Montachusett Regional Vocational Technical School

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Program of Studies 2026-2027

Serving the Communities of

Ashby ◆ Ashburnham ◆ Athol ◆ Barre ◆ Fitchburg ◆ Gardner ◆ Harvard
Holden ◆ Hubbardston ◆ Lunenburg ◆ Petersham ◆ Phillipston ◆ Princeton
Royalston ◆ Sterling ◆ Templeton ◆ Westminster ◆ Winchendon

An Academic & Vocational Technical Integrated Educational Plan

Montachusett Regional Vocational Technical School does not discriminate on the basis of race, color, sex, gender identity, religion, national origin, sexual orientation, disability, homelessness, or limited English proficiency.
District Title IX Compliance Coordinator: Victoria Zarozinski, Director of Student Support (978) 345-9200 x5237.
District 504 Coordinator: Kathryn Schmidt, Assistant. Principal (978) 345-9200 x5217

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Message from the Principal

Dear Students, Parents and Guardians,

The essential goal of any secondary school is to fully prepare its students either to enter the workforce as a highly skilled employee, or to enroll at a college, university or institute with the skills to immediately begin a pathway toward a degree without remediation. We take great pride in the fact that, at Montachusett Regional Vocational Technical School, we provide abundant resources and skilled instructors who can ensure that students will graduate from our school fully prepared to choose either of these options.

While Monty Tech will provide the opportunity, it is up to the student and their family to decide which pathway they want to take and which destination they seek – college, career or even military or civic service. The Program of Studies should be considered the map for planning this journey. Families should review this document together and discuss the pathway options to ensure each student has the best possible four-year high school experience. Students need to plan ahead and consider, for example, if they want to prepare themselves for our rigorous advanced placement offerings or dual enrollment programs as an opportunity to experience college-level instruction while still enrolled at Monty Tech. The best method of considering all these options is to be fully aware of the information in this Program of Studies. Families and students are also encouraged to reach out to their school counselors and instructors whenever they have questions about a particular pathway or program. Making informed decisions requires knowing your options, setting realistic expectations, and understanding the potential outcomes of the choices made.

Students, parents and families should recognize that there are certain academic and vocational competencies that must be met in order to receive a diploma; however, there are also numerous opportunities to personalize your school experience through elective offerings, co-operative education placements, extracurricular activities, and athletics. Because each student has individual goals and needs, it is imperative that students and their families participate in making informed choices for a successful future.

Thank you for making us a part of your journey. We are better together.

Dayana Carlson, Principal

MISSION STATEMENT

Every student will graduate from Montachusett Regional Vocational Technical School with the skills, knowledge, and abilities to be a productive and effective member of an ever-changing society.

NEASC ACCREDITATION

Most recently in 2016, the New England Association of Schools and Colleges (NEASC), a non-governmental, nationally recognized organization whose affiliated institutions include elementary schools through collegiate institutions offering post-graduate instruction, accredited Montachusett Regional Vocational Technical School. Specifically, the Commission on Public Schools, one of the four commissions that comprise NEASC, accredits Monty Tech.

Accreditation of an institution by the New England Association indicates that it meets or exceeds criteria for the assessment of institutional quality periodically applied through a peer review process. An accredited school or college is one which has available the necessary resources to achieve its stated purposes through appropriate educational programs, is substantially doing so, and gives reasonable evidence that it will continue to do so in the foreseeable future. Institutional integrity is also addressed through accreditation.

Accreditation by the New England Association is not partial but applies to the institution as a whole. As such, it is not a guarantee of the quality of every course or program offered, or the competence of individual graduates. Rather, it provides reasonable assurance about the quality of opportunities available to students who attend the institution.

Monty Tech will be conducting its next Decennial Accreditation Visit in Spring 2026. Inquiries regarding the status of an institution's accreditation by the New England Association should be directed to the administrative staff of the school or college. Individuals may also contact the Association:

New England Association of Schools and Colleges
3 Burlington Woods Drive
Suite 100
Burlington, MA 01803
(781) 425-7700

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GRADUATION REQUIREMENTS & CREDITS

Carnegie Credit System

Satisfactory completion of all courses at Monty Tech results in students earning "Carnegie Credits" which are recorded on a student's transcript. A student's academic and vocational schedule alternates from week to week (A week/B week) with students moving through nine scheduled periods during academic week while remaining in their shop program throughout the day during vocational week.

Each individual period during a full-year academic course is valued at .50 Carnegie credits. Therefore, successful completion of a two-period, full-year, course such as in English, Math and Science results in earning one full Carnegie credit. Completion of a full-year, one period class, such as U.S. History or Spanish earns .50 credits, and the completion of a semester long, one period, elective earns .25 credits.

In terms of the vocational week, since students remain in the shop for all nine periods, successful completion earns 4.50 credits. During any given year, successful completion of all coursework will result in the student earning a total of 9 credits.

Promotion and Graduation

Using the Carnegie credit system described above, students must earn the following number of credits to be promoted to the next grade and eventually graduate. For promotion to the next grade, students are required to satisfy grades in English, Math and Science during the current school year or, in the case of failure, during that school year's summer school session.

In order to advance from…	***Students must have earned…***
Freshmen to Sophomore year…	8 credits
Sophomore to Junior year…	17 credits
Junior to Senior year…	26 credits
In order to graduate…	35 credits

CD Requirement: All families are reminded that the Massachusetts Department of Elementary and Secondary Education mandates that all students must receive a competency determination (CD) by satisfactorily completing coursework that has been certified by the student's district as showing mastery of the skills, competencies, and knowledge contained in the state academic standards and curriculum frameworks in the areas measured by the MCAS high school tests and in any additional areas determined by the board.

Distribution of Required Course Credit: In order to fully ensure the college and career readiness of all Monty Tech students, all students must meet the following cumulative graduation requirements.

	Years	**Credits**
English	4	4
Math	4	4
Science	4	4
History / Social Sciences (*including AP Psychology*)	4	2
Related Theory and/or Electives: *Physical Education, Personal Fitness, World Language, JROTC Leadership, Visual Arts, Yoga & Meditative Art, AP Seminar, AP Research, Digital Essentials, Directed Studies, etc.*	4	3
Vocational Program	4	18.00
Total		**35.00**

Students should particularly note the following –

- All seniors must have earned all of their graduation credit requirements in order to participate in the annual graduation ceremony.
- All students are required to successfully complete a physical science (Chemistry or Physics) in order to meet graduation requirements.
- Physical Education is a federally mandated course for students and required one semester per year as schedule allows. Students may elect to take more than one course per year as the schedule allows.
- Earning a passing grade/credit in a student's Vocational Shop course is non-negotiable. This includes Freshmen Exploratory as well as Freshmen Shop. Failure in any shop course or Related Theory will result in automatic retention. Credit for a failed Related Theory course must be made up during Summer School.
- Credits are counted cumulatively. Therefore, students should be mindful that multiple failures even in lower-credit bearing courses could affect a student's graduation status.

COURSE SCHEDULING PROCEDURES

In late winter, students will begin selecting courses for the next year. All students will be provided access to the Program of Studies and a course selection form. Faculty will make time available to provide recommendations for the next appropriate course and level in a particular core subject area. Students will also select a sufficient number of electives to meet the nine credits per year requirement. **Be aware that certain courses need teacher approval and/or grade prerequisites.** Students will meet with their school counselor to review and finalize their course selections.

Students are encouraged to review their final choices with their parents. Any changes can be discussed with their school counselor and/or possibly the Director of Academics or Director of Vocational Programs. Students must be attentive to fulfilling the required distribution of credits needed for graduation in selecting their courses.

Honoring Students' Course Selections

Every effort will be made to honor all course selections. Core courses will receive priority. However, we are limited by our facilities and size of faculty. Since we attempt to individualize each student's program, the school is complicated to schedule. All students ***must select*** three or four alternate electives during the course request period. We reserve the right to select these alternate electives, and/or other available electives, when their primary choices are not available. In such cases, students may not be notified. Course offerings may be limited due to enrollment, staffing, and/or course requests. To accommodate scheduling, we reserve the right to change the semester a student will take a course when the course is offered both semesters. This option will help balance class sizes.

Receiving Course Schedules

After all course selections have been finalized, a master schedule will be developed. All students will be scheduled electronically using the master schedule. Once schedules have been completed for all grades they will be made available to all students in mid-August.

Course Change Policy

A great deal of time and thought is devoted, each year, to student course selection and a master schedule with an appropriate number of course sections to successfully meet the needs of our students. It is the view of Monty Tech that part of a student's education involves learning to adjust to a variety of personalities, instructional styles, class management techniques, and course assignments. Therefore, changing student schedules should not be an impulsive exercise.

To accommodate the changes of heart or career pathways, there will be a two-week window of opportunity offered at the beginning of each semester, during which students can, where space permits, change courses. After this add/drop period, changes to individual schedules will be limited to special circumstances at the discretion of the administration.

For example, an exception to the above-mentioned policy will be changes to course levels. An example would be moving from Pre-AP Chemistry (SC295) to Chemistry (SC285). A parent, student or teacher may initiate this process. A Change of Course Form must be secured from the student's school counselor. The completion of this form, to include a statement of reason for the change along with the signatures of the parent, school counselor, classroom teacher, and appropriate Director approving the change, is required to make any adjustments. If there is no consensus, a meeting involving these parties will be initiated. If no agreement is attained, the parent may request, in writing, a review by the designated school administrator. If the request for a change is approved, a Withdrawn (WD) will appear on the transcript. Whatever grades the student has achieved will be transferred to the new class.

A change of teacher while keeping the same course is discouraged. Parents are requested to discuss classroom conflicts or issues with that teacher and, if needed, the appropriate administrator. If unsatisfied, a parent can make a request for teacher change with the Principal. This request must be in writing and detail the specific complaints or concerns initiating the change. The Principal will not review any request not submitted, with details, in writing. Like above, all grades from dropped courses will transfer to the new class.

PATHWAYS TO COLLEGE

The overall function of the curriculum at Montachusett Regional Vocational Technical School is twofold. Primarily, the curriculum is designed to guarantee that students, upon graduation, have employable skills so that they are adequately prepared for the world of work. Furthermore, in order to ensure that all potential pathways are accessible, the curriculum is doubly designed to provide challenging college preparatory courses to those students who, upon graduation, intend to pursue higher education in the form of college, university or technical schools. No matter what path a student is considering, it is extremely important that students reflect on their goals and identify their pathway as early as freshman year in order to meet the professional expectations or collegiate admissions standards**.**

In terms of those collegiate standards, the Massachusetts High School Program of Studies (MassCore) is the recommended program of study that Massachusetts high school students need in order to be better prepared for college and a career. Developed by a statewide advisory group consisting of K-12, higher education and business representatives, MassCore intends to provide consistent standards for students and high schools while allowing districts to set their own additional graduation requirements. Courses included in MassCore are rigorous, engaging, and based on appropriate Massachusetts Curriculum Frameworks high school level standards.

Students should discuss plans with school counselors who will be able to advise them on grade point average (GPA), SAT scores, etc. The option to attend college remains open to all students who plan to further their education. Any student who plans to attend college should discuss such plans with his/her counselor to guarantee he/she selects the appropriate college preparatory courses to gain admittance.

MASSCore Requirements for Admission to a Four-Year Public College/University

MASSCore Framework Massachusetts High School Program of Studies		
SUBJECT	**UNITS**	**NOTES**
English Language Arts	**4 Units**	
Mathematics	**4 Units**	Including completion of Algebra 2 or the Integrated Mathematics equivalent. A mathematics course during senior year is recommended for all students. Students may substitute one unit of Computer Science that includes rigorous mathematical concepts and aligns with the Digital Literacy and Computer Science standards for a mathematics course.
Science	**3 Units of lab-based science**	Coursework in technology/engineering courses may also count for MassCore science credit. Students may substitute one unit of Computer Science that includes rigorous scientific concepts and aligns with the Digital Literacy and Computer Science standards for a laboratory science course.
History and Social Science	**3 Units**	Including U.S. History and World History.
Foreign Language	**2 Units**	Of the same language.
Physical Education	**As required by law**	"Physical education shall be taught as a required subject in all grades for all students" (M.G.L. c.71 §3).
Arts	**1 Unit**	*Note - Students enrolled in a state-approved Career and Technical Education program of studies have the option of opting out of Art and still fulfill MassCore.*
Additional Core Courses	**5 Units**	Other additional coursework (including Career and Technical Education) or any of the above. *Note: Most students majoring in CTE will take more than 5 units in a CTE program of study.*

*A unit represents a full academic year of study or its equivalent in a subject that covers all the standards contained in a specific Curriculum Framework.

** Students enrolled in a state-approved Career and Technical Education program of studies have the option of opting out of Foreign Language and Art and still fulfill MassCore.

*** Districts may designate students with demonstrated fluency and literacy in language(s) other than English as meeting the MassCore recommendations for foreign language. MassCore is a recommended program of study Massachusetts high school students need to excel in college, career, and civic life. Developed by an advisory group from elementary and secondary education, higher education, nonprofits, and the private sector, MassCore maintains flexibility for students while letting districts set additional graduation requirements. Courses included in MassCore should be rigorous, engaging, and based on appropriate learning standards for high school or beyond. Fulfilling MassCore is just a start. Students should also engage in a full range of additional learning opportunities, such as: accelerated/advanced coursework; capstones or senior projects; dual enrollment courses; online courses; service learning; work-based learning; clubs and student organizations; varsity and intramural athletics; and part-time employment.

Revised October 1, 2018

MASSACHUSETTS
Department of
Higher Education

Undergraduate Admissions Standards for the Massachusetts State University System and the University of Massachusetts

The admissions standards for the state universities and UMass emphasize a strong academic high school background so that students enter college ready to learn. These standards represent minimum requirements; meeting them does not guarantee admission, since campus officials consider a wide range of factors in admissions decisions. Students shall have fulfilled all requirements for the high school diploma or its equivalent upon enrollment. *It is important to note that admissions standards for the state's community colleges differ. Community colleges may admit any high school graduate or GED recipient.*

FRESHMAN APPLICANTS: The admissions standards for freshmen applicants at Massachusetts' public four-year institutions have three primary components:

- Successful completion of all requirements for high school diploma; and
- A minimum average and weighted grade point average (GPA) earned in college preparatory academic courses; and
- The submission of SAT or ACT scores.

All freshman applicants are required to successfully complete the following courses in each academic subject over their four years of high school. Applicants are required to have completed 17 courses. This reflects the required completion of four courses of mathematics in high school including mathematics in the senior year. (A course is equivalent to one full school year of study.)

UMASS Minimum Admissions Requirements

Subject	Current as of Jan. 2021
English	4 years
Mathematics	4 courses – *(Algebra 1 & 2 and Geometry or Trigonometry, or comparable coursework) including mathematics during the final year of high school*
Sciences	3 courses – (*Drawn from Natural Science and/or Physical Science and/or Technology/ Engineering), including 3 courses with laboratory work*
Social Sciences	2 courses *(including 1 course in U.S. History)*
Foreign Languages	2 courses *(in a single language)*
Electives	2 courses *(from the above subjects or from the Arts & Humanities or Computer Sciences)*

Vocational-Technical Student Applicants - Vocational-technical students must complete 16 college preparatory courses, distributed in the same manner and with the same minimum grade point averages required of other high school graduates, with the following exceptions:

- Two vocational-technical courses may be used to fulfill the two required electives.
- Vocational-technical high school graduates who do not complete the two required college preparatory

foreign language courses must complete an additional elective college preparatory course, for a total of three such courses, and satisfy *one* of the following options:

1. Complete at least 1 Carnegie unit of foreign language;
2. Complete a 4th Carnegie unit of mathematics or science, which need not be a laboratory course; or
3. Complete 1 Carnegie unit of computer science.

Note: A Carnegie unit represents a full academic year of study or its equivalent in a specific subject.

Minimum GPA Requirements: The minimum average GPA for freshman applicants, weighted for accelerated (Honors and Advanced Placement) courses, is 3.0 for both the state universities and the UMass campuses. This GPA is based on all academic courses completed and grades received for courses in which the student is currently enrolled (for example, mathematics courses in which the student is enrolled during the senior year of high school).

According to the College Boards, AP is a rigorous academic program built on the commitment, passion, and hard work of students and educators from both secondary schools and higher education. AP courses provide willing and academically prepared high school students with the opportunity to study and learn at the college level. Colleges and universities worldwide reward strong performance on AP Exams. AP is recognized by most universities in more than 60 countries outside the United States, and more than 90 percent of four-year colleges and universities in the United States grant students credit, placement or both on the basis of AP Exam scores.

Performing well on an AP exam means more than just successful completion of a course. It is a gateway to success in college. Research consistently shows that students who score a 3 or higher on AP Exams typically experience greater academic success in college and have higher graduation rates than their non-AP peers. Most four-year colleges and universities in the United States, and universities in more than 60 countries, recognize AP in the admissions process and grant students credit, placement, or both based on successful exam scores. Students taking AP will be required to complete summer work prior to starting the class. Students must take the AP exam in May to receive AP credit on their transcript. Monty Tech offers the following AP courses:

AP Language & Composition, AP Literature & Composition, English 10 AP Seminar, AP Statistics, AP Calculus, AP Pre-Calculus, AP Environmental Science, AP Chemistry, AP Physics, AP Seminar, AP Research, and AP Psychology.

Enrollment is open to all students; however, students must meet the prerequisite coursework for AP subjects. Students who elect to take AP course(s) are required to take the AP exam at the conclusion of the course. The average cost for this exam is $90. Students should see their school counselor to apply for financial aid.

Please note: Some courses may not run during a given school year due to student interest and/or teacher availability.

PROJECT LEAD THE WAY (PLTW)

The Monty Tech Science Department has entered into a unique partnership with Project Lead the Way, a nationally recognized provider of rigorous and innovative Science, Technology, Engineering, Mathematics (STEM) education programs used in middle and high schools across the country. PLTW classes are nationally standardized project-based courses that prepare students for college-level work and culminate with a student assessment, which colleges and universities can use to determine if a student earns college credit. Because of this innovative partnership, qualified graduates from Monty Tech may benefit from a number of college credits between PLTW/Monty Tech and post-secondary institutions.

DUAL ENROLLMENT PROGRAM

The Massachusetts Dual Enrollment Program provides qualified high school students with the opportunity to enroll in college-level courses at participating community colleges, state colleges, and state universities. While the program is open to all eligible students, partnering institutions place particular emphasis on supporting first-generation college students and those interested in Science, Technology, Engineering, and Mathematics (STEM) fields.

Monty Tech students who wish to participate in Dual Enrollment must meet all eligibility requirements and consult with their school counselor to review program expectations, prerequisites, and the application process. Meeting eligibility requirements does not guarantee acceptance, as final approval is determined by the participating institution and is subject to space and capacity limitations.

Additionally, it is critical that students and families understand that enrollment in a college course creates a permanent college transcript. Attendance, participation, and academic performance in these courses become part of a student's official college record and may impact future financial aid eligibility and cumulative academic standing.

State of Massachusetts Eligibility Requirements

To participate, students must meet the eligibility guidelines established by the Massachusetts Department of Higher Education (DHE). In addition, eligibility must be verified by the student's school counselor as part of the local approval process. Eligibility requirements include:

- Be enrolled in a Massachusetts public secondary school or an approved nonpublic secondary school, including a home school program;
- Meet all course prerequisites as established by the participating postsecondary institution;
- Be a Massachusetts resident; and
- Not have previously earned a high school diploma or General Educational Development (GED) credential.

Monty Tech's Eligibility Requirements

In addition to state requirements, Monty Tech students must also meet the following:

- Maintain a minimum cumulative GPA aligned with the college/university eligibility requirements to receive a recommendation from the principal, teachers, or school counselors for college-level coursework.
- Demonstrate excellent attendance and behavior.
- Must meet with their school counselor prior to enrollment to review eligibility, clarify college policies and procedures and to obtain final approval.
- Submit official college transcripts to their school counselor at the end of each semester. Poor academic performance may make you ineligible for future DE course offerings.
- (Recommended) Take the PSAT during their sophomore and/or junior year to gauge college readiness.

Course Availability and Credit

Monty Tech maintains Memoranda of Agreements (MOAs) with participating community colleges and state universities in accordance with Massachusetts Department of Elementary and Secondary Education (DESE) and Department of Higher Education (DHE) guidance. Dual Enrollment coursework may be delivered in approved instructional settings, as determined by the partnering institution, including:

- On the Monty Tech campus;
- At a participating postsecondary institution's campus;
- At another approved secondary school site; and
- Through approved online or remote instructional formats.

Eligible students may enroll in **ONE Dual Enrollment course per academic semester**, in addition to their Monty Tech course schedule. Enrollment in additional Dual Enrollment coursework within the same semester requires special approval from the school counselor and the building administrator or designee and must align with the policies of the participating postsecondary institution. Participation in Dual Enrollment courses offered during the summer session may be permitted when such courses are available through a partnering institution and covered under an existing Memorandum of Agreement (MOA). Summer enrollment requires prior approval from the school counselor and Principal and is subject to applicable DESE and DHE guidance, institutional eligibility requirements, and available funding. Only courses offered under an existing Memorandum of Agreement (MOA) and approved in advance by the school counselor will be recorded on the Monty Tech transcript and factored into a student's grade point average (GPA) and class rank.

While priority for participation is generally given to students in grades 11 and 12, consistent with guidance from the Massachusetts Department of Elementary and Secondary Education (DESE) and the policies of participating postsecondary institutions, the school is committed to expanding equitable access and will consider eligible students on an individual basis, particularly when participation supports a student's academic goals or postsecondary plans. ***Students are responsible for requesting that official college transcripts be sent directly to any colleges or universities to which they apply or later attend. Please note: Some dual enrollment courses may not run during a given school year due to student interest and/or teacher availability.***

MASSACHUSETTS
Department of Elementary and Secondary Education

Massachusetts Comprehensive Assessment System (MCAS)

The Massachusetts Comprehensive Assessment System (MCAS) is a statewide achievement test administered in the spring. **All students are required to take the MCAS in English, Math, and Science in order to graduate**. Since the passing of the MCAS ballot question in 2024, state law has recently changed. According to the Department of Elementary and Secondary Education, "Participation in the MCAS is required by federal and state law and the ballot question did not change this requirement. DESE's accountability system will continue to use assessment participation rates (and the resulting achievement and growth data) in its annual determinations made through the district and school accountability system." In addition, this new law did not change the requirements for the John and Abigail Adams Scholarship program, the Stanley Z. Koplik Certificate of Mastery Award, or the State Seal of Biliteracy. These programs will continue to utilize MCAS scores as qualifications for these programs. For students who have not passed the test, programs will still be developed to remediate skills that are identified.

Freshmen completing the full-year Biology course (SC172) will take the MCAS test in Biology at the end of their freshmen year. All sophomores will take the English Language Arts and Math MCAS in the spring of their sophomore year. In addition, students taking the two-part Biology course (SC151 and SC254), will also take the Biology MCAS at the end of 10th grade.

MCAS Tips – Supporting your teenager is critical now and throughout the school year. Here are some tips that could help you support your child as they develop as a learner and prepare for major exams, like MCAS:

- Talk with your student's teachers and check their grades regularly to see what you can do at home to support his/her work in school.
- Make sure that your student gets enough rest, eats properly, and gets to school on time every day.
- Talk to your student about their previous experience with the MCAS in the eighth grade.
- Discuss your student's strengths and weaknesses, and encourage them to seek help as needed. One-on-one help is not reserved for students who are receiving failing marks. Monty Tech offers morning and afternoon tutoring every Monday, Wednesday, and Thursday.
- Ask your student about the homework that is due tomorrow and next week, and make sure it is done. Send your student to school prepared to learn.
- Ask your student to explain to you what he or she is studying. These conversations afford great insight into your student's progress and helps short term memories move into long term memory storage.
- If your student has a disability, ask the teachers which accommodations, if any, your student is eligible to receive on the MCAS.
- Read MCAS questions and the corresponding education standards in the curriculum frameworks and discuss them with your student and their teacher.
- Help your student develop their advocacy skills. They should learn how to seek help and support from their peers and the Monty Tech staff.
- Help your student practice MCAS questions, and look over the tests together so you will all become familiar with the expectations. The Massachusetts Department of Elementary and Secondary Education publishes previously used exams and practice exams each year.
- Encourage your student to take an active part in class and in other school activities. A well-rounded student develops persistence and performs better on tests.
- If possible, discourage your student from overcommitting themselves in and outside of school. While advanced coursework and other pursuits are very important, too many hours spent on extracurricular activities, technology use, or working, can negatively impact attitude, effort and academic performance.

THE MASSACHUSETTS SEAL OF BILITERACY

The Massachusetts State Seal of Biliteracy is awarded to graduating seniors who demonstrate proficiency in English and another world language. The *Seal of Biliteracy* recognizes graduates who attain high functional and academic levels of proficiency in English and another world language. The *Seal* of Biliteracy is a recognized credential certifying that students are proficient in two languages.

The Seal of Biliteracy aims to promote attainment of biliteracy skills, encourage students to study and master languages, recognize the value of language diversity, prepare students with skills that will benefit them in the labor market and global society, and strengthen communication and honor the multiple cultures and languages in a community.

To qualify for the State Seal of Biliteracy and the State Seal of Biliteracy with Distinction, students must meet all graduation requirements and the English language and world language criteria described below.

Seal of Biliteracy Award Level	Assessment Criteria for English and Partner Language
Massachusetts State Seal of Biliteracy	Score of *Meeting Expectations* (*minimum score of 472*) on the grade 10 ELA MCAS (or a score on the ACCESS test which meets state exit criteria) **AND** scores of *Intermediate-High* in all domains of a proficiency test (speaking, listening, reading, writing) or other approved alternative assessment (dependent on partner language).
Massachusetts State Seal of Biliteracy *with Distinction*	Score of *Exceeding Expectations* (*minimum score of 501 and above*) on the grade 10 ELA MCAS (or a score on the ACCESS test which meets state exit criteria) **AND** scores of *Advanced-Low* in all domains of a proficiency test (speaking, listening, reading, writing) or other approved alternative assessment (dependent on partner language)

**Proficiency is measured through an online exam the school will offer to students in a world language they have studied or in their home language.*

Academic Programs

ACADEMIC PROGRAM CHART

*An asterisk denotes a semester courses**

Grade 9	Grade 10	Grade 11	Grade 12
English			
EN190: English 9 (Pre-AP) EN172: English 9 EN131: English 9	EN299: English 10 AP Seminar EN272: English 10 EN231: English 10	EN398: AP Language & Composition EN372: English 11 EN331: English 11	EN499: AP Literature & Composition EN472: English 12 EN431: English 12
Math			
MA192: Algebra 2 (H) MA171: Algebra 1 MA151: Algebra 1	MA295: Geometry (H) MA276: Geometry MA251: Geometry	MA398: AP Pre-Calculus MA392: Algebra 2 (H) MA386: Algebra 3 & Trigonometry MA382: Algebra 2 MA354: Algebra 2	MA490: AP Calculus MA499: AP Statistics MA487: Pre-Calculus MA486: Algebra 3 & Trigonometry MA485: Statistics & Data Analysis MA454: Algebra 2 MA455: Statistics with Financial Literacy
Science			
SC190: Biology (H) SC172: Biology SC151: Biology 1A	SC295: Chemistry (Pre-AP) SC285: Chemistry SC266: Environ. Science SC254: Biology 1B SC236: Environ. Science	SC397: AP Chemistry SC399: AP Environmental Science SC394: PO Biomedical Science (PLTW) SC396: A&P I (DE) SC392: AP Physics SC385: Chemistry SC381: Physics SC383: A&P SC338: Applied Chemistry SC341: Applied Physics SC343: A&P	SC501: Intro to Biotechnology I (DE)* SC500: Biology I (DE)* SC490: Human Body Systems (PLTW) SC492: A&P I (DE) SC494: AP Physics SC488: Microbiology* & SC487 Zoology* SC485: Chemistry SC481: Physics SC483: A&P SC466: Environmental Science SC438: Applied Chemistry SC441: Applied Physics SC443: A&P SC436: Environmental Science

Social Studies			
SS191: U.S. History 1 (H) SS171: U.S. History 1 SS131: U.S. History 1	SS292: U.S. History 2 (H) SS272: U.S. History 2 SS232: U.S. History 2	SS393: U.S. History 3 (H) SS373: U.S. History 3 SS333: U.S. History 3	SS494: World History (H)* SS484: World History* SS454: World History* SS481: Global Genocide* SS480: Cultural Studies* SS465: Law & Society*
Physical Education			
PE130: PE/Health 9*	PE230: PE/Health 10* EL60B: Yoga & Med. Art 10*	PE331: PE 11* PE332: Personal Fitness 11* EL61A: Yoga & Meditative Art 11*	PE431: PE 12* PE432: Personal Fitness 12* EL61B:Yoga & Meditative Art 12*
Spanish			
EL172: Spanish 1 EL173: Spanish 2	EL272: Spanish 1 EL273: Spanish 2 EL274: Spanish 3	EL372: Spanish 1 EL373: Spanish 2 EL374: Spanish 3	EL473: Spanish 2 EL474: Spanish 3
Semester Electives			
EL54A: Visual Arts 1* EL152: Digital Essentials*	EL54B: Visual Arts 1* EL55B: Visual Arts 2* EL231: Directed Study 10*	EL54A: Visual Arts 1* EL55A: Visual Arts 2* EL65A: Indep. Study Visual Arts* EL353: Digital Essentials* EL344: Personal Finance* EL331: Directed Study 11*	EL54B: Visual Arts 1* EL55B: Visual Arts 2* EL65B: Indep. Study Visual Arts* EL444: Personal Finance* EL431: Directed Study 12*
Full-Year Electives			
EL103: JROTC Leadership 1 EL110: Math Lab 9 EL121: Learning Support EL121s: Learning Support ESL500: ESL ESL800: ESL Lab	EL203: JROTC Leadership 2 EL210: Math Lab 10 EN276: Mythology & Fantasy Literature EL221: Learning Support EL221s: Learning Support ESL500: ESL ESL800: ESL Lab	EL303: JROTC Leadership 3 EN376: Creative Writing EL385: AP Psychology EL390: AP Seminar EL395: AP Research EL321s: Learning Support ESL500: ESL ESL800: ESL Lab	EL403: JROTC Leadership 4 EN476: Conspiracy Theories: Secrets, Lies & Bigfoot EL485: AP Psychology EL495: AP Research EL421s: Learning Support ESL500: ESL ESL800: ESL Lab

Academic Course Descriptions

English Department

COURSE OFFERINGS, GRADES 9-12

GRADE 9	GRADE 10	GRADE 11	GRADE 12
EN190 English 9 (Pre-AP)	EN299 English 10 AP Seminar	EN398 AP Language & Comp.	EN499 AP Literature & Comp.
EN172 English 9	EN272 English 10	EN372 English 11	EN472 English 12
EN131 English 9	EN231 English 10	EN331 English 11	EN431 English 12

The English Department provides meaningful opportunities for students to become proficient readers, writers, speakers, listeners, and critical thinkers. Students will demonstrate the academic knowledge, skills, and practices necessary to enter into and succeed in entry-level, credit-bearing courses in college and post-secondary programs and/or workplace training programs requiring an equivalent level of ELA/Literacy skills. The curriculum exposes students to a rich diversity of high quality, authentic literature from multiple genres, cultures, and time periods in an effort to sharpen skills of comprehension and analysis. Students will read literature from writers who will instill a deep appreciation for art, beauty, and truth, while broadening their understanding of the human condition from differing points of view.

Reading and discussing important works of prose and poetry will also help students develop empathy for others while learning about who they are as individuals and members of a wider civilization and world. Students will also read and analyze a wide variety of literature and informational text that covers multiple complexities, various genres and cultures leading to well-versed students who appreciate diversity in people and cultures. The curriculum emphasizes proficient writing habits using common language and assignments that will ensure success in college and career. The curriculum also reflects the values and needs of society, enabling students to become productive members of their community.

GRADE 9 ENGLISH COURSE OFFERINGS

Course descriptions are organized by course/level

EN190 English 9 (Pre-AP) (2 periods/full year), 1.0 credit

This pre-AP course will include a literature component in which the student will read, interpret and analyze various literary genres (including novels, plays, myths, selected short stories, and poems) at an accelerated pace and in greater depth. Emphasis will be on the application of literary elements. In addition, students will apply writing strategies and demonstrate mastery of English grammar. Students will develop critical thinking skills and must be able to work independently and collaboratively. In addition, library/media and vocabulary skills will be taught to enhance the student's communication abilities. This course prepares students for the AP curriculum.

EN172 English 9 (2 periods/full year), 1.0 credit

This course will include a literature component, in which the student will read, discuss, and write about various literary genres (including novels, plays, myths, selected short stories, and poems) with an emphasis on the application of literary elements. In addition, students will be applying process-writing strategies. In addition, library/media and vocabulary skills will be taught to enhance the student's communication abilities.

EN131 English 9 (2 periods/full year), 1.0 credit

This course includes a literature component, in which the student will read, discuss, and write about various literary genres (including novels, plays, myths, selected short stories, and poems) with an emphasis on the application of literary elements. In addition, students will be introduced to process writing strategies integrating the study of English grammar in response to each student's writing needs. In addition, library/media and vocabulary skills will be taught to enhance the student's communication abilities.

GRADE 10 ENGLISH COURSE OFFERINGS

Organized by course subject / levels

EN299: English 10 AP Seminar (*Advanced Placement*), (2 periods/full year), 1.0 credit
Recommendation: Successful completion of EN172 English 9 (or higher)

This course is a foundational Advanced Placement course that engages students in cross-curricular conversations that explore the complexities of academic and real-world topics and issues by analyzing multiple perspectives. In this course, students will develop and practice the skills in research, collaboration, and communication that are needed across academic disciplines. Students will investigate topics in a variety of subject areas, write research based essays, and design and give presentations both individually and as part of a group. This course also includes a literature component in which the student will read, interpret and analyze various literary genres (including novels, selected short stories, non-fiction articles and poems) at an accelerated pace and in great depth. A general review of grammar and usage will be provided with an emphasis on skills needed to improve writing. ***Students are required to take and pay for the AP exam at the end of the year. Financial aid is available for students who qualify. Students passing the AP exam with a score of 3, 4 or 5. receive college credit at most colleges and universities.***

EN272 English 10 (2 periods/full year), 1.0 credit

In this college-prep course, students will be introduced to a variety of literary works. Students will read, discuss, and write about various literary genres, including fiction and nonfiction, drama, selected short stories, poems and various novels. A general review of grammar and usage will be provided with an emphasis on skills needed to improve writing. Vocabulary development will be ongoing. A review of library/media skills will be taught to enhance the student's general communication skills.

EN231 English 10 (2 periods/full year), 1.0 credit

In this college-prep course, students will be introduced to a variety of literary works. Students will read, discuss, and write about various literary genres, including fiction and nonfiction, drama, selected short stories, poems and various novels. A general review of grammar and usage will be provided with an emphasis on skills needed to improve writing. Vocabulary development will be ongoing. A review of library/media skills will be taught to enhance the student's communication skills.

GRADE 11 ENGLISH COURSE OFFERINGS

Organized by course subject / levels

EN398 AP Language & Composition (2 periods/full year), 1.0 credit
Prerequisite*:* Successful completion of EN272 English 10 (or higher)

The AP Language and Composition course is a college-level rhetoric course designed to prepare students for analytical, argumentative, and expository writing, and to teach students the importance of these modes as a "basis of academic and professional communication, as well as the personal and reflective writing that fosters the development of writing facility in any context." The course is organized by modes of discourse encompassing the three specified categories of writing and including a variety of literature selections, primarily non-fiction. Upon completion of this course, students should be able to identify and explain an author's use of rhetorical strategies and techniques as they analyze and interpret samples of good writing, create and sustain arguments based on reading and/or research, demonstrate understanding and mastery of standard written English as well as stylistic maturity in their own writings, produce expository and argumentative compositions that introduce a complex central idea and develop it with appropriate, specific evidence, and finally, move effectively through the stages of the writing process with careful attention to inquiry and research, drafting, revising, editing, and review. ***Students are required to take and pay for the AP exam at the end of the year. Financial aid is***

available for students who qualify. Students passing the AP exam with a score of 3, 4, or 5, receive college credit at most colleges and universities.

EN372 English 11 (2 periods/full year), 1.0 credit

This college-prep course includes a literature component based on an anthology and on novels of various genres. Focus will be on reading appreciation as well as the application and interpretation of literary elements. Students will develop and integrate critical thinking skills. Reading, writing, listening, speaking, problem-solving and vocabulary skills are fostered.

EN331 English 11 (2 periods/full year), 1.0 credit

This college-prep course includes a literature component based on an anthology and on novels of various genres. The focus will be on reading appreciation as well as the application and interpretation of literary elements. Students will be introduced to critical thinking skills and encouraged to integrate them throughout the year. Reading, writing, listening, speaking, problem-solving and vocabulary skills are fostered.

GRADE 12 ENGLISH COURSE OFFERINGS

Organized by course subject / levels

EN499 AP Literature & Composition (2 periods/full year), 1.0 credit
Prerequisite*:* Successful completion of EN372 English 11 (or higher)

The AP English Literature and Composition course is designed to engage students in the careful reading and critical analysis of imaginative literature. Through the close reading of selected texts, students can deepen their understanding of the ways writers use language to provide both meaning and pleasure for their readers. As they read, students should consider a work's structure, style, and themes, as well as such smaller-scale elements as the use of figurative language, imagery, symbolism, and tone. This course is a rigorous college-level course. The reading is challenging, the writing is frequent, and requires an independent mind. Students will be expected to read at an increased complexity and sophistication. The student will conduct extensive analysis and interpretation of writing and demonstrate an understanding and mastery of standard written English. Students will also produce lengthy papers that introduce a complex central idea with sustaining arguments and exercise research skills, drafting, revising, and peer editing. ***Students are required to take and pay for the AP exam at the end of the year. Financial aid is available for students who qualify. Students passing the AP exam with a score of 3, 4, or 5, receive college credit at most colleges and universities.***

EN472 English 12 (2 periods/full year), 1.0 credit

This college-prep course is designed to expose the student to a wide range of classic and contemporary literature. Students will be required to read, interpret, and analyze literature of various genres. Students will also develop and integrate critical thinking skills. A variety of writing applications, project-based activities, and alternative assessments is incorporated. Vocabulary instruction will be ongoing.

EN431 English 12 (2 periods/full year), 1.0 credit

This college-prep course is designed to expose the student to a wide range of classic and contemporary literature. Students will be required to read and interpret literature of various genres. A variety of writing applications, project-based activities, and alternative assessments is incorporated. Vocabulary instruction will be ongoing.

Mathematics Department

COURSE OFFERINGS, GRADES 9-12

GRADE 9	GRADE 10	GRADE 11	GRADE 12
MA192 Algebra 2 (H) MA171 Algebra 1 MA151 Algebra 1	MA295 Geometry (H) MA276 Geometry MA251 Geometry	MA398 AP Pre-Calculus MA392 Algebra 2 (H) MA386 Algebra 3 & Trig MA382 Algebra 2 MA354 Algebra 2	MA490 AP Calculus MA499 AP Statistics MA487 Pre-Calculus MA486 Algebra 3 & Trigonometry MA485 Statistics & Data Analysis MA454 Algebra 2 MA455 Statistics with Financial Literacy

The Math Department provides a curriculum that meets the diverse needs of all students. We will endeavor to provide meaningful opportunities for students to demonstrate the academic knowledge, skills, and practices necessary to enter into and succeed in postsecondary and/or workplace training programs. We will prepare students who are interested in careers involving science, technology, engineering, and mathematics. Students will be able to identify and model problems, justify conclusions, and apply concepts to real-life situations. Students will develop reasoning and analytical skills to make conclusions. Students will be given opportunities to discuss the relevance of mathematics to their vocational trade. Our mathematics program ensures that students are college and career ready.

GRADE 9 MATHEMATICS COURSE OFFERINGS

Course descriptions are organized by course/level

MA192 Algebra 2 (H) (2 periods/full year), 1.0 credit
Prerequisites: Grade 9 placement testing and transcript review

This grade 9 honors course is for students who have achieved a grade of B or higher in a full year Algebra 1 course in their middle school. It focuses on skills for such topics as solving and graphing: systems of equations, systems of linear equalities, quadratic equations, absolute value equations, polynomial functions, radical equations, and exponential equations. This course will also cover factoring techniques, matrices, complex numbers, rational and negative exponents, logarithms, rational expressions and equations, arithmetic and geometric series and sequences, and working with trigonometric functions. This is an honors level course which progresses at an accelerated pace.

MA171 Algebra 1 (2 periods/full year), 1.0 credit
Prerequisite: Grade 9 placement testing and transcript review

This is a college-preparatory course involving operations with real numbers. The topics include solving equations and inequalities, factoring trinomials and simplifying fractional expressions with variables. Students will find the equations of lines, parallel and perpendicular lines, solve and graph systems of linear equations and inequalities, quadratic equations, absolute value equations and inequalities. Students will also work with exponents and exponential functions, polynomials, and data analysis.

MA151 Algebra 1 (2 periods/full year), 1.0 credit
Prerequisite: Grade 9 placement testing and transcript review

Algebra 1 is a college prep course which includes solving and graphing; linear equations, inequalities and absolute value, solving systems of linear equations, exponents and exponential functions. It also involves solving word problems within each of the topic areas.

GRADE 10 MATHEMATICS COURSE OFFERINGS

Organized by course subject / levels

MA295 Geometry (H) (2 periods/full year), 1.0 credit
Prerequisite: Algebra 1 or 2 (MA171 or MA192)
Recommendation: 87% or higher in MA171

This grade 10 honors level course is for students who have achieved at least an 80% average in Honors Algebra 2 or with a recommendation from the Honors Algebra 2 instructor. This course addresses Geometry from an Algebra 2 emphasis with a strong concentration on geometric proofs and geometric constructions. The course will cover definitions, congruency, similarity, transformations, right triangle relationships, trigonometric ratios, probability, and statistics. Students will determine the attributes of polygons, circles, special quadrilaterals, similar figures, as well as determine cross-sections of geometric figures. Students will do constructions to determine midpoints, angle bisectors, congruency, and points of concurrency. This is an honors level course which progresses at an accelerated pace.

MA276 Geometry (2 periods/full year), 1.0 credit
Prerequisite: Algebra 1
Recommendation: 87% or higher in MA151

This college prep course is designed to explore in detail topics such as definitions, reasoning and proof, triangles, parallels and perpendiculars, polygons, quadrilaterals, ratio and proportion, similar figures, transformations, right triangle relationships, trigonometric ratios, area, volume and facts about circles. Students will also learn how to do geometric constructions.

MA 251 Geometry (2 periods/full year), 1.0 credit
Prerequisite: Algebra 1

This college prep course consists of a review of Algebra 1 topics, including linear equations and inequalities, factoring and operations with polynomials, and solving and graphing quadratic equations. Geometry topics include triangles, parallel and perpendicular lines, angle relationships, polygons, quadrilaterals, ratios and proportions, similar figures, transformations, right triangle relationships, area, and volume.

GRADE 11 MATHEMATICS COURSE OFFERINGS

Organized by course subject / levels

MA398: AP Pre-Calculus (2 periods/full year), 1.0 credit
Prerequisite: Algebra 2 (H) and Geometry (H)
Recommendation: 80% average in Algebra 2 (H) and Geometry (H)

AP Precalculus is a college-level mathematics course designed to prepare students for success in calculus and other advanced math and science courses. The course deepens understanding of functions and modeling, emphasizing conceptual reasoning, multiple representations (graphical, numerical, analytical, and verbal), and real-world applications. Students develop fluency in function behavior, transformations, and rates of change while exploring the connections between algebraic and geometric reasoning.

The course is organized into three major units:

- Unit 1: Polynomial and Rational Functions – Students analyze and model polynomial, rational, and power functions, exploring their key features, end behavior, and real-world applications.

- Unit 2: Exponential and Logarithmic Functions – Students investigate exponential growth and decay, logarithmic scales, and inverse relationships, applying these models to phenomena in science, economics, and data analysis.
- Unit 3: Trigonometric and Polar Functions – Students study trigonometric functions and their applications to periodic behavior, circular motion, and polar coordinates, building a foundation for calculus concepts involving rates of change and periodic modeling.

Throughout the course, students engage with technology for visualization and analysis, develop strong problem-solving skills, and prepare for the AP Precalculus Exam to potentially earn college credit or advanced placement. ***Students are required to take and pay for the AP exam at the end of the year. Financial aid is available for students who qualify. Students passing the AP exam with a score of 3, 4, or 5, receive college credit at most colleges and universities.***

MA392 Algebra 2 (H) (2 periods/full year), 1.0 credit
Recommendation: 87% or above in MA171

This honors course focuses on skills for such topics as solving and graphing: systems of equations, systems of linear equalities, quadratic equations, absolute value equations, polynomial functions, radical equations, and exponential equations. This course will also cover factoring techniques, matrices, complex numbers, rational and negative exponents, logarithms, rational expressions and equations, arithmetic and geometric series and sequences, and working with trigonometric functions. This is an honors-level course that progresses at an accelerated pace.

MA386 Algebra 3 & Trigonometry
Prerequisite: Algebra 2 and Geometry

Algebra 3 & Trigonometry is a college and career preparation course for grade 11 students. The first part of the course will focus on algebra topics including exponential, logarithmic, radical, and rational equations. Students will learn to solve and graph these types of functions. Additional topics in the algebra portion of course will include sequences, series, the binomial theorem, and conic sections. The trigonometry portion of the course will include the study of degrees, radians, unit circle trigonometry, inverse and right triangle trigonometry, graphing trigonometric functions, and solving non right triangles. Additional trigonometry topics will include complex numbers, polar coordinates, trigonometric identities, logarithms, and vectors. Additional topics may be added or substituted as time permits.

MA382 Algebra 2 (2 periods/full year), 1.0 credit
Prerequisite: Algebra 1
Recommendation: 87% or above in MA151

This college-prep course focuses on skills for such topics as solving and graphing: quadratic equations, polynomial functions, absolute value equations, radical equations, and exponential equations. This course will also cover factoring techniques, complex numbers, rational and negative exponents, logarithms, composition of functions, inverse functions, rational expressions and equations, arithmetic and geometric series and sequences, and working with trigonometric functions.

MA354 Algebra 2 (2 periods/full year), 1.0 credit
Prerequisite: MA171 Algebra 1

This college prep course focuses on skills for such topics as solving quadratic equations, polynomial functions, absolute value equations, and radical equations. Graphing techniques as well as similar features of graphs will be examined. This course will also cover multiple types of factoring techniques, complex numbers, and rational and negative exponents. It will also cover exponential growth and decay.

GRADE 12 MATHEMATICS COURSE OFFERINGS

Organized by course subject / levels

MA490 AP Calculus (AP) (2 periods/full year), 1.0 credit
Prerequisite: MA397 Pre-Calculus (H) or higher

This AP course will cover the material applicable to the Advanced Placement (AP) Calculus AB exam. Course topics include limits, derivative techniques, higher order derivative properties and applications, transcendental function calculus, basic and intermediate analytic integration, numerical differentiation, numerical integration, and area/volume/cross section integrals. Time will also be dedicated to ensuring that students are able to use technology as a complement to their calculus skills. Throughout this course, students will have the opportunity to apply these concepts and skills to real-world problems. ***Students are required to take and pay for the AP exam at the end of the year. Financial aid is available for students who qualify. Students passing the AP exam with a score of 3, 4 or 5 receive college credit at most colleges and universities.***

MA499 AP Statistics (AP) (2 periods/full year), 1.0 credit
Prerequisite: Algebra 2 (MA192 or MA382)

This AP course is designed to follow the Advanced Placement (AP) Statistics course guidelines as set forth by the College Board for AP Statistics. AP Statistics is the study of data analysis, experimental design, and probability as it relates to statistical inference, and the practice of data gathering and evaluation of statistical inference in an elementary statistics setting. This course is activity-based with a variety of activities, labs, and projects. Students will be able to communicate effectively the statistical concepts taught throughout this course. Applications will be drawn from other disciplines that include but are not limited to psychology, sociology, health fields, engineering, business, and liberal arts. It also incorporates the routine use of TI-84 graphing calculators as well as computers. ***Students are required to take and pay for the AP exam at the end of the year. Financial aid is available for students who qualify. Students passing the AP exam with a score of 3, 4 or 5 receive college credit at most colleges and universities.***

MA487 Pre-Calculus (2 periods/full year), 1.0 credit
Prerequisites: Algebra 2 (MA192 or MA382), Geometry (MA276 or MA295), Pre-Calculus
Recommendation: 80% average in prerequisites

This senior level college-prep course begins by discussing advanced topics in algebra. Topics covered include functions and their graphs, finding real and complex roots of functions, and properties of polynomial, rational, radical, exponential, and logarithmic functions. The second part of this course focuses on trigonometry. During this part of the course, trigonometric functions will be analyzed from both an algebraic and graphical perspective. Additional trigonometric concepts include solving triangles, working with trigonometric identities, and applications of trigonometry involving complex numbers. The course concludes with a study of parametric equations, polar coordinates, and using matrices to solve systems of equations. If time allows, a brief overview of sequences and series will be included. Additionally, graphing calculators will be used to analyze functions and it is highly recommended that students obtain their own graphing calculator. Recommended graphing calculators include the TI-83+, TI-84+, or TI-84+ CE.

MA486 Algebra 3 & Trigonometry
Prerequisite: Algebra 2 (MA192 OR MA382), Geometry (MA276 or MA295)

Algebra 3 & Trigonometry is a college and career preparation course for grade 12 students. The first part of the course will focus on algebra topics including exponential, logarithmic, radical, and rational equations. Students will learn to solve and graph these types of functions. Additional topics in the algebra portion of course will include sequences, series, the binomial theorem, and conic sections. The trigonometry portion of the course will include the study of degrees, radians, unit circle trigonometry, inverse and right triangle trigonometry, graphing trigonometric functions, and solving

non right triangles. Additional trigonometry topics will include complex numbers, polar coordinates, trigonometric identities, logarithms, and vectors. Additional topics may be added or substituted as time permits.

MA485 Statistics & Data Analysis (2 periods/full year), 1.0 credit
Prerequisite: Algebra 2 and Geometry

Students in this course will develop college and career readiness skills through real world data analysis. The primary focus will be the study of likely events, and the analysis of and interpretation of real data using real world examples. Topics of study will include measures of central tendency and variability, regression and correlation, probability, discrete and continuous variables, and the Central Limit Theorem. Other topics which may be covered as time permits include confidence intervals and hypothesis testing.

MA454 Algebra 2 (2 periods/full year), 1.0 credit
Prerequisite: Algebra 1 and Geometry

This senior level, college prep course focuses on skills for such topics as solving quadratic equations, polynomial functions, absolute value equations, and radical equations. Graphing techniques as well as similar behaviors of graphs will be examined. This course will also cover multiple types of factoring techniques, complex numbers, rational and negative exponents as well as exponential growth and decay.

MA455: Statistics with Financial Literacy (2 periods/full year), 1.0 credit
Prerequisite: Algebra 1 and Geometry

This course develops students' statistical reasoning and financial literacy through real-world applications and data-driven problem solving. Students study probability, statistics, and data analysis to interpret information, evaluate risk, and support evidence-based decision making, while applying these skills to personal and real-world financial contexts such as budgeting, banking, saving, credit, interest, loans, taxes, and introductory business applications. Emphasis is placed on quantitative reasoning, responsible financial decision making, and skills essential for college, career, and civic readiness.

Science Department

COURSE OFFERINGS, GRADES 9-12

GRADE 9	GRADE 10	GRADE 11	GRADE 12
SC190 Biology (H)	SC295 Chemistry (Pre-AP)	SC397 AP Chemistry SC399 AP Environmental Science SC394 P.O. Biomedical Science (PLTW) SC396 A&P I (DE) SC392 AP Physics	SC501 Intro to Biotechnology I (DE)* SC500 Biology I (DE)* SC490 Human Body System (PLTW) SC492 A&P I (DE) SC494 AP Physics
SC172 Biology SC151 Biology 1A	SC285 Chemistry SC266 Environ. Science SC254 Biology 1B SC236 Environ. Science	SC385 Chemistry SC381 Physics SC383 A&P SC338 Applied Chemistry SC341 Applied Physics SC343 A&P	SC488 Microbiology* SC487 Zoology* SC485 Chemistry SC481 Physics SC483 A&P SC466 Environmental Science SC438 Applied Chemistry SC441 Applied Physics SC443 A&P SC436 Environmental Science

***Semester Course**

The Science Department provides meaningful opportunities for students to become proficient critical thinkers in science, technology, and engineering. Students will learn to understand the world around them and to apply analytical and innovative thinking to solve complex problems facing our global environment. The curriculum focuses on the application of concepts, inquiry, and design skills that students need to successfully engage in classrooms, civic life, and post-secondary opportunities. All students will participate in practical inquiry-based laboratory experiences that emphasize proficient scientific skills using common assessments that will ensure success in college and career. We offer core science courses and electives that increase student interest in the exploration of science in order to nurture their ability to become productive global thinkers in 21st century society. **All students will be required to successfully complete Chemistry or Physics in order to meet graduation requirements.**

GRADE 9 SCIENCE COURSE OFFERINGS

Course descriptions are organized by course/level

SC190 Biology (H) (2 periods/full year), 1.0 credit
Prerequisite: Grade 9 placement test scores and teacher recommendation

This honors course is a survey of the fundamental concepts of the biological sciences. Topics covered will include simple organisms, cell structure and function, classification, evolution, genetics, heredity, biotechnology, basic human anatomy & physiology. It stresses conceptual development, develops science inquiry skills, requires experimental design, critical thinking and data analysis and encourages creative writing and design. Emphasis is placed on direct student involvement through activities and the completion of an independent research project. This is a laboratory science course and should be taken by students with college aspirations. Students will be eligible to take the Biology MCAS exam at the end of this course. *Note: This class is an Honors class and independent work is given weekly. Shop week homework is also given regularly. It is essential that both students and parents understand the extra time commitment before selecting this class.*

SC172 Biology (2 periods/full year), 1.0 credit
Prerequisite: Grade 9 placement test scores and teacher recommendation

This course is a survey of the fundamental concepts of the biological sciences. Topics covered will include simple organisms, cell structure and function, classification, evolution, chemistry of life, ecology, biodiversity, genetics, heredity, biotechnology, and basic human anatomy & physiology. It stresses conceptual development, develops science inquiry

skills, requires experimental design, critical thinking and data analysis and encourages creative writing and design. Emphasis is placed on direct student involvement through activities. This is a college prep, laboratory science course. Students will be eligible to take the Biology MCAS exam at the end of this course.

SC151 Biology 1A (2 periods/full year), 1.0 credit
Prerequisite: Grade 9 placement test scores and teacher recommendation

This grade 9 Biology 1A course is the first component of a two-year Biology program. Topics from the Massachusetts State Frameworks (10/06) Standards 1, 2, 5, 6 will be covered. These include: Chemistry of Life, Cell Biology, Evolution, Biodiversity, and Ecology. This is a college prep, laboratory science course. It stresses conceptual development, science inquiry skills, requires experimental design, critical thinking and data analysis. Students will be eligible to take the Biology MCAS exam once they complete Biology Part 2 at the end of their sophomore year.

GRADE 10 SCIENCE COURSE OFFERINGS

Organized by course subject / levels

SC295 Chemistry (Pre-AP) (2 periods/full year), 1.0 credit
Prerequisite: Teacher Recommendation

In Pre-AP Chemistry, the College Board's Pre-AP curriculum is utilized to develop a deep conceptual understanding of matter and energy at the molecular level as students will actively and consistently apply scientific reasoning skills to analyze the natural world. The course is designed as a precursor to AP Chemistry and will prepare students to succeed in future science courses in both high school and college. The Pre-AP Chemistry curriculum is focused on hands-on science content and students will have several opportunities to think and work like scientists as they develop and strengthen their reasoning skills within the laboratory and classroom setting. Students will integrate mathematics with conceptual understanding to model chemical phenomena; engage in analytical reading and writing; and apply scientific knowledge and to carry out scientific argumentation.

SC285 Chemistry (2 periods/full year), 1.0 credit
Prerequisite: Teacher Recommendation

This college-preparatory laboratory course includes topics in the fundamental nature of matter and how it reacts. Topics include solutions, acids, bases, chemical reactions, formulas and equations, bonding, molecular structure, the mole, periodicity, and nomenclature. It stresses conceptual development, develops science inquiry skills, and requires experimental design, critical thinking and data analysis. Strong number sense is recommended for this course. Emphasis is placed on direct student involvement through activities and the completion of an independent research project.

SC266 Environmental Science (2 periods/full year), 1.0 credit
Prerequisite: Successful completion of Biology

Environmental Science engages students in the physical, biological, and earth systems that shape our environment. Scientific concepts, principles and modern science practices allow students to analyze environmental issues, both natural and human induced, and engage in evidence-based decision making in real world contexts. This is a college prep, laboratory science course. ***Note - All students are required to successfully complete Chemistry or Physics in order to meet graduation requirements.**

SC236 Environmental Science (2 periods/full year), 1.0 credit
Prerequisite: Successful completion of Biology

Environmental Science engages students in the physical, biological, and earth systems that shape our environment. Scientific concepts, principles and modern science practices allow students to analyze environmental issues, both natural and human induced, and engage in evidence-based decision making in real world contexts. This is college prep, laboratory

science course. ***Note - All students are required to successfully complete Chemistry or Physics in order to meet graduation requirements.**

SC254 Biology 1B (2 periods/full year), 1.0 credit

This grade 10 Biology 1B course is a required second component of a two-year Biology program. Topics from the Massachusetts State Frameworks include Cell Biology, Genetics, and Anatomy & Physiology. Students will also be introduced to significant figures, calculating percent error, SI units, and Celsius scale. This is a college prep, laboratory science course. It stresses conceptual development, science inquiry skills, requires experimental design, critical thinking and data analysis. Students will be eligible to take the Biology MCAS exam at the end of this course.

GRADE 11 SCIENCE COURSE OFFERINGS

Organized by course subject / levels

SC397 AP Chemistry (Advanced Placement) (2 periods/full year)**,** 1.0 credit
Required: Successful Completion of SC285 Chemistry (or higher)

The AP Chemistry course provides students with a lab based college level foundation to support future advanced coursework in chemistry. Through inquiry-based learning, students develop critical thinking and reasoning skills. Students cultivate their understanding of chemistry and science practices as they explore topics such as: atomic structure, intermolecular forces and bonding, chemical reactions, kinetics, thermodynamics, and equilibrium. ***Students are required to take and pay for the AP exam at the end of the year. Financial aid is available for students who qualify. Students passing the AP exam with a score of 3, 4, or 5 receive college credit at most colleges and universities.***

SC385 Chemistry (2 periods/full year), 1.0 credit
Prerequisite: Teacher Recommendation

This college-prep laboratory course includes topics in the fundamental nature of matter and how it reacts. Topics include solutions, acids, bases, chemical reactions, formulas and equations, bonding, molecular structure, the mole, periodicity, and nomenclature. It stresses conceptual development, develops science inquiry skills, and requires experimental design, critical thinking and data analysis. Emphasis is placed on direct student involvement through activities and the completion of an independent research project. This course is recommended for college bound students. This course prepares students for a four-year college program. Strong number sense is needed for this course.

SC338 Applied Chemistry (2 periods/full year), 1.0 credit
Prerequisite: Teacher Recommendation; Completion of Biology

This course covers traditional topics in chemistry such as the study of matter, acid bases, elements, compounds and mixtures. It is intended to enhance the chemistry background for those students who will be working in trades dealing with the health industry and chemicals. This is a college prep laboratory course, but it is not intended for students who plan to major in a science-related field in college. For those students who will be pursuing college degrees in science and science-related fields please see SC385 Chemistry.

SC392 AP Physics (Advanced Placement) (2 periods/full year), 1.0 credit
Prerequisite: Teacher Recommendation; completion or concurrent enrollment in Algebra 2

AP Physics is an algebra-based, introductory college-level physics course. Students cultivate their understanding of physics through classroom study, in-class activity, and hands-on, inquiry-based laboratory work as they explore concepts like systems, fields, force interactions, fluids, change, and conservation. ***Students are required to take and pay for the AP exam at the end of the year. Financial aid is available for students who qualify. Students passing the AP exam with a score of 3, 4, or 5 receive college credit at most colleges and universities.***

SC381 Physics (2 periods/full year), 1.0 credit
Prerequisite: Successful completion of Algebra 1 (70% or higher)

This course covers the traditional physics topics of matter and energy. The course emphasizes a conceptual development of topics through examples and problem solving. A strong background in algebra is essential and an introduction to basic trigonometry is helpful. This course is a college prep, lab science course.

SC341 Applied Physics (2 periods/full year), 1.0 credit
Prerequisite: Successful completion of Algebra 1

This is a laboratory-oriented applied physics course with an emphasis on practical applications. It covers traditional topics in physics, including force, motion, and energy. Each topic will be covered through a variety of hands-on and conceptual approaches. A strong background in algebra is essential and an introduction to basic trigonometry is helpful. This course is a college prep, lab science course.

SC394 Principles of Biomedical Science (PLTW Course / AP Level) (2 periods/full year), 1.0 credit
Prerequisite: Successful completion of SC172 Biology (or higher) and Teacher Recommendation
Recommendation: Grade of 85% or higher in prerequisites

From the moment students walk into this classroom, they are immersed in the mysterious death of Anna. They are asked to investigate, document, and analyze evidence to solve the case. This course provides an introduction to biomedical science through exciting hands-on projects and problems. Students will investigate concepts of biology and medicine as they explore health conditions including heart disease, diabetes, sickle-cell disease, hypercholesterolemia, and infectious diseases. They will determine the factors that led to the death of a fictional woman as they sequentially piece together evidence found in her medical history and her autopsy report. Students will also investigate lifestyle choices and medical treatments that might have prolonged the woman's life and demonstrate how the development of disease is related to changes in human body systems. Students practice problem solving with structured activities and progress to open-ended projects and problems that require them to develop planning, documentation, communication and other professional skills.

The Monty Tech Science Department has entered into a unique partnership with Project Lead the Way (PLTW), a nationally recognized provider of rigorous and innovative Science, Technology, and Engineering, Mathematics (STEM) education programs used in middle and high schools across the country. PLTW classes are nationally standardized project-based courses that prepare students for college-level work and culminate with a student assessment, which colleges and universities can use to determine if a student earns college credit. Students who successfully pass the final PLTW assessment could receive college credit. Students should inquire about these credits during the college admissions process. **PLTW classes are AP level classes with limited space available**.

SC396 Anatomy & Physiology I (Dual Enrollment) (2 periods/full year), 1.0 credit
Prerequisites: Transcript Review. Successful completion of SC172 Biology (or higher)
Recommendation: Grade of 85% or higher in prerequisites

This dual enrollment Anatomy & Physiology course explores the structure and function of the human organism on the cellular, tissue, organ, and system levels. Cellular metabolism, histology, and the following body systems will be examined: integumentary, endocrine, skeletal, muscular, and nervous systems. Upon successful completion this course, students should be able to demonstrate knowledge of the anatomy and physiology of the human body, identity the principal systems of the human body, describe fundamental structural and physiological features of the major organs and organ systems, explain the fundamental physiological mechanisms for maintenance of homeostasis within the human body and explain how disease is essentially a disruption of homeostasis, and define medical terminology common to the study of human anatomy and physiology. ***Students who successfully meet the requirements outlined in the course syllabus will earn course credit and are eligible to receive 4 dual enrollment credits through Worcester State University.***

SC383 Anatomy & Physiology (2 periods/full year), 1.0 credit
Prerequisites: Successful completion of Biology and teacher recommendation

This is an introductory college preparatory course in human anatomy & physiology. Topics include the chemical and cellular basis of human body systems. Focus is on an in-depth study of the structure and function of the muscular, digestive, skeletal, endocrine, reproductive, cardiovascular, respiratory, excretory, lymphatic, and nervous systems. Theoretical concepts will be modeled in the lab through hands-on experiments, computer-assisted exercises, models, microscopy, as well as dissection. This is a laboratory science course.

SC343 Anatomy & Physiology (2 periods/full year), 1.0 credit
Prerequisite: Successful completion of Biology

This is an introductory course in human anatomy & physiology. Topics in this course include the chemical and cellular basis of human body systems. Focus is on an in-depth study of the structure and function of the muscular, digestive, skeletal, digestive, endocrine, reproductive, cardiovascular, respiratory, excretory, lymphatic, and nervous systems. Theoretical concepts will be modeled in labs through hands-on experiments, computer-assisted exercises, models, microscopy, as well as dissection. This is a college prep, laboratory science course.

SC399 AP Environmental Science (Advanced Placement) (2 periods/full year), 1.0 credit
Prerequisite: 2 years of high school science (1 life science, 1 physical science)

This AP course is designed to be the equivalent of an introductory college course in environmental science, through which students engage with the scientific principles, concepts, and methodologies required to understand the interrelationships of the natural world. The course requires that students identify and analyze natural and human-made environmental problems, evaluate the relative risks associated with these problems, and examine alternative solutions for resolving or preventing them. Environmental Science is interdisciplinary, embracing topics from geology, biology, environmental studies, environmental science, chemistry, and geography. ***Students are required to take and pay for the AP exam at the end of the year. Financial aid is available for students who qualify. Students passing the AP exam with a score of 3, 4, or 5 receive college credit at most colleges and universities.***

GRADE 12 SCIENCE COURSE OFFERINGS

Organized by course subject / levels

SC485 Chemistry (2 periods/full year), 1.0 credit
Prerequisite: Teacher Recommendation
**Please refer to grade 11 science course offerings for course description information.*

SC438 Applied Chemistry (2 periods/full year), 1.0 credit
Prerequisite: Teacher Recommendation; Completion of Biology
**Please refer to grade 11 science course offerings for course description information.*

SC494 AP Physics (Advanced Placement) (2 periods/full year), 1.0 credit
Prerequisite: Teacher recommendation; completion or concurrent enrollment in Algebra 2

AP Physics is an algebra-based, introductory college-level physics course. Students cultivate their understanding of physics through classroom study, in-class activity, and hands-on, inquiry-based laboratory work as they explore concepts like systems, fields, force interactions, fluids, change, and conservation. ***Students are required to take and pay for the AP exam at the end of the year. Financial aid is available for students who qualify. Students passing the AP exam with a score of 3, 4, or 5 receive college credit at most colleges and universities.***

SC481 Physics (2 periods/full year), 1.0 credit
Prerequisite: Successful completion of MA171 Algebra 1
**Please refer to grade 10 and 11 science course offerings for course description information*

SC441 Applied Physics (2 periods/full year), 1.0 credit
Prerequisite: Successful completion of Algebra
**Please refer to grade 10 and 11 science course offerings for course description information*

SC500 Biology I (DE), Dual Enrollment, 2 periods/half year, .50 MT Credit / 4 WSU Credits
Prerequisite: Transcript Review (including MA382 Algebra 2 or higher, and a minimum 2.7 GPA). A dual enrollment application must be submitted and approved prior to registration.

Biology, as a science, represents a way of interacting with the world in a rational manner. The nature of science, cellular structure and function, the molecules of life, the acquisition and use of energy by living organisms, the code of heredity, principles of genetics, and genetic recombination will be considered in this course. Lab sessions will be hands-on experiences revolving around and applying the topics listed in the lab section of the syllabus. ***Students who successfully meet the requirements outlined in the course syllabus are eligible to receive 4 dual enrollment credits through Worcester State University. Students in this course will also be enrolled in Introduction to Biotechnology I (BTC 101, a dual enrollment course) and are eligible for 4 additional dual enrollment credits through MWCC (for a total of 8 credits).***

SC501 Intro. to Biotechnology I (DE), Dual Enrollment, 2 periods/half year**,** .50 MT Credit / 4 MWCC Credits
Prerequisite: Transcript Review (including MA382 Algebra 2 or higher, and a minimum 2.7 GPA). A dual enrollment application must be submitted and approved prior to registration.

Topics in this course are designed to acquaint students with the diverse field of biotechnology and to develop fundamental skills in the common laboratory techniques used in biotechnology. Students will learn about the history of biotechnology, job opportunities in biotechnology, recombinant DNA and protein products, microbial biotechnology, plant biotechnology, DNA fingerprinting and forensic analysis. Current ethical issues such as stem cell research and cloning will also be discussed. Lab sessions will be hands-on experiences revolving around and applying the topics listed in the lab section of the syllabus. **S*tudents who successfully meet the requirements outlined in the course syllabus are eligible to receive 4 dual enrollment credits through MWCC. Students in this course will also be enrolled in Biology I (B1-101 Concepts of Biology, dual enrollment course) and are also eligible for 4 additional dual enrollment credits through Worcester State University (for a total of 8 credits).***

SC490 Human Body Systems (PLTW / AP Level) (2 periods/full year)**,** 1.0 credit
Recommendation: Successful Completion of SC172 Biology (85%) and Teacher Recommendation

Step inside the human body and explore the systems that help us move, protect us from disease or injury, and facilitate communication within the body and with the outside world. Students will solve a medical mystery, analyze a medical case file and diagnose disease, and design experiments to explore structure and function of the human body. Students will examine the interactions of the body systems as they explore identity, communication, power, movement, protection, and homeostasis. Students will design experiments, investigate the structure and functions of the human body, and use data acquisition software to monitor body functions such as muscle movement, reflex and voluntary action, and respiration. Exploring science in action, students build organs and tissues on a skeleton manikin, work through interesting real world cases, and often play the role of biomedical professionals to solve medical mysteries. Students practice problem solving with structured activities and progress to open-ended projects and problems that require them to develop planning, documentation, communication and other professional skills.

The Monty Tech Science Department has entered into a unique partnership with Project Lead the Way (PLTW), a nationally recognized provider of rigorous and innovative Science, Technology, Engineering, Mathematics (STEM) education programs used in middle and high schools across the country. PLTW classes are nationally standardized project-based courses that prepare students for college-level work and culminate with a student assessment, which colleges and universities can use to determine if a student earns college credit. ***Students who successfully pass the final PLTW assessment could receive college credit. Students should inquire about these credits during the college admissions process. PLTW classes are AP level classes with limited space available.***

SC492 Anatomy & Physiology I (Dual Enrollment) (2 periods/full year), 1.0 credit
Prerequisite: Transcript Review. Successful completion of SC172 Biology (or higher)
Recommendation: Grade of 85% or higher in prerequisites
**Please refer to grade 11 science course offerings for course description information*

SC483 Anatomy & Physiology (2 periods/full year), 1.0 credit
Prerequisite: Successful completion of Biology
**Please refer to grade 11 science course offerings for course description information*

SC443 Anatomy & Physiology (2 periods/full year), 1.0 credit
Prerequisite: Successful completion of Biology
**Please refer to grade 11 science course offerings for course description information*

SC488 Microbiology (2 periods/half year), .50 credit

Microbiology is a semester course and is appropriate for students with some background in biology and chemistry. This course introduces the basic principles of microbiology examining the tiny organisms that inhabit our planet and their effect on the biosphere. The main topics covered in this class will include bacteriology, virology, and parasitology. Through lab-based work students will develop and demonstrate knowledge and skills including microscopy, aseptic technique, staining, culture methods, and identification of microorganisms. Students will also develop an understanding of the importance of microbes in the environment and their effect on all living things. This is a college prep, laboratory science course. ***This course must be taken with Zoology. Students must successfully complete both of these semester courses to satisfy the full-year science requirement. If a student fails one of these courses during semester 1), they will be required to make up the credit during semester 2 in order to graduate on time.***

SC487 Zoology (2 periods/half year), .50 credit

Zoology is a semester course and focuses on the study of animals. The curriculum examines the ecology, classification, structural characteristics, behavior, and life cycles of animals in each of the major invertebrate and vertebrate phyla. Activities center on microscopy, observation of prepared specimens, video, and research. This is a college prep, laboratory science course. ***This course must be taken with Microbiology. Students must successfully complete both of these semester courses to satisfy the full-year science requirement. If a student fails one of these courses during semester 1), they will be required to make up the credit during semester 2 in order to graduate on time.***

SC466 Environmental Science (2 periods/full year), 1.0 credit
Prerequisite: Successful completion of Biology

Environmental Science engages students in the physical, biological, and earth systems that shape our environment. Scientific concepts, principles and modern science practices allow students to analyze environmental issues, both natural and human induced, and engage in evidence-based decision making in real world contexts. This is a college prep, laboratory science course. ***Note - All students are required to successfully complete Chemistry or Physics in order to meet graduation requirements.**

SC436 Environmental Science (2 periods/full year), 1.0 credit
Prerequisite: Successful completion of Biology
**Please refer to grade 9 and 10 science course offerings for course description information.*

Social Studies Department

COURSE OFFERINGS, GRADES 9-12

GRADE 9	GRADE 10	GRADE 11	GRADE 12
SS191 U.S. History 1 (H) SS171 U.S. History 1 SS131 U.S. History 1	SS292 U.S. History 2 (H) SS272 U.S. History 2 SS232 U.S. History 2	SS393 U.S. History 3 (H) SS373 U.S. History 3 SS333 U.S. History 3	SS494 World History (H)* SS484 World History* SS454 World History* SS481 Global Genocide* SS480 Cultural Studies* SS465 Law & Society*

***semester course**

The Social Studies Department uses standards-based curriculum to develop informed, creative, and independent thinkers. The instructors use the four years of social studies education to help students prepare for their role as citizens of the United States and the world. Students are exposed to a variety of ideologies, primary sources, informational text, and historical approaches. The department works as a cohesive unit to keep curriculum current and relevant.

GRADE 9 SOCIAL STUDIES COURSE OFFERINGS

Course descriptions are organized by course/level

SS191 U.S. History 1 (H) (1 period/full year), 50 credit
Prerequisite: Grade 9 placement testing and transcript review

This honors course consists of a survey of U.S. History from colonization to 1890. Students must be able to demonstrate critical thinking skills, analyze historical concepts and be an active participant. Students will work at an accelerated pace and will learn about colonization, the events leading up to the American Revolution, and Declaration of Independence, post-war nationalism, the Constitution, Age of Reform, the Civil War and Reconstruction. Students will show the ability to evaluate primary sources and outside readings and to synthesize that material into a more in-depth view of American History. In addition, students will be required to do outside reading of historical text and literature. Significant project based activities will accompany outside reading assignments.

SS171 U.S. History 1 (1 period/full year), 50 credit

This college prep course consists of a survey of U.S. History from colonization to 1890. Students will learn about colonization, the events leading up to the American Revolution, and Declaration of Independence, post-war nationalism, the Constitution, Age of Reform, the Civil War and Reconstruction. Students will show the ability to evaluate primary sources and outside readings and to synthesize that material into a more in-depth view of American History. Students will be required to examine selected readings from historical literature. Significant project-based assignments will be given in conjunction with these readings.

SS131 U.S. History 1 (1 period/full year), 50 credit

This college prep course consists of a survey of U.S. History from colonization to 1890. Students will learn about colonization, the events leading up to the American Revolution, the Declaration of Independence, post-war nationalism, the Constitution, Age of Reform, the Civil War and Reconstruction. Students will show the ability to evaluate primary sources and outside readings and to synthesize that material into a more in-depth view of American History. Students will be required to examine selected readings from historical literature. Project-based assignments will be given in conjunction with these readings.

GRADE 10 SOCIAL STUDIES COURSE OFFERINGS

Organized by course subject / levels

SS292 U.S. History 2 (H) (1 period/full year), .50 credit
Prerequisite: Grade of 85% or higher in U.S. History 1 and teacher recommendation

This honors level course consists of a survey of the history of the United States from 1890 to 1945. Students must be able to demonstrate critical thinking skills, analyze historical concepts and be an active participant. The course covers the Industrial Revolution, development of cities, Imperialism, World War I, The New Deal, The Depression, and World War II. All aspects of life are touched upon, including the impact of art, music, religion, business, industry, politics and the global economy as they relate to American society. Students will show ability to evaluate primary sources and outside readings and synthesize that material into a more in-depth view of American History. Students will be expected to demonstrate an understanding of the connections between the 20th Century and modern American politics. In addition, students will be required to do outside reading of historical text and literature. Significant project based activities will accompany outside reading assignments. Students will also be expected to develop independent work projects and a variety of alternative activities that will broaden their understanding of America's place in the world today.

SS272 U.S. History 2 (1 period/full year), .50 credit

This college prep course consists of a survey of the history of the United States from 1890 to 1945. The course covers the Industrial Revolution, development of cities, Imperialism, World War I, The New Deal, The Depression, and World War II. All aspects of life are touched upon, including the impact of art, music, religion, business, industry, politics and the global economy as they relate to American society. Students will show ability to evaluate primary sources and outside readings and synthesize that material into a more in-depth view of American History. Students will be required to examine selected reading from historical literature. Significant project based assignments will be given in conjunction with these readings.

SS232 U.S. History 2 (1 period/full year), .50 credit

This college prep course consists of a survey of the history of the United States from 1890 to current times. The course covers the Industrial Revolution, development of cities, Imperialism, World War I, The New Deal, The Depression, World War II, the Cold War, and post-Cold War to the present. All aspects of life are touched upon, including the impact of art, music, religion, business, industry, politics and the global economy as they relate to American society. Students will be required to examine selected readings from historical literature. Project based assignments will be given in conjunction with these readings.

GRADE 11 SOCIAL STUDIES COURSE OFFERINGS

Organized by course subject / levels

SS393 U.S. History 3 (H), (1 period/full year), .50 credit

This course consists of a survey of the history of the United States from the Cold War and post-Cold War to the present. Students must be able to demonstrate critical thinking skills, analyze historical concepts and be an active participant. All aspects of life are touched upon, including the impact of art, music, religion, business, industry, politics and the global economy as they relate to American society. Students will show ability to evaluate primary sources and outside readings and synthesize that material into a more in-depth view of American History. Students will be expected to demonstrate an understanding of the connections between the 20th Century and modern American politics. Students will work at an accelerated pace and be required to read supplemental novels relating to topics being covered. A significant project will accompany these novels. All students will complete a student-led, non-partisan civics project consistent with the newly revised Massachusetts History and Social Science Curriculum Frameworks and Chapter 296 of the Acts of 2018. Students will also be expected to develop independent work projects and a variety of alternative activities that will broaden their understanding of America's place in the world today.

SS373 U.S. History 3 (1 period/full year), .50 credit

This college prep course consists of a survey of the history of the United States from the Cold War and post-Cold War to the present. All aspects of life are touched upon, including the impact of art, music, religion, business, industry, politics and the global economy as they relate to American society. Students will be required to examine selected readings from historical literature. Significant project-based assignments will be given in conjunction with these readings. All students will complete a student-led, non-partisan civics project consistent with the newly revised Massachusetts History and Social Science Curriculum Framework and Chapter 296 of the Acts of 2018.

SS333 U.S. History 3 (1 period/full year), .50 credit

This college prep course consists of a survey of the history of the United States from the Cold War and post-Cold War to the present. All aspects of life are touched upon, including the impact of art, music, religion, business, industry, politics and the global economy as they relate to American society. Students will be required to examine selected readings from historical literature. Project-based assignments will be given in conjunction with these readings. All students will complete a student-led, non-partisan civics project consistent with the newly revised Massachusetts History and Social Science Curriculum Framework and Chapter 296 of the Acts of 2018.

GRADE 12 SOCIAL STUDIES COURSE OFFERINGS

World History is a required course for all grade 12 students

SS494 World History (H) (1 period/half year), .25 credit
Prerequisite: Grade of 85% or better in Grade 11 History, and teacher recommendation

This course is a survey of topics from the study of world history. Students must be able to demonstrate critical thinking skills, analyze historical concepts and be an active participant. Students will work at an accelerated pace to cover topics which will include major religions (Hinduism, Buddhism, Christianity and Islam), the Renaissance, the Enlightenment, the French Revolution, and the Russian Revolution. Students will demonstrate the ability to evaluate primary source documents and outside readings in order to develop a more in-depth understanding of World History. In addition, students will be required to do outside reading of historical text and literature. Significant project based activities will accompany outside reading assignments.

SS484 World History (1 period/half year), .25 credit

This college prep course is a survey of topics from the study of world history. Topics will include major religions (Hinduism, Buddhism, Judaism, Christianity, and Islam), the Renaissance, the Enlightenment, the French Revolution, and the Russian Revolution. Students will demonstrate the ability to evaluate primary source documents and outside readings in order to develop a more in-depth understanding of World History. Students will be required to examine selected readings from historical literature. Significant project based assignments will be given in conjunction with these readings.

SS454 World History (1 period/half year), .25 credit

This college prep course is a survey of topics from the study of world history. Students will work at an accelerated pace to cover topics which will include major religions (Hinduism, Buddhism, Christianity and Islam), the Renaissance, the Enlightenment, the French Revolution, and the Russian Revolution. Students will be required to examine selected readings from historical literature. Project-based assignments will be given in conjunction with these readings.

SS481 Global Genocide, (1 period/half year), .25 credit

This college prep social studies elective is an interdisciplinary course that will explore the history of genocide around the world. Students will investigate historical examples including the Holocaust, Armenia, Rwanda, and more. Students will discuss genocide, ethnic cleansing, crimes against humanity, and war crimes in order to give them historical perspective.

Course content will investigate roles of perpetrators, victims, and bystanders in an attempt to understand how these horrific events were possible. Coursework will include analysis of primary and secondary sources. This course is taught at an accelerated pace and may require additional reading. All students are required to successfully complete World History in order to meet graduation requirements. This course does not meet that requirement.

SS480 Cultural Studies (1 period/half year), .25 credit

This college prep course will take another look at American and World History. Students must be able to demonstrate critical thinking skills, analyze historical concepts and be an active participant. Unlike other history courses, this course will focus on the development of culture, rather than politics. This course will connect trends in human thinking with time periods and events studied in past history classes. Topics will include music, art, psychology, and philosophy. Students will be expected to discuss the role of government, psychology, and technology in culture. Additionally, students will be required to develop two major projects. All students are required to successfully complete World History in order to meet graduation requirements. This course does not meet that requirement.

SS465 Law and Society (1 period/half year), .25 credit

This college prep course will cover basic law principles that every citizen living within society should be aware of. The following topics will be addressed: an introduction to law and the legal system, criminal law and civil law, juvenile justice, family law, individual rights and liberties. Students will gain a practical understanding of local, state and federal law through the study of various real life cases. This course is taught at an accelerated pace and may require additional reading. All students are required to successfully complete World History in order to meet graduation requirements. This course does not meet that requirement.

Electives

PHYSICAL EDUCATION / HEALTH

The Physical Education/Health program provides opportunities for students to practice the skills necessary to participate in physical activities and mental awareness that promote a healthy lifestyle. Often, students will participate in independent skill-building, collaborative activities and/or competitive sports. Students will learn the value of good sportsmanship and ethical play. These skills will allow students to develop a keen sense of self-awareness and a sound mind and body, which will help each of our students meet the everyday challenges of the mental, emotional, social, and physical aspects of maintaining good health. We are proud to offer students an array of fitness courses that are suitable for students at all fitness levels, encouraging an appreciation for personal fitness and a healthy lifestyle.

COURSE DESCRIPTIONS, GRADES 9-12

PE130 PE/Health 9 - Grade 9 (1 period/half year) – Required, .25 credit

Physical Education at the 9th grade level places an emphasis on developing personal habits that support health and wellness. A variety of movement-based activities will be introduced throughout the semester that are both sports and fitness-based. The goal of Physical Education is to support the continuous education of each individual towards lifelong fitness. Health Education in Grade 9 centers on Family Life Education and Sexuality. This course is designed to make students aware of health risks that may be associated with human sexuality. Included in the course will be information on reproductive anatomy, birth control, sexually transmitted infections, sexual orientation, teen pregnancy, dating violence and responsible decision-making.

PE230 PE/Health 10 - Grade 10 (1 period/half year) – Required, .25 credit

Physical Education at the 10th grade level begins with a review of concepts previously explored in grade 9. Activities progress towards intermediate skills and enhancing overall health through a variety of sports and fitness-based activities. Health Education in Grade 10 centers on substance abuse and resistance. Students will be made aware of the problems associated with chemical dependency. Topics included will be healthy decision-making skills, influences, alcohol, tobacco, controlled substances, designer drugs, steroids, smoking cessation, the addiction process and offering help to others.

PE331 PE11 - Grade 11 (1 period/half year), .25 credit

Physical Education at the 11th grade level will focus on lifetime and carryover activities as well as individual and dual sports. Basic and intermediate skills and strategies will often be incorporated into competitive scrimmages. Advanced skills will be developed throughout the semester. Students will also develop personal fitness routines and learn more about healthy decision-making by participating in a variety of fitness-based activities, especially in smaller classes. Health education at the 11th grade level centers around mental health.

PE431 PE12 – Grade 12 (1 period/half year), .25 credit

Physical Education at the 12th grade level will focus on lifetime and carryover activities as well as individual and dual sports. Basic and intermediate skills and strategies will often be incorporated into competitive scrimmages. Advanced skills will be developed throughout the semester. Students will also develop personal fitness routines and learn more about healthy decision-making by participating in a variety of fitness-based activities, especially in smaller classes. Health education at the 12th grade level focuses on fitness and lifetime wellness activities.

PE332 Personal Fitness – Grade 11 (1 period/half year), .25 credit
PE432 Personal Fitness – Grade 12 (1 period/half year), .25 credit

This fitness course shall be offered to juniors and seniors. The class will include self -evaluations and instructor guidance to plan a personalized fitness plan designed to enhance body composition, increase flexibility, develop cardio endurance and manage weight. Students will participate in a variety of activities to meet their goals.

EL 60B Yoga and Meditative Art 10 (1 period/half year), .25 credit
EL 61A Yoga and Meditative Art 11 (1 period/half year), .25 credit
EL 61B Yoga and Meditative Art 12 (1 period/half year), .25 credit

This course will combine yoga, meditation, and creative arts to support health and physical education and character development in its participants. This class will combine rigorous, alignment based flow yoga (Vinyasa Yoga) with creative arts activities. The arts element of this class will offer students an opportunity to express themselves through drawing, collage, painting, mixed media, etc. Projects will be done independently, in small groups, and class/community collaborations. There will also be opportunities for creative writing, journaling, self-reflection, and centering. As students deepen their yoga practice and connect with their bodies, the art making process will often emerge as a reflection of the movement. The fundamental 8 limbs of yoga will be woven into the semester to guide class themes and provide inspiration during art making opportunities. Scheduling may require students to be in classes that include multi-grade levels.

Art Electives

EL54A Visual Arts 1, Grades 9 & 11 (1 period/half year)**,** .25 credit
EL54B Visual Arts 1, Grades 10 & 12 (1 period/half year)**,** .25 credit

Visual Arts is a semester-long introductory studio art course for all levels, abilities and understandings of basic art principles. The primary goal of this class is to encourage students to develop awareness and appreciation for visual art and to recognize the unlimited possibilities for making objects of beauty through self-expression. Students will develop their own visual style through a variety of art mediums and will explore traditional and contemporary techniques. This course is available for students in grades 9-12. Scheduling may require students to be in classes that include multi-grade levels.

EL55A Visual Arts 2, Grades 9 & 11 (1 period/half year), .25 credit
EL55B Visual Arts 2, Grades 10 & 12 (1 period/half year), .25 credit

Visual Arts 2 is a semester-long studio art course for students looking to further develop the concepts and skills cultivated in Visual Arts 1. Students will build upon the skills and techniques in two-dimensional media (graphite, charcoal, pastels, colored pencil, acrylic, watercolor and ink techniques). Students will develop an ability to make effective choices concerning media, techniques, subject matter, methods of interpretation and compositional design while continuing to cultivate personal style. This class will develop critiquing skills as well as discuss portfolio development. Visual Arts 1 is a prerequisite for this course.

EL65A Independent Study for Visual Arts, Grade 11 (1 period/half year)**,** .25 credit
EL65B Independent Study for Visual Arts , Grade 12 (1 period/half year)**,** .25 credit
Prerequisites: Completion of Visual Arts 1 & 2 or equivalent required. ***Students interested in this course MUST complete an Independent Study Approval form. The form must be completed and approved by the supervising teacher and Director of Academic Programs.***

This independent study art course is a self-directed course that allows students to explore their creativity in a variety of mediums. Students will work independently with guidance from the instructor to develop a body of work that reflects their personal interests and artistic goals. The course encourages experimentation, exploration of different techniques and mediums, and the development of a personal style. Students will be expected to document and reflect on their work throughout the semester. Special scheduling required.

Spanish Electives

Students interested in learning and mastering a foreign language while at Monty Tech may enroll in our comprehensive Spanish program. Instructors have developed a course sequence that emphasizes vocabulary, conversational expressions and grammar, while ensuring students are able to apply their knowledge in practical, real-world situations. Students will be exposed to a variety of teaching styles, and will demonstrate their knowledge through a wide variety of assessments and projects. Reading, writing, listening and speaking skills are developed in each course. Students will become proficient in both written and oral language presentation, and will develop a true appreciation for Spanish-speaking cultures around the globe as they explore Hispanic culture, music, literature and film.

COURSE DESCRIPTIONS, GRADES 9-12
Organized by course subject / levels

EL172 Spanish 1 – Grade 9 (1 period/full year), .50 credit
EL272 Spanish 1 – Grade 10 (1 period/full year), .50 credit

EL372 Spanish 1 – Grade 11 (1 period/full year), .50 credit
Recommendation: Score of 70% or above in English

This course will provide students with a general introduction to the Spanish language. Emphasis will be on building proficiency and the acquisition of four skills: reading, writing, listening, and most importantly, speaking. The main objective of the course is to provide students with a basic understanding of Spanish vocabulary, grammar, and culture. Students are expected to use Spanish in this class. This course is available for students in grades 9 - 11. Scheduling may require students to be in classes that include multi-grade levels.

EL173 Spanish 2 – Grade 9 (1 period/full year), .50 credit
EL273 Spanish 2 – Grade 10 (1 period/full year), .50 credit
EL373 Spanish 2 – Grade 11 (1 period/full year), .50 credit
EL473 Spanish 2 – Grade 12 (1 period/full year), .50 credit
Prerequisite: Successful Completion of Spanish 1

This course builds upon the knowledge gained in Spanish I. We will continue practicing the four skills of reading, writing, listening, and speaking. Emphasis will be on increased communicative proficiency and acquisition of functional vocabulary and grammar. The main objective of the course is to build on the basic concepts of Spanish vocabulary, grammar, and culture. Students are expected to use Spanish in this class. This course is available for students in grades 9 - 12. Scheduling may require students to be in classes that include multi-grade levels.

EL274 Spanish 3 – Grade 10 (1 period/full year), .50 credit
EL374 Spanish 3 – Grade 11 (1 period/full year), .50 credit
Prerequisite: Successful Completion of Spanish 2
Recommendation: Student earns at least a 70 in Spanish 2

This course is a rigorous continuation of Spanish 2. Students will integrate a more advanced vocabulary and grammar through listening, speaking, reading, and writing in the target language. There will be an emphasis on Latin American culture and project-based learning. Students are expected to use Spanish in this class. This course prepares students for a four-year college program. This course is available for students in grade 10-12. Scheduling may require students to be in classes that include multi-grade levels.

Additional Elective Courses

EL152 & EL353 Digital Essentials - Grade 9 & 11 (1 period/half year), .25 credit

Prepare for success in high school and beyond with *Digital Essentials.* This foundational course teaches you the must-have digital skills to thrive in the modern world. From mastering productivity tools to navigating online platforms and creating professional digital content, you'll learn practical applications that make your schoolwork and everyday tasks easier and more efficient. Whether you're managing school projects, working with classmates, or exploring digital creativity, *Digital Essentials* gives you the confidence and know-how to excel in high school and the ever-changing digital age.

EL390 AP Seminar – Grade 11 (1 period/full year), .50 credit
Recommendations: EN190 or EN290 (70% or higher); EN172 or EN272 (80% or higher). This course is highly recommended for students enrolled in AP Language and Composition.

AP Seminar is an interdisciplinary course that encourages students to demonstrate critical thinking, collaboration, and academic research skills on topics of the student's choosing. This course is an AP level class and is recommended for students who are independent and self-motivated. Students will read and analyze articles, studies, and other texts, gathering and combining information from sources, viewing an issue from multiple perspectives, and crafting written

arguments and presentations based on evidence. Seating may be limited. This course is a prerequisite for AP Research and may be co-taught by more than one instructor. ***Students are required to take and pay for the AP exam at the end of the year. Financial aid is available for students who qualify. Students passing the AP exam with a score of 3, 4, or 5 receive college credit at most colleges and universities.***

EL395 & EL495 AP Research – Grade 11 and 12 (1 period/full year), .50 credit
Prerequisite: AP Seminar
Recommendations: EN290 or EN398 (70% or higher); EN272 or EN372 (80% or higher)

AP Research builds on skills learned in AP Seminar to deeply explore an academic topic, problem, or issue of individual interest. Through this exploration, students will design, plan, and conduct a year-long research based investigation to address a research question. Students will conduct independent research, analyze sources and evidence, apply context and perspective, write a college-level academic paper, and present research findings to an audience. This course is an AP level class and is recommended for students who are independent and self-motivated. AP Research may be co-taught by more than one instructor and seating may be limited. ***Students are required to take and pay for the AP exam at the end of the year. Financial aid is available for students who qualify. Students passing the AP exam with a score of 3, 4, or 5 receive college credit at most colleges and universities.***

EN276 Mythology and Fantasy Literature - Grade 10 (1 period/full year), .50 credit

Explore a world of gods, heroes, and monsters in this elective course. Students read and analyze myths, legends, and fantasy literature from cultures around the world, examining classical myths, modern adaptations, and fantasy novels to uncover common themes, archetypes, and symbolism. Through discussion, creative projects, and imaginative writing, students connect ancient storytelling traditions to contemporary narratives. Open to all students with a love of reading, writing, and imagination.

EN376 Creative Writing - Grade 11 (1 period/full year), .50 credit

This course invites students to explore creative writing as both an art form and a collaborative practice. Students engage with multiple genres—including fiction, poetry, creative nonfiction, and dramatic writing—while developing their unique voices and strengthening essential craft techniques.

A central feature of the course is the integration of Liz Lerman's Critical Response Process, a structured approach to giving and receiving feedback that supports creative ownership while fostering meaningful community dialogue. Through this process, students learn to identify what resonates in others' work, ask purposeful questions, and offer constructive responses with permission and respect. Regular writing workshops, creative exercises, and reflective practices help students build confidence as writers while developing skills in critical thinking, empathetic listening, and collaborative revision.

EN476 Conspiracy Theories: Secrets, Lies, and Bigfoot - Grade 12 (1 period/full year), .50 credit

Why do some people believe the moon landing was faked? Is the Bermuda Triangle real? Who killed JFK—and where are the aliens? This course explores conspiracy theories through historical and contemporary lenses, from Cold War anxieties and government secrecy to modern social media and internet culture. Students analyze films, news coverage, documentaries, and digital media to examine how conspiracy theories are created, spread, and sustained over time. Through research, discussion, and source evaluation, students build media literacy skills, strengthen historical understanding, and learn to distinguish credible evidence from misinformation.

EL344 Personal Finance – Grade 11 (1 period/half year), .25 credit
EL444 Personal Finance – Grade 12 (1 period/half year), .25 credit

This course focuses on learning personal financial money management skills such as developing personal financial goals; learning various types of income; selecting and maintaining the right checking and savings accounts; establishing and maintaining excellent credit; how to avoid identity theft; buying/financing a vehicle and first home; investment options; and various types of insurance. This course is available for students in grades 11 & 12.

EL231 Directed Study - Grade 10 (1 period/half year), .25 credit
EL331 Directed Study - Grade 11 (1 period/half year), .25 credit
EL431 Directed Study - Grade 12 (1 period/half year), .25 credit

This course is designed for those students who are interested in additional structured time to work on self-selected content area coursework. In addition, students may learn additional strategies for executive functioning and social emotional learning. Student academic progress will be monitored to assure students success. This course is available for students in grades 10-12.

Marine Corps Junior Reserve Officer Training Corps (MCJROTC) Leadership Education Program (9-12)

EL103 JROTC Leadership Education 1 (1 period/full year), .50 credit

Marine Corps Junior Reserve Officer Training Corps, or JROTC Leadership Education, is a four-year academic program. Enrollment does not obligate a student to join the Marine Corps or any other branch of the service. Students, however, must accept Marine Corps standards of discipline, appearance and training. It is a nationally recognized program that has received accreditation by The Commission of International and Trans-Regional Accreditation (CITA). The CITA Alliance includes the Southern Association of Colleges and Schools (SACS-CEMS and SACS-CSMS). It is designed to instill in high school students a value of citizenship, service to the United States, personal responsibility, and a sense of ethics and honor. This leadership model will help students learn universal life skills that will better prepare them for all career pathways. Students will be responsible for uniform inspections, grooming standards and physical fitness standards. **For more information, click HERE**. This course is available for students in grade 9.

EL203 JROTC Leadership Education 2 (1 period/full year), .50 credit

This course will build on the subject matter covered in Leadership Education 1. However, the completion of Leadership Education 1 is not a prerequisite for this course. This course is available for students in grade 10.

EL303 JROTC Leadership Education 3 (1 period/full year), .50 credit

This course will build on the subject matter covered in Leadership Education 1 & 2. However, the completion of Leadership Education 1 & 2 is not a prerequisite for this course. This course is available for students in grade 11.

EL403 JROTC Leadership Education 4 (1 period/full year), .50 credit

This course will build on the subject matter covered in JROTC Leadership Education 1, 2 & 3. However, the completion of JROTC Leadership Education 1, 2 & 3 is not a prerequisite for this course. This course is available for students in grade 12.

Title I Math Support

EL110 Math Lab – Grade 9 (1 period/full year), .50 credit, Transcript Review and Placement Testing
EL210 Math Lab – Grade 10 (1 period/full year), .50 credit, Teacher and Counselor Recommendation

This course is designed to provide supplemental academic support to eligible Title I students in mathematics, along with targeted instruction to help students prepare to meet MCAS proficiency requirements. At the freshman level, instruction focuses on rational numbers (integers, fractions, and decimals), equations, proportions and percent of change, linear equations, systems of linear equations, and exponents. For sophomores, topics include operations with polynomials, factoring, quadratic equations, summary statistics, and introductory geometry concepts. Throughout the course, students engage in problem-solving strategies, open-response questions, and test-taking techniques aligned to the standards of Number and Quantity, Algebra and Functions, Geometry, and Statistics and Probability.

Eligibility is determined based on students' performance on standardized assessments, placement test scores, and school counselor and teacher recommendations. For additional information, families should contact their student's school counselor. This course is available to students in grades 9–10.

English Language Education

English Learners are identified through the Home Language Survey and assessed using the ACCESS for ELLs and/or WIDA Placement Test. Student progress toward English proficiency is reviewed during scheduling and throughout the year. Monty Tech provides English Learners with access to core academic instruction through SEI-endorsed, content-licensed educators who deliver sheltered instruction in general education classrooms, with accommodations and modifications provided as needed. In addition, students receive direct English language development instruction from a licensed ESL teacher through designated ESL courses. Placement is based primarily on assessment results, with consideration of classroom performance and teacher recommendations. Students exit ESL services upon earning a qualifying score on ACCESS for ELLs and are monitored for four years to ensure continued academic success. Additional program details are available in the English Language Education Handbook.

ESL500 ESL English as a Second Language (1 period/full year), .50 credit
Prerequisite: ESL Team Placement Only

This course is designed for English Learners at varying levels of English language proficiency and supports the development of English language skills across the four WIDA language domains: Listening, Speaking, Reading, and Writing. Course sections may be grouped by WIDA proficiency levels (e.g., Levels 1–2 and Levels 3–4) to allow for targeted instruction, appropriate pacing, and differentiated language support. Students build essential vocabulary and grammatical structures to support communication in both social and academic contexts. Instruction emphasizes listening comprehension and oral language development, with structured opportunities to respond using words, phrases, and increasingly complex sentences. Students engage in reading development through appropriately leveled texts and practice writing tasks that progress from simple sentences to more extended responses connected to everyday experiences, classroom routines, and academic content. While all sections address common instructional goals aligned to the WIDA English Language Development standards, the level of linguistic complexity, scaffolding, and independence varies based on students' proficiency levels. This course supports students' progression along the WIDA proficiency continuum and builds the foundational language skills necessary for daily communication and increasing access to grade-level academic content.

ESL800 ESL Lab (1 period/full year), .50 credit
ESL Lab (Academic & Vocational Language Support)
Prerequisite: ESL Team Placement Only

The ESL Lab course provides targeted English language development support for English Learners at the WIDA Entering through Expanding proficiency levels (Levels 1–4). Lab sections may be grouped by proficiency level (Levels 1–2 and Levels 3–4) to allow for focused instruction, appropriate pacing, and differentiated language supports. Instruction is designed to reinforce the language skills students need to access the Massachusetts Curriculum Frameworks and career and technical education standards across their academic and vocational coursework. Support focuses on developing discipline-specific academic and technical vocabulary, reading and interpreting academic and vocational texts, writing for academic and workplace purposes, and participating in structured classroom- and shop-based discussions. While instructional goals remain consistent across sections, the level of linguistic complexity, scaffolding, and student independence varies based on students' English language proficiency levels. Instruction is designed with consideration of academic and vocational curricula to support students' access to grade-level content and expectations.

Student Support Services

Support services include special education and related counseling services. Students are afforded opportunities to meet with a school counselor, school psychologist, adjustment counselor and/or social worker when the need arises. Special Education students meet regularly with assigned personnel.

SCHOOL COUNSELING

The school counselors at Monty Tech assist students through individual and group counseling to gain insight into understanding their environment and needs so that choices and decisions made will culminate in an effective and satisfying academic and vocational life. The counselors meet with students in order to assist them in developing an awareness of the world of work and in creating an academic and vocational program that ensures they receive the necessary training and skills needed for college admissions, post-secondary vocational training, employment, or military service.

The School Counseling Department, in addition to vocational and academic counseling, assists students with social emotional learning (SEL) that may affect their learning process. The services of the school counselors at Monty Tech are available to all students and parents by appointment. Unscheduled conferences are held when deemed necessary.

SPECIAL EDUCATION SERVICES

The Montachusett Regional Vocational Technical School District complies with the special education laws known as IDEA at the federal level and Chapter 766 at the state level. Students with disabilities are identified, evaluated and determined to be eligible for special education services through the mandated Team process. If it is determined at the Team meeting that a student will not make effective progress in regular education classes without specialized assistance, then an Individualized Educational Program is written by the Team for that student. Only students with IEPs can receive special education services.

LEARNING SUPPORT

EL121S Learning Support – Grade 9 (1 period/full year), .50 credits
EL221S Learning Support – Grade 10 (1 period/full year), .50 credits
EL321S Learning Support – Grade 11 (1 period/full year), .50 credits
EL421S Learning Support – Grade 12 (1 period/full year), .50 credits

Learning Support is a credit-bearing course designed for students who require additional specialized educational services through an IEP (Individualized Educational Program). This course will introduce the instruction and practice of the skills

necessary for the student to be able to access the common core and vocational curriculum. Students will be instructed on skills specific to their individual needs that are tied to their Individual Education Program. Students will be required to integrate skills taught within their subject area classes on a weekly basis. Time will be allotted for one-on-one and small group instruction to assist in clarification of content area material.

READING

EL122S Reading – Grade 9 (1 period/full year), .50 credits
EL222S Reading – Grade 10 (1 period/full year), .50 credits
EL322S Reading – Grade 11 (1 period/full year), .50 credits
EL422S Reading – Grade 12 (1 period/full year), .50 credits

Students will be instructed in literacy skills specific to their individual needs using multisensory reading interventions that are connected to each student's Individual Education Program.

HEALTH EDUCATION/SERVICES

Monty Tech's comprehensive Health Education/Services program provides students with counseling, support and information to assist them in dealing effectively and positively with health-related and social issues. Mentoring, social groups and support groups for prevention and intervention of substance abuse concerns are some of the many programs that have been established. Resources covering a wide range of teen issues are available to students and their families.

Vocational Technical Educational Plan

The Key to Your Future

Vocational Courses Listed by Grade Levels

	Shops	Grade 9	Grade 10	Grade 11	Grade 12
V-AM	Adv. Manufacturing	VAMX1: Exploratory VAM1: Adv. Manuf. 1	VAM2: Adv. Manuf. 2	VAM3: Adv. Manuf. 3	VAM4: Adv. Manuf. 4
V-AB	Auto Body: Collision Repair	VAB1X: Exploratory VAB1: Auto Body 1	VAB2: Auto Body 2	VAB3: Auto Body 3 VAB3R: Related 3	VAB4: Auto Body 4 VAB4R: Related 4
V-AT	Automotive Tech	VAT1X: Exploratory VAT1: Auto Tech 1	VAT2: Auto Tech 2	VAT3: Auto Tech 3 VAT3R: Related 3	VAT4: Auto Tech 4 VAT4R: Related 4
V-BT	Business Tech	VBT1X: Exploratory VBT1: Business Tech 1	VBT2: Business Tech 2	VBT3: Business Tech 3	VBT4: Business Tech 4
V-CB	Cabinetmaking	VCB1X: Exploratory VCB1: Cabinetmaking 1	VCB3: Cabinetmaking 2	VCB3: Cabinetmaking 3	VCB4: Cabinetmaking 4
V-CD	CAD/Drafting & Design	VCD1X: Exploratory VCD1: CAD/D&D 1	VCD2: CAD/D&D 2	VCD3: CAD/D&D 3	VCD4: CAD/D&D 4
V-CO	Cosmetology	VCO1X: Explore A VCO1EX: Explore B VCO1: Cosmo 1	VCO2: Cosmo 2	VCO3: Cosmo 3 VCO3R: Related 3	VCO4: Cosmo 4 VCO4R: Related 4
V-CA	Culinary Arts	VCA1X: Exploratory VCA1: Culinary Arts 1	VCA2: Culinary Arts 2	VCA3: Culinary Arts 3 VCA3R: Related 3	VCA4: Culinary Arts 4 VCA4R: Related 4
V-DA	Dental Assisting	VDA1X: Exploratory VDA1: Dental Asst. 1	VDA2: Dental Asst. 2	VDA3: Dental Asst. 3	VDA4: Dental Asst. 4
V-EC	Early Childhood Education	VEC1X: Exploratory VEC1: Early Child. Ed. 1	VEC2: Early Child. Ed. 2	VEC3: Early Child. Ed. 3	VEC4: Early Child. Ed. 4 VEC4R: Related 4
V-EL	Electrical	VEL1EX: Exploratory VEL1: Electrical 1	VEL2: Electrical 2	VEL3: Electrical 3 VEL3R: Related	VEL4: Electrical 4 VEL4R: Related 4
V-ET	Engineering	VET1X: Exploratory VET1Z: Engineering 1	VET2B: Engineering 2 VET2A: IED & POE	VET3B: Engineering 3 VET3A: POE & DE/CIM	VET4B: Engineering 4
V-GC	Graphic Communications	VGC1X: Exploratory VGC1: Graphics 1	VGC2: Graphics 2	VGC3: Graphics 3 VGC3R: Related	VGC4: Graphics 4
V-HO	Health Occupations	VHO1X: Exploratory VHO1: Health Occ. 1	VHO2: Health Occ. 2	VHO3: Health Occ. 3	VHO4: Health Occ. 4
V-HC	House Carpentry	VHC1X: Exploratory VHC1: House Carp. 1	VHC2: House Carp. 2	VHC3: House Carp. 3 VHC3R: Related 3	VHC4: House Carp. 4 VHC4R: Related 4
V-HM	HVAC & Property Maintenance	VHM1X: Exploratory VHM1: HVAC & PM 1	VHM2: HVAC & PM 2	VHM3: HVAC&PM 3 VHM3R: Related 3	VHM4: HVAC & PM 4 VHM4R: Related 4
V-IT	Information Tech	VIT1X: Exploratory VIT1: Info Tech 1	VIT2: Info Tech 2	VIT3: Info Tech 3	VIT4: Info Tech 4
V-MR	Masonry	VMR1X: Exploratory VMR1: Masonry 1	VMR2: Masonry 2	VMR3: Masonry 3 VMR3R: Related 3	VMR4: Masonry 4 VMR4R: Related 4
V-PL	Plumbing	VPL1X: Exploratory VPL1: Plumbing 1	VPL2: Plumbing 2	VPL3: Plumbing 3 VPL3R: Related 3	VPL4: Plumbing 4 VPL4R: Related 4
V-VS	Veterinary Science	VVS1X: Exploratory VVS1: Vet Science 1	VVS2: Vet Science 2	VVS3: Vet Science 3	VVS4: Vet Science 4
V-WM	Welding/Metal Fabrication	VWM1X: Exploratory VWM1: Welding/MF 1	VWM2: Welding/MF 2	VWM3: Welding/MF 3 VWM3R: Related 3	VWM4: Welding/MF 4 VWM4R: Related 4

VOCATIONAL TECHNICAL SAFETY

VOCATIONAL TECHNICAL SAFETY IS OUR PRIORITY

BELOW IS AN OUTLINE OF MEASURES TAKEN TO ENSURE STUDENTS LEARN AND MAINTAIN SAFE WORK HABITS.

During the pre-exploratory week, each freshman is given a *'General Safety Rules for Vocational Programs'* booklet and takes an assessment based on the information in the booklet. A score of 100% is required, and the completed test sheets are kept in the Guidance office.

Students in the construction trades are required to take a 10-hour class given by one of Monty Tech's certified "OSHA train the trainers". This training usually occurs in May during the sophomore year of the students' vocational technical program. The course provides each student with an OSHA 10-hour construction safety card, which is a requirement within the Vocational Technical Curriculum Frameworks, as well as an industry requirement. All public funded work projects require the OSHA card. The professional development required, for our teachers that conduct the classes, is funded through the Carl D. Perkins federal grant.

Each of the twenty-one vocational technical programs has their own set of safety tests, specific to the equipment and materials used in their programs. Students are re-tested annually to assure comprehension and understanding of all safety rules within their program. Vocational Technical teachers maintain these safety tests in their own student records folders.

Each vocational technical teacher has a "Standard Shop Procedures" manual, which covers safety requirements for all vocational technical programs. This manual is revisited annually to assure compliance with any new safety rules and regulations.

The Co-op Coordinator, responsible for the Cooperative Education Program, uses a Department of Secondary & Elementary generated safety checklist prior to sending students out on Co-op. This document is entitled "*Cooperative Education Site Safety Checklist*", and assures the worksite is safe.

Monty Tech is also required to have a Comprehensive Health & Safety Plan, which goes into details about our goals and requirements throughout the building. Section 9 is particular to Health & Safety training of students, staff and faculty, and describes the safety training for each vocational technical area. This document is reviewed annually.

SHOP SAFETY

Shop safety and safe operation of tools and equipment are stressed in all programs. Many shops require work boots, safety glasses, shop hats/hairnets, and personal clothing restrictions. Safety is of paramount importance and cannot be overemphasized. Students should be alert and focused on assigned activities at all times.

A WORLD OF OPPORTUNITIES
Freshman Exploratory Program

Montachusett Regional Vocational Technical School offers 21 vocational-technical programs. These programs are introduced to the 9th grade student through a Pre-Exploratory Program and an Exploratory Program.

PRE-EXPLORATORY PROGRAM

The Pre-Exploratory Program at the beginning of Grade 9 enables students to visit each of the 21 vocational technical programs. Students are scheduled into each of these programs for a two-hour segment during his or her first shop week. The curriculum includes: a) overview of trade occupation; b) specialized skills performed; c) related occupation and pay scales. At the conclusion of the program, students select vocational technical programs for further exploration.

EXPLORATORY PROGRAM

The Exploratory Program at Monty Tech enables the student to experience a diverse array of our vocational technical programs. Students are graded on conduct, task completion, personal safety and employability. These are important criteria used in the selection process for a final program. It is important that students work to the best of their abilities in **ALL** Exploratory Programs.

Vocational Program or Shop Selection: Program placement/selection occurs halfway through Freshman year based on the criteria in the above paragraph. This placement occurs in late January and places students in their trade for the next 3-1/2 years. A freshman student must earn a passing grade within the vocational program they are exploring in order to select that program. **Shop safety and safe operation of tools and equipment are stressed at all levels in all programs.**

COOPERATIVE EDUCATION PROGRAM

The Cooperative Education (Co-op) Program makes it possible for eligible junior and senior students to combine classroom and technical training with actual work experience. When students reach the second semester of their junior year, they may be eligible to participate in the Co-op program. To qualify, students must maintain certain grades, have good attendance, and have a good discipline record. The benefit to the students is that it enables the student to practice their chosen trade through state and federal Child Labor Law exemptions for student learners participating in cooperative education programs. If the student's shift is during school hours on their trade week, the student will use that time to be at the work site. Many companies hire co-op students for full-time positions following graduation. Another service provided by this program is Job Placement. Working with numerous employer contacts in the area, students may be placed in temporary, part-time, summer or full-time jobs. This service does not cease upon graduation.

Internship/externship/job shadowing is also an extension of work-based learning. These are unpaid work studies with the intent of gaining valuable experience which may result in a Co-op job.

A Sample of Industry Partners Employing Monty Tech Students and Graduates

1 2 3 Grow Child Center
Aldrich Auto Body
Applewood Controls
Blessington Corporation
Brideau Oil
Car Star Collision Center, Inc.
Commonwealth Electrical Technologies
Community Health Connections
CHC - Dental
Curtis Industries
DeWolfe Contracting
Dillon Boiler
DMH Electrical Contractors, Inc.
F & M Tool & Die
Fitchburg Welding / Twin City Machine
Garlock Printing
Great Clips
Great Wolf Lodge
Harr Toyota
Heywood Medical Group
The Highlands
Interstate Electrical Services
JP Electric & Son
Kitchen Associates/Sterling Surfaces, Inc.
L.S. Starrett Company
Leominster Collision
Lindgren Electric
M.B.W. Inc.
Maki Corporation
Mauser Packaging
Merit Machine
Micron Products
Monty Tech
Morse Bros, Inc.
My Chimney Professional
New Horizons Technologies
Nine Points Woodworking
Northwest Child Development
NyproMold
Papalia Home Services
Piper Electric
Pioneer Valley Environmental
Process Cooling
Reed and Prince Manufacturing
Rituals Hair Salon
Ron Bouchard's Auto
Salvatore's Auto
Space Age Technology
Stateline Trucking
Sterling Municipal Light Dept
Sterling Village
SuperCuts
Stillman Landscaping
Tim's Fabrication
Treasure Hunt Farm
UG2
United Solutions
VCA Lancaster Animal Hospital
VCA Palmer
VCA Sterling
Dr. Vorderstrasse
Wachusett Precision Tool
Wayne J. Griffin Electric, Inc.
Westminster Garage
WJ Graves
Wojo's Construction
Worcester Country Club
Workers Credit Union
Wright's Welding

Advanced Manufacturing

Students learn a variety of skills by studying blueprints and drawings, applying math and science to operate engine lathes, milling machines, grinders, drill presses, EDM (Electrical Discharge Machine) and CNC machines (Computer Numerical Control). CAD (Computer Aided Design) and CAM (Computer Aided Machining) software skills are also learned. Students have the opportunity to achieve MACWIC (Manufacturing Advancement Center Workshop Innovation Collaborative) levels 1 and 2 certifications. The program currently has articulation agreements where our students can graduate with 12 credits completed at a local college. Students will have the opportunity to get a third-party accredited certification in twelve metrology areas. Areas of employment:

Machinist *Machine Operator* *Engineer*
CNC Programmer *Tool and Die Maker*

***Articulation Credits**: Students in the Advanced Manufacturing program may benefit from a number of articulation agreements with area colleges and universities, as listed below. These agreements save qualified students time and money, making a college education much more attainable. Graduating students are encouraged to visit with their school counselor to verify eligibility.*

Quinsigamond C.C.	MNT101 Mechanical CAD I (3) MNT108 Basic Machine Operation (3) MNT210 Computer Numerical Control (with MACWIC 2 or NIMS 1 certif.) (4)
Mt. Wachusett C.C.	PLT105 Blueprint Reading (3) CAD101 Introduction to CAD (3)
Keene State College	SPDI 180 Metal Processes and Prototyping (4) SPDI 290 Special Topics (4) KSC 100 (4) **Must pass lab safety & competency assessments within first 2 years of SPDI major

VAM1X **Advanced Manufacturing Exploratory** (full day, B Week, 1st Semester), 2.25 credits

Program topics include shop safety, basic machine types and functions, measurements and job opportunities. The program also includes projects utilizing basic machine shop skills on lathes, milling machines, saws, CAD, CAM, CNC projects.

VAM1 **Advanced Manufacturing Level I** (full day, B Week, 2nd Semester), 2.25 credits

Program topics include an introduction to or review of the engine lathe, bench work, saws, drill press, pedestal grinder and milling machines. Students will complete the 10-hour OSHA Online General Safety training. Shop safety and safe operation of tools and equipment are stressed. Additional topics include machine shop occupations, use of hand tools, simple layout, basic blueprint reading and computations. Students will learn the PMI (Precision Measuring Instruments) Levels 1-3.

VAM2 **Advanced Manufacturing Level II** (full day, A Week, full year), 4.50 credits
Program topics include a continuation of lathe work, milling machine work, saw work, drill presses, CAD and CNC, and bench grinder. Students will continue the PMI Levels 4 – 6. Shop safety and safe operation of tools and equipment are stressed.

VAM3 **Advanced Manufacturing Level III** (full day, B Week, full year), 4.50 credits

Program topics include advanced, in-depth objectives in the use of saws, lathes, drill presses, grinder, milling machines, and the introduction to CNC machining utilizing CAD and CAM software. Shop safety and safe use of tools and equipment are stressed.

VAM4 **Advanced Manufacturing Level IV** (full day, A Week, full year), 4.50 credits

Program topics include the advanced operation of CNC machines, use of CAD and CAM software, electrical discharge machines, and advanced objectives utilizing lathes, grinders and milling machines. Shop safety and safe use of tools and equipment are stressed.

Auto Body Collision Repair Technology

Auto Body Collision Repair Shop trains students with the latest technology through classroom theory and hands-on experience. The curriculum for Freshmen and Sophomore years is the textbook Auto Collision Repair and Refinishing by Michael Crandell. The Junior and Senior classes' curriculum is the I-CAR (Inter-Industry Conference on Automotive Repair) Academy Curriculum. Graduates are prepared to take the I-CAR hands-on welding certification test, and they can transfer their I-CAR Academy training to the training at an I-CAR Gold Class Collision shop. Students can graduate with I-CAR Academy training in five areas, and industry credentials in MACS Auto Air Conditioning Certification, SEM Plastic Repair Certification, EPA 6H Spray Gun Rule, and OSHA 10. Areas of employment:

Auto Painter	*Frame Technician*	*Service Representative*
Industrial Painter	*Auto Body Supply/Equipment Sales*	*Insurance Auto Damage Appraiser*
Auto Assembler	*Parts Specialist*	*Insurance Claims Adjuster*

Students in the Monty Tech Auto Body/ Collision Repair program may benefit from a number of articulation agreements with area colleges and universities, as listed below. These agreements save qualified students time and money, making a college education much more attainable. Graduating students are encouraged to visit with their school counselor to verify eligibility.

Keene State College	ISSAFE 101 Safety Awareness (4) SAFE 290 Special Topics in Safety (4) KSC 100 (4) **OSHA 10-hour + Safety and Pollution Prevention (SP/2) Certification
McPherson College	Accelerated Acceptance for up to five (5) students from Monty Tech. Accelerated application deadline for submission of portfolios and application for admission (December 1)

VAB1X **Auto Body: Collision Repair Exploratory** (full day, B Week, 1st Semester), 2.25 credits

The program starts with safety. All equipment and tools that students will be using throughout the week are covered. Each student will have hands-on experience in at least three areas of the shop; they will complete a metal shaping and welding project, they experience a complete vehicle detail, and they will design a custom paint job on a car and paint it. This is a fun, educational, fast paced week that will peak the interest of all students.

VAB1 **Auto Body: Collision Repair Level I** (full day, B Week, 2nd Semester), 2.25 credits

Program includes reinforcement of all shop equipment safety rules and regulations. The The I-CAR Worker Safety Program covers all OSHA guidelines, EPA Regulations, Hazardous Communication and how a worker can protect himself from any potential hazards in the collision industry. Other programs covered are: basic measuring theory, hand tool identification and safe use, and vehicle detailing.

VAB2 **Auto Body: Collision Repair Level II** (full day, A Week, full year), 4.50 credits

The program includes reinforcement of all shop equipment safety rules and regulations. The I-CAR Worker Safety Program covers all OSHA guidelines, EPA Regulations, Hazardous Communication and how a worker can protect himself from any potential hazards in the collision industry. Other programs are: cutting and welding, fasteners and hardware, hand tools, repair plans, dent repair theory and practical, in-depth detailing to industry standards.

VAB3 **Auto Body: Collision Repair Level III** (full day, B Week, full year), 4.50 credits

The program includes reinforcement of all shop equipment safety rules and regulations. The I-CAR Worker Safety Program covers all OSHA guidelines, EPA Regulations, Hazardous Communication and how a worker can protect himself from any potential hazards in the collision industry. Other hand-on skills experience are: advanced dent repair and metallurgy to shape metal back to original contour and finish with plastic body filler to industry standards. Intermediate MIG (metal inert gas) welding learning, fillet welds, plug welds, butt weld and butt weld with backing, all in multiple positions. Single stage urethane refinishing, basecoat/clear-coat refinishing, tri-state urethane refinishing will be used by all students to experience how they differ. Vehicle estimating and damage analysis using CCC Pathways computerized estimating.

VAB3R **Auto Body: Collision Repair Related Level III** (1 period/day, A Week, full year), .50 credit

The program includes reinforcement of all shop equipment safety rules and regulations. The I-CAR Worker Safety Program covers all OSHA guidelines, EPA Regulations, Hazardous Communication and how a worker can protect himself from any potential hazards in the collision industry. Other programs are: advanced dent repair and metallurgy, intermediate MIG welding, single stage urethane refinishing, basecoat/clear-coat refinishing, tri-state urethane refinishing, vehicle estimating and damage analysis.

VAB4 **Auto Body: Collision Repair Level IV** (full day, A Week, full year), 4.50 credits

The program includes reinforcement of all shop equipment safety rules and regulations. The I-CAR Worker Safety Program covers all OSHA guidelines, EPA Regulations, Hazardous Communication and how a worker can protect himself from any potential hazards in the collision industry. Other hand-on experiences are: advanced MIG (metal inert gas) welding with destructive tests done to identify proper weld penetration and quality to industry standards. Students will also experience hands-on plastic and composite material repair, including adhesive repairs and plastic welding. Supplementary Restraints Systems (Airbags) diagnostic repair will be taught. Vehicle measuring using a chief laser measuring system, mechanical damage analysis and part identification will also be taught.

VAB4R **Auto Body: Collision Repair Related Level IV** (1 period/day, B Week, full year), .50 credit

The program includes reinforcement of all shop equipment safety rules and regulations. The I-CAR Worker Safety Program covers all OSHA guidelines, EPA Regulations, Hazardous Communication and how a worker can protect himself from any potential hazards in the collision industry. Other programs covered are: I-CAR MIG (metal inert gas) welding, alternative fuels and damage analysis, plastic and composite material repair, supplementary restraints systems (airbags), vehicle measuring and mechanical damage analysis.

Automotive Technology

Automotive Technology focuses on training students in all aspects of automotive repair and maintenance. Students learn on all types of vehicles using the latest equipment available. The program is NATEF (National Automotive Technician Education Foundation, Inc.) and ASE (Automotive Service Excellence) certified in all eight areas. Areas of employment:

New/Used Car Dealerships *Rental/Fleet Operations*	*Auto Parts/Accessories* *Engine/Transmission Rebuilding*	*Trucking Firms* *Independent Garages*

Students in the Monty Tech Automotive Technology program may benefit from a number of articulation agreements with area colleges and universities, as listed below. These agreements save qualified students time and money, making a college education much more attainable. Graduating students are encouraged to visit with their school counselor to verify eligibility.

Benjamin Franklin Institute of Technology	AT259: Automotive Hybrid Safety and Technology (3)
Keene State College	ISSAFE 101 Safety Awareness (4) SAFE 290 Special Topics in Safety (4) KSC 100 (4) **OSHA 10-hour + Safety and Pollution Prevention (SP/2) Certification
Massachusetts Bay Community College	BMW AB100: Automotive Fundamentals (5) Chrysler AY100: Fundamentals of Automotive Technology (5) General Motors AS100: Automotive Fundamentals (5) Toyota-Lexus AT101: Introduction to Automotive Service (4) TSEP AI100: Automotive Fundamentals (1)
Mount Wachusett Community College	AUT 110 Introduction to Automotive Technology (3) AUT 123 Electrical Systems (4.5) AUT 125 Engine Repair (6)
STATEWIDE: 15 Massachusetts Community Colleges	One or more of the following course(s) or up to 5 credits: ● Automotive Fundamentals ● Basic Auto Systems ● Fundamentals of Auto Technology ● Fundamentals of Automotive Service ● Introduction to Automotive Service ● Introduction to Automotive Technology
University of Northwestern Ohio	AU 126: Suspension and Steering (6) AU127: Hydraulic Brake Systems (6)
New England Institute of Technology	TT 110 Basic Engine Theory (3) TT 111 Basic Engines Lab (2) TT 112 Basic Electricity Fundamentals (3) TT 113 Basic Electricity Fundamentals Lab (2) AUT 137 Advanced Electricity and Electronics (4) AUT 138 Advanced Electricity and Electronics Lab (2) AUT 139 Advanced Engines (4) AUT 140 Advanced Engines Lab (2)

VAT1X **Automotive Technology Exploratory** (full day, B Week, 1st Semester), 2.25 credits

Topics explored are basic measuring skills, hand tools, vehicle maintenance, basic engine component identification, disassembly and assembly, and shop safety.

VAT1 **Automotive Technology Level I** (full day, B Week, 2nd Semester), 2.25 credits

Instructional topics include shop equipment, tool crib, tires, basic automotive maintenance, basic component and system identification and interaction, introduction to component diagnosis and replacement. School/Industry shop safety and safe operation of tools and equipment are stressed throughout the course.

VAT2 **Automotive Technology Level II** (full day, A Week, full year), 4.50 credits

Safety and basic use of automotive equipment, brake diagnosis and repair, use of mechanical engine diagnostic tools, use of basic electrical diagnosis tools, diagnose and repair of basic electrical circuits, basic automotive machining and measurement. Also, theory is taught on operation of brake systems, basic electrical circuits, basic measurement conversions, internal combustion engines, and investigation of alternative fuel sources. School/Industry shop safety and safe operation of tools and equipment are stressed throughout the course.

VAT3 **Automotive Technology Level III** (full day, B Week, full year), 4.50 credits

Instructional topics include diagnosis and repair of ABS, overhaul front end suspension components, perform alignments, R + R manual and automatic transmissions, transfer case differential, drivetrain, repair heating and air conditioning systems, diagnose and repair mechanical engine components, repair electrical circuits, diagnosis and repair drivability complaints. School/Industry shop safety and safe operation of tools and equipment are stressed throughout the course.

VAT3R **Automotive Technology Related Level III** (1 period/day, A Week, full year), .50 credit

Instructional topics include ABS brake system theory and operation, suspension and steering theory and operation, alignment theory and operation, manual transmission theory and operation, automatic transmission theory and operation, theory and operation of heating and air conditioning, electrical theory and operation (starting and charging systems). Read and diagnose electrical circuits, basic engine performance and driveability diagnosis. Also, digital volt OHM meter use and application.

VAT4 **Automotive Technology Level IV** (full day, A Week, full year), 4.50 credits

Instructional topics include theory, operation and repair of engine performance, automatic transmission, and Federal and California emission systems diagnosis. During this course offering, we also provide theory and operation related to hybrid vehicle safety/operation and instruction on multiple scan tool platforms. Basic service and operation of hybrid vehicles are demonstrated as well as advanced driver assistance systems, which include, adaptive cruise control, land departure, blind spot management, autonomous braking and drive systems. School/Industry shop safety and safe operation of tools and equipment are stressed throughout the course.

VAT4R **Automotive Technology Related Level IV** (1 period/day, B Week, full year), .50 credit

Instructional topics include theory and operation of fuel system and control unit networking, advanced electrical theory, advanced mechanical engine diagnosis, diagnosis of drivability complaints, advanced electrical operations, and automatic transmissions diagnostics.

Business Technology

Business Technology prepares high school students for success in business by combining essential knowledge, practical skills, and real-world experience. Students explore business operations, marketing, entrepreneurship, ethics, and Microsoft Office applications such as word processing, spreadsheets, databases, presentations, and publishing. The program emphasizes innovation, leadership, critical thinking, and a strong focus on soft skills, including communication, teamwork, adaptability, and problem-solving, while preparing students for advanced studies in entrepreneurship and professional careers. Weekly case studies, product development projects, international relations topics, and business documentaries deepen understanding of global markets and contemporary challenges. Guest speakers, community outreach, and collaboration with vocational trades enrich the curriculum offering diverse perspectives, networking opportunities, and exposure to current industry trends. This blend of theory and application ensures students gain the technical abilities and interpersonal competencies needed for success in today's dynamic business world.

Areas of employment:

Accounting/Finance Offices
Accounts Payable/Receivable
Administrative Medical Assistant
Administrative Support
Banking
Business Offices
Business Technology Instructor
Customer Service Rep
Data Entry Specialist
Hospitals
Insurance Agencies
Legal Office Assistant
Office Manager
Payroll Supervisor
Promotional Sales Assistant
Real Estate Office
Receptionist
Retail Management
Spreadsheet Specialist
Word Processing Specialist

Upon completion of Business Technology, students will be better prepared for post-secondary education in the following courses of study:

Accounting
Business Administration
Communication Media
Criminal Justice Management
Economics
Finance
Global Management
Hospitality Management
Human Res. Management
International Business
Leadership and Strategy Management
Marketing/Advertising
Medical Management
Real Estate
Social Media Marketing
Sports Management

Career pathways related to Business Technology are diverse and interconnected. They cater to various interests, skills, and ambitions in the business operations, creative industries, and entrepreneurial ventures. Each of these pathways offers opportunities for specialization and growth, allowing professionals to align their careers with personal interest and emerging industry trends.

Students in the Monty Tech Business Technology program may benefit from a number of articulation agreements with area colleges and universities, as listed below. These agreements save qualified students time and money, making a college education much more attainable. Graduating students are encouraged to visit with their school counselor to verify eligibility.

Articulation Agreements

Mount Wachusett Community College	BUS 112: Introduction to Customer Relations (3) BUS 125: Communicating for Business and Industry (3) MGT 110: Small Business Management (3) EOA 107: Word Processing (3) EOA 180: Externship Experience (3) - Credit will be granted if the student passes EOA110 with a B or higher and the student's grade for the high school co-op experience was a B or higher.
Quinsigamond Community College	BSS 101: Keyboarding Applications (3) BSS 104: Business Office Procedures (3) CIS 111: Introduction to Microcomputer (3)
STATEWIDE: 15 Massachusetts Community Colleges	• Introduction to Microcomputer Applications • Keyboarding • Introduction to Word Processing • Administrative Office Procedures • Introductory Accounting/Computer Applications
Keene State College	MGT 213 Financial Accounting (4) KSC 100 Elective (8)

VBT1X **Business Technology Exploratory** (full day, B Week, 1st Semester), 2.25 credits

The focus of this exploratory course is to give students a synopsis of business, entrepreneurship, marketing, and finance. Students experience a wide range of activities while exploring career opportunities. All activities are hands-on and are designed to allow the student to experience the world of technology, business management, advertising, marketing, investments, and entrepreneurship. Each student will create a business, rebrand and redesign a product, and learn how businesses can tailor their product design to stand out and appeal to specific target markets. They will create a logo, tagline, brochure, business card, floor plan, website, and commercial to the guidelines. Students will collaborate to prioritize wants and needs in order to execute the development of an online investment for their lemonade stand that is expanded into a real-life simulation within this exploratory.

VBT1 **Business Technology Level I** (full day, B Week, 2nd Semester), 2.25 credits

Students will begin to explore the foundational concepts of business technology, entrepreneurship, marketing, and finance. During freshman year, students will gain insight into branding, advertising, consumer psychology, and creative thinking. Students will be introduced to the world of innovation and risk taking through the application of industry-aligned projects, such as rebranding and redesigning, travel and itinerary planning, international relations, and the introduction to collaborating on activities, oral presentations, and discussions. Weekly case studies, product development projects, international relations topics, and business documentaries deepen understanding of global markets and contemporary challenges.

VBT2 **Business Technology Level II** (full day, A Week, full year), 4.50 credits

Students will continue to build upon the foundational concepts of business technology, entrepreneurship, marketing, and finance. Students are engaged in a variety of hands-on projects that give them the tools to be successful in an array of areas that include: budgeting, marketing, and advertising. These projects and experiences aid them in the development of their advertising, marketing, web design, international relations,

customer service, and communication skills. Students also actively participate in the daily operation of the Monty Tech Greenhouse in the Spring. Weekly case studies, product development projects, international relations topics, and business documentaries deepen understanding of global markets and contemporary challenges.

VBT3 **Business Technology Level III** (full day, B Week, full year), 4.50 credits

Students will enter an advanced program of study using the Microsoft Office Suite Program and develop competency in the use of Excel, PowerPoint, Publisher, and Word. Students enter an in-depth program of study designed to polish their computer skills, critical thinking, problem solving, customer service, and people skills. Students become well-versed in desktop publishing and produce informational brochures, flyers, business cards, and commercials. Students will learn the process of owning and managing a business. They will focus their attention on the real skills required of entrepreneurs-start with meeting a market need and work through planning, financing, incorporating technology, hiring, managing, and avoiding legal problems. Students also engage in developing a business plan for a business of their choosing. This project is geared to help them gain an understanding for the need of setting goals, understanding the world of finance, as well as marketing. Students are focused on polishing their communication skills, business ethics, and professionalism, , in addition to preparing for possible Co-Operative employment. Weekly case studies, product development projects, international relations topics, and business documentaries deepen understanding of global markets and contemporary challenges.

VBT4 **Business Technology Level IV** (full day, A Week, full year), 4.50 credits

Students are encouraged with the opportunity, through the Co-Operative Education Program, to go into actual work situations where they employ their skills learned during the previous three years. A variety of hands-on activities and projects, such as product redesign, international communication, writing assignments, personal finance, and oral presentations are utilized to help students achieve the goals of the course. The curriculum further enhances their skills using technology and business management. The foundations of ethics will be discussed and the nature of ethics will be investigated, as well as, principles that can be used in making ethical decisions. Ethical issues in the workplace and the process of moral development will be focused upon. Students will explore what makes actions right or wrong and how to apply the correct actions to the workplace. Weekly case studies, product development projects, international relations topics, and business documentaries deepen understanding of global markets and contemporary challenges.

Cabinetmaking

Students learn the art of building customized furnishings and cabinets of all types. They also learn special finish techniques and precision work while creating beautiful custom furnishings. Students make and install (in an actual off-campus house) all kitchen and bathroom cabinets and countertops, gaining experience in millwork, cabinetmaking and lamination. Areas of employment:

• *Cabinet Shops* • *Furniture Shops*	• *Woodworking Mills* • *Custom Home Improvement*	• *Architectural Woodworking*

Students in the Monty Tech Cabinetmaking program may benefit from a number of articulation agreements with area colleges and universities, as listed below. These agreements save qualified students time and money, making a college education much more attainable. Graduating students are encouraged to visit with their school counselor to verify eligibility.

Articulation Agreements

Keene State College	SPDI 170 Introduction to Woodworking Technology (4) SPDI 270 Woodworking Processes (4) KSC 100 (4)

VCB1X **Cabinetmaking Exploratory** (full day, B Week, 1st Semester), 2.25 credits

This program includes topics of shop safety (procedures and rules), cabinetmaking vocabulary, identification and correct use of hand tools, machine identification, and use of hand tools to build a small furniture project.

VCB1 **Cabinetmaking Level I** (full day, B Week, 2nd Semester), 2.25 credits

Program topics include correct use and maintenance of hand tools as applied to a specific task. By building projects, students learn about different woodworking joinery including dado joints, butt joints, rabbet joints, dovetail joints, and mortise and tenon joints. Students also learn about adhesives and proper gluing clamps and techniques. Shop safety and safe operation of tools and equipment are stressed. Additional topics include shop rules and procedures stressing shop safety. Introduction to wood finishing includes staining techniques and finish preparation

VCB2 **Cabinetmaking Level II** (full day, A Week, full year), 4.50 credits

Program topics include planning and construction of assigned projects: Nantucket Bench seat, Cabriole Leg, Raised Panel Bookcase, Half-Round Table, a production/assembly line product, and group choice project upon completion of all assigned projects. Shop safety and safety tests are done on all machinery and hand tools, figuring board footage, proper use of spray equipment, spray booth, staining, sanding and rubbing finishes. During this year, all students will have the opportunity to earn their OSHA 10-hour Construction Training.

VCB3 **Cabinetmaking Level III** (full day, B Week, full year), 4.50 credits

Program topics include cabinets and casework, doors and entrance units, window units, trim and moldings; and the complete planning, construction and finishing of various types of furniture: home, school, and commercial, correct use and care of advanced machinery; planning and construction of advanced cabinet and millwork projects; layout, open casework, drawer construction and fitting, cabinet construction and plastic laminating; designing, construction and installation of kitchen cabinets for the house building project. Shop safety and safe operation of tools and equipment are stressed. Students will also be introduced to CNC machinery.

VCB4 **Cabinetmaking Level IV** (full day, A Week, full year), 4.50 credits

Program topics include correct use and care of advanced machinery, planning and construction of advanced cabinet and architectural millwork projects; layout, open casework, designing, construction and installation of kitchen cabinets, template, fabricate, and installation of custom laminate and solid surface countertops. Shop safety and safe operation of tools and equipment are stressed. Students will also experience advanced use of CNC machinery.

CAD/Drafting and Design

Students are taught to produce two and three-dimensional drawings and models utilizing mechanical drafting machines and computer aided drafting. Advanced detail, assembly and 3D solid modeling is covered by use of Autodesk Inventor, Solidworks, and Rhinoceros. Areas of employment:

**3DModel Maker*	** Architectural Drafter*	** Civil Drafter*
**Commercial Drafter*	** Construction Drafter*	** Construction Estimator*
**Designer*	** Detailer*	** Industrial Designer*
**Mechanical Drafter*	** Sign Maker, Layout Artist*	** Stereo Lithographer*
**Aerospace/Aviation Engineer*		** Mechanical Engineer*

Students in the Monty Tech CAD/Drafting and Design program may benefit from a number of articulation agreements with area colleges and universities, as listed below. These agreements save qualified students time and money, making a college education much more attainable. Graduating students are encouraged to visit with their school counselor to verify eligibility.

New England Institute of Technology	ABT 114: Introduction to CAD (4) ABT 112: Technical Drafting & Graphic Communications (3) DR 113: Technical Drafting (3) DR 123: Machine Drawing (3) DR114: Introduction to CAD (4)
STATEWIDE: 15 Massachusetts Community Colleges	One or more of the following course(s) or equivalent: ● Introduction to Drafting (e.g. Architectural, Mechanical) ● Introduction to Computer Aided Drafting (CAD)
Vermont Technical College	ARE 1011: Intro to Construction Drawings ARE 2022: Architectural CAD II
Keene State College	SPDI 121 Design Visualization in Product Design and Engineering (4) SPDI 290 Special Topics (4) KSC 100 Elective (4)

VCD1X **CAD/Drafting and Design Exploratory** (full day, B Week, 1st Semester), 2.25 credits

Program topics include basic drafting, use of mechanical drafting instruments, computer aided design and drafting, line work, measuring, shop safety, laser engraving, illustration, model building, introduction to home design concepts, design projects, and introduction to 3D design.

VCD1 **CAD/Drafting and Design Level I** (full day, B Week, 2nd Semester), 2.25 credits
Program topics include the principles and concepts behind foundational design and technical drawing skills. Students will explore geometric construction, orthographic projection, dimensioning, and the safe use of tools and equipment. Additional topics include pathway exploration of the mechanical and architectural fields while exploring various design projects.

VCD2 **CAD/Drafting and Design Level II** (full day, A Week, full year), 4.50 credits

Students will be introduced to ComputerAided Drafting via the use of industry standard software such as Autodesk AutoCAD. In the first semester, students will explore pathways of mechanical design via advanced working drawings, sectioning,auxiliary views, weldments, piping, assembly and pictorial drawings. Career

pathways of mechanical design included 3D model maker, mechanical drafter, aerospace/aviation engineer, product designer, industrial designer, mechanical engineer, plumbing engineer. In the second semester, students will explore pathways of architectural design by studying advanced floor plans, elevation, sessions, site planning, interior design, sustainability, urban planning, BIM modeling, and construction project management. Career pathways of architecture include architect, interior designer, project manager, civil engineer, structural engineer, urban planner, drafter, and surveyor. Students will earn a certificate in industry-related credentials in the software program Autodesk AutoCAD.

VCD3 **CAD/Drafting and Design Level III** (full day, B Week, full year), 4.50 credits

Program topics include developing specialized skills in both mechanical and architectural design while also visiting specialized pathways such as civil, computerized sign making, CNC, 3D printing and model making. Additional topics include specialized industry software such as Autodesk Revit, SolidWorks, and more. Mid year, students will select a focus pathway and continue to develop a personalized portfolio to showcase their skills. Students will enhance their visual communication abilities using Adobe Photoshop, Illustrator, Enscape, and virtual reality tools. Students will earn a certificate in industry-related credentials for the software programs Autodesk Revit and Solidworks.

VCD4 **CAD/Drafting and Design Level IV** (full day, A Week, full year), 4.50 credits

Topics include emphasis on advanced specialization, independent exploration, and continued professional development. Students continue to expand their skills in their chosen pathway, working on advanced projects to further build their personal portfolios and experience. All students will be required to complete a senior capstone project and ex;pore potential career opportunities in the specialty of their choosing.

Cosmetology

In addition to receiving comprehensive training in all areas of hairdressing and related fields, students also learn how to manage a salon, start a business and deal effectively with clientele. Curriculum includes inventory control, record keeping and computers in the salon. Graduates of the program have their choice of a variety of career pathways available to them. Students must take S/P2 Cosmetology and achieve a 1000 hours Cosmetologist license from the Commonwealth of MA. Other supplemental credentials that can be obtained are Manicurist License from the Commonwealth of MA. Once licensed, students are encouraged to participate in the schools' Co-op program. Areas of employment:

Hair Stylist	*Salon or Spa Manager*	*Make-Up Artist*	*Nail Technician*
Salon Owner	*Booth Renter*	*Platform Artist*	*Wedding/Event Stylist*
Skin Care Technician	*Cosmetology Instructor*		

Students in the Monty Tech Cosmetology program may benefit from a number of articulation agreements with area colleges and universities, as listed below. These agreements save qualified students time and money, making a college education much more attainable. Graduating students are encouraged to visit with their school counselor to verify eligibility.

Articulation Agreements

Keene State College	KSC 100 (8 general elective credits)
Mount Wachusett Community College	MGT 110 Introduction to Business (3)
Quinsigamond Community College	BUS 250 Business Administration Capstone (3)

VCO1X **Cosmetology Exploratory** (full day, B Week, 1st Semester), 2.25 credits

The exploratory program stresses shop professionalism, safety, sanitation, and a clear understanding of the Cosmetology license requirements. Students will learn about the history of Cosmetology and will develop a basic understanding of hair, skin, and nail care. Students will learn a variety of hairstyling techniques such as braiding, spiral iron set, roller set, basic perm wrap, color retouch, foiling and application of hair extensions. Students are also introduced to performing a basic facial, manicuring, nail art, special effects makeup, makeup application, and an introduction to color theory.

VCO1 **Cosmetology Level I** (full day, B Week, 2nd Semester), 2.25 credits

Students are introduced to the new frameworks. Students will be able to demonstrate health & safety in a salon environment, including the management of tools, use of personal protective equipment, and workspace ergonomics. Students will be able to perform professional hair and scalp treatment in preparation for specified hairstyling outcomes, including wet hair styling. They will be able to utilize thermal and blow drying tools, braiding, and professional manicures/pedicures using appropriate products and techniques. They will start to understand and demonstrate the roles of professional communication, critical thinking, problem solving, professionalism, teamwork, and collaboration within the context of cosmetology careers. Students will develop the knowledge to demonstrate the use of common software and information technology in a modern cosmetology environment.

VCO2 **Cosmetology Level II** (full day, A Week, full year), 4.50 credits

Students will continue to establish knowledge from Freshman year. They are introduced and will develop an understanding of Chemistry and its safety, Anatomy and Physiology, and other new standards of frameworks. Students will be able to perform common sectioning and cutting techniques, and create desired styles for all genders and hair textures. They will be able to conduct a skin analysis and perform professional facial treatments and hair removal services using appropriate products and techniques. They will be able to apply various makeup and corrective makeup applications.

VCO3 **Cosmetology Level III** (full day, B Week, full year), 4.50 credits

Students will continue to establish knowledge from previous years. Students will begin training in providing services to clientele, starting with Freshmen, as well as the public, on the clinic floor. Training and participation in the Massachusetts State Board Testing will also take place. Students are introduced to new standards of frameworks. They will be able to perform various hair coloring services on all genders and hair textures, including temporary, semi-permanent, demi-permanent, permanent, and retouch hair coloring. They will be able to perform permanent waving, chemical relaxing and smoothing services for all genders and hair textures. They will be able to perform professional wigs, hair extension and hair enhancement services according to the clients' desired needs and expectations. They will continue to develop knowledge to explain various career pathways in cosmetology, describe opportunities for entrepreneurship and be able to evaluate the value proposition of business ownership in the cosmetology field.

VCO3R **Cosmetology Related Level III** (1 period/day, A Week, full year), .50 credit

Students will be introduced to new standards of frameworks during academic week that support the practical services that are performed during shop week. They will be able to perform various hair coloring services, permanent waving, chemical relaxing and smoothing services for all genders and hair textures. They will also continue to perform professional wigs, hair extension and hair enhancement services. They will continue to develop knowledge to explain various career pathways in cosmetology, describe opportunities for entrepreneurship and be able to evaluate the value proposition of business ownership in the cosmetology field.

VCO4 **Cosmetology Level IV** (full day, A Week, full year), 4.50 credits

Students continue developing and establishing strong employability skills through the frameworks of three years of school. They will provide services to the public through the full-service salon and co-op program, as licensed Cosmetologists. Safety, health knowledge, and skills continue to be reinforced in all areas of instruction.

VCO4R **Cosmetology Related Level IV** (1 period/day, B Week, full year), .50 credit

Students develop and establish knowledge on starting, owning, and operating a sole proprietorship through creating their own business plan as their final senior project. Students may be eligible to utilize this course with area colleges and universities. They will be able to explain various career pathways in cosmetology, describe opportunities for entrepreneurship, and be able to evaluate the value proposition of a business ownership in the cosmetology field. This includes but is not limited to: career navigation, plan and portfolio, job search skills, interview process, communication in the workplace, work ethic, and professionalism.

Culinary Arts

Monty Tech offers a comprehensive cooking, baking, and restaurant management program, where students become involved in the entire spectrum of the food industry including planning, preparation and presentation. The "Mountain Room" restaurant is located within the school where meals and bakery items are served to the public. Areas of employment:

• *Chef* • *Sous Chef* • *Line Cook*	• *Baker/Bakery* • *Hotels* • *Resorts/Country Clubs*	• *Schools* • *Hospitals* • *Wedding/Function Venues*	• *Restaurants* • *Institutional Food Service*

Students in the Monty Tech Culinary Arts program may benefit from a number of articulation agreements with area colleges and universities, as listed below. These agreements save qualified students time and money, making a college education much more attainable. Graduating students are encouraged to visit with their school counselor to verify eligibility.

Quinsigamond Community College	HRM 115 Sanitation Certificate Course (1) HRM 218 Dining Room & Banquet Management (3) HRM 888 Hotel & Restaurant Management Elective (3)
STATEWIDE: 15 Massachusetts Community Colleges	One or more of the following course(s) or equivalent, up to 4 credits: ● Basic Skills for Cooks ● Basic Culinary Techniques ● Culinary Concepts ● Culinary Foundations ● Culinary Skills ● Food Preparation ● Fundamentals of Professional Cooking ● Introduction to Culinary Arts ● Hospitality Management ● Introduction to Hospitality ● Introduction to Hospitality Management ● Food Service Sanitation (ServSafe)

Johnson & Wales University	CUL 1035 Culinary Fundamentals (3) CUL 1055 Cooking in Today's Restaurant: Breakfast & Lunch (3) CUL 1385 Foundations of Baking & Pastry Arts (3) In order to earn these credits, student must take and pass the practical exam ($300 fee)
Keene State College	PH 313 Food Service Management (4) KSC 100 Elective (4)
The Culinary Institute of America	Food Safety (1.5) Mathematics (if student passes challenge test 1.5)

VCA1X **Culinary Arts Exploratory** (full day, B Week, 1st Semester), 2.25 credits

This one-week course provides the students with an introduction to the foodservice industry. The student is introduced to basic food preparation, safety, sanitation, personal hygiene, table setting, dishwashing, bakery, and the use and care of hand tools. Students are assessed using written tests, quizzes and hands-on performance tests.

VCA1 **Culinary Arts Level I** (full day, B Week, 2nd Semester), 2.25 credits

Program topics for 9th grade students include the basic knowledge and skills to succeed in the program. Students receive instruction in the use of small hand tools and equipment, sanitation, safety, personal hygiene, cooking methods, salads and dressings, dining room service, weights and measurements, and portion control. Areas covered in bakery include breads and rolls, pie production, cookies, quick breads, pate choux, frosting, custards, sauces pudding, brownie products, and plated desserts. Instruction utilizes presentations, demonstrations, textbook lessons and student hands on performance tests to assess student achievement of competencies. Students take the OSHA 10 hour Culinary CareerSafe Online workplace safety course.

VCA2 **Culinary Arts Level II** (full day, A Week, full year), 4.50 credits

Program topics include further development of the basic skills and knowledge in the program. Students receive instruction in cooking techniques and methods, salad preparation, sandwiches, soups and sauces, vegetables and fruit preparation, deep fat frying, garnishes, sanitation, baking, frosting, pate choux products, pudding, jello, custards, breads and rolls, pie dough products, and quick breads. Safety and the proper use of tools and equipment are stressed. Students take the National Restaurant Association Allergen Awareness Certification.

VCA3 **Culinary Arts Level III** (full day, B Week, full year), 4.50 credits

Program topics include instruction in advanced cooking techniques, product identification, garde manger, advanced soups and sauces, sauté, broiler, plating techniques, garnishes, wait staff procedures and restaurant management. Also included are baking skills in sweet dough production, laminated doughs, Bavarians, mousse, tarts, specialty items, cake production, decorated cakes and plated dessert.

VCA3R **Culinary Arts Related Level III** (1 period/day, A Week, full year), .50 credit

Students complete the National Servsafe Course and take the Serve Safe Managers test in the spring. Students receive instruction through lectures, demonstration, written tests and quizzes. Baking methodology and function of ingredients are also taught during the second half of the year.

VCA4 **Culinary Arts Level IV** (full day, A Week, full year), 4.50 credits

Students receive advanced training in food and restaurant management, modern sauces, meat fabrication, menu planning, roasting, braising, broiling, fish and shellfish, plating techniques, seasoning, marinades and brines, sauté, maître d and wait staff procedures, deep fat frying, poaching, buffet presentation, and service techniques. Areas covered in baking include cake decorating, French pastries, artisan breads, rolls, rich doughs, laminated doughs, cake production, mousse, Bavarian, tarts, and specialty items.

VCA4R **Culinary Arts Related Level IV** (1 period/day, B Week, full year), .50 credit

Students receive advanced instruction in nutrition, cooking methods, inventory, food cost control, marketing, storeroom operation, menu development and design, buffet service, restaurant management, and marketing.

Dental Assisting

Students learn how to assist the dentist and are taught various procedures and practices used in dental offices and clinics. Students have the opportunity to earn certificates from the Dental Assisting National Board™ in infection control and radiation health & safety. Areas of employment:

Dental Offices *Dental Laboratories*	*Dental Supply & Equipment Industry* *Dental Product Sales Rep./Specialist*	*Dental Clinics*

Students in the Monty Tech Dental Assisting program may benefit from an articulation agreement with Mount Wachusett Community College, as listed below. This agreement is intended to save qualified students time and money, making a college education much more attainable. Graduating students are encouraged to visit with their school counselor to verify eligibility.

Mount Wachusett Community College	DHY 103 Dental Radiology (3) DHY 106 Dental Materials (3)
Keene State College	PH 290 Topics in Public Health (4) KSC 100 (8)
Quinsigamond Community College	ALH 102 Medical Terminology (3) ALH 188 Healthcare Elective (3) ALH 189 Healthcare Elective (3) ALH 190 Healthcare Elective (3)

VDA1X **Dental Assisting Exploratory** (full day, B Week, 1st Semester), 2.25 credits

Program topics include introduction to clinical, clerical and laboratory areas of dentistry. Students are instructed in oral health care and prevention of dental disease. Students complete several sets of study models in the laboratory and fabricate a dental appliance. Students gain knowledge of their own dental health, dental radiation, laboratory safety and disinfection.

VDA1 **Dental Assisting Level I** (full day, B Week, 2nd Semester), 2.25 credits

Introduction to the Dental Profession: which includes dental anatomy, tooth identification, general anatomy and physiology, head and neck anatomy, and dental/medical terminology. Also, included are ethics,

Jurisprudence and the Health Information Portability and Accountability Act. Students will also be introduced to the dental facility, personal oral hygiene, nutrition, vital signs, and OSHA 10-hour General Industry (healthcare).

VDA2 **Dental Assisting Level II** (full day, A Week, full year), 4.50 credits

Topics include: ergonomics, the patient's dental record, oral diagnosis and treatment planning, delivering dental care, dental hand instruments, moisture control, and anesthesia and pain control. Students participate in a Community Service Program offering dental services to Monty Tech students through the Caring for Kids program. Students earn certification from the American Red Cross in CPR/AED.

These topics include: microbiology, disease transmission and infection control, principles and techniques of disinfection, principles and techniques of instrument processing and sterilization, regulatory and advisory agencies, management of hazardous materials, dental unit water line, CDC guidelines and the Association for Dental Safety. Students will be prepared to sit for the Infection Control portion of the Dental Assisting National Board (DANB). Students will complete a four-hour certificate program through the ADC called Foundations: Building the Safest Dental visit. This class will prepare the student for practical skills applied in the clinic and on field placement.

VDA3 **Dental Assisting Level III** (full day, B Week, full year), 4.50 credits

Program topics include introduction to dental radiology health and safety and procedures, dental specialties, periodontal disease, oral pathology, special needs and medically compromised patients, restorative and esthetic dental materials, dental liners bases and bonding systems, dental cements, impression materials, laboratory materials and procedures, general dentistry, matrix system for restorative dentistry coronal polishing, dental sealants, and business operating systems. Terms 3 & 4 include a clinical affiliation in local dental offices, externship and co-op education for qualified students.

VDA4 **Dental Assisting Level IV** (full day, A Week, full year), 4.50 credits

This course will introduce radiology topics which include: the history of dental radiographs, radiation physics, radiation hazards and protection, use of dental x-ray and associated equipment, traditional film, direct and indirect digital imaging, panoramic radiography, processing, quality assurance, mounting and radiographic interpretation of anatomic landmarks, including recognizing disease processes and deviations from normal anatomy. Students will use ALARA principles to produce the highest diagnostic radiographs with minimal exposure and following radiation health and safety guidelines. The laboratory component will include: practice for paralleling and bisecting techniques, occlusal and supplemental radiographic techniques. Students will be prepared to sit for the Radiation health and Safety portion of the Dental Assisting National Board (DANB).

Program topics include dental office management and employment strategies. All terms include a clinical affiliation in local dental offices, externships, and cooperative education for eligible students. Students earn certification from the American Red Cross in CPR/AED. Eligible students have the option to apply for Massachusetts State Dental Assisting License. ***Anatomy & Physiology is highly recommended for Dental Assisting students.**

Early Childhood Education

Students develop the necessary skills to become early childhood professionals. They will be educated and trained to work with preschool children. All students are educated in the development of infants and toddlers and have the opportunity to train in infant/toddler classrooms. Students are introduced to the preschool classroom at our on-site childcare facility as freshmen and then assist teachers in classrooms at Head Start and other local childcare centers from sophomore to senior year.

Areas of employment:

• *Infant-Toddler and/or Preschool Teacher in a private preschool* • *Elementary Paraprofessional* • *Nanny*	• *Family Child Care Provider* • *Camp Counselor*

Students in the Monty Tech Early Childhood Education program may benefit from a number of articulation agreements with area colleges and universities, as listed below. These agreements save qualified students time and money, making a college education much more attainable. Graduating students are encouraged to visit with their school counselor to verify eligibility. Upon Completion of Early Childhood Education, students will be better prepared for post-secondary education in the following courses of study: Public-School Teacher, Child-Care Director, Child Care Licensing, Psychology, Social Work and Child Life Specialist.

Mount Wachusett Community College	ECE 101: Introduction to Early Childhood Education (3) ECE 114: Early Childhood Practicum I (4) Students who have successfully completed the CDA Credential: ECE102: Early Childhood Curriculum & Program Planning (3) PSY 108: Child Development (3)
Fitchburg State University	EDUC 1006: Foundations of Education (3) EDUC 3097: Designing Environments for Young Children (3)
Quinsigamond Community College	ECE 101: Introduction to Early Childhood Education (3) ECE 888: ECE Course Elective (3)
STATEWIDE: 15 Massachusetts Community Colleges	One or more of the following course(s) or equivalent, up to 3 credits: ▪ Child Development and Behavior ▪ Child Growth and Development ▪ Development in Early Childhood ▪ Early Childhood Curriculum and Program Planning ▪ Early Childhood Education Elective ▪ Early Childhood Growth ▪ Early Childhood Programs ▪ Foundations of Early Childhood Education ▪ Growth & Development of the Young Child ▪ Introduction to Early Childhood Education
Keene State College	EDUC 290 Special Topics in Education (4) KSC 100 (8)

VEC1X **Early Childhood Education Exploratory** (full day, B Week, 1st Semester), 2.25 credits

Students will be introduced to the domains of development and will explore and create developmentally appropriate activities for various age groups. Students will engage in various activities with preschool children in the Monty Tech Child Care Center and experience caring for an infant using newborn simulators.

VEC1 **Early Childhood Education Level I** (full day, B Week, 2nd Semester), 2.25 credits

Topics include an introduction to careers in the area of Early Childhood Education, types of early childhood programs, observing children, and introduction to theories and principles of child development. Students will observe children in the on-site preschool to gain a better understanding of the topics discussed and will also have the opportunity to engage with children through various activities throughout the semester..

VEC2 **Early Childhood Education Level II** (full day, A Week, full year), 4.50 credits

Topics include creating a safe and healthy environment for children, discipline and guidance techniques, an introduction to curriculum development and writing lesson plans. Students will receive American Red Cross First Aid/CPR/AED Certification, and Department of Early Education and Care Medication Administration training. Students gain practicum hours at Head Start two days a week assisting in preschool classrooms.

VEC3 **Early Childhood Education Level III** (full day, B Week, full year), 4.50 credits

Program topics build on the foundation established at Level II. Topics examine learning experiences for children as well as methods and materials. Included is a review of guidance and discipline. Students gain practicum hours at Head Start 2 days a week during semester 1, as well as plan and develop curriculum. In the second semester, students participate in an intensive practicum experience at local childcare centers via affiliation, externship or co-op, if requirements are met. Weekly journaling allows students to reflect on various topics and issues that involve children, the implementation of lessons, and observations from the practicum experience. Finally, students complete a 2-week Special Needs unit.

VEC4 **Early Childhood Education Shop Level IV** (full day, A Week, full year), 4.50 credits

Students gain practicum hours through either affiliation, externships or cooperative education experience, if they meet the requirements. Students are placed in centers and classrooms based on their future goals in education. This experience includes planning curriculum, observing children and mastering the CDA (Child Development Associate) competencies with the guidance of instructors and supervising teachers. Students are re-certified in American Red Cross First Aid/CPR/AED.

VEC4R **Early Childhood Education Related Level IV** (1 period/day, B Week, full year), .50 credit

Students complete a comprehensive unit on child growth and development studying the four domains of development beginning with the prenatal stage and then childbirth through age five. In addition, students will look at how to provide for the children's needs at each stage of development and the importance of play. Students will review the 6 competency areas for the National Child Development Associate Credential (CDA) while creating a portfolio for their CDA verification visit in the spring. Just prior to graduation, students participate in verification visits and sit for the written exam to earn the Council for Professional Recognition Child Development Associate. Students also apply for the Department of Early Education and Care teaching Certificate in either preschool or Infant/Toddler and Preschool.

Electrical

Students learn residential, commercial, and industrial wiring in accordance with the Massachusetts Electrical Code plus the basic skills necessary to become an electrician. Areas of employment:

Commercial Contractor *Industrial Contractor* *Telephone Company*	*Power Company* *Electrical Apprentice* *Electrical Supply House*	*Audio/Visual & Computer Networks* *Security System Installer*

Students in the Monty Tech Electrical program may benefit from a number of articulation agreements with area colleges and universities, as listed below. These agreements save qualified students time and money, making a college education much more attainable. Graduating students are encouraged to visit with their school counselor to verify eligibility.

Benjamin Franklin Institute of Technology	EL 110 Circuit Theory I (DC) (3) EL 127 Design and Layout/ NEC I (5) EL 129 Design and Layout II/ NEC II (5) EL 213 Circuit Theory II (AC) (4)
Keene State College	ISSAFE 101 Safety Awareness (4) SAFE 290 Special Topics in Safety (4) KSC 100 (4) **OSHA 10-hour Construction Safety Certificate

VEL1X **Electrical Exploratory** (full day, B Week, 1st Semester), 2.25 credits

The student will be familiarized with electrical safety, shop safety, various wiring methods and electrical circuits. Students will assemble projects that reflect the required vocational competencies needed in all four levels of the electrical trade.

VEL1 **Electrical Level I** (full day, B Week, 2nd Semester), 2.25 credits

Topics include shop safety, fire prevention, tool identification, splicing, Romex wiring of various circuits, electron theory, series/parallel circuits, Ohm's Law, magnetism, circuitry, and the Massachusetts Electrical Code.

VEL2 **Electrical Level II** (full day, A Week, full year), 4.50 credits

Shop experiences include shop safety, various wiring methods, house wiring, meters and testers, ladder work, Massachusetts Electrical Code, various light fixtures, introduction to low voltage wiring, hardware identification and conduit bending.

VEL3 **Electrical Level III** (full day, B Week, full year), 4.50 credits

Shop experiences include safety, lighting, heating systems, motors and controllers, transformers, various control circuits, wiring for school's House Building Program, troubleshooting and voltage testing, electrical maintenance of school's properties, services, various wiring projects within the District and the Massachusetts Electrical Code, data, communication, CAVTV systems, lockout/tagout and more.

VEL3R **Electrical Related Level III** (1 period/day, A Week, full year), .50 credit

Instructional topics include safety, Massachusetts Electrical Code, ladder diagrams, motors and control circuits, generators, alternators, heating systems, transformers, AC/DC theories, services, commercial and industrial wiring systems, blueprint reading, electrical board rules and regulations. Students will also be exposed to automation, basic robotics and mechatronics through the program's ARM Lab. Finally, students are exposed to programmable logic control (PLC) and pneumatic control wiring.

VEL4 **Electrical Level IV** (full day, A Week, full year), 4.50 credits

Topics in this program are a continuation and extension of the topics covered in Electrical Shop III. In addition, cooperative education opportunities are available for students who qualify. Shop safety and safe operation of tools and equipment are stressed. Course includes Introduction to NFPA 70E. OSHA Construction regulations and job hazard analysis forms.

VEL4R **Electrical Related Level IV** (1 period/day, B Week, full year), .50 credit

Topics covered in this program are a continuation and extension of those covered in Electrical Related III. In addition, three-phase systems, lighting systems and theory related to programmable logic controllers and Category 5+T Base 10 wiring and line certification to BISCI standards. Solar photovoltaic systems are also covered.

Engineering Technology

Engineering technology offers students a solid foundation in the technical skills needed to support design, testing and manufacturing of products, systems and devices used in every industry and household in the world. Engineering concepts and principles are taught and reinforced through project work. A wide variety of engineering fields and skills are covered including: Electrical, Mechanical, Computer, Civil and Industrial Engineering. The Engineering Design Process will be a continuing theme throughout all of Engineering Technology courses. Areas of employment upon completion of your time in ET include:

• *Engineer (2 - 4 Yr College)* • *Automation Technician* • *Quality Control Technician* • *Manufacturing Technician*	• *Field Service Technician* • *Customer Service Technician* • *Engineering Technician*	• *Test Technician* • *R&D Technician*

Students in the Monty Tech Engineering Technology program may benefit from a number of articulation agreements with area colleges and universities, as listed below. These agreements save qualified students time and money, making a college education much more attainable. Graduating students are encouraged to visit with their school counselor to verify eligibility.

Articulation Agreements

New England Institute of Technology	ENG 119/120 Intro to Engineering (3) MCT 237 Design Project (4) AMT 131 Materials and Manufacturing Processes (4) AMT 241 Machining Fundamentals and CNC (3) MCT 125 Manufacturing Processes (4)

Worcester Polytechnic Institute	PLTW Course — WPI Equivalent Computer Integrated Man. (CIM) — ME1800 Digital Electronics (DE) — ECE1000 Introduction to Engineering (IED) — ES1310 Principles of Engineering (POE) — ES1020
STATEWIDE: 15 Massachusetts Community Colleges	One or more of the following course(s) or equivalent, up to 8 credits: ● Basic Electricity I ● Basic Engineering Circuit Lab ● DC Circuit Theory & Lab ● Electrical Circuits I, Electrical Principles I, Electronics for Technicians I ● Electronics I ● Engineering Essentials and Design, Engineering Fundamentals ● Fundamentals of Electronics ● Introduction to Electrical Circuits, Introduction to Electricity & Electronics, Introduction to Engineering & Lab, Introduction to Engineering, Science, Technology and Society, Introduction to Robotics I ● Pre-Engineering Elective ● Principles of Electric Circuits
Keene State College	SPDI 121 Design Visualization in Product Design and Engineering (4) Or SPD1 110 Electricity and Electronics Fundamentals (4) SPDI 290 Special Topics (4) KSC 100 (4)

PROJECT LEAD THE WAY (PLTW) - "Creating Tomorrow's Technologies Today"

The Monty Tech Engineering Technology program has entered into a unique partnership with Project Lead The Way, a nationally recognized provider of rigorous and innovative Science, Technology, Engineering, Mathematics (STEM) education programs used in middle and high schools across the country.

PLTW classes are nationally standardized project-based courses that prepare students for college-level work and culminate with a student assessment, which colleges and universities can use to determine if a student earns college credit. During their four-year experience in Engineering Technology, students will experience embedded instruction in the following Project Lead the Way courses:

- **Introduction to Engineering Design (IED)**
- **Principles of Engineering I (POE)**
- **Digital Electronics (DE)**
- **Computer Integrated Manufacturing (CIM)**

Because of this innovative partnership, qualified graduates from the Monty Tech Engineering Technology Program may benefit from a number of articulation agreements between PLTW/Monty Tech and post-secondary institutions. The following colleges and universities have agreed to provide course substitution credit, advanced standing credit, partial course credit, and/or test-out or challenge exams to qualified students:

Articulation Agreements

Embry-Riddle Aeronautical University	NHTI Concord Community College	Wentworth Institute of Technology
University of New Haven	Worcester Polytechnic Institute	New England Institute of Technology
Purdue University	Syracuse University	Rochester Institute of Technology

Refer to the experience PLTW websites, located at https://www.pltw.org/experience-pltw/student-opportunities, for a complete list of student opportunities.

VET1X **Engineering Technology Exploratory** (full day, B Week, 1st Semester), 2.25 credits

Students are introduced to electronic and mechanical systems, as well as other hands-on applications. Students will design and build their own electro-mechanical device using various mechanical computer-aided-design (CAD) tools, to capture the design that they subsequently fabricate and keep. Shop safety and general OSHA regulations are taught and enforced.

VET1 **Engineering Technology Level I** (full day, B Week, 2nd Semester), 2.25 credits

Freshman year is devoted to learning and exploring the engineering design process. Students will learn the steps in the design process and how to sketch in 2D & 3D formats, read blueprints, make measurements and use statistics as an analytical tool. They capture designs; create assemblies and technical drawings using mechanical CAD tools. They reverse-engineer a product and work in design teams, including virtual teams not in the same building. Shop safety and safe use of tools and equipment are stressed.

VET2 **Engineering Technology Level II** (full day, A Week, full year), 4.50 credits

During the sophomore year, students start their exposure to the engineering design process. Upon completion of Intro to Engineering Design (IED), students proceed to the Principles of Engineering (POE) program of study. This program provides an understanding of the fundamental physics concepts used by engineers, using problems, by which they become fully engaged and challenged. Using activities, projects, and problem-based learning, students study various topics that include simple machines, centroids, free-body diagrams, beam deflection, heat transfer, and thermodynamics. Students also learn how to document their work and communicate their solutions to their peers and members of their class. Throughout the year, they are taught how to explore material-safety and electronic-component datasheets. Shop safety and safe use of tools and equipment are stressed.

VET3 **Engineering Technology Level III** (full day, B Week, full year), 4.50 credits

During the junior year, students start their exposure to Digital Electronics (DE). They are introduced to electronic circuits and the circuit-design process that are used in process and control applications. The basics of analog circuits and DC voltage are first introduced, followed by a concentration upon digital electronics. Topics covered include: basic digital logic, combinational and sequential logic, programmable logic devices, microprocessors, and state machines. Teamwork, communication methods, engineering standards, and technical documentation are also covered. Following their study of the Principles of Engineering, students proceed to an exploration of computer-integrated manufacturing (CIM). This course covers such topics as manufacturing processes, product design, robotics, and factory automation. Knowledge of computer-aided design (CAD) will be extended to computer-aided manufacturing (CAM) allowing students to convert their designs into actual items using computer numerical controlled (CNC) milling machines. In addition, additive manufacturing processes such as 3D printing of plastic parts, computer integrated manufacturing work cells,

and various manufacturing processes are explored and studied. Shop safety and safe use of tools and equipment are stressed.

VET4 **Engineering Technology Level IV** (full day, A Week, full year), 4.50 credits

During the Senior year, students identify and justify a capstone design project that will complete their studies and will learn complex automation including robots. Projects may be self-selected or sponsored by outside parties. Students are expected to utilize all the electrical, electronic, mechanical, and design skills learned to complete a successful project. Their final project is presented to fellow students, parents, relatives, sponsors, school committee members, faculty, staff and administration. Students are expected to self-direct their efforts on their project with minimal input from the instructor or sponsor, who acts as the program/project manager providing guidance and direction. Shop safety and safe use of tools and equipment are stressed.

Graphic Communications

Training in Graphic Communications includes basic skills in the following areas of employment:

Students in the Monty Tech Graphic Communications program may benefit from a number of articulation agreements with area colleges and universities, as listed below. These agreements save qualified students time and money, making a college education much more attainable. Graduating students are encouraged to visit with their school counselor to verify eligibility.

Keene State College	IAART 105 Graphic Design Process (4) ART 253 Digital Imaging (4) KSC 100 (4)
STATEWIDE: 15 Massachusetts Community Colleges	One or more of the following course(s) or equivalent, up to 3 credits: ● Computer Aided Graphic Design ● Computer Graphics ● Computers for Graphic Designers I ● Design Theory ● Digital Design Concepts I ● Digital Imaging ● Digital Page Layout ● Electronic Imaging ● Graphic Production and Layout I ● Illustration I ● Introduction to Computer Graphics ● Introduction to Desktop Publishing ● Introduction to the Electronic Studio ● Introduction to the Graphic Arts Computer ● Publication Design

VGC1X **Graphic Communications Exploratory** (full day, B Week, 1st Semester), 2.25 credits

The Exploratory Program includes design from concept to presentation, product design, advertising techniques, principles of design, advertising techniques, measuring, Introduction to Adobe CC Illustrator, Photoshop & In-design and printing a single-color project on an offset press. Basic photography, videography, screen printing and illustration are also included. Shop safety and safe operation of tools and equipment are stressed.

VGC1 **Graphic Communications Level I** (full day, B Week, 2nd Semester), 2.25 credits

Program topics include basic printing preparation, single and two color press projects. Bindery procedures including cutting, folding, perforating, and bookbinding will be taught. Additional topics include screen printing, Adobe CC, color theory, trade terminology and professional development skills. Shop safety and safe operation of tools and equipment are stressed.

VGC2 **Graphic Communications Level II** (full day, A Week, full year), 4.50 credits

Program topics include extensive layout and design for print; bleed, margins, cropping and scaling, complex layout work, introduction to basic work in bindery/bookmarking area, press area, screen printing and dye sublimation, an explore of graphic design principles and elements of design, typography and color theory, and continued development in the Adobe Suite: Photoshop, Illustrator, Indesign. Students will be introduced to customer service and project management systems/softwares. Shop safety and safe operation of tools and equipment are stressed.

VGC3 **Graphic Communications Level III** (full day, B Week, full year), 4.50 credits

Program topics include comprehensive layout, data merging in design documents, Pantone matching, page and book layout, complex bindery work, scanning and touching up images, Adobe Acrobat editing PDF files, digital print production, multi-colored screen printing jobs, photography, videography, animation/motion graphics, product and package design. Introduction to Adobe Lightroom and After Effects with continued development in Photoshop, Illustrator, InDesign. Shop safety and safe operation of tools and equipment are stressed.

VGC3R **Graphic Communications Level III Related** (1 period/day, A Week, full year), .50 credits

Through guided projects, critiques, and one-on-one feedback, students will learn how to select, refine, and present pieces that showcase their artistic voice and technical skills. Students will learn about various portfolio outlets used for career, personal, and college, with a focus on learning how to write and speak about their own work in a professional manner. In addition, time will be spent exploring and creating traditional art content in preparation for college and personal portfolios.

VGC4 **Graphic Communications Level IV** (full day, A Week, full year), 4.50 credits

Program topics include complex use of electronic prepress, advanced Adobe Photoshop, Illustrator and InDesign and continued development in After Effects and Lightroom. Students will also assemble portfolios that are career and college ready with a focus on digital portfolios and marketing. Other skills they will expand on are sales, trade-related job skills, customer interfacing, project management, and design management. Shop safety and safe operation of tools and equipment, including understanding of safety data sheets and OSHA regulations are stressed.

Health Occupations

Students develop specific skills in areas of nursing and medical assisting. Students work toward meeting both classroom and clinical requirements to be eligible for state and/or national certification testing. The Certified Nurse Assistant component focuses on the care of the resident or patient in an in-patient and home care setting. Students sit for the Massachusetts Nurse Aide Certification exam. The Medical Assistant component of the program focuses on clinical procedures needed to work in an outpatient setting: such as a doctor's office. Students meet the requirements for sitting for the National Health Career Association Clinical Medical Assistant certification exam. Students graduating from the Health Occupations program find employment opportunities in any of the following areas:

Physician's Office *Hospitals* *Long term care centers* *Home health care*	*Clinics* *Sub-acute care* *Outpatient services: rehab, physical therapy, patient registration, medical records*	*Adult day health* *Assisted Living Centers* *Activity Departments* *Resident feeding programs*

Students in the Monty Tech Health Occupations program may benefit from a number of articulation agreements with area colleges and universities, as listed below. These agreements save qualified students time and money, making a college education much more attainable. Graduating students are encouraged to visit with their school counselor to verify eligibility.

STATEWIDE: 15 Massachusetts Community Colleges	One or more of the following course(s) or equivalent, up to 4 credits: ● Medical Terminology ● Award three elective credits upon submission of current registration from the Department of Public Health and current Healthcare Provider CPR/First Aid Certification
Mount Wachusett Community College	MAS 130 Medical Terminology and the Body System (4) HEA 101 Health and Disability in the Older Adult (3) In addition, students who pass and hold the Red Cross CNA certification exam will be granted the following elective credits toward the Allied Health degree: HEA 115 Nurse Assistant Theory (3) HEA 116 Nurse Assistant Practicum (2)
Keene State College	PH 290 Topics in Public Health (4) KSC 100 (8)
Quinsigamond Community College	ALH 102 Medical Terminology (3) ALH 131 Introductory Nursing Assistant (5) ALH 132 Advanced Nursing Assistant (2)

VHO1X **Health Occupations Exploratory** (full day, B Week, 1st Semester), 2.25 credits

Program topics include introduction to the roles of Certified Nurse Assistant and Medical Assistant. Students experience activities that address job opportunities in healthcare and the roles of healthcare providers. Much of the time is spent using equipment and practicing basic procedures that are part of a healthcare provider's job expectation.

VHO1 **Health Occupations Level I** (full day, B Week, 2nd Semester), 2.25 credits

Students are introduced to the role of the Certified Nursing Assistant and Medical Assistant, and their place as part of the healthcare team in different types of healthcare facilities. They will achieve an understanding of the state/national and OBRA requirements for certification. Students will learn about and practice care and clinical skills in the classroom setting including; infection control, safety, communication, medical abbreviations, and resident/patient rights. The students will obtain their 10-hour OSHA certification, as well as, a Medical Terminology certification.

VHO2 **Health Occupations Level II** (full day, A Week, full year), 4.50 credits

Students will continue to learn about the role and job responsibilities of the CNA and Medical Assistant. Classroom work involves a more in-depth study of healthcare systems, disease processes and patient/resident care in both the in-patient and out-patient setting. Skills learning and testing in the areas of vital signs, bed making, patient hygiene and grooming, nutrition, transporting, positioning, and comfort measures are addressed for the CNA portion of the program. The physical exam, urinalysis, infection control, sterile technique, history and interview, vision testing, and medical emergencies are addressed at this time for Medical Assisting. During this year, the students are certified in CPR/First Aid.

VHO3 **Health Occupations Level III** (full day, B Week, full year), 4.50 credits

The third year of the program for the Nurse Assistant component focuses on preparing for the state certification exam, scheduled in the winter and spring, and meeting clinical practice requirements. Classroom work involves serious review and practice of care skills, which are applied in a real clinical setting under the direction and supervision of an instructor. Clinical sites include resident care in a long-term care setting. The students will also be oriented to the unique circumstances and challenges of working in a home care setting. The student will then prepare for the Home Health Aide certification examination through the Home Care Council.

The Medical Assistant component topics address medical laboratory skills, assisting with physical exams, medical law and ethics, diagnostic testing and capillary punctures for specimens that will be directly tested to yield results for hematology studies. Students will apply classroom work to real clinical settings. Clinical sites include physicians' offices and clinics.

VHO4 **Health Occupations Level IV** (full day, A Week, full year), 4.50 credits

Medical Assistant curriculum focuses on venipuncture, EKG, first aid techniques, office simulation for booking appointments, minor surgery, and medication administration. Those who qualify for Cooperative Education find numerous opportunities to work as CNAs and MAs. Those who do not go out on co-op will be afforded the opportunity to continue to prepare for and sit for the MA National Certification exam in January. Those students will then take the Home Health Aide & Phlebotomy Certifications.
***Anatomy & Physiology is highly recommended for all Health Occupation students.**

House Carpentry

This course teaches the basics of residential construction. Students progress from framing to interior carpentry, and on to finish work. Juniors and seniors participate in the construction of an actual house each year. Areas of employment:

• *Residential Construction Companies* • *Building Material Suppliers*	• *Commercial Construction Companies*	• *Union Apprenticeship Program*

Students in the Monty Tech House Carpentry program may benefit from a number of articulation agreements with area colleges, universities, and labor organizations, as listed below. These agreements save qualified students time and money, making a college education and advanced technical training much more attainable. Graduating students are encouraged to visit with their school counselor to verify eligibility.

Boston Carpenters Apprenticeship & Training Fund	Acceleration in the training program as follows: Accepted graduates with additional credit will enroll as first year apprentices, and will be eligible for promotion to third year level upon satisfactory completion of one-year probationary period.
House Carpentry Construction Craft Laborers Apprenticeship Program	Acceleration in the training program as follows: Accepted graduates receive credit for 1,000 hours of on-the-job training hours. All accepted graduates will start at 70% of the Journey workers rate for the zone in which they will be working.
Eastern Massachusetts Carpenters Apprenticeship & Training Committee	Acceleration in the training program as follows: Accepted graduates with additional credit will enroll as first year apprentices, and will be eligible for promotion to third year level upon satisfactory completion of one-year probationary period.
STATEWIDE: 15 Massachusetts Community Colleges	Introduction to Blueprint Reading Construction Methods and Materials Introduction to Construction Estimating
Keene State College	ISSAFE 101 Safety Awareness (4) SAFE 205 Construction Methods (4) KSC 100 Elective (4) **OSHA 10-hour Construction Safety Certificate

VHC1X **House Carpentry Exploratory** (full day, B Week, 1st Semester), 2.25 credits

Program topics include orientation to the trade, shop safety rules and the use of basic hand tools. Students, working together in small groups, complete a miniature house-building project. The project includes basic framing techniques including, typical 16-inch o.c layout, door and window openings and roof systems, roof shingle installation and door and window installation.

VHC1 **House Carpentry Level I** (full day, B Week, 2nd Semester), 2.25 credits

Students will complete all safety training associated with the tools, machines and equipment in the shop through the completion of a basic woodworking project. They will then increase their skill sets in the correct use of tools, machines and equipment along with basic tape measure use and identification of building materials through such projects as Adirondack chairs and sawhorse construction.

VHC2 **House Carpentry Level II** (full day, A Week, full year), 4.50 credits

Students will construct practice buildings that will develop their skills and knowledge of floor and wall framing systems, roof framing systems, door and window systems, exterior siding and trim systems. Students will also be introduced to interior finish systems and deck construction. Additionally, students may be involved with projects for community members that build upon the MA state framework for Carpentry programs. Students will also complete the 10-hour OSHA construction safety course.

VHC3 **House Carpentry Level III** (full day, B Week, full year), 4.50 credits

Job site safety and safe operation of tools and equipment are paramount, as the students begin to participate on the House Building Projects. The students are able to demonstrate the proper construction practices they have learned in the shop environment working on these off-campus projects for our community partners. Advanced operations of hand and portable power tools along with the introduction to pneumatic fastening systems are necessary for the completion of carpentry tasks such as layout, framing of floor, ceiling and roof systems, roof covering, window and siding installations, and completing the year with interior finish systems and deck construction.

VHC3R **House Carpentry Related Level III** (1 period/day, A Week, full year), .50 credit

Students begin with a comprehensive tool and equipment safety review and then transition into an overview of the building process. Through a combination of class discussions, multimedia sources and independent assignments, the students expand their knowledge of building construction. Every effort is made to align the course modules with the timeline of the outside building projects. Modules covered include excavation and foundation systems, floor, wall and roof framing systems, roof coverings and exterior weatherization systems. The course concludes with an overview of interior finishes and millwork.

VHC4 **House Carpentry Level IV** (full day, A Week, full year), 4.50 credits

For those students who are not part of the Co-operative Education Program, a second year on the House Building Projects allows for completion of advanced construction tasks. Focus moves to increasing the student's competencies with items such as blueprint reading and interpretation, framing systems layout procedures, advanced framing techniques along with both interior and exterior stair construction.

VHC4R **House Carpentry Related Level IV** (1 period/day, B Week, full year), .50 credit

As seniors enter the final year of the program, opportunities after graduation is a common element to the topics covered in this course. Final course modules include an in-depth look into interior finishes such as detail moldings and finished staircases, along with commercial carpentry, estimating and construction management. Much time is spent exploring apprenticeship and career paths that build upon their trade education

Heating, Ventilation, Air Conditioning (HVAC) & Property Maintenance

This course covers the overall management of a maintenance program in an industrial complex setting. Students learn basic skills in carpentry, welding, heating/ventilation and air conditioning, metal machining, metal fabrication, and small engine repair. Areas of employment:

• *Power Products Mechanic* • *Facilities Mechanic*	• *Industrial Maintenance Mechanic* • *Carpenter's Assistant*	• *HVAC Apprentice Mechanic* • *Building Energy Analyst*

Students in the Monty Tech Heating, Ventilation, and Air Conditioning & Property Maintenance program may benefit from a number of articulation agreements with area colleges and universities, as listed below. These agreements save qualified students time and money, making a college education much more attainable. Graduating students are encouraged to visit with their school counselor to verify eligibility.

Massasoit Community College	HVAC 111: Basic Electricity and Control Theory (4) HVAC 114: Heat Principles and Application (4)
University of Northwestern Ohio	HV 101: Service & Procedures I (6)
STATEWIDE: 15 Massachusetts Community Colleges	Basic Electricity and Control Theory Introduction to Heat and Refrigeration Principles and Applications
Keene State College	ISSAFE 101 Safety Awareness (4) SAFE 290 Special Topics in Safety (4) KSC 100 (4) **OSHA 10-hour Construction Safety Certificate

VHM1X **HVAC & Property Maintenance Exploratory** (full day, B Week, 1st Semester), 2.25 credits

Program topics include shop safety, measurement, use of hand tools, and making a project that will introduce the exploratory student to various trade skills used in the program.

VHM1 **HVAC & Property Maintenance Level I** (full day, B Week, 2nd Semester), 2.25 credits

Program topics include performing tasks in sheet metal, gas welding, carpentry skills, and machine shop. Shop safety and safe use of tools and equipment are stressed. Additional topics include theory to support sheet metal, gas welding, carpentry, machine shop and reading and interpreting technical drawings and plans. The theory and design of a building envelope will also be studied.

VHM2 **HVAC & Property Maintenance Level II** (full day, A Week, full year), 4.50 credits

Program topics include theory and practical application of knowledge in the following areas: arc welding, machine shop, building repairs and alterations to the same, HVAC, air and liquid cooled engine repair, and general mechanical practices. General safety and safe use of tools and equipment is stressed in all assigned tasks.

VHM3 **HVAC & Property Maintenance Level III** (full day, B Week, full year), 4.50 credits

Program topics include repair and adjustments of live jobs such as snow blowers, lawn mowers, chain saws, and maintaining heating and air conditioning systems according to current industry standards. Operation of lathes, millers and drill presses, building construction and maintenance of various operating

systems will be covered. Cooperative education opportunities are available for students who qualify. Shop safety and safe use of tools and equipment are stressed.

VHM3R **HVAC & Property Maintenance Related Level III** (1 period/day, A Week, full year), .50 credit

Program topics include theory of electricity and theory of basic refrigeration systems. Crossover skills will include Math, Science, and Technology theory as they apply in a shop setting and workplace environment. Introduction to building envelope design methods.

VHM4 **HVAC & Property Maintenance Level IV** (full day, A Week, full year), 4.50 credits

Program topics include reading and interpreting technical drawings, blueprints, and specifications enabling them to plan and execute HVAC-R installations. Students will demonstrate the knowledge and skills to ensure the efficient operation of buildings and their components. Students will demonstrate a working knowledge of building systems and structures, interior and exterior, including maintenance of facilities, equipment,systems, and grounds to ensure optimal functionality, safety and efficiency.

VHM4R **HVAC & Property Maintenance Related Level IV** (1 period/day, B Week, full year), .50 credit

Students will gain the practical knowledge necessary to explain and apply the basic principles of heating, ventilation, and air condition & refrigeration systems to industry standards. Students will also learn the theory behind sustainable building design and construction practices, as well as green building features.

Information Technology

Information Technology trains students in the use and maintenance of computer systems in today's high-tech environment. Students become proficient in computer repair, hardware and software maintenance, local area network setup and maintenance, client/server setup and maintenance, cyber-security, programming and web page design.

Areas of employment:

Help Desk Technician	*Programmer*	*Network Technician*
Cyber Security Analyst	*Web Designer*	*Support Specialist*

***Articulation Credits**: Students in the Monty Tech Information Technology program may benefit from a number of articulation agreements with area colleges and universities, as listed below. These agreements save qualified students time and money, making a college education much more attainable. Graduating students are encouraged to visit with their school counselor to verify eligibility.*

Benjamin Franklin Institute of Technology	CT 121 Web Design I: HTML and Dreamweaver (3)
Mount Wachusett Community College	CIS 118 Mobile and Web Development: (3) CIS 127 Computer Technologies: (3) CIS 131 Linux Programming: (4) CIS 143 Computer Service and Repair: (3)
Keene State College	INCS 160 Microcomputer Systems or ISCS 150 Website Design and Construction (4) CS 290 Special Topics (4) KSC 100 (4)

STATEWIDE: 15 Massachusetts Community Colleges	One or more of the following course(s) or equivalent, up to 4 credits: ● CISCO Networking I ● Computer Concepts, Computer Concepts with Applications, Computer Configuration and Hardware, Computer Hardware and Support, Computer Networks I, Computer Service and Repair ● Internetworking ● Introduction to Computer Networks, Introduction to Computer Systems, Introduction to Data Communications & Networks, Introduction to Information Technology, Introduction to Networking, Introduction to Operating Systems ● Microcomputer Environment ● Network Fundamentals, Network Workstation Administration, Networking Essentials, Networking I ● Operating Systems ● PC Hardware & Software ● System Support- Hardware ● Wireless Networking

VIT1X **Information Technology Exploratory** (full day, B Week, 1st Semester), 2.25 credits

As part of their Information Technology Exploratory experience, students will have hands-on exposure to the tools, techniques, and methodologies used in today's IT business world. Students will design a website, dismantle and build a PC, program in Python, program Vex robots, receive an introduction to cyber security, and experience modern technology along the way.

VIT1 **Information Technology Level** (full day, B Week, 2nd Semester), 2.25 credits

Students will be introduced to the two main introductory courses: CompTIA's Tech+ and freeCodeCamp's Responsive Web Design Certification. Using CompTIA's Tech+ course, students will learn basic IT concepts and infrastructure. Students will also learn basic software development concepts, database fundamentals, and an introduction to cyber security. This is meant as an introduction to the shop as a whole, showcasing things they will see in their following years. Using freeCodeCamp's, students will learn the fundamentals of HTML and CSS, including modern layout,design, accessibility, and responsive web development. They will build practical projects and gain the skills to create professional, user-friendly webpages. These courses prepare the student to take CompTIA's Tech+ Certification exam.

VIT2 **Information Technology Level II** (full day, A Week, full year), 4.50 credits

Students will start the year with CompTIA A+ Learn course. CompTIA's A+ is the industry standard certification for entry-level roles. A+ builds in foundational skills in hardware, software, networking, troubleshooting, and security. This is to prepare students for roles as IT support specialists, and help desk technicians. For the first half of the year, students will begin learning JavaScript using freeCodeCamp's JavaScript Certification course. This course teaches you core JavaScript programming concepts such as working with variables, functions, objects, arrays, and control flow. They will also learn how to manipulate the DOM, handle events, and apply techniques like asynchronous programming, functional programming, and accessibility best practices. In the second half of the year, students will work through Carnegie Mellon University's College Programming and Computer Science Python course. This will provide students with an introduction to programming with python. These courses prepare the students to take CompTIA's A+ certification exam.

VIT3 **Information Technology Level III** (full day, B Week, full year), 4.50 credits

Students will advance their knowledge of computer network setup and operation and will be responsible for the daily operation of the school's Help Desk. Students will learn how to defend a network against outside intrusion with the TestOut Network+ curriculum. Network+ prepares students for working in the cyber security field, discussing threats, attacks, vulnerabilities, network design and diagnosis, cryptography, wireless threats, and much more. They will also participate in multiple Cybersecurity Competitions. Students will advance their knowledge of web design with HTML5, CSS3 and Javascript coding. They will develop web sites for the school intranet, as well as, outside organizations.

VIT4 **Information Technology Level IV** (full day, A Week, full year), 4.50 credits

Those students not taking part in Monty Tech's cooperative work experience will be assisting in the support tasks needed to maintain the school's computer systems and network infrastructure as part of the operation of the school's Help Desk. Students will continue learning how to defend a network against outside intrusion with the TestOut Security+ curriculum. Security+ prepares students for working in the cybersecurity field, discussing threats, attacks, vulnerabilities, network design and diagnosis, cryptography, wireless threats, and much more. It will prepare them to take the CompTIA Security+ exam. Students will also participate in multiple Cybersecurity competitions. Students will continue programming in Python and can continue to pursue other IT industry certifications.

Masonry

This program exposes students to all aspects of the masonry trade. Students will learn the art of bricklaying, block laying, tile setting, stone setting as well as concrete finishing. They will be involved in shop projects as well as live work on school grounds. Students work in the community and on the annual house project and will be introduced to hoisting. Areas of employment:

• *Union Worker*	• *Cost Estimator*	• *Stone Setter*
• *Marketing Professional*	• *Self-employed Contractor*	• *Concrete Worker*
• *Design Professional*	• *Tile Setter*	• *Hoisting Operator*

Students in the Monty Tech Masonry program may benefit from a number of articulation agreements with area colleges and universities, as listed below. These agreements save qualified students time and money, making a college education much more attainable. Graduating students are encouraged to visit with their school counselor to verify eligibility.

Keene State College	ISSAFE 101 Safety Awareness (4) SAFE 290 Special Topics in Safety (4) KSC 100 (4) **OSHA 10-hour Construction Safety Certificate

VMR1X **Masonry Exploratory** (full day, B Week, 1st Semester), 2.25 credits

This program introduces the student to the various career opportunities in the masonry field coupled with a history of the trade. The course provides a brief exposure to the basic tools, measuring devices and materials found in the masonry career field. Practicing the techniques of paving and ceramic tile installation will help students develop an awareness of these skills necessary to succeed as a mason. Projects include basic bricklaying and scaffolding construction.

VMR1 **Masonry Level I** (full day, B Week, 2nd Semester), 2.25 credits

The Level I course exposes the student to all the tools used in the Masonry field and why, where, and how they are used and maintained. Students are shown basic brick and block bonding, types of jointing and how to plan basic concrete flatwork.

VMR2 **Masonry Level II** (full day, A Week, full year), 4.50 credits

Program topics include the review of Level I objectives as well as the introduction to repair work, block corners, and some stonework. They will be working with the wet saw as well as portable hand tools such as power drill, demolition hammer, skill saw, and grinder exc. Shop safety and safe use of tools and equipment are stressed.

VMR3 **Masonry Level III** (full day, B Week, full year), 4.50 credits

The students will identify and observe shop rules and demonstrate proper safety practices, of erecting masonry scaffolding, constructing of masonry walls, installing window and door openings, flashing and waterproofing procedures, and reinforcing of masonry. Job site safety and safe operation of tools and equipment are stressed.

VMR3R **Masonry Related Level III** (1 period/day, A Week, full year), .50 credit

Students will review and further study basic masonry math, offset measurements and formulas. Estimating and accepted construction practices are additional theoretical topics to be covered. Students will also be introduced to all types of arches, used in masonry construction.

VMR4 **Masonry Level IV** (full day, A Week, full year), 4.50 credits

Program topics include trade vocabulary, job safety, shop rules and procedures. The student learns and demonstrates advanced operations on machines and tools. Work processes include learning to flash a chimney on a roof, construct fireplaces, arch construction, and ornamental masonry construction. Students will learn the fundamentals of stone masonry and constructing masonry in cold weather. The student will also learn how to work independently and safely on all tasks in shop and on the job site.

VMR4R **Masonry Related Level IV** (1 period/day, B Week, full year), .50 credit

Program topics include review of shop rules and procedures, trade vocabulary and job safety, review safety procedures with all shop tools such as wet saw, portable drill and saw, rotary drill, and gas and electric mixer. Also included is review of drawing and design (house plans and shop drawings) and review formwork for arches and concrete work. Students will further study masonry math, learn the building codes for fireplaces and chimneys, and other various building codes in the masonry field. Reinforcement of offset measurements and formulas will also be studied.

Plumbing

This program exposes students to many aspects of the plumbing trade and prepares them for an entry-level position as an apprentice plumber upon graduation. Students learn pipefitting, and sanitary plumbing, including drainage, waste & venting along with water supply and distribution. Additionally, students learn gas fitting, and hydronic heating. Students will complete projects using the various tools and materials associated with the trade, as well as live work. Plumbing students also work in the community installing the plumbing, hydronic heating, and fuel gas piping in the annual house job project. Students will also help maintain the facility at Monty Tech through various plumbing repairs and replacements. Eligible students may participate in a Co-op agreement with trade professionals. Areas of employment include:

• *Plumbing/Heating/Mechanical Contractors* • *Wholesale and Retail Supply Companies* • *Plumbing/Heating Service Companies*	• *Manufacturing and Industrial Facilities* • *Pipefitting Contractors/Fire Protection & Sprinkler Fitters*

Students in the Monty Tech Plumbing program may benefit from a number of articulation agreements with area colleges and labor organizations, as listed below. These agreements save qualified students time and money, making a college education and advanced technical training much more attainable. Graduating students are encouraged to visit with their school counselor to verify eligibility.

Keene State College	ISSAFE 101 Safety Awareness (4) SAFE 290 Special Topics in Safety (4) KSC 100 (4) **OSHA 10-hour Construction Safety Certificate
Plumbers & Pipefitters Local No. 4	Acceleration in the training program Earlier completion of apprenticeship training All associated wage and benefit improvements

Upon completion, eligible graduates may be granted a maximum of the first two tiers of Massachusetts apprentice training, comprising 220 hours of educational theory credit. Additionally, secondary students may accrue a maximum of 1,700 hours of work experience credit towards licensure. See Massachusetts 248 CMR: BOARD OF STATE EXAMINERS OF PLUMBERS AND GAS FITTERS 11.00, EDUCATION AND EXPERIENCE STANDARDS AND REQUIREMENTS FOR LICENSURE

VPL1X **Plumbing Exploratory** (full day, B Week, 1st Semester), 2.25 credits

Program topics include an introduction to the plumbing trade, shop safety and the safe use of hand tools. The exploratory students will attempt some simple mechanical and mathematical tasks that form the basis for the plumbing trade. They will learn to cut and assemble a variety of piping materials, including: copper, plastic, steel, and cast iron pipe and fittings. Students will perform work based on drawings, be introduced to basic systems design and experience fixture installation. They will be involved in some problem-solving projects that require individual attention as well as teamwork to complete.

VPL1 **Plumbing Level I** (full day, B Week, 2nd Semester), 2.25 credits

Students will receive an in-depth introduction to the plumbing trade including the fundamentals of the industry, the historical development of plumbing, and future developments of the trade. Students will be introduced to various piping materials as well as the tools and joining methods of each material. Students will be introduced to drawings and blueprints, learn to read a scale rule, and practice material take offs. Students will build various projects out of steel pipe, copper tube, and pex/cpvc according to spec drawings. Students will be introduced to general OSHA safety standards and develop safe work habits.

Students will develop measuring skills, learn basic plumbing math, and develop critical thinking skills. Students will gain the foundation needed to prepare them for future levels of plumbing. The Massachusetts Plumbing Competency Frameworks, and Plumbing Board Tier system will guide the curriculum.

VPL2 **Plumbing Level II** (full day, A Week, full year), 4.50 credits

Program topics include the review of Level I objectives adding more complex pipefitting and mechanical projects. There will be a higher level of plumbing math, including offset calculations. Students will also be working towards proficiency in the use and care of hand tools, working with steel piping, and assembling and soldering copper tubing and fittings. The students will begin using all the different power tools and will learn to cut and thread pipe using a variety of pipe machines. Power tool safety is strongly re-enforced. OSHA 10 hour construction safety training will be delivered.

Students will learn basic blueprint reading and will complete projects from isometric, orthographic, and plan-view drawings Students will learn about pipe hangers and supports, and will secure piping projects accordingly. Students will study plumbing terms, definitions, and abbreviations. Students will learn the basics of water piping, drainage systems, and describe the function of a variety of valves used in the plumbing field. The Massachusetts Plumbing Competency Frameworks, and Plumbing Board Tier system will guide the curriculum.

VPL3 **Plumbing Level III** (full day, B Week, full year), 4.50 credits

Topics include a review of Level II objectives and reinforcement of earlier topics; shop safety and safe use of tools & equipment, technical drawing and blueprints, plumbing principles and standards, pipe joining methods & techniques. Students will learn to work with cast iron piping, including: No-Hub and service-weight piping materials. They will also work with plastic piping, including: ABS and PVC pipe and fittings. Those materials will be applied as students will be introduced to drainage, waste, and venting (DWV), and water distribution systems. Projects will be constructed using shop drawings and student designed drawings. The students will also learn basic plumbing repairs by working on the Monty Tech campus and will learn new house plumbing and heating by working on the annual home building project(s). Massachusetts Hot Work Safety Training will be given. Students become eligible for Co-op placement in the second semester. The Massachusetts Plumbing Competency Frameworks, and Plumbing Board Tier system will guide the curriculum.

VPL3R **Plumbing Related Level III** (1 period/day, A Week, full year), .50 credit

Students will learn about plumbing and gas-fitting codes and statutes. They will work with the Massachusetts Plumbing Code and receive lessons in the scope, jurisdiction, the General Regulations and the Basic Principles of Plumbing. Students will be introduced to the drainage, waste, and vent system, as well as, the potable water supply systems and their anatomy and how to size each system. Plumbing math and science will be integrated into classroom study. Students will also be introduced on how to read and draw plumbing diagrams and isometric drawings. The Massachusetts Plumbing Competency Frameworks, and Plumbing Board Tier system will guide the curriculum.

VPL4 **Plumbing Level IV** (full day, A Week, full year), 4.50 credits

Program topics include the review of Level III objectives and continuation of plumbing work through advanced shop projects. Students will do approved, on-campus plumbing work, as well as, participate in the annual home building project(s). Emphasis is placed on using the Massachusetts Fuel Gas and Plumbing Codes. In addition, designing, sizing, and installing the drainage, waste, and vent (DWV) systems, as well as, water supply and distribution systems piping is stressed. Finish plumbing fixture installation is also covered along with plumbing systems maintenance, troubleshooting, and repairs.

Additional topics covered include: shop safety and safe use of tools & equipment, technical drawing and blueprints, plumbing principles and standards, pipe joining methods, techniques, and installation of fuel gas systems. Participation in the Co-op Program is recommended, if eligible. The Massachusetts Plumbing Competency Frameworks, and Plumbing Board Tier system will guide the curriculum.

VPL4R **Plumbing Related Level IV** (1 period/day, B Week, full year), .50 credit

Students will continue to work in depth with the Massachusetts Plumbing Code and will receive lessons in water supply & distribution, sanitary drainage and vent systems, and sizing storm drains. Students will also study the installation and sizing of gas systems utilizing NFPA 54 National Gas Code along with Massachusetts Gas Code & Modifications. Plumbing math and science in the Related class will be at a level consistent with preparation for entry into an apprenticeship program. Students will be introduced to back-flow prevention and hot water safety controls. The Massachusetts Plumbing Competency Frameworks, and Plumbing Board Tier system will guide the curriculum.

Veterinary Science

Students enrolled in the Veterinary Science program will understand the fundamentals of animal science, be introduced to a variety of species, breeds, and characteristics of both large and small animals. They will compare animal anatomy and physiology, research animal disease and prevention, surgery and radiology of domestic animals, study genetics, breeding and reproduction of domestic animals. Working and learning in the school's new Veterinary Science Training Center & Community Clinic, these students will be introduced to all aspects of a comprehensive veterinary practice, and will earn college credits and industry-recognized certifications throughout the course of study.

Program graduates will be prepared for both college and career pathways upon graduation. Students entering the workforce may pursue a number of occupations including:

- *Animal Care & Service Workers*
- *Administrative Support in Clinics & Hospitals*
- *Groomers*
- *Shelter Medicine & Animal Sheltering Roles*
- *Small Animal Veterinary Clinical Technicians*
- *Research & Laboratory Animal Technicians*
- *Veterinary Assistants & Technicians*
- *Wildlife Rehabilitators*
- *Zookeeper*
- *Animal Law*
- *Governmental lobbyists, regulatory medicine & programs*

Students in the Monty Tech Veterinary Science program may benefit from a number of articulation agreements with area colleges and labor organizations, as listed below. These agreements save qualified students time and money, making a college education and advanced technical training much more attainable. Graduating students are encouraged to visit with their school counselor to verify eligibility.

Keene State College	INBIO 104 Lab Biology Topics (4) BIO 290 Special Topics (4) KSC 100 (4)

VVS1X **Veterinary Science Exploratory** (full day, B Week, 1st Semester), 2.25 credits

Program topics include an introduction to the anatomy of the eye and sight, animal behavior, conservationism, nutrition, and animal welfare. Students are instructed in the causes of disease and the transmission of infective organisms. Students complete several hands-on laboratory procedures, including the creation of an enrichment device and dissection of an eye. Students will also learn to critically analyze the use of animals in society, particularly in the field of entertainment.

VVS1 **Veterinary Science Level I** (full day, B Week, 2nd Semester), 2.25 credits

Students will be introduced to the world of animal science, focusing on horses, dogs, cats, fish and exotics. They will learn husbandry of those species and work through units on nutrition, genetics, and reproduction. Students will complete the OSHA 10-hour Veterinary safety course, learn about animal handling and safety around animals. They will demonstrate proficiency in knot tying of various knots. Students will also be introduced to the concepts of animal welfare and animal rights, with discussions on many of the topics currently scrutinized in our society.

VVS2 **Veterinary Science Level II** (full day, A Week, full year), 4.50 credits

Students will continue to advance their knowledge of animal husbandry, while delving more deeply in the areas of anatomy and physiology. Students will work through each body system, while focusing on areas of difference between species and what normal looks like for those species. Students will learn about disease prevention, vaccination and infection control. Students will perform a number of clinical skills, such as patient handling, syringe handling and slide preparations. They will be introduced to companion animal grooming, and be able to professionally bathe dogs. Students will learn medical record-keeping, office procedures, client relations and professional communication skills.

VVS3 **Veterinary Science Level III** (full day, B Week, full year), 4.50 credits

Students will progress in their clinical skills, particularly in respect to animal handling, laboratory procedures and nursing care. They will be introduced to the concepts of radiology (X-ray) and pharmacology, as well as inventory management and the legalities of prescription medications. Students will learn surgical and anesthesia assisting, surgical instrument identification and preparation, as well as care of the surgical patient. Within the Veterinary Science Training Center & Community Clinic, students will function as receptionists, grooming assistants, and veterinary assistants. Classroom work will involve serious reviews of clinical care skills, vaccination and wellness protocols, and common small animal diseases. Students may be offered the opportunity to apprentice in a co-op, externship, or affiliated setting. Students will take the Certified Veterinary Assisting exam in the spring.

VVS4 **Veterinary Science Level IV** (full day, A Week, full year), 4.50 credits

Students will continue to learn and apply the clinical skills covered in the earlier years. Students will learn advanced (college level) applied animal behavior. Students will learn small business management, and will focus on reflective readings, research projects and creating professional contacts within their chosen field. They will be able to complete Fear Free, Recover CPR and Human Animal Bond certifications. Students may be able to qualify for co-operative education opportunities, affiliations or externships at clinical or laboratory settings. Students will progress in their clinical skills at the Veterinary Science Training Center & Community Clinic. ***Anatomy & Physiology is highly recommended for Veterinary Science students.**

Welding/Metal Fabrication

Students learn the fundamentals of three different programs in one: sheet metal fabrication, metal fabrication and welding. The sheet metal and metal fabrication practices include layout, forming, rolling, bending, punching, shearing, and inspection. Welding and thermal cutting processes include oxy-acetylene brazing, welding, cutting, gas metal arc welding, flux core arc welding, shielded metal arc welding, gas tungsten arc welding, air carbon arc gouging, manual and CNC plasma cutting. Many of the welding and thermal cutting processes practiced, are on a variety of thicknesses of ferrous and nonferrous metals, standard joint designs, and positions commonly applied to the American Welding Society standards found in D1.1 Structural Steel Code. Students have the opportunity to earn FCAW E7IT IG, OSHA 10 Construction Safety, NFPA Hot Works Certification, and AWS D1.1 SMAW E7018 3G limited certifications. Areas of employment:

• *Cutting Table Operator* • *Sheet Metal Mechanic*	• *Welder* • *Welding Technician*	• *Welding Inspector* • *Metal Fabrication Technician*

Students in the Monty Tech Welding/ Metal Fabrication program may benefit from a number of articulation agreements with area colleges and labor organizations, as listed below. These agreements save qualified students time and money, making a college education and advanced technical training much more attainable. Graduating students are encouraged to visit with their school counselor to verify eligibility.

Articulation Agreements

Sheet Metal Workers Local Union No. 17 & Local No. 63	Acceleration in the training program as follows: Accepted graduates with additional credit will enroll as first year apprentices, and will be eligible for promotion to third year level upon satisfactory completion of one-year probationary period.
Keene State College	ISSAFE 101 Safety Awareness (4) SAFE 290 Special Topics in Safety (4) SPDI 290 Special Topics (4) **OSHA 10-hour Construction Safety Certificate
Plumbers & Pipefitters Local No. 4	Acceleration in the training program Earlier completion of apprenticeship training All associated wage and benefit improvements

VWM1X **Welding/Metal Fabrication Exploratory** (full day, B Week, 1st Semester), 2.25 credits

Program topics include shop safety, career opportunities in welding/metal fabrication, fabrication of small sheet metal projects and oxy-fuel welding. Equipment used includes shears, bending brakes, folders, spot welders, Gas Metal Arc welders, CNC plasma cutters, and related hand tools.

VWM1 **Welding/Metal Fabrication Level I** (full day, B Week, 2nd Semester), 2.25 credits

Program topics include the introduction of health and safety regulations in the welding and metal fabrication industry. The introduction to sheet metal fabrication, which includes fabrication fundamentals, basic blueprint reading, project layout, the use of hand and power tools, forming operations and other mechanical cutting equipment. Other instructions will include the fundamentals of the Oxy-acetylene equipment set up, brazing and welding techniques. Strong emphasis is focused on accident prevention, shop safety, occupational hazards, career opportunities, and related mathematical calculations.

VWM2 **Welding/Metal Fabrication Level II** (full day, A Week, full year), 4.50 credits

Program topics include the continuation of health and safety practices and regulations. The review of basic sheet metal fundamentals, blueprint reading, and oxy-fuel welding and brazing practices introduced in grade 9. Also included are gas metal arc welding of carbon steel, performing standard welding positions and joint designs commonly applied to the American Welding Society D1.1 Structural code. Manual and automated thermal cutting processes; oxy-acetylene cutting, plasma cutting and CNC Plasma cutting. Advanced metal fabrication mathematics, design layouts, techniques and equipment include: electric, mechanical, and hydraulic equipment such as power shears, saws, drills, and punches, notchers, bending brakes, power brakes, presses and other forming equipment.

VWM3 **Welding/Metal Fabrication Level III** (full day, B Week, full year), 4.50 credits

Program topics include the continuation of health and safety practices and regulations as performed in levels 1 and 2. This course introduces multiple electric arc welding processes such as Shielding Metal Arc Welding (SMAW), Gas Metal Arc Welding (GMAW), Gas Tungsten Arc Welding (GTAW), and Flux Core Arc Welding (FCAW). Other advanced thermal cutting processes will include Air Carbon Arc Gouging and CNC Plasma cutting and design. These electrical arc processes are performed on a variety of material thicknesses, material types, joint configurations, and positions. All welds made according to the performance standards regulated by the American Welding Society Structural Steel D1.1 code. Other topics include the opportunity to qualify for the American Welding Society (AWS) D1.1 FCAW E71T 1G limited certification, advanced blueprint reading, fabrication projects, career opportunities and employability skills.

VWM3R **Welding/Metal Fabrication Related Level III** (1 period/day, A Week, full year), .50 credit

Students are introduced to the theory of Shielded Metal Arc Welding (SMAW), Gas Tungsten Arc Welding (GTAW), Gas Metal Arc Welding (GMAW), Flux Core Arc Welding (FCAW), and other advanced welding/cutting processes commonly found in industry. Students will engage in advanced concepts of safety precautions, power sources, multiple electrode numbering systems, electrode and filler metal selection, electrode manipulation techniques and metallurgical troubleshooting when welding on different metals. Students will also be introduced to basic and advanced welding symbols found on industry blueprints, along with common mathematics for welders.

VWM4 **Welding/Metal Fabrication Level IV** (full day, A Week, full year), 4.50 credits

Program topics include the continuation of health and safety practices and regulations in the welding and metal fabrication industry as performed in levels 1, 2 and 3. This course introduces advanced welding and fabrication techniques on a variety of material thicknesses, material types, joint configurations, and positions with an emphasis on heavy construction. Other advanced welding procedures include outdoor generator welding, pipe welding with Shielded Metal Arc Welding (SMAW) and light gauge stainless steel welding with Gas Tungsten Arc Welding (GTAW). All welds made according to the performance standards regulated by the American Welding Society Structural Steel D1.1 code. Other topics include the opportunity to qualify for the American Welding Society (AWS) D1.1 SMAW E7018 3G limited Certification, advanced blueprint reading, fabrication projects, career opportunities and employability skills.

VWM4R **Welding/Metal Fabrication Related Level IV** (1 period/day, B Week, full year), .50 credit

Program topics include the introduction and review of composing basic blueprints that include different types of views, basic lines, notes and specifications, finding dimensions, making up material lists, and identifying structural shapes. This course will also outline the basics of metallurgy that will include:

understanding the effects of heat treatments, other strengthening mechanisms, and metal hardness in junction to how it affects welding. Other topics include the various types of welding and metal inspection generated by the standards of AISI and the AWS; along with the basic theory of SMAW pipe welding.