Vocational Technical Education Framework

Hospitality & Tourism Occupational Cluster

Hospitality Management (VHOSP)

CIP Code 520901

June 2014
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Dear Colleagues,

I am pleased to present to you the Massachusetts Vocational Technical Education Frameworks, adopted by the Department of Elementary and Secondary Education in June 2014. These frameworks, one for each of the 44 vocational technical programs, include standards in multiple strands representing all aspects of the industries that students in the vocational technical education program are preparing to enter.

The frameworks also include a crosswalk between the technical standards and relevant standards in Massachusetts Curriculum Frameworks to support effective integration of academic and technical content.

The comments and suggestions received during revision of the 2007 Massachusetts Vocational Technical Education Frameworks have strengthened these frameworks. We will continue to work with schools and districts to implement the 2014 Massachusetts Vocational Technical Education Frameworks over the next several years, and we encourage your comments.

I want to thank everyone who worked with us to create challenging learning standards for Massachusetts students. I am proud of the work that has been accomplished.

Sincerely,

Mitchell D. Chester, Ed.D.
Commissioner of Elementary and Secondary Education
Introduction

Overview & Organization and Key Changes

Overview

The Massachusetts Department of Elementary and Secondary Education understands the necessity of maintaining current Vocational Technical Education Frameworks which ensure career/vocational technical education students across the Commonwealth are taught the most rigorous standards aligned to the needs of business and industry.

With the advent of the Massachusetts Teaching & Learning System the Office for Career/Vocational Technical Education (CVTE) recognized the significance of including career/vocational technical education in the system and developed a comprehensive plan for including vocational technical education. The plan was designed in a Two Phase Process. Phase One included the revision of strands two, three, and six, of all of the Vocational Technical Education Frameworks. Phase Two consisted of three major components (projects) all equally crucial;

1. The revision of Strands One, Four, and Five to complete the revision of all six strands of the Vocational Technical Education Frameworks;

2. Statewide Professional Development on all revised strands, with training on strands two, three, and six delivered fall 2013, and training on strands one, four, and five delivered spring 2014;

3. The creation and development of additional Model Curriculum Unit (MCU) Teams.

The Office for Career/Vocational Technical Education Framework Team, with support from consultants, began Phase One in the 2012-2013 school year, to revise three of the six strands contained in all of the Vocational Technical Education (VTE) Frameworks. The state was organized into “Collaborative Partnerships” comprised of teams of project administrators, highly qualified subject matter educators, and business and industry partners, whose task was to revise Strand Two – Technical, Strand Three – Embedded Academics, and Strand Six – Technology Literacy. Each team met with a vocational advisory committee which included business and industry representatives and postsecondary education professionals, whose mission was to review and revise the team’s draft document during the revisionary process. Once strand two was revised, academic teachers (typically one English Language Arts teacher, one Mathematics teacher, and one Science teacher) worked with the technical subject matter teachers to develop a crosswalk between academic curricula standards and the technical standards, and provided examples of embedded academic content.

The Office for Career/Vocational Technical Education solicited statewide input from technical and academic teachers and administrators at the annual Massachusetts Association of Vocational Administrators (MAVA)/Massachusetts Vocational Association (MVA) - Connecting for Success Conference. Each framework team met with their content colleagues and reviewed the draft revisions and obtained
valuable feedback. Additionally, all drafts were reviewed and revised by the Massachusetts Vocational Technical Teacher Testing Program, to ensure appropriate measurable language.

Project consultants designed a new template to ensure all framework teams entered new standards and additional resources in a consistent manner. The framework teams created an “Appendix” listing potential industry recognized credentials attainable by secondary students; lists of professional, student, and relevant government organizations; and useful resources and websites. *It is important to note that although most Framework Teams provided information for the “Appendix”, not all teams did. Therefore, subheadings within the “Appendix” without information have been deleted. Disclaimer: Reference in the Appendices Section to any specific commercial products, processes, or services, or the use of any trade, firm or corporation name is for the information and convenience of the public, and does not constitute endorsement or recommendation by the Massachusetts Department of Elementary and Secondary Education.

The Office for Career/Vocational Technical Education facilitated a comprehensive vetting process throughout the Commonwealth. During the fall of 2012 districts throughout Massachusetts solicited feedback from each Vocational Program’s Advisory Committee members at the Fall Board meetings. Additionally, the Office for Career/Vocational Technical Education met with various licensing boards at the Massachusetts Division of Professional Licensure and provided the applicable draft framework to each board for review. All framework drafts were posted on the CVTE website for public comment. Comments and suggested revisions received were shared with each framework team for response and edits, as appropriate.

The Phase I Process was completed on an accelerated timetable and resulted in all Vocational Technical Education Frameworks; Stand Two and Strand Six, revised with current, rigorous, relevant standards. Strand Three has been redesigned into a crosswalk which directly correlates academic and technical standards. An appendix of useful material for technical teachers recommended by their peers was added to each framework.

Phase II of the Framework Revision Process consisted of three major projects;

1. The Strands One, Four & Five Project, to complete the revision of all six strands of the Vocational Technical Education Frameworks;
2. Statewide Professional Development on all revised strands, with training on strands two, three, and six delivered fall 2013, and training on strands one, four, and five delivered spring 2014;
3. The creation and development of additional Model Curriculum Unit (MCU) Teams.

The Strands One, Four, & Five Project began in the fall of 2013 with the formation of a leadership team and three work groups. Co-Managers led the leadership team comprised of three Strand Coordinators who facilitated work teams and reviewed, researched, and revised these common strands. All skills specific to the vocational technical program have been included into Strand Two Technical.

The Strand One Team revised the safety knowledge and skills that all students need to acquire. The team included relevant issues (i.e., bullying, climate), laws, regulations, guidelines and policies pertaining to safety.
The Strand Four Team revised the Employability Knowledge and Skills that all students need to acquire. Teams considered current research on career readiness, including the work of the College Career Readiness Task Force convened by the Department, changes in workplace, technological changes that impact how people perform their work (i.e., communications methods), and included standards that emphasize the need for lifelong learning and adaptability given the multiple career changes over and an individual’s working life. The team recommended this strand be renamed to: Career Readiness.

The Strand Five Team revised the Management & Entrepreneurship Knowledge and Skills that all students need to acquire. All business owners and employees must possess management and financial skills to be productive members of society. Skills included financial knowledge and basic business management skills.

All Strand One, Four and Five Project Teams worked collaboratively with staff from the Department of Elementary and Secondary Education and the Advisors of the Massachusetts Career and Technical Student Organizations to crosswalk standards to national Career & Technical Student Organizations Curricula, as applicable.

The Office for Career/Vocational Technical Education contracted the MAVA Consultant Team to work closely with the office to complete all of the work accomplished during Phase II of the Project.

A remarkable amount of work was accomplished through the efforts of hundreds of professionals who collaborated and diligently supported this work. The Office for Career/Vocational Technical Education is grateful for all the support received from the field, particularly all of the teachers (technical and academic), administrators, advisory committee members, business and industry representatives, the Division of Professional Licensure - boards, the Massachusetts Association of Vocational Administrators, the MAVA Consultants, and the Massachusetts Vocational Association, whose contributions were tremendous.

Special thanks to all staff in the Office for Career/Vocational Technical Education and the CVTE Framework Revision Team who provided guidance and numerous contributions during Phase One of the project.
Organization and Key Changes

This section contains the following:

- Highlights of Changes to the Vocational Technical Education Frameworks; which includes a summary of changes made to each strand.
- Organization of the Frameworks – Strand Two illustrates structure of topic headings, standards and objectives, and performance examples.

Highlights of Changes to the Vocational Technical Education Frameworks:

**Strand One:**

Safety and Health Knowledge and Skills have been revised to contain the safety standards that are common to all programs. The Strand One Team worked collaboratively with staff from the Department of Elementary and Secondary Education and the Advisors of the Career and Technical Student Organizations (CTSO) to crosswalk standards to national CTSO Curricula, as applicable.

- No objectives were deleted, only modified.
- Language and wording was clarified.
- Additions included a focus on maintaining a safe school and workplace in terms of creating a positive climate/environment.
- Student safety credential program has been revised.
- Safety attire has been revised.
- Emergency equipment and fire safety has been revised.
- Many new Performance Examples have been included.
- Within each strand, standards and objectives were grouped under Topic Headings, which are displayed in bold. Each standard is followed by a performance example. See the section below titled: “Organization of the Frameworks – Strand Two”. All strands were organized in that manner, with the exception of the former Strand Three.

**Strand Two:**

The Technical Standards Knowledge and Skills have been revised to reflect business and industry changes since the adoption of the 2007 Vocational Technical Education Frameworks (VTEF). There are additional changes to Strand Two below:

- The Technical Knowledge and Skills (Strand Two) section contains standards specific to the particular vocational program; suffix “a” (as common to all programs) and suffix “c” (as common within a cluster) have been removed.
- Each VTEF Strand Two begins with safety and health knowledge and skills specific to the particular vocational program.
- Within each strand, standards and objectives were grouped under Topic Headings, which are displayed in bold. Each standard is followed by a performance example. See the section below
Strand Two:

Since the purpose of Strand Three was to correlate academic content that was embedded in the knowledge and skills necessary to perform certain technical skills, it was logical to highlight those connections through a crosswalk between the academic curriculum standards and the technical standards (Strand Two). The crosswalk directly correlates the English Language Arts (2011) and Mathematics (2011) Frameworks, incorporating the Common Core Standards and the Science and Technology/Engineering Frameworks. The crosswalk can be found in the appendix of each vocational framework. The crosswalk also includes performance examples which illustrate integrated academic and technical content.

- Embedded Academics has been replaced with a crosswalk between the academic curriculum standards and the technical knowledge and skills standards. The crosswalk is located in the Appendices.

Strand Four:

Employability (and Career Readiness) Knowledge and Skills focused on providing students with general knowledge and skills to be college and career ready. The Strand Four Team worked collaboratively with staff from the Department of Elementary and Secondary Education and the Advisors of the Career and Technical Student Organizations to crosswalk standards to national CTSO Curricula, as applicable.

- Language and wording were clarified.
- Additions included a focus on providing students with skills for employability/career readiness.
- New Performance Examples have been included.
- Within each strand, standards and objectives were grouped under Topic Headings, which are displayed in bold. Each standard is followed by a performance example. See the section below titled: “Organization of the Frameworks – Strand Two”. All strands were organized in that manner, with the exception of the former Strand Three.
Strand Five:

Strand Five contains Management and Entrepreneurship Knowledge and Skills that are general for all students. The Strand Five Team worked collaboratively with staff from the Department of Elementary and Secondary Education and the Advisors of the Massachusetts Career and Technical Student Organizations to crosswalk standards to national Career & Technical Student Organizations Curricula, as applicable.

- Language and wording were clarified and organized into a logical format.
- The Strand Five Team felt that the 2007 curriculum remained valid.
- Additions included a focus on providing students with skills for management and entrepreneurship applicable to all vocational programs.
- New Performance Examples have been included.
- Within each strand, standards and objectives were grouped under Topic Headings, which are displayed in bold. Each standard is followed by a performance example. See the section below titled: “Organization of the Frameworks – Strand Two”. All strands were organized in that manner, with the exception of the former Strand Three.

Strand Six

Strand Six Technology Literacy Knowledge and Skills has been replaced with the 2008 Massachusetts Technology Literacy Standards and Expectations Framework.
Appendix

Each framework contains an “Appendix” section which includes an Embedded Academic Crosswalk, Industry Recognized Credentials, Statewide Articulation Agreements, Professional, Governmental, and Student Organizations, Resources, and relevant websites.

The Appendix contains:

- Embedded Academic crosswalks for English Language Arts, Mathematics, and Science & Technology/Engineering.

- Statewide Articulations: Current statewide Articulation Agreements and/or Apprenticeship Programs available to the specific vocational program are listed on this page. The development of new statewide articulations continues, and therefore these pages will be revised as new agreements are finalized.

- Industry-Recognized Credentials: Technical Teacher Teams generated lists of credentials for the vocational programs. Program Advisory Committees throughout the state reviewed and provided recommendations through the validation process. The credential list has been provided as a resource only and districts are not obligated to provide all of the specified credentials for students.

- Other: These pages provide lists of reference materials, government agencies, professional and student organizations, and useful websites created by each framework team. These are intended as helpful resources for technical teachers, identified by peers. These are not recommended or required by the Department of Elementary & Secondary Education.

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Note: Although most Framework Teams provided information for the “Appendix”, not all teams did. Therefore, sub-headings within the “Appendix” without information have been deleted.

Disclaimer: Reference in the Appendices Section to any specific commercial products, processes, or services, or the use of any trade, firm or corporation name is for the information and convenience of the public, and does not constitute endorsement or recommendation by the Massachusetts Department of Elementary and Secondary Education.
Organization of the Frameworks – Strand Two

The Vocational Technical Education Frameworks contain knowledge and skills covering all aspects of industry, reflected in six strands: Safety and Health, Technical, Embedded Academics, Employability, Management and Entrepreneurship, and Technological.

Within each strand, standards and objectives were grouped under topic headings, which are displayed in bold. Each standard is followed by a performance example. In the excerpt below, 2.A is the topic; 2.A.01 is the first standard and 2.A.01.01 and 2.A.01.02 are the objectives under that standard.

2.A  **Automotive Technology Specific Safety Practices**

2.A.01  Identify and describe safety procedures when dealing with different types of automotive lifts according to current industry standards.

2.A.01.01  Demonstrate procedures for safe lift operations.

2.A.01.02  Demonstrate safe use, placement and storage of floor jacks and jack stands.

2.A.01  Performance Example:

- Student will set up lift using manufacturer’s suggested lift points.

2.A.02  Demonstrate and describe safety procedures when dealing with high pressure systems including necessary ventilation according to current industry standards.

2.A.02.01  Describe and demonstrate the importance of safety procedures to be used when servicing high pressurized systems (fuel systems, brakes, air conditioning, suspension, hydraulic systems, etc.).

2.A.02.02  Describe and demonstrate safe use of oxygen/acetylene torches and electric welding equipment.

2.A.02.03  Demonstrate ventilation procedures to be followed when working in the lab/shop area.

2.A.02  Performance Example:

- Student will relieve fuel system pressure to perform necessary repairs.

2.A.03  Identify and describe safety procedures when dealing with electrical circuits according to current industry standards.

2.A.03.01  Describe safety procedures to be followed when servicing supplemental restraint systems.

2.A.03.02  Demonstrate safety awareness of high voltage circuits of electric or hybrid electric vehicles and related safety precautions.

2.A.03  Performance Example:

- Safely disable Supplemental Restraint System (SRS) air bag for repair using manufacturer’s recommendations.

There are additional changes to some of the Frameworks Strand Two (Technical Knowledge and Skills). Specifically, Strand Two of the Frameworks for Animal Science, Environmental Science and Technology and Horticulture begin with core standards required for all participants in the programs, followed by a series of standards organized in concentrations. For example, Strand Two of the Horticulture Framework begins with the core standards required of all Horticulture students.
Advanced / Supplemental Standards (Not Required)

Another variation that is new to the revised Strand Two Frameworks is the addition of advanced or supplemental standards which are noted with the use of an asterisk (*). These standards are not required, but are provided as suggestions that districts may choose to use to increase the depth of a particular topic, or add additional topics, particularly for advanced students or for those seniors who do not participate in cooperative education.

The following is an example from Automotive Technology, where entire topics were added:

**Advanced Automotive Technology Technical Knowledge and Skills**

*Note: The following competencies are optional, supplementary competencies suitable for advanced students. These are not required.*

2.CC Demonstrate appropriate engine repair techniques.

2.CC.01 Perform appropriate cylinder Head Repair.

2.CC.01.01* Diagnose, remove and replace cylinder head(s).

2.CC.01.02* Clean and visually inspect a cylinder head for cracks; check gasket surface areas for warpage and surface finish; check passage condition; determine necessary action.

The following is an example from the Strand Two Radio and Television Broadcasting Framework that shows the addition of an advanced objective, 2.B.04.08*:

2.B.04 Explain concepts fundamental to shooting in cinema and video.

2.B.04.01 Compare and contrast a single-camera and a multiple-camera production.

2.B.04.02 Explain the importance of shooting for the edit (i.e., match on action, sequencing, coverage).

2.B.04.03 Explain the importance of continuity.

2.B.04.04 Explain the 180° Rule line, and its application in various cinema scenarios.

2.B.04.05 Identify and establish a specific point-of-view when shooting from a script.

2.B.04.06 Analyze the methods in which specific shots can evoke emotion from an audience.

2.B.04.07 Define drop frame and non-drop frame code shooting and explain how to account for both when preparing for an edit.

2.B.04.08* Describe various cinematographic methods necessary when shooting scenes that incorporate post-production visual effect.

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2.B.04 Performance Examples:

- Students will list similarities and differences of single-camera and multiple-camera shoots.
- Students will describe multiple shooting considerations that are useful in streamlining the editing process.
Hospitality & Tourism Occupational Cluster

Hospitality Management Framework (VHOSP)

Strand 1: Safety and Health Knowledge and Skills

1.A Fundamentals of Health and Safety

1.A.01 Describe and apply health and safety regulations.

1.A.01.01 Identify, describe and apply health and safety regulations that apply to specific tasks and jobs. Students must complete a safety credential program, e.g., Occupational Safety and Health Administration 10, CareerSafe and ServSafe.

1.A.01.02 Identify, describe and apply Environmental Protection Agency (EPA) and other environmental protection regulations that apply to specific tasks and jobs in the specific occupational area.

1.A.01.03 Identify, describe and apply Right-To-Know (Hazard Communication Policy) and other communicative regulations that apply to specific tasks and jobs in the specific occupational area.

1.A.01.04 Explain procedures for documenting and reporting hazards to appropriate authorities.

1.A.01.05 Identify and describe potential consequences for non-compliance with appropriate health and safety regulations.

1.A.01.06 Identify and list contact information for appropriate health and safety agencies and resources.

1. A.01 Performance Examples:

- List and define OSHA Health and Safety Regulations, EPA and other environmental protection regulations to occupational area.
- List and define Right-to-Know regulations and reporting of hazards and contact information for appropriate health and safety agencies.
- List the laws and rules of regulatory agencies governing sanitation and safety.
- Utilize OSHA as well as health and safety websites for purposes of research.

1.A.02 Demonstrate appropriate health and safety practices based on the specific occupational area.

1.A.02.01 Identify, describe and demonstrate the effective use of Safety Data Sheets (SDS).

1.A.02.02 Read and interpret chemical, product and equipment labels to determine appropriate health and safety considerations.

1.A.02.03 Identify, describe and demonstrate personal, shop and job site safety practices and procedures.

1.A.02.04 Demonstrate safe dress and use of relevant safety gear, personal protective equipment (PPE) and ergonomics, e.g., wrist rests, adjustable workspaces, equipment, gloves, proper footwear, earplugs, eye protection and breathing apparatus.

1.A.02.05 Demonstrate appropriate safe body mechanics, including appropriate lifting techniques and ergonomics.
| 1.A.02.06 | Locate emergency equipment, first aid kit, SDS information directories and emergency action/response plan/escape routes in your lab, shop and classroom, including labels and signage that follow OSHA Hazard Communication Program (HAZCOM), eyewash stations, shower facilities, sinks, fire extinguishers, fire blankets, telephone, master power switches and emergency exits. |
| 1.A.02.07 | Demonstrate the safe use, storage, and maintenance of every piece of equipment in the lab, shop and classroom, e.g., the OSHA Lockout/Tagout Program (LOTO). |
| 1.A.02.08 | Describe safety practices and procedures to be followed when working with and around electricity, e.g., ground fault circuit interrupter (GFCI) and frayed wiring. |
| 1.A.02.09 | Handle, store, dispose of and recycle hazardous, flammable and combustible materials, according to EPA, OSHA and product specifications. |
| 1.A.02.10 | Demonstrate appropriate workspace cleaning, sanitation, disinfection and sterilization procedures required in specific occupational areas, e.g., Workplace Housekeeping OSHA Regulations. |

1.A.02 Performance Examples:

- Identify, describe and demonstrate the use of SDS.
- List and demonstrate shop dress code, safety procedures and location of emergency equipment in labor classroom.
- Define and demonstrate safe storage and maintenance of equipment and proper disposal or recycling of hazardous, flammable and combustible materials.
- Identify, describe and demonstrate the Universal Precautions set of guidelines.

1.A.03 Demonstrate appropriate responses to situations that may threaten health and safety.

1.A.03.01 Describe First Aid procedures for potential injuries and other health concerns in the specific occupational area.

1.A.03.02 Describe the importance of emergency preparedness and an emergency action/response plan.

1.A.03.03 Describe procedures used to handle emergency situations, defensive measures and accidents, including identification, reporting, response, evacuation plans and follow-up procedures.

1.A.03.04 Identify, describe and demonstrate safety practices in specific occupational areas used to avoid accidents.

1.A.03.05 Identify and describe fire protection, protection, precautions and response procedures.

1.A.03.06 Discuss the role of the individual and the company/organization in ensuring workplace safety including transportation to and from school, school activities and the workplace.

1.A.03.07 Discuss ways to identify, prevent and report school and workplace violence, discrimination, harassment and bullying.

1.A.03.08 Demonstrate positive and appropriate behavior that contributes to a safe and healthy environment in school and the workplace.
1. **A.03 Performance Example:**

- Define first aid procedures and protocols used to handle emergency situations and practices used to avoid accidents.
- View safety videos and discuss the role of workplace safety.
- Attend or participate in a human rights alliance organization presentation.
- Observe and/or demonstrate the appropriate use of a fire extinguisher using the (PASS) technique: Pull, Aim, Squeeze, Sweep.
- Review and discuss specific policies, procedures and protocols regarding discrimination, harassment and bullying.
- Discuss and/or role-play proper and respectful behavior that contributes to a positive climate.
- Discuss and/or demonstrate behavior that contributes to a collaborative/teamwork environment.

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**Selected Websites**

- Bullying Prevention and Intervention Resources: [www.doe.mass.edu/bullying](http://www.doe.mass.edu/bullying)
- Centers for Disease Control and Prevention: [www.cdc.gov](http://www.cdc.gov)
- Environmental Protection Agency: [www.epa.gov](http://www.epa.gov)
- Massachusetts Department of Elementary and Secondary Education Safety Guide: [www.doe.mass.edu/cte](http://www.doe.mass.edu/cte)
- Massachusetts Department of Elementary and Secondary Education: [www.doe.mass.edu](http://www.doe.mass.edu)
- Massachusetts Emergency Management Agency: [www.mass.gov/eopss/agencies/mema](http://www.mass.gov/eopss/agencies/mema)
- Massachusetts General Law: [www.malegislature.gov](http://www.malegislature.gov)
- Massachusetts Health and Human Services: [www.mass.gov/dph](http://www.mass.gov/dph)
- Massachusetts Right to Know Law Summary: [http://www.mass.gov/lwd/docs/dos/mwshp/hib397.pdf](http://www.mass.gov/lwd/docs/dos/mwshp/hib397.pdf)
- Safety Data Sheet: [www.sdsonline.com](http://www.sdsonline.com)
- National Fire Protection Association: [www.nfpa.org](http://www.nfpa.org)
- Protection of Student Rights: Massachusetts General Law: [https://malegislature.gov/Laws/GeneralLaws/PartI/TitleXII/Chapter76/Section5](https://malegislature.gov/Laws/GeneralLaws/PartI/TitleXII/Chapter76/Section5)
- Occupational Safety and Health Administration: [www.osha.gov](http://www.osha.gov)
- Safe and Healthy Learning Environments: [www.doe.mass.edu/ssce/safety.html](http://www.doe.mass.edu/ssce/safety.html)
Strand 2: Technical Knowledge and Skills

2.A  Safety in the Hospitality and Tourism Industry

2.A.01 Successfully complete and obtain National Restaurant Association ServSafe Food Safety certification.
   2.A.01.01 Complete National Restaurant Association ServSafe Food Safety certification requirements and receive a course completion certificate.

2.A.01 Performance Example:
- Using a form provided, students will conduct a sanitation self-inspection.
- Students will create a poster listing Right to Know regulations, reporting hazards, and contact information for appropriate health and safety agencies.

2.A.02 Successfully complete and obtain National Restaurant Association Massachusetts Food Allergen certification.
   2.A.02.01 Complete National Restaurant Association Massachusetts Food Allergen certification requirements and receive a course completion certificate.

2.A.03 Successfully complete and obtain a 10-hour General Industry OSHA certification.
   2.A.03.01 Complete the requirements of OSHA 10-hour General Industry certification course and receive a course completion card.

2.A.04 Successfully complete and obtain a CPR, Choke Saver and First Aid Training card.
   2.A.04.01 Complete the requirements of American Red Cross or American Heart Association Heart Saver First Aid, Choke Saver and CPR -AED certification and receive a course completion card.

2.A.05 Successfully complete and obtain Alcohol Server certification.
   2.A.05.01 Complete the requirements of National Restaurant Association’s ServSafe Alcohol or Health Communications, Inc.’s Training for Intervention Procedures (TIPS) certification or similar program and receive course completion card.

2.A.06 Follow safety and emergency procedures.
   2.A.06.01 Outline common causes of typical accidents and injuries in the hospitality and tourism industry.
   2.A.06.02 Practice work habits that provide personal safety, safety for others, and protect the safety and security of the external environment.
   2.A.06.03 Select and use appropriate personal protective equipment at all times.
   2.A.06.04 Maintain a sanitary and clutter-free work environment, following appropriate procedures in the hospitality and tourism industry.
   2.A.06.05 Monitor, use, store, and dispose of hazardous materials according to established procedures.
   2.A.06.06 Identify, describe and demonstrate the effective use of Safety Data Sheets (SDS).
   2.A.06.07 Demonstrate the proper use of a sanitizing solution, utilizing a test kit to assure safe and effective concentration levels.

2.B  Fundamentals of the Hospitality and Tourism Industry

2.B.01 Describe the components of the Hospitality and Tourism Industry.
   2.B.01.01 Describe and define the growth and development of the hospitality and tourism industry.
   2.B.01.02 Describe and define the role of lodging as a segment of the hospitality industry.
2.B.01.03 Describe the role of food and beverage as a segment of the hospitality industry.

2.B.01.04 Describe the role of recreation as a segment of the hospitality industry.

2.B.01.05 Describe professional organizations and their contributions to the hospitality industry.

2.B.01.06 Compare and contrast industry trade periodicals and other industry resources and utilize for information on current trends in industry.

### 2.B.01 Performance Example:
- Students will create a tri-fold display illustrating the four segments of the hospitality industry.
- Students will create a list of 12 hospitality industry businesses that they have used or would like to use and organize them into the four segments of the hospitality industry.

2.C **Fundamentals of Customer/Guest Service**

2.C.01 Apply quality customer/guest service techniques.

2.C.01.01 Evaluate the total customer experience and describe its importance to the hospitality and tourism industry.

2.C.01.02 Discuss the importance of quality customer/guest service.

2.C.01.03 Compare and contrast the functions of front-of-the-house and back-of-the-house.

2.C.01.04 Recite and demonstrate characteristics of a customer/guest focused employee.

2.C.01.05 Identify "Moments of Truth" in the delivery of quality customer/guest service.

2.C.01.06 Recite and demonstrate key components of good communication skills.

2.C.01.07 Describe and employ methods of handling customer/guest complaints through resolution.

2.C.01.08 Differentiate between tangible and intangible products and service skills.

2.C.01.09 Practice teamwork and identify barriers to the delivery of customer service.

2.C.01.10 Discuss and formulate methods used to anticipate customer/guest needs including accommodations for the disabled guest.

2.C.01.11 Demonstrate knowledge of the job as it relates to quality customer/guest service.

### 2.C.01 Performance Example:
- Students will role-play different scenarios to demonstrate how to handle customer complaints and anticipate customer needs.
- Students will write an essay explaining the importance of customer service in the hospitality industry.

2.D **Fundamentals of the Hospitality and Tourism Industry on the Economy**

2.D.01 Describe the impact of the Hospitality and Tourism Industry on the economy.

2.D.01.01 Differentiate and classify destination markets.

2.D.01.02 Interpret how demographics impact a hospitality operation.

2.D.01.03 Compare and contrast various types of travel.

2.D.01.04 Identify and locate local, regional, and world geography relating to destination markets.

2.D.01.05 Define sustainability and the benefits of "going green", citing examples in the hospitality and tourism industry.
### 2.E Fundamentals of Food and Beverage Management

**2.E.01** Apply the fundamentals of Food and Beverage Service.
- **2.E.01.01** Define terminology used in food & beverage service.
- **2.E.01.02** Identify equipment in a commercial kitchen.
- **2.E.01.03** Demonstrate hand tool and equipment operation, emphasizing technique.
- **2.E.01.04** Outline beverage risk management and liability.

**2.E.01 Performance Example:**
- Students will prepare, operate, and clean a coffee station.
- Students will demonstrate/illustrate a variety of table settings.
- Students will set up service and take out stations.
- Students will prepare a schematic for various banquet/meeting room set-ups.
- Students will write a short essay in which they compare and contrast two different types of food and beverage businesses.
- Students will design a menu using the following factors: taste, variety, appearance, nutrition and price.

**2.E.02** Demonstrate Dining Room/Room Service Activities.
- **2.E.02.01** Perform duties of a dining room attendant/server.
- **2.E.02.02** Assemble and maintain restaurant workstations for dining room service.
- **2.E.02.03** Describe, demonstrate and differentiate between the types of service and table settings for dining room set-up.
- **2.E.02.04** Distinguish and illustrate various types of dining room set-ups.
- **2.E.02.05** Demonstrate tray service, coffee carts, special functions and room service.
- **2.E.02.06** Apply menu knowledge using suggestive selling technique.
- **2.E.02.07** Utilize various procedures for processing guest checks.
- **2.E.02.08** Operate a Point of Sales System.
- **2.E.02.09** Perform duties of a cashier, following all cash handling procedures.
- **2.E.02.10** Perform duties of a host/hostess.
- **2.E.02.11** Perform duties of a dining room supervisor.
- **2.E.02.12** Organize, arrange and maintain hot and cold buffet service.
- **2.E.02.13** Clean and sanitize work areas and stationary equipment.

**2.E.03** Demonstrate Quick Service Operations.
- **2.E.03.01** Perform duties of a quick service attendant/server.
- **2.E.03.02** Assemble, maintain and operate workstations for carryout/delivery service.

**2.E.04** Demonstrate Banquet and Catering Service.
- **2.E.04.01** Describe the role and responsibilities of banquet/catering and special events personnel.
- **2.E.04.02** Describe a banquet event order.
- **2.E.04.03** Identify, describe and illustrate various types of banquet room set-ups.
- **2.E.04.04** Coordinate and facilitate the efficient functioning of an event from a banquet event order.
- **2.E.04.05** Execute duties of a banquet/catering server and special events personnel.

**2.E.05** Classify types of Institutional Food Service.
- **2.E.05.01** Categorize the various facilities that fall into institutional dining.
- **2.E.05.02** Describe the role and responsibilities of institutional food service personnel.
- **2.E.05.03** Summarize Contract Management.

**2.E.06** Apply the fundamentals of menu planning and cost control.
- **2.E.06.01** Analyze portion control as it relates to food cost.
2.E.06.02 Research various cuisines and describe their relationship to the hospitality and tourism industry.
2.E.06.03 Critique various types of menus.
2.E.06.04 Prepare a variety of menus following dietary guidelines.

2.F Fundamentals of Career Opportunities in the Food and Beverage Industry

2.F.01 Apply standards used in career opportunities, job descriptions and the reporting structure in the food and beverage industry.
2.F.01.01 Illustrate an organizational chart of departments in a food and beverage property.
2.F.01.02 Generate a job description defining the role and function of human resource personnel.
2.F.01.03 Generate a job description defining the role and function of kitchen personnel.
2.F.01.04 Generate a job description defining the role and function of dining room personnel.
2.F.01.05 Generate a job description defining the role and function of banquet/catering personnel.
2.F.01.06 Generate a job description defining the role and function of room service personnel.
2.F.01.07 Generate a job description defining the role and function of quick serve personnel.
2.F.01.08 Generate a job description defining the role and function of beverage personnel.

2.F.01 Performance Example:
- Given a list of job positions in a food and beverage organization, students will create a chart demonstrating the "chain of command".
- Given a list of personnel, students will create the corresponding job descriptions.

2.G Fundamentals of the Lodging Industry

2.G.01 Classify types of lodging businesses by category.
2.G.01.01 Characterize types of full service properties.
2.G.01.02 Characterize types of limited service properties.
2.G.01.03 Characterize types of specialty accommodations.
2.G.01.04 Characterize types of institutional housing.

2.G.01 Performance Example:
- Students will create a Venn diagram to compare and contrast three different lodging property types.

2.H Fundamentals of Career Opportunities in the Lodging Industry

2.H.01 Apply standards used in the career opportunities, job descriptions and the reporting structure in a lodging property.
2.H.01.01 Create and illustrate an organizational chart of departments in a lodging property.
2.H.01.02 Differentiate among the roles of departments and describe their importance to the entire property.
2.H.01.03 Generate a job description defining the role and function of human resources personnel.
2.H.01.04 Generate a job description defining the role and function of front office personnel.
2.H.01.05 Generate a job description defining the role and function of front desk personnel.
2.H.01.06 Generate a job description defining the role and function of guest services personnel.
2.H.01.07 Generate a job description defining the role and function of reservations personnel.
2.H.01.08 Generate a job description defining the role and function of sales personnel.
2.H.01.09 Generate a job description defining the role and function of housekeeping personnel.
2.H.01.10 Generate a job description defining the role and function of laundry personnel.
2.H.01.11 Generate a job description defining the role and function of engineering/maintenance personnel.
2.H.01.12 Generate a job description defining the role and function of security personnel.

2.H.01 Performance Example:
- Given a list of job positions in a lodging organization, students will create a chart demonstrating the "chain of command".
- Given a list of hospitality industry personnel, students will create the corresponding job descriptions.

2.I Fundamentals of Operational Procedures that Support the Hospitality and Tourism Industry
2.I.01 Apply standard operating procedures in the Hospitality and Tourism Industry.
2.I.01.01 State the importance of following the "Generally Accepted Accounting Principles".
2.I.01.02 Analyze and formulate the training needs of an organization by department.
2.I.01.03 Construct an effective schedule based on the needs of an organization by department.
2.I.01.04 Explain the inter-relationships between co-workers and supervisors, respecting diversity in the workplace.
2.I.01.05 Identify strategies and techniques to satisfactorily handle internal employee relations.
2.I.01.06 Explain the process/purpose of preventive maintenance.
2.I.01.07 Outline the work order/maintenance request process.
2.I.01.08 Summarize loss prevention and safety procedures for guests and personnel.
2.I.01.09 Describe how to utilize a property management system to support the needs of the guest.

2.I.01 Performance Example:
- Given a specific event description, students will create a staffing schedule.
- Given a specific problem scenario, students will complete a work order to remedy the issue.
- Given a specific scenario, students will role-play solutions to handle internal employee relations/issues.

2.J Fundamentals of Revenue and Support Centers
2.J.01 Apply standards of revenue and support centers.
2.J.01.01 Identify, compare and contrast the different types of revenue generating and support centers.
2.J.01.02 Explain and tabulate labor cost.
2.J.01.03 Categorize the different types of operating expenses.
2.K.01  Performance Example:
  - Given a list of costs, students will identify which are considered fixed and which are considered variable costs and explain why.

2.K  Fundamentals of Hospitality Sales and Marketing
2.K.01  Apply the fundamentals of Hospitality Sales and Marketing.
  2.K.01.01  Identify the basic principles of marketing.
  2.K.01.02  Analyze pricing in the hospitality industry.
  2.K.01.03  Recite the process of function booking.
  2.K.01.04  Evaluate how customer/guest needs influence marketing.
  2.K.01.05  Discuss place and distribution in the industry.
  2.K.01.06  Compare and contrast upgrading and up selling.
  2.K.01.07  Describe packaging and discount programming.
  2.K.01.08  Review marketing strategies including market segmentation and trend analysis.
  2.K.01.09  Develop a marketing plan.
  2.K.01.10  Assess the importance of product development in the hospitality industry.
  2.K.01.11  Demonstrate the basics of telephone sales skills and telemarketing.
  2.K.01.12  Examine promotion advertising including sales, merchandising, public relations and publicity.
  2.K.01.13  Describe and demonstrate social media strategies.

2.K.01  Performance Example:
  - Given a specific scenario, students will create examples of package offers.
  - Given a specific scenario, students will design an advertisement for use on social media sites.
Strand 3: Embedded Academics

Strand 3: Embedded Academics, a critical piece of a Vocational Technical Education Framework, are presented as Crosswalks between the Massachusetts Vocational Technical Education Frameworks and the Massachusetts Curriculum Frameworks. These Crosswalks are located in the Appendix of this Framework.

**Academic Crosswalks**

- **Appendix A:** English Language Arts
- **Appendix B:** Mathematics
- **Appendix C:** Science and Technology/Engineering
  - Earth and Space Science
  - Life Science (Biology)
  - Physical Science (Chemistry and Physics)
  - Technology/Engineering

4.A.01  Develop a career plan and portfolio.
  4.A.01.01  Develop and revise career plan annually based on workplace awareness and skill attainment.
  4.A.01.02  Assess personal strengths and interest areas to determine potential careers, career pathways and career ladders.
  4.A.01.03  Examine potential career field(s)/discipline(s) and identify criteria to select, secure and keep employment in chosen field(s).
  4.A.01.04  Research and evaluate a variety of careers utilizing multiple sources of information and resources to determine potential career(s) and alternatives.
  4.A.01.05  Identify training and education requirements that lead to employment in chosen field(s) and demonstrate skills related to evaluating employment opportunities.
  4.A.01.06  Explore and evaluate postsecondary educational opportunities including degrees and certifications available, traditional and nontraditional postsecondary pathways, technical school and apprenticeships, cost of education, financing methods including scholarships and loans and the cost of loan repayment.
  4.A.01.07  Create a portfolio showcasing academic and career growth including a career plan, safety credential, resume and a competency profile demonstrating the acquisition of the knowledge and skills associated with at least two years of full-time study in the Chapter 74 program.

4.A.02  Demonstrate job search skills.
  4.A.02.01  Conduct a job search and complete written and electronic job applications, resumes, cover letters and related correspondence for a chosen career path.
  4.A.02.02  Explore and evaluate postsecondary job opportunities and career pathways specific to career technical areas.
  4.A.02.03  Identify role and use of social media and networking for staying current with career and employment trends as well as networking, job seeking and career development opportunities.
  4.A.02.04  Demonstrate ability to use social media and networking to develop useful occupational contacts, job seeking and career development opportunities.

4.A.03  Demonstrate all phases of the job interview process.
  4.A.03.01  Gather relevant information about potential employer(s) from multiple print and digital sources, assessing the credibility and accuracy of each source.
  4.A.03.02  Identify employment eligibility criteria, such as drug/alcohol free status, clean driving record, etc.
4.A.03.03 Practice effective interviewing skills: appearance, inquiry and dialogue with interviewer, positive attitude and evidence of work ethic and skills.

4.A.03.04 Explore and evaluate employment benefit packages including wages, vacation, health care, union dues, cafeteria plans, tuition reimbursement, retirement and 401K.

4.A Performance Examples:
- Conduct research to analyze and present on specific careers within a cluster.
- Conduct web-based job search using sites such as Monster.com, CareerBuilder.com, Indeed.com, Snagajob.com, Simplyhired.com and others.
- Create profile on social media/networking site such as LinkedIn and/or LinkedIn University for postsecondary research and employment opportunities.
- Complete online job application.
- Conduct and videotape practice interviews for instructor and student analysis.
- Provide students with sample employment and benefit packages for evaluation.

4.B Communication in the Workplace

4.B.01 Demonstrate appropriate oral and written communication skills in the workplace.

4.B.01.01 Communicate effectively using the language and vocabulary appropriate to a variety of audiences within the workplace including coworkers, supervisors and customers.

4.B.01.02 Read technical and work-related documents and demonstrate understanding in oral discussion and written exercise.

4.B.01.03 Demonstrate professional writing skills in work-related materials and communications (e.g., letters, memoranda, instructions and directions, reports, summaries, notes and/or outlines).

4.B.01.04 Use a variety of writing/publishing/presentation applications to create and present information in the workplace.

4.B.01.05 Identify, locate, evaluate and use print and electronic resources to resolve issues or problems in the workplace.

4.B.01.06 Use a variety of financial and data analysis tools to analyze and interpret information in the workplace.

4.B.01.07 Orally present technical and work-related information to a variety of audiences.

4.B.01.08 Identify and demonstrate professional non-verbal communication.

4.B.02 Demonstrate active listening skills.

4.B.02.01 Listen attentively and respectfully to others.

4.B.02.02 Focus attentively, make eye contact or other affirming gestures, confirm understanding and follow directions.

4.B.02.03 Show initiative in improving communication skills by asking follow-up questions of speaker in order to confirm understanding.
4. B Performance Examples:
- Read and analyze technical instructions to learn what makes them effective.
- Read and analyze technical instructions to follow directions and/or solve a problem.
- Examine a technical document and use it to write a set of instructions for another student to follow and evaluate.
- Analyze websites for effective technical writing and design.
- Create brochures and presentations using software and/or Web 2.0 tools to convey technical information.
- Conduct research using the Internet, print documents, observations and interviews to create a technical guide.

4. C Work Ethic and Professionalism
4.C.01 Demonstrate attendance and punctuality.
   4.C.01.01 Identify and practice professional time-management and attendance behaviors including punctuality, reliability, planning and flexibility.

4.C.02 Demonstrate proper workplace appearance.
   4.C.02.01 Identify and practice professional appearance specific to the workplace.
   4.C.02.02 Identify and practice personal hygiene appropriate for duties specific to the workplace.
   4.C.02.03 Identify and wear required safety gear specific to the workplace.

4.C.03 Accepts direction and constructive criticism.
   4.C.03.01 Demonstrate ability (both verbally and non-verbally) to accept direction and constructive criticism and to implement solutions to change behaviors.
   4.C.03.02 Ask appropriate questions to clarify understanding of feedback.
   4.C.03.03 Analyze own learning style and seek instructions in a preferred format that works best for their understanding (such as oral, written or visual instruction).

4.C.04 Demonstrate motivation and initiative.
   4.C.04.01 Evaluate assigned tasks for time to completion and prioritization.
   4.C.04.02 Demonstrate motivation through enthusiasm, engagement, accurate completion of tasks and activities.
   4.C.04.03 Demonstrate initiative by requesting new assignments and challenges.
   4.C.04.04 Explain proposed solutions to challenges observed in the workplace.
   4.C.04.05 Demonstrate the ability to evaluate multiple solutions to problems and challenges using critical reasoning and workplace/industry knowledge and select the best solution to the problem.
   4.C.04.06 Implement solution(s) to challenges and/or problem(s) observed in the workplace.
   4.C.04.07 See projects through completion and check work for quality and accuracy.
4.C.05 Demonstrate awareness of workplace culture and policy.
   4.C.05.01 Display ethical behavior in use of time, resources, computers and information.
   4.C.05.02 Identify the mission of the organization and/or department.
   4.C.05.03 Explain the benefits of a diverse workplace.
   4.C.05.04 Demonstrate a respect for diversity and its benefit to the workplace.

4.C.06 Interact appropriately with coworkers.
   4.C.06.01 Work productively with individuals and in teams.
   4.C.06.02 Develop positive mentoring and collaborative relationships within work environment.
   4.C.06.03 Show respect and collegiality, both formally and informally.
   4.C.06.04 Explain and follow workplace policy on the use of cell phones and other forms of social media.
   4.C.06.05 Maintain focus on tasks and avoid negative topics or excessive personal conversations in the workplace.
   4.C.06.06 Negotiate solutions to interpersonal and workplace conflicts.

4.C Performance Examples:
   ▪ Complete a learning style analysis tool.
   ▪ Develop a rubric to assess work ethic and professionalism as detailed in the standards above.

Student Organizations
Business Professionals of America www.bpa.org

Selected Websites
▪ 5 Ways to Ace a Job Interview: http://kidshealth.org/teen/school_jobs/jobs/tips_interview.html
▪ Career Development Guide and Glossary: http://www.doe.mass.edu/connect/cde.html
▪ Career One Stop: http://www.careeronestop.org/
▪ Career Plan: http://www.doe.mass.edu/cd/plan/intro.html
▪ Career Plan Model: http://www.doe.mass.edu/ccr/epp/samples/cpmodel_11x17.pdf
▪ Checklist: http://www.doe.mass.edu/ccr/plan/checklist.pdf
▪ Career Tech: http://www.okcareertech.org/cac/Pages/resources_products/ethics_web_sites.htm
▪ Ethics Resource Center: http://www.ethics.org/
▪ Interaction in the Workplace: http://hrweb.berkeley.edu/guides/managing-hr/interaction/communication
- ILP Fact Sheet: http://www.ncwd-youth.info/fact-sheet/individualized-learning-plan
- ILP Resources Home Page: http://www.ncwd-youth.info/ilp
- Interview Skills Lesson Plans: http://www.amphi.com/media/1220281/interview%20skills%20lesson%20plan.doc
- Labor and Workforce Development: http://www.mass.gov/lwd/employment-services/preparing-for-your-job-search/
- Maine Community College System – Center for Career Development: http://www.ccd.me.edu/careerprep/CareerPrepCurriculum_LP-6.pdf
- Massachusetts Work-Based Learning: http://skillspages.com/masswbl
- North Dakota Association of Agriculture Educators: http://www.ndaae.org/attachments/File/Preparing_students_for_a(Job_Interview.pptx
- Purdue OWL Job Search Resources (for writing resumes, applications, and letters): https://owl.english.purdue.edu/engagement/34/
- Soft Skills to Pay the Bills — Mastering Soft Skills for Workplace Success: http://www.dol.gov/odep/topics/youth/softskills/
- Workplace Communication: http://www.regionalskillstraining.com/sites/default/files/content/WC%20Book%201.pdf
- Your Plan For the Future: http://www.yourplanforthefuture.org
Strand 5: Management and Entrepreneurship Knowledge and Skills

5.A  Starting a Business

5.A.01 Demonstrate an understanding of the practices required to start a business.
   5.A.01.01 Define entrepreneurship and be able to recognize and describe the characteristics of an entrepreneur.
   5.A.01.02 Compare and contrast types of business ownership (i.e., sole proprietorships, franchises, partnerships, corporations).
   5.A.01.03 Identify and explain the purpose and contents of a business plan.
   5.A.01.04 Demonstrate an understanding of the principles and concepts of a business’s supply chain (i.e., suppliers, producers and consumers).

5. A Performance Examples:
- Develop a presentation pertaining to an entrepreneur and their business.
- Communicate with a business owner and discuss the pros and cons of starting and owning a business. Summarize the main points of the discussion.
- Choose a product or service and describe the process leading to distribution.
- Write a business plan for a business in your community.

5.B  Managing a Business

5.B.01 Demonstrate an understanding of managing a business.
   5.B.01.01 Formulate short- and long-term business goals.
   5.B.01.02 Demonstrate effective verbal, written and visual communication skills.
   5.B.01.03 Utilize a decision-making process to make effective business decisions.
   5.B.01.04 Identify a business’s chain of command and define its organizational structure.
   5.B.01.05 Identify and apply effective customer service skills and practices.
   5.B.01.06 Identify, interpret and develop written operating procedures and policies.
   5.B.01.07 Track inventory, productivity and labor cost.
   5.B.01.08 Demonstrate business meeting skills.
   5.B.01.09 Identify professional organizations and explore their benefits.

5. B Performance Examples:
- Working as a team, role-play situations that an entrepreneur might face in dealing with customers or employees.
- Contact a relevant professional organization and request information about its benefits, membership requirements and costs.
- Plan and conduct a business meeting.
- Identify companies that are known for customer service and list the practices that help differentiate themselves from all others in their industry.

5.C  Marketing a Business

5.C.01 Demonstrate an understanding of marketing and promoting a business.
   5.C.01.01 Explain the role of business in the economy.
   5.C.01.02 Describe the relationship between business and community.
   5.C.01.03 Describe methods of market research and identifying target markets.
5.C.01.04 Describe and apply the concepts of a marketing mix (the 4Ps of marketing: product, price, place and promotion).
5.C.01.05 Compare and contrast the promotional tools and techniques used to sell products, services, images and ideas.
5.C.01.06 Describe the impact of supply and demand on a product or business.
5.C.01.07 Identify direct and indirect competition on a business.
5.C.01.08 Identify and use sales techniques to meet client needs and wants.
5.C.01.09 Discuss strategies to acquire and retain a customer base.

5.C Performance Examples:
- Research reliable sources to identify marketing and industry data related to a business.
- Conduct market research by developing a survey and presenting the results.
- Create a promotional campaign using a variety of media.
- Write a marketing plan for a product.

5.D Financial Concepts and Applications in Business
5.D.01 Demonstrate an understanding of financial concepts and applications.
5.D.01.01 Identify essential financial reports and understand their purpose (i.e., budget, balance sheet and income statement).
5.D.01.02 Describe payroll practices (i.e., deductions – federal, FICA and state taxes and insurances).
5.D.01.03 Identify the importance of maintaining accurate records.
5.D.01.04 Apply practices related to pricing, purchasing and billing.
5.D.01.05 Maintain and reconcile a checking account.
5.D.01.06 Identify the options for funding a business.

5.D Performance Examples:
- Given an employee time card and rate of pay, calculate gross pay, taxes, deductions and net pay.
- Develop a budget for a simulated business or project.
- Analyze and discuss financial documents from a company.
- Research various methods of funding a business.

5.E Legal/Ethical/Social Responsibilities
5.E.01 Demonstrate an understanding of legal, ethical and social responsibility for businesses.
5.E.01.01 Identify state and federal laws and regulations related to managing a business.
5.E.01.02 Describe and identify ethical business practices.
5.E.01.03 Demonstrate an understanding of business contracts.
5.E.01.04 Explain the role of diversity in the workplace.
5.E.01.05 Explain the role of labor organizations.
5.E.01.06 Identify practices that support clean energy technologies and encourage environmental sustainability.
5.E.01.07 Demonstrate an understanding of how technology advancements impact business practices.
5.E Performance Example:
- Read and interpret a contract.
- Complete an application for a license, permit or certificate.
- Research federal, state and local regulations and laws required for a business.
- Participate in and summarize a discussion with a member of a labor or civil rights organization.

Selected Websites

- CVTE Strand 1, 4, and 5 Resources: [https://sites.google.com/a/mccanntech.org/cvte-strands-1-4-and-5-resources/](https://sites.google.com/a/mccanntech.org/cvte-strands-1-4-and-5-resources/)
- Entrepreneur: http://www.entrepreneur.com
- Inc. Magazine: http://www.inc.com/
- Junior Achievement “Be Entrepreneurial Program”: https://www.juniorachievement.org/web/ja-usa/home
- Kahn Academy Interviews with Entrepreneurs: https://www.khanacademy.org/economics-finance-domain/entrepreneurship2/interviews-entrepreneurs
- National Federation of Independent Business: www.nfib.com
- SBA Loans: [http://www.sba.gov](http://www.sba.gov)
- Small Business Administration: [www.sba.gov](http://www.sba.gov)

Glossary

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Balance sheet</td>
<td>A statement of the assets, liabilities and capital of a business at a particular point in time.</td>
</tr>
<tr>
<td>Budget</td>
<td>An estimate of income and expenditure for a set period of time.</td>
</tr>
<tr>
<td>Business Ownership</td>
<td>Types of business ownership refer to the legal structure of an organization. Legal structures include: Sole Proprietorship, Partnerships, Corporations and Limited Liability Companies.</td>
</tr>
<tr>
<td>Business Plan</td>
<td>A written document that describes in detail your business goals and how you are going to achieve them from a marketing, operational and financial point of view.</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
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<tr>
<td>-----------------------------------------------------------</td>
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</tr>
<tr>
<td>Chain of Command and Organizational Structure</td>
<td>Refers to the management structure of an organization. It identifies lines of authority, lines of communication, and reporting relationships. Organizational structure determines how the roles, power and responsibilities are assigned and coordinated and how information flows between the different levels of management. (A visual representation of this structure is called an org chart).</td>
</tr>
<tr>
<td>Income Statement</td>
<td>A financial statement providing operating results for a specific time period showing a business’s revenues, expenses and profit or loss.</td>
</tr>
</tbody>
</table>
| Market Research                                           | • Primary: Surveys, Focus Groups, Observation  
• Secondary: Websites, Internet                                                                                                                                                                                                                                                                                               |
| Marketing Mix                                             | A set of controlled variables that formulate the strategic position of a product or service in the marketplace. These variables are known as the 4 P’s of marketing and include product, place, price and promotion.                                                                                                                                                      |
| Methods to Track Inventory, Productivity and Labor Cost   | Refers to the processes a business uses to account for: 1) the inflows and outflows of inventory and materials related to inventory; 2) the efficiency of operations and 3) the cost of labor including salary and benefits.                                                                                                                                   |
| Promotional Tools and Techniques                          | The six elements of a promotional mix are: advertising, visual merchandising, public relations, publicity, personal selling and sales promotion.                                                                                                                                                                                                  |
| Supply Chain                                              | The supply chain, or channel of distribution, describes how the product is handled and/or distributed from suppliers with materials, to the manufacturer, wholesaler or retailer and finally to the consumer.                                                                                                                                                   |
| Target Market                                             | Those who are most likely to buy your product or service.                                                                                                                                                                                                                                                                              |
Strand 6: Technology Literacy Knowledge and Skills

6.A  Technology Literacy Knowledge and Skills (Grades 9 through 12)
   6.A.01  Demonstrate proficiency in the use of computers and applications, as well as an understanding of the concepts underlying hardware, software, and connectivity.
   6.A.01.01  Use online help and other support to learn about features of hardware and software, as well as to assess and resolve problems.
   6.A.01.02  Install and uninstall software; compress and expand files (if the district allows it).
   6.A.01.03  Explain effective backup and recovery strategies.
   6.A.01.04  Apply advanced formatting and page layout features when appropriate (e.g., columns, templates, and styles) to improve the appearance of documents and materials.
   6.A.01.05  Use editing features appropriately (e.g., track changes, insert comments).
   6.A.01.06  Identify the use of word processing and desktop publishing skills in various careers.
   6.A.01.07  Identify the use of database skills in various careers.
   6.A.01.08  Define and use functions of a spreadsheet application (e.g., sort, filter, find).
   6.A.01.09  Explain how various formatting options are used to convey information in charts or graphs.
   6.A.01.10  Identify the use of spreadsheet skills in various careers.
   6.A.01.11  Use search engines and online directories.
   6.A.01.12  Explain the differences among various search engines and how they rank results.
   6.A.01.13  Explain and demonstrate effective search strategies for locating and retrieving electronic information (e.g., using syntax and Boolean logic operators).
   6.A.01.14  Describe good practices for password protection and authentication.

   6.A.02  Demonstrate the responsible use of technology and an understanding of ethics and safety issues in using electronic media at home, in school, and in society.
   6.A.02.01  Demonstrate compliance with the school’s Acceptable Use Policy.
   6.A.02.02  Explain issues related to the responsible use of technology (e.g., privacy, security).
   6.A.02.03  Explain laws restricting the use of copyrighted materials.
   6.A.02.04  Identify examples of plagiarism, and discuss the possible consequences of plagiarizing the work of others.

   6.A.03  Design and implement a personal learning plan that includes the use of technology to support lifelong learning goals.
   6.A.03.01  Evaluate the authenticity, accuracy, appropriateness, and bias of electronic resources, including Web sites.
   6.A.03.02  Analyze the values and points of view that are presented in media messages.
   6.A.03.03  Describe devices, applications, and operating system features that offer accessibility for people with disabilities.
6.A.03.04 Evaluate school and work environments in terms of ergonomic practices.
6.A.03.05 Describe and use safe and appropriate practices when participating in online communities (e.g., discussion groups, blogs, social networking sites).
6.A.03.06 Explain and use practices to protect one's personal safety online (e.g., not sharing personal information with strangers, being alert for online predators, reporting suspicious activities).
6.A.03.07 Explain ways individuals can protect their technology systems and information from unethical users.

6.A.04 Demonstrate the ability to use technology for research, critical thinking, problem solving, decision making, communication, collaboration, creativity, and innovation.
6.A.04.01 Devise and demonstrate strategies for efficiently collecting and organizing information from electronic sources.
6.A.04.02 Compare, evaluate, and select appropriate electronic resources to locate specific information.
6.A.04.03 Select the most appropriate search engines and directories for specific research tasks.
6.A.04.04 Use a variety of media to present information for specific purposes (e.g., reports, research papers, presentations, newsletters, Web sites, podcasts, blogs), citing sources.
6.A.04.05 Demonstrate how the use of various techniques and effects (e.g., editing, music, color, rhetorical devices) can be used to convey meaning in media.
6.A.04.06 Use online communication tools to collaborate with peers, community members, and field experts as appropriate (e.g., bulletin boards, discussion forums, listservs, Web conferencing).
6.A.04.07 Plan and implement a collaborative project with students in other classrooms and schools using telecommunications tools (e.g., e-mail, discussion forums, groupware, interactive Web sites, video conferencing).
Appendices

The framework teams created an "Appendix" listing potential industry recognized credentials attainable by secondary students; lists of professional, student, and relevant government organizations; and useful resources and websites. *It is important to note that although most Framework Teams provided information for the "Appendix", not all teams did. Therefore, sub-headings within the "Appendix" without information have been deleted.*

Disclaimer: Reference in the Appendices Section to any specific commercial products, processes, or services, or the use of any trade, firm or corporation name is for the information and convenience of the public, and does not constitute endorsement or recommendation by the Massachusetts Department of Elementary and Secondary Education.
## Embedded English Language Arts and Literacy

<table>
<thead>
<tr>
<th>CVTE Learning Standard Number</th>
<th>Strand Coding Designation Grades ELAs Learning Standard Number</th>
<th>Text of English Language Arts Learning Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.F.</td>
<td>WHST. 9 – 12.5</td>
<td>Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Performance Example:</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Using graphic organizers, students will create an organizational chart on the departments on a food and beverage property.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Students will create a flip chart defining job descriptions in the food industry demonstrating clear, concise, coherent writing.</td>
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<tr>
<td></td>
<td></td>
<td><strong>Performance Example:</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Students will create a poster/collage/scrapbook/bulletin board defining and describing the fundamentals of domain specific information demonstrating command of conventions of standard English grammar and usage.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Students will produce a booklet/brochure for a career area school advertising the courses/workshops for training in various positions in the lodging industry. The product will include job descriptions, roles, and functions of the positions, using accurately domain specific words and phrases.</td>
</tr>
<tr>
<td>2.K.</td>
<td>WHST. 9-10.6</td>
<td>Use technology, including the Internet, to produce, publish, and update individual or shared writing products, taking advantage of technology's capacity to link to other information and to display information flexibly and dynamically.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Performance Example:</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Given domain specific information, students will write an appropriate advertisement for social media use.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Using technology, students will produce examples of package offers demonstrating concise, clear, coherent writing.</td>
</tr>
<tr>
<td>2.B.01.06 2.H.01.04</td>
<td>WHST. grades 6-12.4</td>
<td>Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.</td>
</tr>
<tr>
<td></td>
<td>WHST. Grades 6-12.10</td>
<td>Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.</td>
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<tr>
<td></td>
<td></td>
<td><strong>Performance Example:</strong></td>
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<tr>
<td></td>
<td></td>
<td>• Students will demonstrate key components of good written communication skills in all business writing including, but not limited to, emails, business plans, data analysis, reviews and reports in clear, concise writing. The style and organization will be appropriate for the purpose and audience and follow the English standards of grammar and usage.</td>
</tr>
<tr>
<td>2.D.01.04 2.E.02.03 2.E.04.01 2.E.04.03</td>
<td>WHST. grades 6-12.4</td>
<td>Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.</td>
</tr>
</tbody>
</table>

Hospitality & Tourism Occupational Cluster
Massachusetts Vocational Technical Education Framework
Performance Example:
- Using content specific topics, students will create graphic organizers such as top-down webs and Venn diagrams demonstrating knowledge and understanding of the topic, using domain specific vocabulary.

Performance Example:
- Given content specific information and scenarios, students will analyze and write a paper in which they articulate understanding of the topic with a clear focus, integrating information from multiple sources.

Performance Example:
- In a group "customer satisfaction" project, students will role-play satisfactory client consultations and other appropriate customer service skills that demonstrate active and reflective listening paying special attention to customer preferences.

Embedded Mathematics

<table>
<thead>
<tr>
<th>CVTE Learning Standard Number</th>
<th>Math Content Conceptual Category and Domain Code Learning Standard Number</th>
<th>Text of Mathematics Learning Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.E.02.05</td>
<td>Number Sense and Operations 10</td>
<td>10.N.4 Use estimations to judge the reasonableness of results of computations and of solutions to problems involving real numbers</td>
</tr>
</tbody>
</table>

Performance Example:
- When given several guest checks and the associated tips for service, students will be able to estimate if a fair gratuity (15-20%) was included.

Performance Example:
- Students will accurately design the layout for a large wedding in a banquet hall. They must include the area of the room, the dance floor, the DJ/band equipment (in the shape of a trapezoid), two buffet lines, beverage service area, small round table for cake; then based on the size of the room, estimate how many 10-foot round tables would safely fit.

Performance Example:
- Select, create, and interpret an appropriate graphical representations (e.g., scatterplot, table, stem-and-leaf plots, box-and-whisker plots, circle graph, line graph, and line plot) for a set of data and use appropriate statistics (e.g., mean, median, range, and mode) to communicate information about the data. Use these notions to
### Performance Example:

- Students will analyze occupancy rates for a small hotel based on a monthly and weekly basis. Students will further study and look for trends based on weekday vs. weekend occupancy, holiday vs. non-holiday occupancy, and basic vs. deluxe accommodations. Students will graph data and draw conclusions about peak seasons and suggest promotional ideas to increase occupancy during slower times.

<table>
<thead>
<tr>
<th>Standard Code</th>
<th>Standard Description</th>
<th>Performance Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.I.01.03</td>
<td>Data Analysis, Statistics, and Probability 10</td>
<td>Select, create, and interpret an appropriate graphical representation (e.g., scatterplot, table, stem-and-leaf plots, box-and-whisker plots, circle graph, line graph, and line plot) for a set of data and use appropriate statistics (e.g., mean, median, range, and mode) to communicate information about the data. Use these notions to compare different sets of data.</td>
</tr>
</tbody>
</table>

### Performance Example:

- Create and display employee schedule; collect data based on each employee’s individual timeliness and adherence to his/her own work schedule to be used as part of each person’s work review.

<table>
<thead>
<tr>
<th>Standard Code</th>
<th>Standard Description</th>
<th>Performance Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.E.06.01</td>
<td>Patterns, relations, and algebra 10</td>
<td>Solve equations and inequalities including those involving absolute value of linear expressions (e.g., $</td>
</tr>
</tbody>
</table>

### Performance Example:

- Given a simple menu of 10 dinner selections, students will determine the offering that provides the greatest financial return and rate the remaining meals in order of most return to least return.

<table>
<thead>
<tr>
<th>Standard Code</th>
<th>Standard Description</th>
<th>Performance Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.C.01.10; 2.C.01.11</td>
<td>Data Analysis, Statistics, and Probability</td>
<td>Describe and explain how the relative sizes of a sample and the population affect the validity of predictions from a set of data. Describe, complete, extend, analyze, generalize, and create a wide variety of patterns, including iterative and recursive patterns such as Pascal’s Triangle.</td>
</tr>
</tbody>
</table>

### Performance Example:

- Students will design and display the results of a customer satisfaction survey based on restaurant, hotel, or other similar establishment.

<table>
<thead>
<tr>
<th>Standard Code</th>
<th>Standard Description</th>
<th>Performance Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.D.1</td>
<td>Data Analysis, Statistics, and Probability 10</td>
<td>Select, create, and interpret an appropriate graphical representation (e.g., scatter plot, table, stem-and-leaf plots, box-and-whisker plots, circle graph, line graph, and line plot) for a set of data and use appropriate statistics (e.g., mean, median, range, and mode) to communicate information about the data. Use these notions to compare different sets of data. Approximate a line of best fit (trend line) given a set of data (e.g., scatterplot). Use technology when appropriate.</td>
</tr>
</tbody>
</table>

### Performance Example:

- When given historical information on travel trends and/or energy costs students will be able to graphically represent the data and interpret how these trends relate to effective management in the tourism and hospitality sector.

<table>
<thead>
<tr>
<th>Standard Code</th>
<th>Standard Description</th>
<th>Performance Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.E.06.01</td>
<td>Patterns, Relations, and Algebra 10</td>
<td>Solve everyday problems that can be modeled using systems of linear equations or inequalities. Apply algebraic and graphical methods to the solution. Use technology when appropriate. Include mixture, rate, and work problems.</td>
</tr>
</tbody>
</table>

### Performance Example:

- Students will be able to quantify the cost of different menu items and relate the size of individual item portions to profitability using linear functions.
### Earth and Space Science

<table>
<thead>
<tr>
<th>CVTE Learning Standard Number</th>
<th>Subject Area, Topic Heading and Learning Standard Number</th>
<th>Text of Earth and Space Science Learning Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.D.01.04</td>
<td>Mapping the Earth 1</td>
<td>Recognize, interpret, and be able to create models of the earth’s common physical features in various mapping representations, including contour maps.</td>
</tr>
<tr>
<td></td>
<td>Performance Example:</td>
<td>Students will select a destination market and assemble a travel proposal for a convention. The proposal will include accurate, to-scale maps of the specific destination (e.g., Boston, MA) as well as maps with directions to area attractions beyond the convention site that may be of interest to attendees (e.g., Museum of Fine Arts, U.S.S. Constitution, Union Oyster House).</td>
</tr>
<tr>
<td>2.D.01.05</td>
<td>Energy Resources in the Earth System 2.1</td>
<td>Recognize, describe, and compare renewable energy resources (e.g., solar, wind, water, biomass) and nonrenewable energy resources (e.g., fossil fuels, nuclear energy).</td>
</tr>
<tr>
<td></td>
<td>Performance Example:</td>
<td>Students will investigate the return on investment for various types of hotels (e.g., 10 room bed and breakfast, 100 room inn, 2000 room hotel) on the installation of photovoltaic panels for electricity.</td>
</tr>
<tr>
<td>2.D.01.05</td>
<td>Energy Resources in the Earth System 2.2</td>
<td>Describe the effects on the environment and on the carbon cycle of using both renewable and nonrenewable sources of energy.</td>
</tr>
<tr>
<td></td>
<td>Performance Example:</td>
<td>Students will examine the feasibility of converting hotel airport shuttle vans to run on vegetable oil waste from the kitchen. Students will consider how much diesel fuel is used in a conventional engine, the cost of transitioning to an engine that burns waste oil from a professional/institutional kitchen, and the possible customer appeal of the sustainable amenity.</td>
</tr>
<tr>
<td>CVTE Learning Standard Number</td>
<td>Subject Area, Topic Heading and Learning Standard Number</td>
<td>Text of Biology Learning Standard</td>
</tr>
<tr>
<td>-------------------------------</td>
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</tbody>
</table>
| 2.A.04.01                    | Systems in Living Things 6                                | Identify the general functions of the major systems of the human body (digestion, respiration, reproduction, circulation, excretion, protection from disease, and movement, control, and coordination) and describe ways that these systems interact with each other. Performance Example:  
  • Students will study and practice to obtain Choke Saver and CPR certifications. In this process, they will be able to correctly identify aspects of human anatomy (such as various locations to find a person’s pulse) and physiology as well as the interrelated nature of the human system (i.e. explain why the lips and fingertips of an unconscious person may turn blue and the appropriate first aid response for this scenario). |
| 2.A.04                       | Anatomy and Physiology 4.2                               | Explain how the circulatory system (heart, arteries, veins, capillaries, red blood cells) transports nutrients and oxygen to cells and removes cell wastes. Describe how the kidneys and the liver are closely associated with the circulatory system as they perform the excretory function of removing waste from the blood. Recognize that kidneys remove nitrogenous wastes, and the liver removes many toxic compounds from blood. Performance Example:  
  • Students will describe from a specific, anatomical perspective as to why chest compressions are an integral part of CPR for a person suffering from cardiac arrest. |
| 2.A.05 & 2.E.01.04           | Anatomy and Physiology 4.4                               | Explain how the nervous system (brain, spinal cord, sensory neurons, motor neurons) mediates communication among different parts of the body and mediates the body’s interactions with the environment. Identify the basic unit of the nervous system, the neuron, and explain generally how it works. Performance Example:  
  • Students will be able to describe the role of alcohol on the human nervous system. They will cite specific attributes an intoxicated person will demonstrate, and explain the physiological reason behind the behavior (i.e. why is a person’s reaction time slowed?) |
| 2.D.01.05                    | Ecology 6.4                                               | Explain how water, carbon, and nitrogen cycle between abiotic resources and organic matter in an ecosystem, and how oxygen cycles through photosynthesis and respiration. Performance Example:  
  • Students will examine the cost savings (water & electricity) of a towel-reuse policy in a hotel, as well as the implementation of various water saving devices such as rain barrel installation, and the use of gray water to maintain landscaping on a hotel or restaurant property. |
| 2.A.01; 2.E.02.12            | Biology 2.3                                              | Use cellular evidence (e.g., cell structure, cell number, cell reproduction) and modes of nutrition to describe the six kingdoms (Archaebacteria, Eubacteria, Protista, Fungi, Plantae, Animalia). Performance Example:  
  • Students will explain how the most common types of food borne illness originate. They will give examples of different types of food borne illnesses, provide the organism type, its cellular structure, and modes of reproduction. Students will then explain how to prevent contamination and methods for eradicating infestations of various pests and pathogenic microbes. |
| 2.A.02; 2.E.06.04            | Anatomy and Physiology 4.7                               | Recognize that communication among cells is required for coordination of body functions. The nerves communicate with electrochemical signals, hormones circulate through the blood, and some cells produce signals to communicate only with nearby cells. |
**Performance Example:**
- Students will accurately define the term “allergy” versus “food intolerance” and explain how the human body responds to foods in each situation.

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### Physical Science (Chemistry)

<table>
<thead>
<tr>
<th>CVTE Learning Standard Number</th>
<th>Subject Area, Topic Heading and Learning Standard Number</th>
<th>Text of Chemistry Learning Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.A.06.06</td>
<td>Properties of Matter 1.1</td>
<td>Identify and explain physical properties (i.e. density, melting point, conductivity, malleability) and chemical properties (i.e. the ability to form new substances). Distinguish between chemical and physical changes.</td>
</tr>
</tbody>
</table>

**Performance Example:**
- Students will correctly read and interpret information on an SDS to best protect themselves, their colleagues, and customers.

<table>
<thead>
<tr>
<th>CVTE Learning Standard Number</th>
<th>Subject Area, Topic Heading and Learning Standard Number</th>
<th>Text of Chemistry Learning Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.A.01</td>
<td>Acids and Bases and Oxidation-Reduction Reactions 8.2</td>
<td>Relate hydrogen ion concentrations to the pH scale and to acidic, basic, and neutral solutions. Compare and contrast various common acids and bases (e.g., vinegar, baking soda, soap, citrus juice).</td>
</tr>
</tbody>
</table>

**Performance Example:**
- Students will explain why bacterial growth is inhibited in acidic environments.

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### Physical Science (Physics)

<table>
<thead>
<tr>
<th>CVTE Learning Standard Number</th>
<th>Subject Area, Topic Heading and Learning Standard Number</th>
<th>Text of Physics Learning Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.A.01</td>
<td>Heat and Heat Transfer 3.1</td>
<td>3.1 Explain how heat energy is transferred by convection, conduction, and radiation</td>
</tr>
</tbody>
</table>

**Performance Example:**
- Students will explain the benefits of convection ovens over traditional ovens and describe various scenarios in which a food service director would need the use of convection ovens versus traditional oven settings. Students will additionally discuss the benefits of microwave ovens and radiation exposure to minimize food borne illness.

<table>
<thead>
<tr>
<th>CVTE Learning Standard Number</th>
<th>Subject Area, Topic Heading and Learning Standard Number</th>
<th>Text of Physics Learning Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.A.01</td>
<td>Heat and Heat Transfer 3.2</td>
<td>Explain how heat energy will move from a higher temperature to a lower temperature until equilibrium is reached.</td>
</tr>
</tbody>
</table>

**Performance Example:**
- Students will accurately demonstrate how to take temperatures of prepared foods to ensure minimal food poisoning risk. Students will explain the rationale behind the criteria for each measurement (e.g., why thermometers are inserted into the thickest part of meat, poultry, and fish).
<table>
<thead>
<tr>
<th>CVTE Learning Standard Number</th>
<th>Subject Area, Topic Heading and Learning Standard Number</th>
<th>Text of Technology/Engineering Learning Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.E.01</td>
<td>Materials, Tools, and Machines 1</td>
<td>1.1 Given a design task, identify appropriate materials (e.g., wood, paper, plastic, aggregates, ceramics, metals, solvents, adhesives) based on specific properties and characteristics (e.g., strength, hardness, and flexibility). 1. 2 Identify and explain appropriate measuring tools, hand tools, and power tools used to hold, lift, carry, fasten, and separate, and explain their safe and proper use. 1.3 Identify and explain the safe and proper use of measuring tools, hand tools, and machines (e.g., band saw, drill press, sander, hammer, screwdriver, pliers, tape measure, screws, nails, and other mechanical fasteners) needed to construct a prototype of an engineering design.</td>
</tr>
<tr>
<td></td>
<td>Performance Example: Students will prepare, operate, and clean various stations including those for food and beverages; in addition, they will provide schematic designs and sample menus for large-scale events such as conventions.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2.E.02.04 Engineering Design 2</td>
<td>2.2 Demonstrate methods of representing solutions to a design problem, e.g., sketches, orthographic projections, multiview drawings.</td>
</tr>
<tr>
<td></td>
<td>Performance Example: In a role playing scenario, students will develop several different schematic arrangements for all the materials needed at a wedding reception including: head table, guest tables, dance floor, buffet food service, beverage station, and area for band/DJ personnel and equipment.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2.G.01 Construction technologies 5</td>
<td>5.1 Describe and explain parts of a structure e.g., foundation, flooring, decking, wall, roofing systems.</td>
</tr>
<tr>
<td></td>
<td>Performance Example: Compare and contrast the various needs of each of the lodging business discussed in “2.G Fundamentals of the Lodging Industry” in terms of the structural parts noted above.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2.K.01 Communication Technologies 3</td>
<td>3.3 Identify and compare communications technologies and systems, i.e. audio, visual, printed, and mass communication.</td>
</tr>
<tr>
<td></td>
<td>Performance Example: Given a set budget, students will work in small groups to design an ad campaign to advertise their new restaurant in town. The goal is to identify their target market based on their business model, and to advertise to as many of those individuals as possible without running over budget.</td>
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ARTICULATION AGREEMENT

Between
Massachusetts Community Colleges

And
Massachusetts Chapter 74-Approved Secondary
Career/Vocational Technical Hospitality Management Programs

Effective Date: November 13, 2014

for more information, click

http://www.masscc.org/partnerships-initiatives/voc-schools-articulation-agreements
Industry Recognized Credentials (Licenses and Certifications/Specialty Programs)

American Heart Association CPR, Choke Saver, AED and First Aid
American Hotel and Lodging Association
   Lodging Management Program (yr. 1 & yr. 2)
Health Communications, Inc. TIPS
National Restaurant Association Pro-Start ® (yr. 1 & yr. 2)
National Restaurant Association ServSafe Alcohol ® Training
National Restaurant Association ServSafe Food Safety Certification®
Massachusetts Allergen Training Program Certification supported by the National Restaurant Association
OSHA 10-hour General Industry Certification
Red Cross CPR, AED, Choke Saver and First Aid
Other

Reference Materials


Related National, Regional, and State Professional Organizations

- American Culinary Federation (ACF)
- American Hotel & Lodging Association (AH&LA)
- Automobile Association of America (AAA)
- Club Managers of America (CMA)
- Massachusetts Lodging Association (MLA)
- Massachusetts Restaurant Association (MRA)
- National Restaurant Association (NRA)
- Council on Hotel Restaurant and Institutional Education (CHRIE)
- Meeting Professionals International (MPI)
- World Tourism Organization (WTO)

Student Organizations

- Business Professionals of America (BPA)
- Distributive Education Clubs of America (DECA)
- Family, Career and Community Leaders of America (FCCLA)
- Future Farmers of America (FFA)
- Future Business Leaders of America (FBLA)
- National Technical Honor Society (NTHS)
- Skills USA www.maskillsusa.org