbols/libraries/blocks/attributes.
	2.O.05	Use standard parts and/or symbol libraries.
	2.O.08	Use grouping, filtering, selecting, and blocking techniques.
	2.P.02	Extract attribute data.
	2.P.03	updates based on edits to individual blocks).
Fundamentals of Scaling Drawings	2.H.05	Use manual drafting tools to create a proportionate and to scale drawing.
	3.C.21	Apply scale and proportion to drawings, e.g., 1/4" = 1'0".
Working in a Team Environment	Strand 4	Employability Knowledge & Skills
Introduction to Engineering Design	2.A.01c	Explain lean techniques as applied to manufacturing/engineering and technical processes.
	2.A.02c	Identify and apply the concepts of total quality management appropriate to the field.
	2.A.03c	Develop, implement, and assess plan for continuous improvement.
	2.B.01c	List the attributes of design in a variety of technical fields (biotechnology, manufacturing, environmental, power and energy, transportation, etc).
	2.B.02c	Use the design process to identify, problem solve, and evaluate a solution.
	2.B.03c	Read and interpret detail prints or technical processes.
	2.C.01c	Identify the components and process of the system(equipment).
	2.C.02c	Identify the problem or source of the problem.
	2.C.03c	Develop solutions using a structured problem solving process.
	2.C.04c	Use appropriate testing equipment and tools for diagnosing the problem.
	2.C.05c	Implement the correct strategies to remedy the problem.
	2.E.01c	Identify customer needs.
	2.E.02c	Identify resources needed (supplies, personnel, equipment).
	2.E.03c	Identify and create/provide needed standard operational procedures (SOPs).
	2.E.04c	Monitor process using process control data.
	2.E.05c	Explain inventory control and the implications to production and performance.
	2.E.06c	Test product to verify that it meets customer specifications, regulations, etc.
	2.E.07c	Demonstrate process used to document and ensure compliance.
	2.E.08c	Ensure timely delivery of product to customer.
Drawing Instruments	2.F.01c	Define attributes, units, and systems of measurement used in MET fields.v
	2.F.02c	Apply a variety of techniques, tools, and formulas for determining measurements
	2.F.03c	Identify appropriate electronic device/gauge for specific tasks.
	2.F.04c	Calibrate and use electronic devices and/or gauges accurately.
	2.F.05c	Use measurement systems to solve problems.
Free-Hand Sketching	2.G.01	Use drawing media and related drafting materials.
	2.G.02	Take measurements off a product, part, subject, and/or prototype.
	2.G.03	Sketch basic concept and/or model.Annotate a drawing by using basic systems of measurement.
	2.G.04	Convert between English and metric systems (ISO) of measurement.
	2.G.05	Identify the alphabet of lines.
	2.G.06	Prepare title blocks and other drafting formats.
	2.G.07	Catalog and use number system for documentation and process control.
	2.G.08	Reproduce originals using different methods.
	2.G.09	Demonstrate methods used to record revisions
	2.H.01	Letter using single stroke gothic / block lettering
	2.H.02	Sketch basic concept and/or model.
	2.H.03	Make a sketch of an existing subject including detailed measurements.
	2.H.04	Design and sketch a basic subject based on 'customer' needs.
	2.H.05	Use manual drafting tools to create a proportionate and to scale drawing.
Screws, Fasteners, & Springs	2.U.01	etc).
	2.U.02	Identify types and uses of thread forms.
	2.U.03	Specify thread nomenclature, series, classifications, and fits.
	2.U.04	Draw threads using the symbolic and detailed methods (detailed methods including American, Square, and Acme).
	2.U.05	Draw fasteners (springs, etc.) using the symbolic and detailed methods.