Greater Lowell Technical High School

School Committee

Paul E. Morin *Dracut, Chairperson*	***Joseph M. Espinola, III*** *Dracut, Vice-Chair*	***Fred W. Bahou, Jr.*** *Lowell, Secretary*
Raymond J. Boutin *Lowell*	***Curtis J. LeMay*** *Lowell*	***George W. O'Hare*** *Lowell*
George A. Tatseos *Tyngsboro*		***Kempton P. Giggey*** *Dunstable*

Administration

Roger Bourgeois
Superintendent-Director

Jill Davis
Assistant Superintendent/Principal

Jeffrey Albert
Director-Special Education

Tracy Encarnacao
Director-Guidance & Counseling Services

Michael Barton
Director-Curriculum/Instruction & Assessment

Directors

Linda Arsenault	*Director-Grant Funded Programs*
Stacy Bezanson	*Director-Cooperative Education/Placement*
Mark Byrne	*Director-Plant Services*
Jamie Costa	*Senior Assistant Principal*
TBA	*Director-Technology, Enrollment & Information*
Kristin Foti	*Director-Media and Professional Development*
Christine Messina	*Director-Practical Nursing & Continuing Ed. Programs*
Kathryn Tierney	*Director of Human Resources*
Billie Jo Turner	*School Business Administrator*
Mark White	*Director-Athletics/Physical Education Cluster Chair*
Linda Zambino	*Assistant Principal*

Cluster Chairs

Carol Chisolm	*Science & Mathematics Cluster Chair*
Donald Ducharme	*Transportation/Manufacturing Cluster Chair*
Ronald Vercellone	*Dean of Discipline & Attendance*
Maureen Griffin	*Personal Services Cluster Chair*
Daniel Hamel	*Construction Cluster Chair*
Margaret Sarmento	*Technology Cluster Chair*
Jennifer Zeuli	*Humanities Cluster Chair*

William J. Collins	*Superintendent-Emeritus*

Notice of Non-Discrimination in Education

The Greater Lowell Technical High School does not discriminate on the basis of race, color, religious creed, national origin, sex, sexual orientation, age, gender identification, disability, homelessness and retaliation in admission, treatment or access to its programs and activities. In addition, Greater Lowell Technical High School does not discriminate in employment in its programs or activities and is committed to providing an environment free from sexual harassment. The following person has been designated to handle inquiries regarding educational non-discrimination policies:

Director of Guidance and Counseling Services/Title IX Coordinator
Greater Lowell Technical High School, 250 Pawtucket Boulevard
Telephone: (978) 441-4955.

A MESSAGE FROM THE SUPERINTENDENT-DIRECTOR

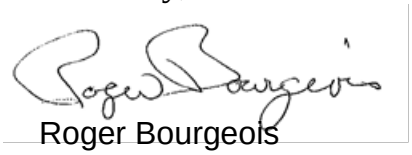
Career and technical education in Massachusetts and the United States has evidenced growth at a dramatic rate. The constant changes in business, industry and technology continue to provide us with ongoing challenges to update our curriculum in order that we may provide our students with the best instruction possible.

This Program of Studies reflects the efforts of teachers, administrators, and industry partners to assess our program offerings and to guarantee that our curriculum is current and reflective of the rapidly changing technology. As a result of this concerted effort, our students are exposed to an excellent array of courses designed to make their educational experience at Greater Lowell extremely meaningful and worthwhile. An underlying goal of this educational process is to ensure that our students graduate prepared for success in both postsecondary education and career employment. Students are exposed to an integrated program of instruction which provides them with the opportunity to attain the technical, academic, and social skills needed to be productive and well-adjusted members of society.

Parents and guardians are encouraged to carefully examine the technical and academic course offerings and to assist students in selecting those courses, which most appropriately meet individual student's needs, abilities and interests.

We urge parents/guardians and students to utilize this Program of Studies throughout the course selection process to determine which programs would best enable Greater Lowell students to achieve success as they strive towards meeting their career goals. Students who intend to further their technical training and/or education upon graduation are urged to give strong consideration to the proper selection of courses.

Sincerely,



Roger Bourgeois
Superintendent-Director

GREATER LOWELL TECHNICAL HIGH SCHOOL

Mission Statement

Greater Lowell Technical High School commits to ensure students' readiness for career, college, and citizenship in the 21st century. We challenge and support students as they realize their individual potential for personal and professional success.

Philosophy

Greater Lowell Technical High School believes in the philosophy and goals of the Massachusetts Common Core of Learning, the Massachusetts Curriculum Frameworks, and the Massachusetts Vocational Technical Education Frameworks to ensure that students attain the **academic and technical skills** required to secure employment, to continue post-secondary studies, or to pursue a combination of both.

Greater Lowell Technical High School provides students with distinct **technical and academic** experiences in a supportive and safe environment to realize a focus for their future.

Greater Lowell Technical High School actively strengthens community and business partnerships with service programs, career and employment opportunities, mentoring programs, advisory boards, grant partnerships, field placements, and volunteerism.

Greater Lowell Technical High School's faculty commits to the highest quality of instruction in both technical and academic areas and the design of extra and co-curricular activities that positively influence students' intellectual, physical, social, and emotional development, to develop leadership, teamwork, and problem solving.

Greater Lowell Technical High School promotes and enhances the learning process by providing academic, technical, and personal/social counseling to facilitate positive student development.

Greater Lowell Technical High School believes that all students regardless of race, color, national origin, sex, disability, religion, or sexual orientation have the opportunity to succeed through **technical and academic** programs and extracurricular activities.

Goals

Commit to a learning environment that increases student achievement and develops confident learners.

Develop staff and students to think critically and to communicate effectively through educational exercise teamwork, problem solving, and individual responsibility and pride in teaching and learning.

Incorporate proven instructional resources and technology into our technical and academic curriculum to prepare students to adapt to technological change and to broaden their awareness of career opportunities.

Encourage and facilitate increased parent/guardian involvement in the educational process, including extracurricular activities.

Staff and students will model standards of behavior that cultivate community, respect, and professionalism.

Table of Contents

GREATER LOWELL TECHNICAL HIGH SCHOOL
ADMISSION POLICY SUMMARY

ELIGIBILITY

Resident Students

Any eighth, ninth or tenth grade student who is a resident of the Greater Lowell Regional Vocational School District (Lowell, Dracut, Tyngsboro, Dunstable) who expects to be promoted to the grade they seek to enter by their local district is eligible to apply for fall admission or admission during the school year subject to the availability of openings to Greater Lowell Technical High School. Resident students will be evaluated using the criteria contained in this Admission Policy. Priority for admission is given to Greater Lowell Regional Vocational School District residents according to the District Agreement.0

School Choice/Nonresident (Chapter 74) Students

Students who are not residents of the Greater Lowell Regional Vocational School District are eligible to apply as a School Choice student or a nonresident student under (Chapter 74) for fall admission subject to the availability of openings to Greater Lowell Technical High School provided they expect to be promoted to the grade they seek to enter by their local district. School Choice students or nonresident students under (Chapter 74) from other vocational technical schools are eligible to apply for fall admission or admission during the school year to grades 9-12 at Greater Lowell Technical High School provided they expect to be promoted to the grade they seek to enter by their current school. School Choice student or nonresident students under (Chapter 74) will be evaluated using the criteria contained in this Admission Policy.

Transfer Students

Applications from students who are enrolled in a state-approved (Chapter 74) vocational technical high school program in another school (transfer students) will be considered for admission (including admission during the school year) if they relocate away from their current school and wish to pursue the same program of study at Greater Lowell Technical High School. Their applications will be evaluated according to the provisions of this Admission Policy.

McKinney - Vento

Students who are homeless will be evaluated according to the selection criteria contained in this Admission Policy.

Home School Students

Students who are formally being home schooled may apply for admission to Greater Lowell Technical High School including admission during the school year, provided all Admission Policy criteria are followed. The Home School Student's parent(s)/guardian(s) must submit a copy of the Home School approval letter from the local school superintendent and if grades are not available, a representative sample or portfolio of the student's body of work in English Language Arts or its equivalent, math, science, and social studies.

APPLICATION PROCESS

APPLICATION PROCESS-FOR FALL ADMISSION TO THE NINTH, TENTH & ELEVENTH GRADE

1. Students interested in applying to Greater Lowell Technical High School for fall admission to the ninth, tenth, or eleventh grade must:

    a. Obtain an application during their visit to Greater Lowell Technical High School in the fall if applying for ninth grade. Ninth grade students who do not attend the visit as well as tenth and eleventh grade applicants may obtain an application from their local school Guidance Counselor or by contacting the Greater Lowell Technical High School Guidance Office as early in the school year as possible.

    b. Return the completed application form to their local school Guidance Counselor by the deadline set by the sending school's Guidance Counselor.

2. It is the responsibility of the local school Guidance Counselor to:

a. Complete their portion of the applications to the Greater Lowell Technical High School Guidance Office on or before February 1. Complete applications include:

(i) Completed application form (including required signatures).

(ii) For application to grade 9 (fall admission), the average of grade 7 and terms 1 and 2 of grade 8 marks in English Language Arts, social studies, mathematics and science from the local school report card/transcript are required.

For application to grades 10 & 11 (fall admission) the average of the previous two school year grades in English Language Arts, social studies, math and science from the local school report card/transcript are required.

For application to grade 9 (fall admission), the sum of grade 7 and terms 1 and 2 of grade 8 unexcused absences from the local school report card/transcript are required.

For application to grades 10 & 11 (fall admission) the sum of the previous two school year's unexcused absences from the local school report card/transcript are required.

For application to grade 9 (fall admission), in- house and out of school suspensions from grade 7 and terms 1 and 2 of grade 8 are required from the local school guidance counselor.

For application to grades 10 & 11 (fall admission), in-house and out of school suspensions from the previous two school years are required from the local school guidance counselor.

For application to grades 9, 10, 11 & 12 (fall admissions), recommendations from the local school guidance counselor are required.

3. If incomplete applications are received, the following procedures will be followed: 5

a. The Greater Lowell Technical High School Guidance Department will notify the local School Guidance Counselor responsible for submitting the application that the application is incomplete and will request completion.

b. The applicant's parent(s)/guardian(s) will be notified by the Greater Lowell Technical High School Department in the event that the problem is not resolved by the local school Guidance Counselor.

c. If after notifying the local school Guidance Counselor and parent(s)/guardian(s), the application remains incomplete for twenty calendar days, the application will be voided.

APPLICATION PROCESS – FOR ADMISSION TO THE NINTH TENTH AND ELEVENTH GRADES FOR THE CURRENT SCHOOL YEAR

1. Students interested in applying to Greater Lowell Technical High School for admission for the current school year must:

a. Obtain an application from their local Guidance Counselor or from the Greater Lowell Technical High School Guidance Department.

b. Return the completed application form to their local school Guidance Counselor by the deadline set by the Guidance Counselor, or to the Greater Lowell Technical High School Guidance Department.

2. It is the responsibility of the local school Guidance Counselor to:

   a. Complete their portion of the application form.

   b. Forward the completed applications to the Greater Lowell Technical High School Guidance Department. Complete applications include:

      (i) Completed application form (including required signatures)

      (ii) For application to grades 9, 10 & 11, (admission during the school year) the previous and current school year to the date of the application, grades in English Language Arts, social studies, math and science from the local school report card/transcript are required.

      For application to grades 9, 10 & 11, (admission during the school year) the previous and current school year to the date of the application absences from the local school report card/transcript are required. 6

      For application to grades 9, 10 & 11, (admission during the school year) the previous and current school year to the date of the application, the disciplinary record from the local school Guidance Counselor is required.

3. If incomplete applications are received, the following procedures will be followed:

   a. The Greater Lowell Technical High School Guidance Department will notify the local School Guidance Counselor responsible for submitting the application that the application is incomplete and will request completion.

   b. The applicant's parent(s)/guardian(s) will be notified by the Greater Lowell Technical High School Department in the event that the problem is not resolved by the local school Guidance Counselor.

   c. If after notifying the local school Guidance Counselor and parent(s)/guardian(s), the application remains incomplete for twenty calendar days, the application will be voided.

LATE APPLICATIONS

Applications received after February 1st will be evaluated using the same criteria as other applications, and the composite score will be integrated in rank order on the established wait list.

WITHDRAWN STUDENTS

Students who withdraw from Greater Lowell Technical High School and who are attending or not attending another high school may reapply to Greater Lowell Technical High School following the procedures contained in this admission policy and will be evaluated using the criteria contained in this Admission Policy.

SELECTION CRITERIA

Completed applications are processed by the Admission Committee using weighted admission criteria. Each applicant will be assigned a score derived from the sum of the sub-scores of the following criteria:

A. Scholastic Achievement: Maximum 40 points

Grade Averages	Points
90 – 100 (A)	10
80 – 89 (B)	8
70 – 79 (C)	5
60 – 69 (D)	2
0 – 59 (F)	0

For application to grade 9 (fall admission), the average of grade 7 and terms 1 and 2 of grade 8 marks in English, social studies, mathematics and science from the local school report card/transcript are used. For application to grades 10 & 11 (fall admission) the average of the previous two school year marks in English, social studies, mathematics and science from the local school report card/transcript are used. For application to grades 9, 10 & 11 (admission during the school year) the previous school year and current school year to the date of the application marks in English, social studies, mathematics and science from the local school report card/transcript are used.

B. Attendance: Maximum 40 points

Number of Unexcused Absences	Points
0 – 2	40
3-5	35
6-8	30
9-11	25
12-14	20
15-17	15
18-20	10
Over 20	0

For application to grade 9 (fall admission), the sum of absences of grade 7 and terms 1and 2 of grade 8 from the local school report card/transcript are used.

For application to grades 10 & 11 (fall admission), the sum of the absences from the previous two school years from the local school report card/transcript are used.

For application to grades 9, 10 & 11 (admission during the school year), absences of the current school year to the date of the application from the local school report card/transcript are used.

C. School Discipline/Conduct: Maximum 40 points

The number of days a student has been suspended in school and out of school is recorded. Maximum points are awarded to students who have never been suspended.

Number of Suspensions	Points
0	40
1 In-School	30
1 Out of School	25
2 In-School	10
More than 2 In-School or 1 Out of School	0

Suspension data will be collected from local schools. The number of suspensions will be utilized to measure student discipline/conduct.

For application to grade 9 (fall admission), the sum of grade 7 and terms 1 and 2 of grade 8 suspensions will be utilized to measure discipline/conduct. For application to grades 10 & 11 (fall admission) the sum of the previous two school years will be used to measure discipline/conduct. For application to grades 9, 10 & 11 (admission during the school year) the previous and current school year to the date of the application suspension totals to be completed by local principals will be utilized.

D. Local Guidance Counselor's Recommendation: Maximum 10 points
A member of the Guidance Department in each member town will complete a recommendation based on a rubric in the application packet.

Rating	Points
Ability to Benefit	2
Classroom Participation	2
Perseverance	2
Study/Work Habits	2
Positive Attitude	2

SELECTION PROCESS

Members of Greater Lowell Technical High School's Admission Committee will assemble to review all completed applications received by the first Friday in February. They will check each application for accuracy before awarding rating points in each category. After awarding rating points, each category will be totaled. The applicants will be ranked from high to low. Students listed above the cut-off score will be selected for admission. Those below the cut-off point will be placed on a Waiting List. The cut-off score is determined annually by ranking all applicants from top to bottom and selecting the number of applicants necessary to fill the Freshmen Class. All students and their local guidance counselors are advised of their admission status (accepted, waiting list) by the end of the first full week in April.

Non-resident applicants are evaluated using the criteria in this Admission Policy and will be placed on the applicant list after the resident applicants. Non-resident applicants on the list will only be accepted if all resident applicants have been accepted.

Applications received after the first Friday in February will be evaluated using the same criteria as other applications and their composite score will be integrated in rank order on the established applicant list.

ENROLLMENT

In order to enroll at Greater Lowell Technical High School for the fall, applicants must have been promoted to the grade they wish to enter by their local district. In addition, they must have passed courses in English Language

Arts or its equivalent and mathematics for the school year immediately preceding their enrollment at Greater Lowell Technical High School.

TECHNICAL PROGRAM PLACEMENT

All ninth graders who enroll in Greater Lowell Technical High School participate in a technical exploratory program designed to help them learn about their talents and interest relative to a variety of different vocational-technical programs, including some that are non-traditional for their gender.

Students who enroll in Greater Lowell Technical High School after grade nine may select to explore a vocational technical program based upon available openings. Students are evaluated and graded by each shop teacher during the period of exploration.

Students are evaluated on four areas: Maximum 100 points

Rating	Points
Employability Skills/Conduct	20
Performance Assessment	40
Coursework/Project Completion	20
Safety/Equipment/Tools/Supplies	20

If the number of enrollees seeking a particular shop exceeds the number of openings, the evaluative exploratory grades would determine the enrollee or enrollees who are placed in the particular shop. In the case of tie scores, the cumulative average of all exploratory grades will be used as the first tiebreaker with attendance being used as the second tiebreaker after adjusting for documented excused absences.

Students who wish to transfer from one shop to another during the school year may apply for transfer no later than the end of the second quarter by contacting his/her guidance counselor. Transfer requests will be considered subject to the availability of openings in the requested shops. Each transfer applicant will be interviewed and counseled individually to determine the appropriateness of the transfer for the particular student.

REVIEW and APPEALS

The applicant's parent(s)/guardian(s), upon receipt of a letter from Greater Lowell Technical High School indicating that the applicant was not accepted or placed on a waiting list, may request a review of the decision by sending a letter requesting a review to the Assistant Superintendent/Principal within thirty days of the receipt of the letter. The Assistant Superintendent/Principal will respond in writing to the letter with the findings of the review within thirty days. If after the review, the parent/guardian wishes to appeal the findings of the review they may do so by sending a letter requesting that they be scheduled to appear before the Superintendent-Director of Greater Lowell Technical High School to appeal the Assistant Superintendent/Principal findings. The Superintendent-Director will respond in writing to the parent/guardian with a scheduled date for the appeal within thirty days of the receipt of the letter. The Superintendent-Director will respond in writing to the letter with his decision on the appeal within thirty days of the meeting when the appeal was presented.

CREDIT GUIDE SHEETS – GRADE 9-12

9TH GRADE PROGRAM

PAGE	ENGLISH	CREDITS
59	English 1 - Honors……..……...	6.0
59	English 1 - CP…….…….…….	6.0
	MATHEMATICS	
61	Algebra 2 - Honors….……...…….....	6.0
61	Algebra 1 - Honors….……...…….....	6.0
61	Algebra 1 - CP…….……..	6.0
61	Algebraic Foundations.……..	12.0
61	Pre-Algebra ..……	6.0
	PHYSICAL EDUCATION/HEALTH	
15	Teen Health. .....…….	3.0
63	Physical Education 9th / Wellness……..……...……...	3.0
63	Adaptive Physical Education…….....	3.0
	SCIENCE	
63	Biology - Honors ….…...…….…….……....	6.0
63	Biology 1 - CP……..…….……....	6.0
	SOCIAL STUDIES	
65	World History - Honors……	6.0
65	World History - CP…….……..…...….....	6.0
14	Career and Technology Readiness….……..	6.0
19-58	EXPLORATORIES& SHOP 1……...	12.0
	REQUIRED TOTAL CREDITS	**48.0**

8/2/2017 11:39 AM

CREDIT GUIDE SHEETS – GRADE 9-12

10TH GRADE PROGRAM

PAGE	ENGLISH	CREDITS
59	English 2 - CP……...……...…….……...	6.0
59	English 2 - Honors ……..……..……..	6.0
	MATHEMATICS	
61	Geometry - Honors….……..…….....	6.0
61	Geometry - CP …….……..……..…….....	6.0
61	Algebra 1 w/Geometry – CP …..……..…….....	6.0
	PHYSICAL EDUCATION/HEALTH	
63	Physical Education 10th /Wellness….....	3.0
63	Adaptive Physical Education..…….....	3.0
	SCIENCE	
64	General Chemistry Hybrid/Lab 1……	6.0
64	Biology 2 - CP…….……	6.0
64	Chemistry - CP……...…….....	6.0
65	Biotechnology 1 - CP ...……..	6.0
	SOCIAL STUDIES	
66	U.S. History 2 - Honors…….……	6.0
66	U.S. History 2 - CP…....……....	6.0
19-58	SHOP …….....	21.0

REQUIRED TOTAL CREDITS ***48.0***

CREDIT GUIDE SHEETS – GRADE 9-12

11TH GRADE PROGRAM

PAGE	ENGLISH	CREDITS
60	English 3 - Honors ……...……	6.0
60	English 3 - CP ……...……	6.0
	MATHEMATICS	
62	Pre-Calculus - Honors……...…….	6.0
62	Algebra 2 - Honors …….……..…….….....	6.0
52	Pre-Calculus - CP …...…….	6.0
52	Algebra 2 - CP…….……..…….….....	6.0
52	Functions & Number Sense- CP ……..	6.0
	PHYSICAL EDUCATION/HEALTH	
63	Physical Education Upper 1/Wellness…….…….….....	1.5
63	Upper Health I……..	1.5
63	Adaptive Physical Education..…….....….….....	3.0
	SOCIAL STUDIES	
66	U.S. History 3 - Honors…...…….…….....	6.0
66	U.S. History 3 - CP....…….…….....	6.0
66	Topics in United States History 3……...	3.0
19-58	SHOP THEORY ……..……..…..	6.0
19-58	SHOP …….. ...…….…..	21.0

REQUIRED TOTAL CREDITS ***48.0***

CREDIT GUIDE SHEETS – GRADE 9-12

12TH GRADE PROGRAM

PAGE	ENGLISH	CREDITS
60	English Composition 1……	6.0
60	English - Honors……..	6.0
60	English 4 - CP...…...…….…….…….….	6.0
	MATHEMATICS	
62	Calculus ……	6.0
62	Pre-calculus – Honors …….…….	6.0
62	Pre-calculus CP ……..……..	6.0
62	Advanced Mathematical Decision Making …….…….	6.0
62	Applications of Algebra and Geometry – CP..…….	6.0
52	Algebra 2 - CP…….…….……...…….….....	6.0
62	Trigonometry – CP …….…….…..…….….....	6.0
	PHYSICAL EDUCATION/HEALTH	
63	Physical Education Upper 1 / Wellness…….....	1.5
63	Upper Health 2……..	1.5
63	Adaptive Physical Education..…….....….….....	3.0
	SCIENCE	
64	General Chemistry Hybrid/Lab 1.……	6.0
64	Physics – Honors…...……..……..……..	6.0
64	Physics - CP…….……...…….….....	6.0
64	Anatomy and Physiology - Honors…...……..….….....	6.0
64	Anatomy and Physiology - CP……...……..….….....	6.0
64	Chemistry - CP……...…..….….....	6.0
65	Biotechnology 1 - CP….....	6.0
65	Biotechnology 2 - CP ……..	6.0
64	Applications of Science – CP.....…….….....….….....	3.0
65	Engineering Science - CP ……..	3.0
67	Essential Concepts of Biology..…….…..…….	3.0
19-58	SHOP THEORY …….……	6.0
19-58	SHOP …….…....	21.0

REQUIRED TOTAL CREDITS **48.0**

PROGRAMS AND SERVICES

ACCREDITATION

Greater Lowell Technical High School is fully accredited by the New England Association of Schools and Colleges, Inc.

AFTER-SCHOOL HELP

Extra help is available most days with the exception of Friday. Teachers' post their after school help day(s) in their classrooms at the start of the school year. In addition, please see the school website, www.gltech.org, for teacher after school help day schedules. Students should report promptly after school for extra help appointments. Late buses are provided Monday through Thursday to accommodate students requiring extra help. The buses depart at 3:00 p.m. from the tunnel area.

COLLEGE PREPARATORY PROGRAM

Greater Lowell Technical High School offers a Massachusetts High School Program of Studies (MassCore) which is intended to help high school graduates arrive well prepared for college. Courses included in MassCore are rigorous, engaging, and are aligned to the Massachusetts Curriculum Frameworks high school level standards. The recommended program of studies includes; four years of English, four years of math, three years of lab-based science, and three years of social studies. Students are scheduled in academic classes based on their course of study. Changes in schedules should not occur beyond the end of the 2nd quarter. The only exceptions would be if a student is serviced under an Individual Education Program, 504 Accommodation Plan, or under the direction of the Director of Guidance and Counseling Services.

In order to meet admissions standards for Massachusetts State Colleges and Universities (four year colleges) student should complete the following courses:

1. Four courses of college preparatory English
2. Four courses of college preparatory Mathematics
3. Three courses of college preparatory Science (including three labs)
4. Two courses of college preparatory Social Studies (including one course in U.S. History)
5. Two years of technical program theory courses plus one an additional course in Mathematics, Science (no lab required), or Computer Science are accepted in lieu of foreign language for admissions to Massachusetts State Colleges.

COURSE REQUIREMENTS

All students are required to take four years of English Language Arts, four years of mathematics, three years of lab based sciences, two years of history/social sciences, and three years of a technical program. Students must receive a passing grade in English Language Arts for all four years, freshman and sophomore Science, and three years of Mathematics in order to graduate from Greater Lowell. Students must also pass their technical program to be promoted to the next grade level. The only exceptions would be a student who may be serviced under an Individual Education Program, a 504 Accommodation Plan, or receiving English Language Education services. All decisions regarding these students are made by Teams as required by Special Education, Section 504, and English Language Education regulations.

It should be noted that students who fail Algebra 1 or Algebra 2 must attend summer school and participate in a mandatory afterschool competency based program during the next school year to ensure that they remain on the track to meet admissions standards for Massachusetts State Colleges and Universities.

State Mandate – Competency Determination A student receives State Competency Determination when they score a 240 or better on the state mandated MCAS in English Language Arts and Math, and a 220 in Science. Students who do not score a 240 in either Math or ELA are placed on an Educational Proficiency Plan which requires them to successfully complete and pass 11th and 12th grade Math and English.

ENGLISH LANGUAGE LEARNERS PROGRAM

Under the guidelines of Chapter 71A, the Greater Lowell Technical High School provides educational services to students of Limited English Proficiency. The goal of the program is to help students become proficient in English, reading, writing and math in order to succeed in mainstream courses. All students in the ELL program receive intense instruction in English as a second language. In addition, ELL instructional support is provided by teachers and paraprofessionals to students in academic, technical and related classes in order to ensure student success in those courses. The specific amount of two-way instruction and tutorial support is based on the linguistic need of each student. Students are scheduled into mainstream courses as soon as their performance indicates that they will be able to succeed.

GUIDANCE SERVICES

The Guidance Department at Greater Lowell Technical High School assists each student in reaching his/her potential in the attainment of a high school diploma by providing academic, technical and personal support. Whether the student plans to immediately enter the labor market or continue his/her education on the post-secondary level, counselors will monitor each student to assure that individual career and college goals may be achieved. A Career Inventory Survey is administered to all freshmen to assist them in choosing the technical program that best suits their interests and abilities. Freshmen begin creating a career plan that they update every school year with the assistance of their guidance counselor to provide them with a four year college and career plan.

The Guidance Department at Greater Lowell Technical High School assists each student to gain insight into understanding his/her environment, needs and potential so that choices and decisions made will culminate in a successful and satisfying academic and career path.

Counselors provide a variety of student and community based services including, academic, career and postsecondary planning, and crisis intervention/resources. The Guidance Office offers a comprehensive developmental guidance program consisting of individual and group sessions with students, as well as parent/guardian evening informational presentations. The administration, counselors, teachers, and students work together to promote the best interests of the school and the individual student. The focus of the guidance counselor is to work with the students and their parents/guardians in matters pertaining to academic advising, post-secondary planning, and personal/social counseling. This could include adjustment to school, registering for courses, placement in classes, college and career exploration, testing, tutoring, and personal/emotional issues. Counselors have access to a wide variety of community and collegiate resources in order to provide the students with the best possible options for all their needs. **Students should make appointments to see their counselor unless the reason for the meeting is of a critical nature.** Parents are encouraged to call or email their child's counselor to make an appointment to discuss any areas of concern. Conferences may be arranged before or after school or at designated times during the school day.

STUDENT COURSE SELECTION

Students attending Greater Lowell Technical High School will meet with his/her guidance counselor to select courses for the next school year. Students and parents are requested to examine the Program of Studies booklet before meeting with their counselor to select courses that meet their individual needs. A student who will be pursuing education on the post-secondary level should discuss course selection with his/her counselor on a frequent basis to ensure that college admission requirements are met.

COLLEGE & POST SECONDARY PLANNING

Counselors assist students in the following ways:

- Course Selection
- 4-year Career Plan
- Guided Naviance Family Connection Activities
- College and Career Search process

- College majors and related careers
- PSAT/SAT/SAT Subject/ACT/ASVAB testing
- Resume/Essay writing
- College visits and interviews
- Financial Aid/Scholarships

Students are encouraged to utilize the resources available in the guidance office to assist them in this process. The guidance office has computers available to the students to aid them in obtaining information about colleges and careers.

NAVIANCE & FAMILY CONNECTION

Family Connection from Naviance is a web-based service designed especially for students and parents. It is a comprehensive website that students and parents can use to help make decisions about colleges, careers, and postsecondary plans. Each student has a profile on Family Connection and is linked directly to the counseling office so that the counselors can monitor each student's progress in the career and college planning process. Family Connection allows students and families to:

- Get involved in the planning and advising process: Build a resume, complete online surveys, and manage timelines and deadlines for making decisions about careers and post-secondary options.
- Research Careers: Research hundreds of careers and career clusters as well as take career assessments and interest inventories.
- Research Colleges: Compare your GPA, standardized test scores, and other statistics to actual historical data from our school for students who have applied to your college of interest in the past.
- Create plans for the future: Create goals and to-dos, and complete tasks assigned by the school to better prepare your student for future career and college goals.
- Track transcripts and recommendations: As a senior, once you have requested transcripts and recommendations you can see when those requests have been fulfilled.

Family Connection also lets us share information with students and parents/guardians through email about upcoming events and meetings, local scholarship opportunities and other resources for college and career exploration. We are pleased to offer Naviance Family Connection to our students and their families as it creates a rich and meaningful pathway to maximize the opportunities to create an individual career plan and pathway to success the student.

To access our school's Family Connection site, please visit: http://connection.naviance.com/glths
Each student and parent will have his or her own access code to this site; however, you may also access it as a GUEST. Just use password: gryphon.

LIBRARY Media Center (IMC)

The mission of the Library Media Center (LMC) is to enhance students' knowledge by providing them with resources that supplement their learning as they build research skills and become life-long independent learners.

Our collection, one of the largest and most comprehensive in a technical secondary school in the country, covers a variety of subjects that support our school's academic and technical programs. We also maintain general reference material and current and archived periodicals. Our team's priority is to provide students with up-to-date resources and we do so by constantly displaying our latest acquisitions-fiction books, graphic novels and career resources, among others-meant to encourage students to imagine, be proactive and be successful. We also offer an extensive number of on-line multimedia databases that are available to teachers and students at school and at home that are accessible through our web site at http://www.gltech.org/Page/435.

Our environment is designed to promote learning whether that is individual or in groups. For this purpose, in addition to the main center we have three computer labs for student/teacher use. The Library Media Center is open before and after school, during lunch, and with a pass throughout the day.

SPECIAL EDUCATION DEPARTMENT

Under Chapter 766, the Massachusetts Special Education Law and Federal Law IDEA 2004, the Greater Lowell Technical High School provides comprehensive programming for students with disabilities under Individual Education Programs. Services include content area inclusion classes, adaptive physical education classes, and study skills support for academic instruction received in the general curriculum. In addition, related services such as speech therapy, individual and group problem-solving therapy, and full evaluation services are also provided.

SECTION 504

Under Section 504 Civil Rights Law protecting the rights of individuals, the law identifies all school-aged children as handicapped who meet the definition of a "qualified handicapped person". A student may be eligible for Section 504 Accommodations, if she/he has or has had a physical or mental impairment which substantially limits a major life activity, which includes walking, hearing, seeing, speaking, breathing, learning, caring for one's self and performing manual tasks. The handicap condition need only substantially limit one major life activity in order for the student to be eligible.

Parent/Guardian(s) should contact the Section 504 Coordinator at 978-441-4951 or 4952 regarding the process for requesting a Section 504 Accommodation Plan review.

EXPLORATORY / FRESHMAN PROGRAM OVERVIEW

EXPLORATORY PROGRAM

Pre-Exploratory

The Grade 9 Pre-Exploratory provides all ninth grade students the opportunity to learn about each of the twenty-three (23) technical programs offered at Greater Lowell Technical High School. Students will spend one period in each technical program where they will be given a tour of the shop area and presented with an overview of the program and potential career paths.

Exploratory

The Exploratory Program provides ninth grade students with the opportunity to learn about fourteen (14) technical programs they selected to explore. Students will spend two periods each day for (10) days in each of the fourteen programs. This will enable them to discover their personal strengths and interests, and compare these with the work skills and requirements of these fourteen (14) programs. Students are encouraged to consider training in any program, without regard to traditional stereotypes. At the end of each exploratory, students will receive an evaluation score. Exposure to fourteen (14) exploratory programs will enable students to make a more informed decision when making their final technical program choice. In the fourth marking period, students will select one of the fourteen (14) programs explored to pursue for the remainder of their high school experience. It is important that parents/guardians assist students with this selection process.

SHOP SELECTION PROCEDURE

As noted previously, ninth grade students will make their permanent shop selection during the fourth marking period.

The following selection procedure is used to determine permanent shop placement for ninth grade students:

1. Students complete a permanent shop selection form listing their first through fourth choices in the order of preference.
2. A list of students for each shop is generated based on all student requests starting with students who scored the highest in each of the exploratory programs to the lowest. Students who have the highest scores will be placed into their shop selection first when over-enrollment to a shop occurs.
3. Students who do not get into their first shop choice will be placed into their second shop choice, if there is an opening available. If the students' second choice selection is over enrolled, then they will be placed into their third choice.
4. When two students have the same score and are vying for the last shop placement the student's average of all exploratory shop scores is considered first and student attendance is considered second.

Exploratory Programs Offered

Auto Collision Repair and Refinishing
Automotive Technology
Carpentry
Computer Aided Drafting & Design
Cosmetology
Culinary Arts
Design & Visual Communications
Early Childhood Education
Electrical
Electronics Technology
Engineering Technology
Graphic Communications
Health Assisting/Pre-Nursing
Heating/Ventilation/Air Conditioning & Refrigeration
Hospitality
Machine Technology
Marketing/Business Education
Masonry
Medical Laboratory & Assisting
Metal Fabrication & Joining Technologies
Painting and Design
Plumbing
Programming & Web Development

SHOP 1

Ninth grade students will begin to pursue study of their selected technical program in the fourth marking period. This shop course will be two periods per day for the entire marking period. Heavy emphasis will be placed on shop safety and basic shop concepts during this shop time.

CAREER AND TECHNICAL READINESS

The Career & Technical Readiness course is provided to all ninth grade students in order to introduce the basic concepts and skills of all technical programs. The Vocational Framework Strands of Safety, Employability, Management & Entrepreneurship and Technology are introduced. These strands will be further developed and implemented when students attend theory classes in their selected shops for 11th and 12th grade.

GRADE 10-12 TECHNICAL PROGRAM OVERVIEW

TECHNICAL PROGRAMS

Each student in Grades 10-12 specializes in a technical program based upon his/her interests and abilities. Each program operates on an alternate week basis allowing students to spend one (1) week in theory/academic classes and one (1) week in their technical program. The technical programs at Greater Lowell are organized on a cluster concept. Listed below are the twenty-four technical programs and the cluster they fall under:

Automotive Collision Repair and Refinishing/Manufacturing & Transportation
Automotive Technology/Manufacturing & Transportation
Business Technology/Technology
Carpentry/Construction
Computer Aided Drafting & Design/Manufacturing & Transportation
Cosmetology/Personal Services
Culinary Arts/Personal Services
Design & Visual Communications/Technology
Early Childhood Education/Personal Services
Electrical/Construction
Electronics Technology/Manufacturing & Transportation
Engineering Technology/Manufacturing & Transportation
Graphic Communications/Technology
Health Assisting - Pre-Nursing/Technology
Heating/Ventilation/Air Conditioning and Refrigeration/Construction
Hospitality Management/Personal Services
Machine Technology/Manufacturing & Transportation
Marketing Education/Personal Services
Masonry/Construction
Medical Laboratory and Assisting/Technology
Metal Fabrication and Joining Technologies/Manufacturing & Transportation
Painting and Design/Construction
Plumbing/Construction
Programming &Web Development/Technology

TECHNICAL COURSE DESCRIPTIONS

AUTOMOTIVE COLLISION REPAIR & REFINISHING EXPLORATORY
This course emphasizes the basic skills needed in the automotive collision repair and refinishing trade, as well as the use of tools and application of procedures. Each student gains a working experience in the use of various tools and equipment used in this technical area. Our technical media system and the use of visual aids, as well as hands-on experience, provide students with an excellent introduction to a career in automotive collision technology.

AUTOMOTIVE COLLISION REPAIR & REFINISHING SHOP 1
The automotive collision shop 1 provides students with a more in-depth view of automotive collision repair procedures including: spray painting equipment; surface preparation of painted surfaces and metal; mixing and applying plastic fillers; care and use of power tools; methods of dent removal; and a thorough overview of career opportunities in the automotive collision and refinishing trade.

AUTOMOTIVE COLLISION REPAIR & REFINISHING SHOP 2
This course provides students with the opportunity to acquire skills in: shop and personal safety procedures; MIG welding; pressure welding; cutting; care and uses of power tools, hand tools, and shop equipment; history of body and frame construction and computerized measuring system (Maxima 3000HE). Care and use of spray guns and spray equipment; analyzing and repair of metal and plastic panel damage including panel replacement; and spraying color coats. The analysis and repair of collision damage, producing computerized damage estimates, and the repair and replacement of automotive glass are also covered. All shop projects are based on I-CAR curriculum.

AUTOMOTIVE COLLISION REPAIR & REFINISHING SHOP 3
The automotive collision shop 3 program provides the student with a more in-depth study of automotive body repair and refinishing equipment. The course includes: analyzing and repairing areas of collision damage including frame and unit body repair utilizing the Maxima 3000 HE body alignment system and Eclipse laser frame measurement system. The Caroliner pressure spot welder will be utilized in all body panel replacement welds. Fiberglass and plastic body repair; repair to electrical system; front suspension service; and proper use and setup of the downdraft spray booth for refinishing will also be covered. Students will also participate in the Automotive Youth Education Systems program (AYES). All shop projects will be based on I-CAR Curriculum.

AUTOMOTIVE COLLISION REPAIR & REFINISHING THEORY 3
This class includes automotive collision specific safety practices, I-car training, fasteners, measuring procedures, hand tools, power tools, analyzing structural damage, and cutting and welding.

AUTOMOTIVE COLLISION REPAIR & REFINISHING SHOP 4
The shop 4 course provides the students with complete coverage of advanced automotive body repair, both major and minor, and most advanced types of paints used today, as well as methods of application. Other areas covered in this course include: analyzing and repairing major collision damage; MIG welding; pressure spot welding; major frame repair; determining when to repair or replace parts; estimating; and preparing for job interviews. The shop 4 students may also become eligible to enter the co-op program. Students may also participate in the Automotive Youth Education Systems program (AYES). All shop projects will be based on I-CAR Curriculum.

AUTOMOTIVE COLLISION REPAIR & REFINISHING THEORY 4
This class includes refinishing procedures, refinishing equipment and refinishing materials. Students will learn about solvent based paints as well as waterborne paints.

Career Opportunities in Automotive Collision:

Entry Level Occupations

- Automotive Collision Frame Alignment Apprentice
- Auto Collision Metal Repairperson
- Automotive Collision Recondition Person
- Auto Collision Spray Painter

With Experience and/or Advanced Training

- Automotive Collision Frame Specialist
- Automotive Collision Insurance Adjuster
- Automotive Collision Paint Specialist
- Automotive Collision Shop Manager
- Automotive Glass Installer
- Automotive Collision Teacher

Related Occupations

- Automotive Salvage Yard Person
- Automotive Supply Store Person
- Custom Painter
- Custom Metal Fabricator
- New and Used Car Lot Attendant
- OEM & After Market Parts Specialist
- Spray Painter
- Tow Truck Operator

AUTOMOTIVE TECHNOLOGY EXPLORATORY

This exploratory program introduces students to the many opportunities available in the automotive industry. The course consists of units in shop safety, basic tool identification and operation of shop equipment. Hands-on learning is emphasized. Students have the opportunity to learn basic automotive repair by working on vehicles and training aides which have been donated by private industry. This is a very stimulating course in one of the fastest changing industries in the country.

AUTOMOTIVE TECHNOLOGY SHOP 1

The shop 1 program is a continuation of the exploratory program. Students receive an in-depth study of engine operation, drive trains and basic automotive electrical systems. This course provides students with a basic but very sound background in automotive repair.

AUTOMOTIVE TECHNOLOGY SHOP 2

The shop 2 reviews skills acquired during the shop 1 experience and concentrates on diagnosing engine and running gear problems. Also included are fuel injection and front alignments. The students are familiarized with the practices and customs used in industry. Areas of concentration include electrical, engine performance, engine mechanical, engine measurement, and digital multi-meters. Along with computer-based training, students are prepped with employability skills enabling them to participate in the Cooperative Education program which is affiliated with the Automotive Youth Educational System (AYES).

AUTOMOTIVE TECHNOLOGY SHOP 3

The automotive shop 3 provides students with an in-depth study of under car systems, maintenance procedures, and performance operations, involving state of the art diagnostic testing and maintenance equipment, preparing the student for possible co-op opportunities. The automotive shop 3 program is enhanced with Identifix, ALLDATA, and Mitchell Computer Based Learning.

AUTOMOTIVE TECHNOLOGY THEORY 3

The theory 3 program consists of classroom theory using the Massachusetts VTEC frameworks and standards. Also, a complete review of engine repair, heating, air-condition, automatic and manual drive trains. Computer control systems are incorporated through up to date text and PC related programs which includes the MegaTech computer training system, as well as the SP2 Safety program. We maintain an association with AYES (Automotive Youth Education System), ASE (Automotive Service Excellence) and NATEF (National Automotive Technical Foundation). Heavy emphasis is placed on preparing students for cooperative work opportunities within the community.

AUTOMOTIVE TECHNOLOGY SHOP 4

The shop 4 reviews skills acquired in previous levels and concentrates on diagnosing engine and running gear problems. Also included are the diagnosis of computer controlled ignition, fuel injection and pollution controls as well as front alignment. The students are familiarized with the practices and customs used in industry. Areas of concentration include electrical, electronics and engine performance, engine mechanical, engine measurement, scan tools and digital multi-meters. Along with computer-based training, students are prepped with employability skills enabling them to participate in the Cooperative Education program which is affiliated with the Automotive Youth Educational System (AYES).

AUTOMOTIVE TECHNOLOGY THEORY 4

The shop 4 reviews previously acquired skills. Students review shop safety, proper use of tools and equipment. Concentrations on steering, suspension, braking systems, running gear, engines and electrical systems are reviewed and enhanced. Vehicle maintenance and repair is stressed as the students become familiarized with the practices and customs used by the automotive industry. Emphasis is placed on customer relations, repair orders and automotive industry. Documentation is explored with electronic service information (Mitchell on demand and ALLDATA training. Students' employability skills are reinforced enabling them to participate in the cooperative education program which is affiliated with Automotive Youth Education System (AYES).

Career Opportunities in Automotive Technology:

Entry Level Occupations

Brake and Exhaust Repair Person
Gasoline Station Attendant
General Automotive Technician
Lubrication Person
New Car and Warranty Technician

With Experience and/or Advanced Training

Automotive Repair Shop Owner
Automatic Transmission Specialist
Electronic Diagnostic Specialist
Electronic Tune-up Specialist
Factory Representative
Front End Alignment Specialist
Service Manager
Teacher

Related Occupations

Automobile Salesman
Automotive Parts Salesperson
Automotive Salvage Yard Person

BUSINESS TECHNOLOGY SHOP 4

This course is a continuation of Business Technology Shop 3. It is designed to prepare the student for the world of work in a business environment. Students will continue to develop, create, format, and design various documents using Microsoft Office tools and other applications. In addition, students will analyze business law cases and complete medical office projects using Microsoft Office applications. Students will develop and demonstrate office skills necessary to perform in a business environment by producing and working with a variety of production projects as directed by the managing instructor. Students will continue working towards further development in *MOS Certification*.

BUSINESS TECHNOLOGY THEORY 4

The students will learn the essentials of spreadsheet development using Microsoft Excel. Students will simultaneously explore accounting as it is practiced in a computerized environment. Students will gather, process, report and communicate financial information. Students will demonstrate fundamental accounting principles; as well as create and organize financial reports utilizing Excel.

Career Opportunities in Business Technology:

Entry Level Occupations

Accountant
Administrative Assistant
Banker
Customer Service Representative

Database Manager	Financial Planner
Human Resource Specialist	Legal Assistant
Office Manager	Paralegal
Public Relations Specialist	Recruiter
Web Designer	Web Animator

With Experience and/or Advanced Training

(Associates and/or Bachelor degree)

CPA	Auditors
Budget Analysts	Cost Accountants
Human Resources Specialists	Labor Relation Specialist
Purchasing Agents	Tax Examiners
Purchase Managers	Business Teachers

Related Occupations

Medical Office Assistants	Legal Careers
Accounting Consultants	Business Entrepreneurs

CARPENTRY EXPLORATORY

The exploratory program introduces the student to the career opportunities in the carpentry field. The course offers a brief exposure to measuring instruments, hand tools, portable and stationary woodworking equipment and building materials. Students will begin developing the skills needed to become proficient in the carpentry field by constructing projects that they will take home.

CARPENTRY SHOP 1

Ninth grade carpentry shop offers a greater in-depth view into the use of basic trade tools, measuring instruments and materials through real life experience through performance on projects within the shop. This, in conjunction with the related theory, cultivates awareness in the student of additional aspect of the carpentry field.

CARPENTRY SHOP 2

At this level, students are instructed in safety factors and proper use of power machines. They will learn to identify, estimate and properly store lumber and building materials. The first two terms will be focused on woodworking practices and shop techniques. During the third and fourth terms, emphasis will be placed on house building and basic framing.

CARPENTRY SHOP 3

The student is instructed on safety factors and the use of both handheld and stationary power machinery. Machines such as the joiner, planer, and table saw are used extensively. The students are instructed on proper work habits and ethics. The students get to experience real working conditions on the outside house project. Students actually build a small residential dwelling from the frame, roof, siding to cabinet installation and interior finish. The conditions are real . . . from the sunshine to the rain, mud, snow and cold. Students are responsible for estimating, blueprint reading, math calculations, layout and construction of the house. Safety under these conditions is of the utmost importance.

CARPENTRY THEORY 3

The carpentry program 11th grade student will be exposed to up-to-date information on building materials and techniques. Detailed coverage of all aspects of light framing construction, including site lay-out, foundation forming, sheathing, roofing, windows and doors, exterior finish, interior walls, floor and ceiling. Special emphasis is placed on the use of modern tools, materials and prefabricated components.

CARPENTRY SHOP 4

12th grade carpentry program students will each have the opportunity to participate in the cooperative education program, provided they are eligible. The student will learn the trade from a co-op employer who will report back to the school on the tasks performed and the level of competency achieved during this week. Students remaining

in school will learn to set up woodworking machinery with jigsaw routers to do production work, while learning the care and maintenance of woodworking tasks. The students will also work outside of the shop doing carpentry maintenance and remodeling work as needed inside and outside of the school campus. Students will support the junior building programs. Students may also work for the communities of Lowell, Dracut, Tyngsboro, and Dunstable.

CARPENTRY THEORY 4

The 12th grade carpentry program student will study advanced framing techniques, exterior and interior trim, the international residential code book will be used to cover Strand 1 Part 2.B.06 apply state and local building codes including the stretch code part of Strand 1 Part 2K.01 energy efficient systems in the carpentry frameworks.

Career Opportunities in Carpentry:

Entry Level Occupations

Apprentice Carpenter	Assembler
Benchworker	Framer
Installer	Millworker
Roofer	Sider

With Experience and /or Advanced Training

Carpenter/Cabinetmaker	Finish Contractor
Framing Contractor	General Contractor
Inspector	Remodeler
Supervisor/Foreman	Teacher

Related Occupations

Building Inspector	Mill Supervisor
Estimator	Home Inspector

COMPUTER AIDED DRAFTING & DESIGN EXPLORATORY

This course will give the student a chance to learn how to use CADD (computer aided drafting and design), one of the most powerful tools used by engineers and designers today. The students are encouraged to express their creative ideas with numerous challenging design projects. These design projects include creating a 3D model and printing them out on our 3D printer to take home. A number of projects are aimed to assist students in learning about possible design engineering career paths. This is a very stimulating course where the only limit to the creativity and design possibilities are the students' willingness to think outside the box.

COMPUTER AIDED DRAFTING & DESIGN SHOP 1

The freshman shop expands on the basics of design introduced in exploratory. Students will actively participate in practical design projects that will focus on research and development, prototyping, and the manufacturing process. We will begin to learn about multiple 3D CADD software programs to prepare for advanced training in college and career.

COMPUTER AIDED DRAFTING & DESIGN TECHNOLOGY SHOP 2 – INTRODUCTION TO ENGINEERING DESIGN/PRINCIPLES OF ENGINEERING 1

This course will provide CADD and engineering students with the basic skills for both disciplines. The focus will be on CADD design and the principles of simple machines, heat loss from structures, fluid mechanics, basic electronics and robotics. Students will use the ***Principles of Engineering*** from ***Project Lead The Way (PLTW***) as a guide. This will be supported in a project-based curriculum where the formal design process will be used to solve the problems related to the projects students are working on. Students will work on employability skills that will prepare them for possible co-op placement and employment after graduation. In addition, students will also focus on the process of design and engineering problem solving. Instructors will work closely with both the engineering and CADD shops to provide support for the various projects that students will be constructing. Students will use the ***Introduction to Engineering Design*** from ***Project Lead The Way (PLTW***)

as a guide while they learn about computer aided design theory, practice and build skills using Auto Desk Inventor, Revit, Solid Works and other design software. Students will use the formal design process as they solve and build the solutions to real world problems; as well as working on reverse engineering products to make them smaller, cleaner, stronger and smarter. Some of our projects include siege engines, wind turbines, vex battle bots, submarines, and the pencil dispenser challenge. Successful students may be eligible for college credits when this course is completed along with ***Principles of Engineering 2.***

COMPUTER AIDED DRAFTING & DESIGN TECHNOLOGY ADVANCED SHOP

This course is based on an eight (8) term duration that provides in-depth training in the fields of residential architecture, landscape design, civil engineering, and mechanical drawing and design. The architectural segment covers a thorough look into the design and configuration of building trades incorporated within residential house construction. Students gain the skills required in room and space planning, interior elevations, roof plans, wall sections and detail permit process. In the civil/landscaping segment, students will learn landscape development design, and civil engineering concepts such as bridge design, ground contours, and surveying. The mechanical segment introduces students to various shop processes and focuses on reinforcing the students' skills in mechanical drawing and design. This segment introduces them to the engineering design process. Students gain knowledge of threads and fasteners, gears, and pattern developments along with other current industry related skills. Students will continue to develop their CADD skills throughout the year using the latest 2D and 3D CADD software while utilizing the rapid prototype machines (3D printing) and further developing their model making skills. Students are taught the use of various measuring instruments including micrometers and Vernier calipers. Students are required to design, draw, engineer and present a complete set of working drawings for a residential house and to design, draw, engineer and present a mechanical project of their choosing. Assistance is provided to help students determine career or college choices after graduation.

COMPUTER AIDED DRAFTING & DESIGN TECHNOLOGY 11TH & THEORY 4

This course will introduce advanced concepts in the design and engineering career paths. We will focus on mechanical design in terms one and two. This will include reverse engineering of parts, sheet metal design and theory and other advanced concepts needed to succeed in college or career. The student will work on employability skills throughout the year in preparation for co-op, college and job opportunities. At the end of term three, the student will have a resume, portfolio (bound and electronic) and references that they will use to secure employment. Seniors will take part in a yearlong project of their own choice. This project will be instructed and graded as if they were in the work place.

Career Opportunities in Computer Aided Drafting & Design:

Entry Level Occupations

CADD Drafter I
Computer Aided Design Drafter
Architectural Drafter I
Drafter I
CADD Drafter
Architectural Drafter
Mechanical Drafter I
Level I Drafter

With Experience and/or Advanced Training

Industrial Architect
Mechanical Design Engineer
Automotive Design Engineer
Architectural CADD Teacher
Pipe Line Engineer
CADD Operator
CADD Manager
Survey Manager
Estimator
Residential Architect
Industrial Design Engineer
Engineering CADD Teacher
Electrical Designer
Structure Design Engineer
Process Engineer
Project Engineer
Oil & Gas Election Engineer

Related Occupations

Architects
Electrical & Electronic Engineering Technicians
Electrical & Electronics Installers & Repairers
Cartographers & Photogrammetrists
Electrical & Electronics Engineers
Electro-Mechanical Technicians

Industrial Designers
Mechanical Engineering Technicians
Surveying & Mapping Technicians
Landscape Architects
Mechanical Engineers
Surveyors

COSMETOLOGY EXPLORATORY

The cosmetology exploratory program is designed to expose students to basic techniques and related activities pertaining to the cosmetology profession. Students will learn the importance of safety, sanitation and personal hygiene. They will also participate in basic mannequin work and basic procedures in braiding, shampooing, blow dry and iron work and nail care. Students are made aware of the 1,000 mandated hours required by the State Board of Cosmetology.

COSMETOLOGY SHOP 1

The cosmetology shop 1 program expands upon the basics which students were exposed to in exploratory in addition to basic facial cleansing and make up application. Students will be taught correct techniques for safety and sanitation. They will be assessed for ability in their required competencies as well as interest and effort. We will also review the school's expectations throughout the course as well as the State Board required regulations. Students will explore the many job opportunities in the cosmetology field and participate in a design project that will be continued throughout the students shop/related classes junior and senior year.

COSMETOLOGY SHOP 2

This program begins the students' first year of a three year journey through Cosmetology. Students can start to acquire their 1000 hours mandated by the State Board of Cosmetology for licensure only after they turn sixteen years old. Students are required to purchase a uniform and starter kit which contains the necessary supplies to introduce them to the basics of various styling methods, perm winding, hair cutting and state board techniques of facials, makeup, scalp treatments and manicures. Projects are developed to reinforce the curriculum addressing different learning styles. In addition, students will study the theory portion of Cosmetology beginning with the introductory chapters of Cosmetology history, personal image, communication skills and life skills.

COSMETOLOGY SHOP 3

This is the second year of the three (3) year state regulated course. The state requires a total of 1,000 hours to be completed by senior year. Students will review the basics that are learned in shop 2, and then develop them into more advanced competencies necessary to meet industry demanded standards. Units introduced and developed include: basic haircuts, various hairstyling techniques, perm winding, artificial nails, and basic color. Also, scalp treatments, manicuring, and facials with massage techniques are practiced for state board regulation competency. Upon completion of this course, students will be prepared to work in the clinical environment that is in place in Cosmetology Shop Level 4.

COSMETOLOGY THEORY 3

Students, during their junior year, who are 16 years of age, will start accumulating required state board hours. During this year students will continue to develop the ability to analyze the theory part of cosmetology by demonstrating an understanding of disinfectants, permanent waves, hair color, and skin and hair products. The curriculum will also expose students to real-life expectations. The curriculum will also expand students to real life expectations through roleplay of an interview process, resume development and job searching using multiple resources. Juniors will also be introduced to "Milady Pro" which is a software program that includes tests, reviews and reports of their chapter progress. Milady Pro is a crucial resource in a student's preparation for the licensing exam. This program can also be accessed on their home computers. Once the students become sixteen years old, their class attendance, hours will be added toward their goal of 1000 hours mandated by the State Board of Cosmetology for licensure. The necessary books and study aids are included in the required starter kit purchased for Level 2 Cosmetology Shop.

COSMETOLOGY SHOP 4

This is the third year of the three (3) year program. The mandatory 1,000 hours may be completed during this time provided a student turned sixteen years of age prior to entering their junior year. According to State Board of Cosmetology regulations, a student must be sixteen years of age to accrue hours. Students may participate in the cosmetology program but will not accrue hours toward the mandatory 1000 hour requirement until they are sixteen years of age. Due to this regulation, some students may not be allowed to apply for licensure because they have not accrued enough hours. Shop 4 is conducted similar to an actual salon environment, whereas students perform various cosmetology services on actual clients.

COSMETOLOGY THEORY 4

Cosmetology Theory 4 continues to cover all aspects of hairdressing including advanced styling, hair coloring, perming, hair straightening, anatomy, histology, job interviews and salon management. Students prepare for the written State Board Exam and file an application to take the State Board Exam. Students who pass this exam will receive their operator's license which will enable them to work in a hair salon. Seniors will continue using the Delmar Software to prepare for the written portion of their state board exam.

Career Opportunities in Cosmetology:

Entry Level Occupations

Salon Operator	Manicurist
Receptionist	Wig Stylist

With Experience and/or Advanced Training

Aesthetician	Color Technician
Product Demonstrator	Make-up Artist for Theater
Salon Manager	State Board Inspector
Cosmetology Teacher	Waxing Technician
Wig Maker	Nail Technician

Related Occupations

Beauty Editor and Writer	Beauty Supply Owner

CULINARY ARTS EXPLORATORY

In this ten day introductory culinary class students will be introduced to cooking and academic techniques that will are currently used in the culinary industry. A wide variety of industry tools and equipment will be used throughout the ten day course. Each student will have the opportunity to produce up to six projects from scratch. Each project will focus on developing a particular skill. Upon completing each project, students will be given the opportunity to taste the items produced and compare their projects to their peers as well as self-evaluate using rubrics provided.

CULINARY ARTS SHOP 1

The world of Culinary Arts continues to offer diverse opportunities in pastry arts, in becoming the next "Top Chef" or in managing a restaurant. Student skill sets continue to build on fundamentals experienced in the 3 week exploratory. Cooking tasks expand as students work in teams, practicing and maintaining sanitation and safety standards throughout. Students utilize their writing and math skills to formulate recipes, to write menus and follow industry videos. Cooking techniques and knife skills are learned through hands-on cooking tasks. Students taste new ingredients during this time while cooking and during chef demonstrations. Students will tour the three shop areas, allowing them to meet the instructors. Students will also be trained and tested on up to twenty pieces of equipment, with a main focus on safety. All culinary students will be fitted for uniforms at this time to facilitate a smooth transition to sophomore shop.

CULINARY ARTS SHOP 2

The first year of this three year program provides instruction in the areas of terminology, stocks, sauces, salads, dressings and vegetable preparation. Students are also provided with foundation skills in the area of baking

terminology and the correct use of scales, weights, measures and the identification of ingredients. Students are introduced to commercial type recipes, basic principles of bake shop production and recipe conversion. Training as a bakery counter clerk and bakery cashier are provided. Students are also assigned to the Artisan Restaurant where they serve as wait staff and bus person. Students are introduced to The American Culinary Federation (ACF). In addition to acquiring Massachusetts Vocational Technical Frameworks, students acquire ACF competencies.

CULINARY ARTS SHOP 3

The second year of this three (3) year program re-emphasizes the many positions available to students in food service. Students will be introduced to banquet preparation and cooking, as well as, banquet setup and service. Derivatives of the basic soups and sauces are prepared, as well as all the different cooking techniques, such as braising, frying, broiling, etc. There is an introduction to basic cake decorating and to Danish and French Pastry. Students are introduced to specialty dessert recipes and plate decorating. Students continue to work as counterpersons, becoming proficient in cash register operations. Introduction is given to garde manager, specialty items, canapé trays, fancy finger foods, molds, plus simple decorating ideas. Students will continue to work as wait staff in the school operated restaurant and may serve in the capacity of manager or assistant manager. A combination of field trips and guest speakers will expose students to the Culinary Institute of America, Johnson & Wales University, Newbury College, and other prominent post-secondary opportunities at culinary arts colleges. Students continue to acquire ACF competencies as they progress through the program.

CULINARY ARTS THEORY 3

This course affords the opportunity to develop a strong foundation in the foodservice industry. Students will be introduced to safety and sanitation, standard recipes, metric measurements, and conversions between measurements. ServSafe, a nationally recognized program, is offered so that students may obtain a five year certificate in sanitation that is accepted everywhere in the country and could potentially earn them college credit. Students are also given the opportunity to obtain a General Industry OSHA Safety Card.

CULINARY ARTS SHOP 4

This program will allow the student to begin a Co-op work study program or continue to specialize in related areas of the culinary industry. All areas of this shop will concentrate on the refinement of the hands-on, individualized training that will ensure that the student is prepared to build a career within the culinary field. In addition to Co-op, the final year of this program involves the student with heavy meat cookery, including veal, chicken, beef, pork and fish. Recipe conversion, cost analysis and food costs highlight this course. On the baking end, merchandising, advertising and selling are covered as well as the preparation of party pastries, pate a choux, cooked icings and fillings. Preparation of ethnic foods will be explained through our menu and daily specials. Students will take an active role in the management of the restaurant. In this capacity they are responsible for the total operation of the restaurant including completing daily cash reports and making bank deposits. The Culinary Arts curriculum is aligned with the American Culinary Federation standards. Students continue to acquire ACF competencies. Students are eligible to participate in the cooperative education program in their senior year, providing them with real world experience at local restaurants, bakeries and foodservice establishments.

CULINARY ARTS THEORY 4

In the second part of the culinary arts theory class students will continue learning about conversions between units of measure. They will build on their culinary math skills by learning how to utilizing As-Purchased Quantity and Edible Portion Quantity to determine ordering amounts. They will also apply Edible Portion Cost and As-Purchased Cost formulas to determine selling prices of menu items. Students will also be introduced to Entrepreneurship skills and will be guided through a business planning procedure. At the end of the course students will have a usable business plan.

Career Opportunities in Culinary Arts:
Entry Level Occupations

Apprentice Baker
Apprentice Pastry Chef
Bench and Oven Assistant
Bus Person
Cashier
Cooks Helper
Dish and Pot Washer
Icing and Finishing Assistant
Salad Preparer
Short-Order Cook
Waiter/Waitress

With Experience and/or Advanced Training

Bakery Manager
Banquet Chef
Bench and Oven Person
Butcher
Cake Decorator
Culinary Arts Teacher
Executive Chef
Head Baker
Icing and Finishing Person
Manager for Restaurants,
Hotels, Hospitals, Cafeterias
Mixing Person
Pastry Chef
Second Cook

Related Occupations

Bakery Delivery Person
Bakery Owner
Bakery Salesperson
Banquet Manager
Food Salesperson
Hotel Maitre'd

DESIGN & VISUAL COMMUNICATIONS EXPLORATORY

The Design and Visual Communications exploratory presents a broad overview of the graphic arts industry. Students explore their talents in graphic design, sketching, computer illustration, and digital photo enhancement. Students will be introduced to the industry standard software Adobe Design Suite. Employment opportunities in the area of graphic communications will be reviewed. This exciting curriculum takes a hands-on approach to complete several projects including developing a tattoo, and manipulating photography. The students are encouraged to express themselves creatively.

DESIGN & VISUAL COMMUNICATIONS SHOP 1

The Design and Visual Communications shop 1 experience provides the student with a more in-depth curriculum and takes a hands-on approach to complete a variety of projects in the shop setting. Students will be given the opportunity to further their skills using the industry standard software Adobe Design Premium Suite. Through project-based learning, the students will have the opportunity to learn the basics of Photoshop, Illustrator and Dreamweaver. The students will also practice foundation skills, such as, drawing, painting and composition. The students are encouraged to express themselves creatively.

DESIGN & VISUAL COMMUNICATIONS TECHNOLOGY SHOP 2

The design & visual communications technology 10th grade experience provides the student with a broad curriculum and takes a hands-on approach to complete variety of projects in a shop setting. Students study introduction to the graphic communications industry preparing them to be able to explain color theory, effective typographical theory, define the principles and elements of design, review and apply mathematical knowledge and methods of measurement to a variety of projects. Photography basics will be introduced. Students will be given the opportunity to further their skills using the industry standard software Adobe Design Suite, while learning page layout, image editing, and computer illustration. Design & visual communications students will learn to enhance and apply their organizational skills. This program is designed to prepare the student for more demanding work and assignments which will prepare him/her to be able to produce work that meets the standards of a professional design & visual communications person.

AP STUDIO ART PROGRAM

AP Studio Art Program offers three studio art courses and portfolios: Two-dimensional Design, Three-dimensional Design, and Drawing. The AP Studio Art portfolios are designed for students who are seriously interested in the practical experience of art. Students submit portfolios for evaluation at the end of the school year. The AP Studio Art Program consists of three portfolios — 2D Design, 3D Design and Drawing — corresponding to the most common college foundation courses. Students may choose to submit any or all of the Drawing, Two-dimensional Design, or Three-dimensional design portfolios. AP Studio Art students create a portfolio of work to demonstrate the artistic skills and ideas they have developed, refined, and applied over the course of the year to produce visual compositions.

DESIGN & VISUAL COMMUNICATIONS TECHNOLOGY SHOP 3

In Design and Visual Communications level 3, students will begin preparing a thirty-piece portfolio of work that will be used for college and career readiness. There will be an emphasis on creative concept development, advertising and promotional design, observational drawing, illustration and photography. Students will participate in several contests and competitions, in addition to completing client-based production. Students will engage in presentations, creative writing prompts and critiques. An emphasis will be placed on employability skills, including time management and work ethic. Students will learn about workplace safety with the design field.

DESIGN & VISUAL COMMUNICATIONS TECHNOLOGY THEORY 3

Students will learn web design skills using Adobe Dreamweaver. Each student will design a web page based on their portfolio of work including computer graphics, illustrations, printing projects, awards, and certificates. Students will also focus on creating a professional resume and job search skills. Students will practice interview skills through mock interviews and will focus on their employability skills. Students will research job opportunities in their chosen area of Design and Visual Communications and will explore realistic budgeting based on current salaries from the government published Job Outlook Handbook.

DESIGN & VISUAL COMMUNICATIONS TECHNOLOGY SHOP 4

In Design and Visual Communications level 4, students will continue preparing a thirty-piece portfolio of work that will be used for college and career readiness. Students will continue to build technical skills learned in DVC level 3, including presentations, creative writing prompts and critiques. An emphasis will be placed on employability skills, including time-management and work ethic. Students will continue to learn about workplace safety with the design field. Students will be introduced to the process of video production, creating a script, storyboard and short film that will be shown in DVC's annual film festival. Both a printed portfolio book and a digital portfolio will be created to assist in obtaining employment. Students will present a portfolio of work to both college representatives and industry professionals for critique. Students will be encouraged to participate in cooperative education.

DESIGN & VISUAL COMMUNICATIONS TECHNOLOGY THEORY 4

Students will learn Adobe Animate. Through the process of creating characters, writing a story, and creating a storyboard students will create their own animation. Students will also focus on videography. Students will write scripts, plan, and video a project. Students will also focus on team building skills and career prep and will continue to work on employability skills.

Career Opportunities in Graphic Communications/Design & Visual Communications:
Entry Level Occupations

Airbrush Artist	Book Designer
Calligrapher	Fashion Artist
Free Lance Artist	Graphic Designer
Illustrator	Layout Artist
Photographer	Pre-Press Designer
Sign Artist	Sign Painter

With Experience and/or Advanced Training

Animator
Art Teacher
Cartoon Artist
Computer Graphics Instructor
Desktop Publisher
Graphics Project Director
Layout Person
Scenic Artist
Technical Artist

Related Occupations

Art Director
Copy Preparation Person
Layout and Design Person
Offset Press Operator
Platemaker
Production Manager, Advertising

EARLY CHILDHOOD EDUCATION EXPLORATORY

This course is designed to introduce the student to the many career opportunities in the early childhood education field. Early Childhood Education refers to teaching children from birth to age nine and can lead to a career as a preschool teacher, child care provider, nanny, au pair, paraprofessional, recreation worker and much more. The student gains valuable experience by observing and working with children in our on-campus preschool known as the "Tot Shop". Students will participate in hands-on activities using art, music, children's literature and technology. This course will also cover professionalism and employability skills, child development, assessment methods, preschool classroom design and lesson planning.

EARLY CHILDHOOD EDUCATION SHOP 1

This course outlines the duties and responsibilities of the teacher's assistant and the requirements for advanced study in early childhood education such as preschool teacher, lead teacher, or director. The student is exposed to in-depth information regarding "what" "how" and "why" children learn as they do in their early childhood years. Students spend time observing young children at play and mastering observation techniques. More time is spent in our campus preschool known as the "Tot Shop" working with three, four, and five year old children. Students learn specific teaching skills for working with children in each learning center of the preschool classroom and build their foundation of child development concepts. Students will continue to work on professionalism and employability skills for the job market.

EARLY CHILDHOOD EDUCATION SHOP 2

Students in ECE Shop 2 begin attaining their knowledge of early childhood in a simulated ECE classroom. Students are introduced to developmental learning centers, appropriate guidance techniques, proper language and safety procedures for young children. Students practice conducting morning meeting, and have opportunities to observe and interact with the children in the preschool room. Special emphasis is placed on understanding basic child development, the use of developmentally appropriate practice and working as part of a "team" to meet the needs of young children.

EARLY CHILDHOOD EDUCATION SHOP 3

Students in ECE Shop 3 gain practical experience in our on-site preschool center, serving twenty 3,4,& 5 year old children. High school students begin their training as teacher aides in the preschool classroom. Students plan and implement developmentally appropriate preschool lessons for all learning centers using a thematic approach. Students perform routine duties, supervise and evaluate activities, and conduct formal observations and assessments. Students gradually assume the role of teacher in the preschool classroom and add the responsibilities of conducting morning meeting and music & movement activities to their daily routines. Each student also further develops their employability skills such as appropriate attendance, punctuality, professionalism, and communication skills.

EARLY CHILDHOOD EDUCATION THEORY 3

This course is designed to help students understand how to work with and care for children. A major emphasis of this course is guiding children's development and meeting developmental needs from the preschool age through

school age years. In addition, this course will explore play activities, ways to keep children healthy and safe, group programs and preparing for child-care related careers. Students will also complete OSHA training and earn their 10-hour OSHA card. In early childhood education, students in grade 10 develop the skills and abilities to cooperatively work as a team providing care in the preschool setting. Students will become familiar with how children play and learn and how to support their growth and development. Students will gain the skills necessary to accomplish the daily routine tasks associated with caring for young children. Students will learn how to plan developmentally appropriate activities for each learning center in the classroom. Students will continue to develop employability skills such as professionalism, communication skills, time management, teamwork and interviewing strategies for employment after graduation.

EARLY CHILDHOOD EDUCATION SHOP 4

Upon completion of ECE Shop 2 & 3, as well as Theory course requirements, students in ECE Shop 4 have the opportunity to begin working in an Early Childhood classroom through our Cooperative Education program. Shop 4 focuses on refining the practices and techniques learned in previous years. Students are given the opportunity to master skills such as appropriate discipline & guidance, curriculum development, and fostering self-control in children. Students must document their own growth as teachers and begin to develop personal teaching philosophies and portfolios. Hands-on, individualized training continues to play an integral role in the complete learning process.

EARLY CHILDHOOD EDUCATION THEORY 4

Students focus on improving their professional and employability skills as well as caring for the child's basic needs such as health and wellness and the prevention of child abuse. Students explore the field of education for children with special needs. Development of personal teaching styles will be discussed while studying the classroom management, discipline, and developmentally appropriate curriculum. Upon successful completion of the program, students may apply to get an assistant teacher or teacher certificate from the Department of Early Education and Care for either infant/toddlers and/or preschool.

Career Opportunities in Early Childhood Education:

Entry Level Occupations

Infant/Toddler Assistant Teacher or Teacher
Kindergarten Aide in Public Schools
Day Care Center Aide
Special Needs Aide
Preschool Assistant Teacher
Counselor Before/After School Care
Family Day Care Provider

With Experience and/or Advanced Training

Adoption Agency Worker
Counseling & Psychology
Head Start Teacher
Special Needs Teacher
Child Development Consultant
Child Life Teacher/Worker
Elementary Education Teacher
Kindergarten Teacher
Expressive Arts Therapist
Infant Intervention Specialist

Related Occupations

Camp Counselor
Recreation Program Aide
Play Therapist
Social Service
Nanny
Psychologist
School Counseling

ELECTRICAL EXPLORATORY

In the classroom the student will be introduced to the many different career opportunities in the electrical field. The main focus of the student will be to learn what an apprentice electrician is and what is required to become a journeyman electrician. We will discuss what good employability skills are and finish up with basic shop safety practices and basic hand tools and their uses. Shop projects include basic schematic and wiring diagrams, splicing

of conductors and installing buzzers and doorbell chimes. At the conclusion of the exploratory program, the student will leave with a basic understanding of what is required to become a successful journeyman electrician.

ELECTRICAL SHOP 1
This course provides students with the fundamentals in wiring methods. Using basic hand tools, students demonstrate the skills required for low voltage. Students will wire projects using basic wiring methods including bell wire. Students will learn to install doorbell buzzers and chimes, single pole switches, 3-way and 40-way switches, light sockets, and duplex receptacles. Students learn how to draw and follow a wiring diagram. Electrical and hand tool safety is an integral part of the course.

ELECTRICAL SHOP 2
This course was carefully designed for the purpose of assisting the young student with the basic fundamental skills necessary to continue on a path to a successful electrical career. His/Her electrical career should start with an understanding of A/C electrical circuits and shop safety policies such as current OSHA regulations which cover electrical safety, ladder safety, tool safety, and personal protective equipment to name a few which are essential for a safe working environment.

While working on assigned shop projects, the students will demonstrate a firm understanding of properly using hand tools and installing basic wiring methods. (Such as non-metallic sheathed cable, M/C cable, EMT, surface metal raceway and PVC.) It is also important to introduce print reading skills using standard electrical symbols and to determine the scale used on a typical single family floor plan. Using a standard ruler an electrical student will record the room sizes and determine the required outlets according to the NEC.

All students will maintain a three ring binder that will be organized with all of their work which will include shop projects, wiring diagrams and a complete materials list required to assemble the projects.

ELECTRICAL SHOP 3
This course is a continuation of the shop 2. Emphasis is placed on proper wiring techniques and the National Electrical Code. Hands-on wiring of single phase installations which are used in residential and industrial establishments is covered in this course. Wiring methods will include non-metallic sheathed cable, metal clad cable, electrical metallic tubing, rigid metal conduit, surface metal raceway, and rigid non-metallic conduit. This course also offers conduit bending techniques using a PVC heater box, hickey benders, hydraulic benders and more complex hand bending. Students also deal with lighting, solar energy installations, motor controllers and systems, electric heat, and electrical maintenance; this includes 100 and 200 amp residential services, lighting circuits, relays, time-clocks, and new building construction. Students will also be involved with an on-site house building program. The shop 3 students will be eligible for co-op education after completion of the 2nd quarter. During this year, we are also continuing to prepare students to enter the workforce through resume writing and weekly job site safety talks. Students in this level are eligible for co-op education which is highly encouraged.

ELECTRICAL THEORY 3
The electrical theory 3 program includes the science, electrical code and drawing information related to the successful completion of shop projects for 11th grade. The students will become knowledgeable in the areas of the function of specific pieces of equipment, electrical code interpretations for general and specific wiring methods, and how to prepare and understand the drawings used in the residential installations.

ELECTRICAL SHOP 4
This course is a continuation of the shop 3 program. Emphasis is placed on proper wiring techniques and the National Electrical Code. Electrical Shop 4 concentrates on real-world work experience; as we work on projects around the school building and out in the district on volunteer jobs. Wiring methods will include non-metallic sheathed cable, metal clad cable, electrical metallic tubing, rigid metal conduit, and ridged non-metallic conduit as well as CAT 6 wiring through the IT department. This course offers senior students an opportunity to have the feel of a working shop environment while still in a school setting. We will use specific jobs such as Habitat for

Humanity and other volunteer opportunities to assign specific tasks in the electrical trade to students to be completed in a timely manner. Students will practice and perform actual wiring in a residential dwelling unit. We also continue to explore other aspects of the trade in shop such as control wiring. During this year we are also continuing to prepare students to enter the workforce through resume writing and weekly job site safety talks. Students in this level are eligible for co-op education which is highly encouraged.

ELECTRICAL THEORY 4

This course includes the science, electrical code and drawing information related to the successful completion of shop projects for 12th grade program. The student will become knowledgeable in the areas of: the function of specific pieces of equipment, Electrical Code interpretations for general and specific wiring methods, and how to prepare and understand drawings used in industrial and commercial installations.

Career Opportunities in Electrical:

Entry Level Occupations

Electrical Apprentice	Electrical Supply Company Worker
Electrician's Helper	Solar Energy Installation

With Experience and/or Advanced Training

Business Agent for Electrician Union	Electrical Advisory Committee
Electrical Contractor	Electrical Instructor
Journeyman Electrician	Master Electrician
Teacher	Wiring Inspector

Related Occupations

Alarm Installer	Electrical Cost Estimator
Power Company Lineman	Power Plant Operator
Service Representative	

ELECTRONICS EXPLORATORY

In this course the student is exposed to the range of career opportunities in the electronics field. The student is introduced to basic electronic and computer science concepts, electromechanical assembly, hand tools, test meters and microcontrollers used in the industry and most aspects of modern life. The student learns basic soldering techniques, solders and desolders components on circuit boards, builds an electronic operating circuit, and receives hands-on experience with standard electronic tools and basic robotics.

ELECTRONICS SHOP 1

The shop one student is prepared for entry into the 10th grade shop program through a structured, introductory electronics curriculum. The student will be re-introduced to electronic terminology, component identification, and circuitry. The student will build a simple electronic project using standard electronic components and hand tools. The student will be introduced to computer system concepts, fundamental computer hardware and computer controlled circuitry. Using a microcontroller, they will experience the effect of programming code on various sensors and motors.

ELECTRONICS TECHNOLOGY SHOP 2 - ANALOG ELECTRONICS

This is a foundation course designed to prepare the student for further study in the engineering and technology fields. The student will demonstrate health and safety practices, learn the use of measurement devices, assemble electronic circuits, use electronic hand tools and equipment, select and use DC and AC instruments, and apply electronics theory to the engineering design process. The student will select the use of discrete semiconductor instruments, apply electronic principles, perform calculations and apply electronic principles of semiconductor circuits. Students continue with the study of analog electronics with an introduction to advanced semiconductor operation. The student will perform experiments in the areas of power supplies, voltage regulation, and filter circuits. Next the students will construct and test semiconductor amplifiers and determine the operating parameters of these devices. The course continues with an introduction to operational amplifiers (op-amps), field

effect transistors (FETs), silicon controlled rectifiers (SCRs), and various uses for the 555 timer. Construction projects and labs will supplement all instruction. Labs will be constructed with hands-on trainers and breadboards as well as use of the Multisim software program. Throughout the course the students will demonstrate and develop language arts and communication skills, apply mathematical strategies to solve problems, apply science and engineering technology strategies (STEM), solve problems using critical thinking, demonstrate positive work behaviors; demonstrate ability to use technology for research, problem solving and communication. Students are introduced to basic electricity and electron theory, basic DC theory and circuitry, involving Ohm's Law, Watts Law, circuit components, multiple load circuits, meter construction and reading, basic AC circuitry involving magnetism, electromagnetism, capacitance, inductance, transformers and RC and L circuits. Also covered are semiconductors, diodes, transistors and power supplies. The student will also utilize computer-aided instruction (CAI) as a supplement to the classroom and textbook material. Students will receive an introduction to computer hardware and computer operating systems. All theory will be verified using hands-on experiments in the shop.

ELECTRONICS TECHNOLOGY SHOP 3 - DIGITAL ELECTRONICS

This is a continuation of the foundations course in electronics designed to follow *Analog Electronics* to prepare the student for further study in the engineering and technology fields. The student will demonstrate health and safety practices, demonstrate and apply the design process, problem solving, diagnostic skills, and troubleshooting to digital devices. The student will use measurement devices, assemble digital electronic circuits, use electronic hand tools and equipment, and digital instruments. The student will apply electronic principles of digital circuits to their projects, perform calculations, and verify digital devices using combinational logic. The student continues more advanced digital circuits using sequential logic. In this phase students analyze flip-flops, shift registers, asynchronous up/down counters, synchronous up/down counters, and D/A converters. Students will also design and build a digital clock on their trainers using computer software for the schematic drawings. This part of the course introduces the student to the theory and design of personal computers. Students will also demonstrate an understanding of microcontroller's characteristics and applications using Parallax "What's A Microcontroller?" PIC microcontroller robots. Use of hands-on Dynalogic boards and Multisim software will aid in the understanding of digital. Throughout the course the student will demonstrate language arts and communication skills, apply mathematical strategies to solve problems (STEM), communicate in multiple modes to address needs within the career and technical field, solve problems using critical thinking, demonstrate positive work behaviors, demonstrate ability to use technology for research, problem solving, and communication.

ELECTRONICS TECHNOLOGY THEORY 3- ELECTRONICS TECHNICIAN ASSOCIATE LEVEL 1

The 11th Grade course is intended for electronics technician students, who are seeking the status of CERTIFIED ELECTRONICS TECHNICIAN, ASSOCIATE LEVEL (CETa). It prepares students to become Journeyman (GET), Senior (CETsr) or Master (CETma) CETs. Topics range from Electronic Components and Semiconductors, AC and DC Circuits, Analog Circuits, RF. Cabling and Telecommunications. The students become a better technician with a solid core of basic electronics knowledge like that found at ITT Tech. Course material include (The Associate CET Study Guide, 6th Edition, Published by ETA® International) and (Introduction to Electronics, 6th Edition, by Earl Gates).

ETA International represents a wide variety of professionals from many industries, including: Avionics, Biomedical, Data Cabling, Fiber Optics, Gaming & Vending, Industrial Electronics, Information Technology, Renewable Energy, Smart Home, and Wireless Communications. ETA also offers FCC Commercial Radio Operator licensing. Employers worldwide choose ETA-certified professionals because of ETA's certification programs' competency criteria and testing benchmarks that conform to the highest international electronics standards.

ELECTRONICS TECHNOLOGY SHOP 4

This course is designed to prepare the student to take the "Student Electronic Test" (SET) certification given by Electronics Technician Association International (ETA). This is a nationally recognized organization which has developed a basic set of knowledge standards and competencies for the electronic industry. This organization has

major input and influence on the Massachusetts frameworks for electronics. The program covers 22 chapters including: DC electronics, AC electronics, components and semiconductors, analog circuits, cabling & telecommunications, digital circuits, microprocessors, troubleshooting, repair, test equipment, and service management.

Students will be instructed on the practical aspects of constructing a computer. This includes preparing the motherboard by installing the CPU, CPU fan and memory DIMM. Installing the power supply, video card, NIC card, sound card, audio card and peripherals are also taught. Installing the operating system and test the functionality of the computer after it is built. Students will also be instructed on how to set-up a small network, how to share printers, files and other resources in a Server-Client environment.

ELECTRONICS TECHNOLOGY THEORY 4-ELECTRONICS TECHNICIAN ASSOCIATE LEVEL 2

The 12th Grade course is a continuation of the 11th Grade CET course. Topics range from Microprocessors, Transmitters, and essential skills every Certified Electronics Technician needs such as Record Keeping and Technical Writing. Each chapter is followed by a practice quiz and the entire guide is covered in a final practice examination, which will further prepare an individual for the CETa examination.

ETA-certified professionals work for some of the most widely-known companies, including Bellsouth, ADT Security, American Airlines, AutoZone, Boeing, Budweiser, Canon, Caterpillar, Ford Motor Company, Google, Home Depot, Kmart, Lockheed Martin, Motorola, Quest Communications, Raytheon, State Farm, TD Ameritrade, Verizon Communications and more!

IT Essentials curriculum helps students prepare for entry level IT career opportunities and the CompTIA A+ certification.

CISCO Networking Academy CCNA Discovery covers general networking theory and the basics of routing, switching, and advanced technologies within the context of environment for home and small office networks.

The Cisco Networking Academy Program is a comprehensive e-learning program that provides students with the Internet technology skills essential in a global economy. The Networking Academy delivers web-based content, online assessment, student performance tracking, hands-on labs, instructor training and support and preparation for industry standard certifications. The course is taught in two phases. The first phase teaches students the skills needed to obtain entry-level home network installer jobs. It provides a hands-on introduction to networking and the Internet using tools and hardware commonly found in home and small business environments. Labs include PC installation, Internet connectivity, wireless connectivity, file and print sharing, and the installation of game consoles, scanners and cameras. The second phase of the course, helps the students develop some of the skills needed to become network technicians, computer technicians, cable installers, help desk technicians and provides a basic overview of routing and remote access, addressing and security. It also familiarizes students with servers that provide e-mail services, Web space and authenticated access. Students learn about the soft skills required for help desk and customer service positions, and the final chapter helps them prepare for the CCENT certification exam. Network monitoring and basic troubleshooting skills are taught in context.

Career Opportunities in Electronics Technology:

Entry Level Occupations

CATV Technician
Electronic Stockperson
Bench Technician
Field Service Technician
Radio-Television Technician
Home & Small Business Networking Technician
Test Technician
Electronic Salesperson
Computer Technician
Electronic Wirer and Assembler
Help Desk Technician
Photocopier Repairperson
Video Game Technician
Electromechanical Assembler
Remote Service Technician

With Experience and/or Advanced Training

Audio Visual Engineer	Computer Design Engineer
Electrical & Electronics Engineer	Electromechanical Inspector
Electronics Instructor	Electrical & Engineering Assistant
Licensed Radio-Television Technician	Microwave Engineer
Production Line Supervisor	Satellite System Designer
Telecommunications Engineer	Calibration Technician
Electrical & Electronics Installers & Repairers	Test Equipment Technician
Electronic Equipment Fabricator	Home Entertainment Technician

Related Occupations

Audio Visual Security Technician	Automotive Electronics Technician
Certified Network Associate	Medical Electronics Technician
Electro Optical Engineer	Environmental Control Technician
Network Security Specialist	Radar Engineer Robotics Engineer

ENGINEERING TECHNOLOGY EXPLORATORY

Students will explore various types of engineering. Students will develop and demonstrate foundational skills in problem solving, diagnostics, and troubleshooting via application of the design process using measurement devices, sketching, and brainstorming-independently and among teams. Students will be introduced to assembling and programming a robot, and design challenges.

ENGINEERING TECHNOLOGY SHOP 1

Students will continue to develop and demonstrate skills in problem solving, diagnostics, and troubleshooting via application of the design process. Students will use measurement devices to experience and explore the use and application of electronic components and devices. Students will create sketches for their design ideas as they identify mechanical components while developing and programming a robot. Students will continue to explore and define various types of engineering.

ENGINEERING TECHNOLOGY SHOP 2 – INTRODUCTION TO ENGINEERING DESIGN/PRINCIPLES OF ENGINEERING 1

This course will provide CADD and engineering students with the basic skills for both disciplines. The focus will be on CADD design and the principles of simple machines, heat loss from structures, fluid mechanics, basic electronics and robotics. Students will use the ***Principles of Engineering*** from ***Project Lead The Way (PLTW***) as a guide. This will be supported in a project-based curriculum where the formal design process will be used to solve the problems related to the projects students are working on. Students will work on employability skills that will prepare them for possible co-op placement and employment after graduation. In addition, students will also focus on the process of design and engineering problem solving. Instructors will work closely with both the engineering and CADD shops to provide support for the various projects that students will be constructing. Students will use the ***Introduction to Engineering Design*** from ***Project Lead The Way (PLTW***) as a guide while they learn about computer aided design theory, practice and build skills using Auto Desk Inventor, Revit, Solid Works and other design software. Students will use the formal design process as they solve and build the solutions to real world problems; as well as working on reverse engineering products to make them smaller, cleaner, stronger and smarter. Some of our projects include siege engines, wind turbines, vex battle bots, submarines, and the pencil dispenser challenge. Successful students may be eligible for college credits when this course is completed along with ***Principles of Engineering 2.***

ENGINEERING TECHNOLOGY SHOP 3 - DIGITAL ELECTRONICS (PROJECT LEAD THE WAY)

This course from Project Lead the Way is the study of electronic circuits that are used to process and control digital signals. The focus of the course is to expose students to the process of combinational and sequential logic

design, teamwork, communication methods, engineering and technical standards and documentation. Students will apply digital concepts to control systems and through programmable logic boards and robotic automation.

ENGINEERING TECHNOLOGY SHOP 3 – PRINCIPLES OF ENGINEERING 2

In the 11th grade, engineering students will review the basics of simple machines, heat flow, fluid mechanics, electronics and robotics; as well as work on structures, materials testing and strength of materials used in various engineering fields. These topics will be supported in a project-based curriculum focused on bridge design and construction and students individual projects. In addition they will work on real world employability skills that will prepare you for possible co-op placement and employment after graduation. This class will prepare students for the Project Lead the Way, Principles of Engineering final exam which allows successful students the opportunity to get college credits from Rochester Institute of Technology.

ENGINEERING TECHNOLOGY THEORY 3– MUNICIPAL OPERATIONS

In the 11th grade Municipal Engineering students will study surveying basics and data collection related to surveying. The students will extend their work with the Autodesk Architectural CAD program to plot their survey points and design commercial building site features. The focus will be on Civil Engineering and different municipal systems and infrastructure. For example electrical power distribution, drinking water distribution, drain collections, roads and bridges. This will directly support the Civil Engineering projects that are a key part of the junior year engineering curriculum shop class. In addition you will work on real word employability skills that will prepare you for possible co-op placement and employment after graduation.

ADVANCED ENGINEERING TECHNOLOGY SHOP 4– SENIOR PROJECT

The senior project is a yearlong journey where the individual student is allowed to choose a topic that they are passionately interested in, that is related to engineering design and their engineering experience to date. The goal of the senior project is for the student to work with an outside expert in their field/topic of choice to help guide the process. There are guide points online on the Senior Project Web Page on X_2 which will help focus the timing and outcome of the senior project. Some of the past projects are: Boosted Boards (skate boards), Electrathon Vehicle, Bomb Detecting Robot, Video Games, a horse barn design for the Mass Society for the Prevention of Cruelty to Animals, a car alarm which prevents a parked car from having occupants when the temperature gets too high, a pollution control project and many more!

ENGINEERING TECHNOLOGY THEORY 4 - COMPUTER INTEGRATED MANUFACTURING

Students will be given an overview of the history of manufacturing, common manufacturing processes, material properties of materials, material treatments (heat treating, coations), jig and fixture design, cutting tool selection, CNC programming, robot programming, control systems, manufacturing flow, prototyping, product development, flexible manufacturing systems, lean manufacturing cells and automated materials handling. Students will continue to work with the VEX system to design and build robots and manufacturing systems. Course can lead to college credit.

Career Opportunities in Engineering Technology:

Entry Level Occupations

CAD Drafter I	CAD Drafter
Computer Aided Design Drafter	Architectural Drafter
Architectural Drafter I	Mechanical Drafter I
Drafter I	Level I Drafter
Electrical & Electronic Engineering Technicians	Electro-Mechanical Technicians
Mechanical Engineering Technicians	

With Experience and/or Advanced Training

Industrial Architect	Residential Architect
Mechanical Design Engineer	Industrial Design Engineer
Automotive Design Engineer	Engineering CAD Teacher

Architectural CAD Teacher	Electrical Designer
Pipe Line Engineer	Structure Design Engineer
CAD Operator	Process Engineer
CAD Manager	Project Engineer
Survey Manager	Oil & Gas Election Engineer
Estimator	Electrical & Electronics Engineers
Industrial Designers	Mechanical Engineers

Related Occupations

Architects	Cartographers & Photogrammetrists
Electrical & Electronic Engineering Technicians	Electrical & Electronics Engineers
Electrical & Electronics Installers & Repairers	Electro-mechanical Technicians
Industrial Designers	Landscape Architects
Mechanical Engineering Technicians	Mechanical Engineers
Surveying & Mapping Technicians	Surveyors

GRAPHIC COMMUNICATIONS EXPLORATORY

The graphic communications technology exploratory presents a broad overview of the graphic arts industry. In the printing/production area, emphasis is placed on production procedures that encompass all aspects of the printing industry. Students are exposed to printing/production, the integrated computer graphic systems, offset press, bindery, prepress, screen printing, high speed digitized imaging processes and vinyl sign production. This exciting curriculum takes a hands-on approach to complete several projects involving the offset press, and create a bound notebook using a cover of their own design. Employment opportunities in the area of graphic communications will be reviewed.

GRAPHIC COMMUNICATIONS SHOP 1

The Graphic Communications Technology shop 1 experience provides the student with a more in-depth curriculum and takes a hands-on approach to complete a variety of projects in the shop setting. Students will be given the opportunity to further their skills using the industry standard software Adobe Design Premium Suite. Through project-based learning, the students will have the opportunity to learn the basics of Photoshop, Illustrator and Dreamweaver. The students are encouraged to express themselves creatively.

GRAPHIC COMMUNICATIONS SHOP 2

The graphic communications/design & visual communications technology combined 10^{th} grade experience provides the student with a broad curriculum and takes a hands-on approach to complete variety of projects in a shop setting. Students study introduction to the graphic communications preparing them to be able to explain color theory, effective typographical theory, define the principles and elements of design, review and apply mathematical knowledge and methods of measurement to a variety of projects. Photography basics will be introduced. Students will be given the opportunity to further their skills using the industry standard software Adobe Design Suite, while learning page layout, image editing, and computer illustration. Graphic Communications students will learn to enhance and apply their organizational skills. Students will be required to define computer platforms and operating systems. Graphics students will also learn to correctly scan images from different digital sources for a variety of uses. This program is designed to prepare the student for more demanding work and assignments which will prepare him/her to be able to produce work that meets the standards of a professional graphic communications person.

GRAPHIC COMMUNICATIONS TECHNOLOGY SHOP 3

Students in shop 3 select a choice of specializing in printing production digital graphics and prepress. In the printing/production area, emphasis is placed on production procedures that encompass all aspects of the printing industry. Students are given experience in the form of integrated computer graphic systems, offset press, bindery,

prepress, and proofreading, screen printing, high speed digitized imaging processes and vinyl sign production. Students will learn to apply organizational skills. Students will be given the opportunity to demonstrate pre-production, production and effective post-production practices. Students will learn to correctly scan images from different sources for a variety of uses, will learn to describe and apply photographic principles, and will learn to lay out a page using desktop publishing software and will learn to edit and create digital images using digital imaging software. Students will have the opportunity to create, design and layout for a sign. Students will demonstrate the use of a vinyl cutter/plotter. Students will describe and demonstrate various methods for transferring graphics, demonstrate the use of a stencil, and demonstrate methods of producing lines and stripes. Students will apply vinyl vehicle lettering to various substrates, and install various types of signage.

GRAPHIC COMMUNICATIONS TECHNOLOGY THEORY 3

Students will continue with their examination of the major areas of specialization in the graphic communication industry. They will describe effective workflow and production practices. They will be able to explain text and page composition, color science, vision and printed color. Students will describe printing ink, substrates and finishing and binding. They will be able to define the business of printing and careers in Graphic Communications Technology.

GRAPHIC COMMUNICATIONS TECHNOLOGY SHOP 4

This course is given in a graphic arts/director/client atmosphere. Professional level problems will be stressed and solved with a concentration on layout, design, and the preparation of production. The course content will provide for a realistic development of job phases with respect to offset printing, bindery, silk screening, typesetting requirements and electronic graphic design. Emphasis is placed on production in the form of electronic page preparations. This course will give students hands-on experience with a computer generated graphic, page layout and typesetting network. The student will be exposed to advanced black and white, as well as printing on demand multicolor and four color process printing. Students will be responsible for completion of jobs from thumbnail sketches, layout and design, and type face selection. In most instances, the student acts as a journeyman's apprentice and works with grade 10 and grade 11 students. Grade 12 students will also learn to enhance and apply their organizational skills. Students will learn to demonstrate effective pre-production, production and post-production, and publication practices. Students will be required to apply photographic principles, layout and design pages using page layout software and integrate edited digital images. At an advanced level, students will also be required to create, design and layout vinyl signage. Students will demonstrate the use of a vinyl cutter/plotter. Students will describe and demonstrate various methods for transferring graphics, demonstrate the use of a stencil, and demonstrate methods of producing lines and stripes. Students will apply vinyl vehicle lettering, vinyl lettering to various substrates, and install various types of signage.

GRAPHIC COMMUNICATIONS/DESIGN & VISUAL COMMUNICATIONS TECHNOLOGY THEORY 4

Students will continue with their examination of the major areas of specialization in the graphic communication industry at an advanced level. They will describe effective workflow and production practices. They will be able to explain at an advanced level: text and page composition, color science, vision and printed color. Students will describe in detail the science of printing ink, substrates and finishing and binding. They will be able to define the business of printing and careers in Graphic Communications Technology.

Career Opportunities in Graphic Communications/Design & Visual Communications:
Entry Level Occupations

Graphic Designer	Layout Artist
Press Assistant	Pre-Press Designer
Sign Artist	Bindery Assistant

With Experience and/or Advanced Training

Graphics Project Director	Printing press operator

Merchandising & Print Production Manager

Related Occupations

Copy Preparation Person
Layout and Design Person
Offset Press Operator
Platemaker
Production Manager, Advertising

HEALTH ASSISTING/PRE-NURSING EXPLORATORY

This course introduces the student to career opportunities in the health service industry, the second leading industry in the nation. A wide variety of techniques are used to stimulate student curiosity and assist students in assessing their suitability for a career in the health field. Hands-on experience is provided in the classroom and laboratory.

HEALTH ASSISTING/PRE-NURSING SHOP 1

Health Assistant/Pre-Nursing shop 1 is an extension of the health assistant exploratory program. It deals with the study of direct care careers and community health careers. Beginning skills, shop safety and first aid, and communication skills are introduced in the shop 1 program. Selected on-site clinical observations are provided through the use of local health care agencies when possible. A shop uniform is required. All students will be fitted for uniforms at this time to facilitate a smooth transition to sophomore shop.

HEALTH ASSISTING/PRE-NURSING SHOP 2

This course is designed to build an awareness of the many dimensions of the health care field. Special emphasis is placed on developing professionalism, work ethics, and interpersonal skills. Concepts of growth and development, nutrition, infection control, OSHA, HIPAA, anatomy and physiology, and beginning Certified Nursing Assistant skills are introduced. Clinical experiences may include the following: preschool classrooms, adult day care centers, nursing homes, assisted living facilities, and various allied health care facilities. English Language Arts is incorporated into the curriculum to enhance written communication and health documentation. Math skills are incorporated to strengthen the ability to do medical calculations. The primary goal is to develop an awareness of the roles and responsibilities of the health assistant as part of the health team, and to use this as a foundation of the health care ladder which will enable students to successfully continue on to shop 3. Under the direction of the Medical Assisting instructor, the students are introduced to the role of the Medical Assistant in a medical practice or outpatient setting. The clinical procedures and techniques will include admitting a patient to the office, assisting with examinations and clinical procedures, communication skills, and measuring and recording vital signs. Students will also learn sterile technique, audiometry and visual screening.

MEDICAL TERMINOLOGY

The purpose of this course is to provide students with the basic knowledge of the language of nursing and medicine, and an understanding of how complex medical terms are formed. To obtain proficiency in analyzing medical words, students are exposed to knowledge of the word elements as they apply to nursing and medicine. This systemic approach to word building and term comprehension is based on the concept of word roots, prefixes, and suffixes. Students also learn the various meaning with which the elements may be used in different contexts to develop a broad understanding of the root element.

HEALTH ASSISTING/PRE-NURSING SHOP 3

The Health Assisting/Pre-Nursing Shop 3 curriculum is designed to provide students with learning experiences that will prepare them to meet the nurse aide certification requirements. The students are given opportunities to obtain basic nursing aide skills, personal care skills and basic restorative services. Students are prepared to be tested by the American Red Cross both for their clinical skills and their knowledge of the requirements for the Commonwealth of Massachusetts Nursing Assistant Certification. Students will also have the opportunity to certify in the areas of homemaker/home health aide and Alzheimer's. Students also complete a 10-hour OSHA certification course. In addition, the Health Assisting curriculum includes Clinical Laboratory Procedures. Under

the direction of the Medical Assisting instructor, students will be introduced to the practical application of urinalysis, special laboratory procedures, basic microbiology, pharmacology, dosage calculation, and medication administration. Students will be instructed in laboratory safety, aseptic technique, and the proper use of universal precautions. Emphasis will be placed on the incorporation of realistic clinic situations and critical thinking skills. The student will be expected to employ the skills they have learned in varied situations. Students will receive training on CLIA and its implications in the laboratory setting. Instruction will include the capillary finger stick procedure. All students will be clinically certified in this procedure before being allowed to puncture independently. Simple to complex procedures will include hematocrit, hemoglobin, glucose, ABO blood typing, WBC differentiation, simple tissue stains and the Gram's strain technique. Students will be introduced to microscopy, as it relates to the observation of blood cells and bacteria. Students will learn about the diseases associated with these tests and will practice the documentation of the laboratory results. Students will be introduced to phlebotomy which prepares the student to perform multiple venipuncture techniques. The program provides training in aseptic techniques and universal precautions. The students will learn the correct tubes and additives used for each venipuncture procedure. In addition, emphasis will be placed upon clinical technique, specimen handling, labeling, charting, and professionalism.

HEALTH ASSISTING/PRE-NURSING THEORY 3

The Health Assisting/Pre-Nursing theory 3 program is twofold. The first half of the year is focused on the aging process. Emphasis is placed on the physical changes and associated health problems which require professional care and/or long-term institutional care as well as communication skills, ethics, and problem solving methods. In addition, students will have the opportunity to obtain an in-house certification in Alzheimer's Care. The second half of the year the focus is on the Pharmacy Technician Certification Board program. In the role of the pharmacy technician they are able to work more effectively with pharmacists to offer better patient care and service.. After completion of the program students will be given the opportunity to take the PTCE- Pharmacy Tech Certification Exam and become a Nationally Certified Pharmacy Technician.

HEALTH ASSISTING/PRE-NURSING SHOP 4

The Health Assisting/Pre-Nursing Shop 4 Program is designed for those senior students who have successfully completed the Health Assisting/Pre-Nursing Shop 3. Students have the opportunity to become certified in basic life support for healthcare providers, first aid, electrocardiograph technicians, and medication assistants. In addition, students have the opportunity to explore the entry-level role of the pharmacy technician and patient care technician. The goal is to prepare a multi-disciplined health care worker who is cross trained for employment.

HEALTH ASSISTING/PRE-NURSING THEORY 4

The goal of the Health Assisting/Pre-Nursing theory 4 program is to provide the students with the theory and skills in electrocardiography, pharmacology and patient care technician. These skills will allow the student to take the National Health Association Certified Electrocardiography Technician Exam, to explore entry-level pharmacy technician, and to qualify as a patient care technician in the acute setting.

Career Opportunities in Health Assisting/Pre-Nursing:

Entry Level Occupations

Activities Assistant	Dietary Aide
Geriatric Aide	Home Health Care Aide
Nursing Assistant	Pharmacy Technician
Rehabilitation Aide	Teacher Aide in Pediatric
Rehabilitation Facility	Alzheimer's Caregiver

With Experience and/or Advanced Training

Central Supply Technician	Dental Aide
EKG Technician	EMT/Paramedic
Medical Assistant	Phlebotomist
Physical Therapy Aide	Respiratory Therapy Aide

Related Occupations

Dental Assistant	Laboratory Technician
Licensed Practical Nurse	Medical Assistant
Medical Records Technician	Medical Secretary
Professional Nurse (B.S.)	Respiratory Technician
Technical Nurse (A.D.)	X-Ray Technician

HEATING, VENTILATION, AIR CONDITIONING & REFRIGERATION EXPLORATORY
This course provides freshmen exploratory students the opportunity to work with some simple tools of the HVAC&R trade, such as flaring tools, torches, swages, electrical pliers, voltmeters, etc., while working on just a few projects over the ten day period. The freshmen exploratory student works on soldering, brazing, PVC piping, simple electrical circuits and working with a Volt-Ohm-Meter. The classroom portion reviews safety rules and some theoretical facts found in the world that relate to the HVAC&R trade.

HEATING, VENTILATION, AIR CONDITIONING & REFRIGERATION SHOP 1
The ninth grade HVAC&R students continue with a more through introduction in the tools of the trade. They work with copper tubing, torches, brazing, and electrical components in order to become more familiar with these types of tools and fittings. A very thorough explanation of safety equipment and PPE used in the industry is covered at great length. Tool lists to be considered for the individual student are explained. Simple electrical circuits are built for the students to become familiar with schematic review, circuit testing, and circuit tracing.

HEATING, VENTILATION/AIR CONDITIONING & REFRIGERATION SHOP 2
This course concentrates on the acquisition of the skills necessary to use the basic tools of the trade. The program expands to include basic refrigeration systems and various types of refrigerants. Students cover in detail both the electrical and refrigeration systems of a domestic refrigerator and window air conditioning units. Students will complete employability skill assignments; employability skills are stressed throughout the program.

HEATING, VENTILATION/AIR CONDITIONING & REFRIGERATION SHOP 3
The HVAC&R Shop 3 concentrates on commercial refrigeration. Specific areas of study covered are refrigerants, refrigeration oil, compressor installation and servicing, methods of oil return, electrical wiring, and the installation and service of electrical components. This course concentrates on the acquisition of the skills necessary to use the basic tools of the trade. The program expands to include basic refrigeration systems, various types of refrigerants and the use of refrigerant recovery equipment. Students cover in detail both the electrical and refrigeration systems of a domestic refrigerator as well as window air conditioners. The sixth edition of Refrigeration and Air Conditioning Technology as well as Heating and Cooling Essentials text will be used to support related and shop instruction.

HEATING, VENTILATION, AIR CONDITIONING & REFRIGERATION THEORY 3
A thorough review of refrigerants, refrigeration and system components begins this year. The issues of safety in the shop and workplace are covered as well. A review of electrical circuits and symbols follows. Term 2 is an introduction to oil or gas heat with an emphasis on controls and components often found on these systems. Term 3 is for EPA Section 608 test preparation and examination. Students review employability skills regularly during the school year in the theory class as they prepare for potential co-op opportunities.

HEATING, VENTILATION, AIR CONDITIONING & REFRIGERATION SHOP 4
This course provides for continued hands-on experience with the HVAC&R trade areas by working with sheet metal component identification and installation, gas furnace troubleshooting and installation, air conditioning component installation and troubleshooting and proper maintenance and charging procedures for whole house air conditioning. Students also become familiar with measurement tools used in the HVAC&R industry, such as air flow meters, anemometers and psychrometrics. Troubleshooting and proper wiring techniques are also learned.

The sixth edition of Refrigeration and Air Conditioning Technology, as well as Heating and Cooling Essentials text, will be used to support related and shop instruction.

HEATING, VENTILATION, AIR CONDITIONING & REFRIGERATION THEORY 4

Senior year begins with a review of oil or gas heat, electrical components and schematic review. The issues of safety in the shop and workplace are covered as well. Students are given 410A certification test preparation (a newer refrigerant) and are encouraged to take the exam (There is a cost to take the test). A complete discussion on system sizing and duct or hydronic system design is given. House construction consideration is discussed with a focus on air conditioning and heating loads. Students periodically review employability skills with emphasis on communication and other employment based considerations.

Career Opportunities in Heating, Air Conditioning, and Refrigeration:

Entry Level Occupations

Apprentice Refrigeration Technician	Counter Person
Helper	Limited Refrigeration Technician
Parts Person	Salesperson
Oil Burner Technician	Installers Apprentice

With Experience and/or Advanced Training

Applications Engineer	Engineer Designer
Engineering Aid	Estimator
Foreman	Layout Technician
Licensed Refrigeration Contractor	Licensed Refrigeration Technician
Mechanical Engineer	Operating Engineer
Plant Engineer	Sales Engineer
Supervisor Test Technician	Teacher

Related Occupations

Installation Technician	Maintenance Technician
Salesperson	Service Technician

HOSPITALITY MANAGEMENT EXPLORATORY

The Hospitality Management Exploratory presents a broad overview of the Hospitality industry with an emphasis on Hotel Management and Restaurant Service. Students are introduced to the vast range of career opportunities that exist in this field. Valuable knowledge is demonstrated through classroom instruction as well as hands on participation in industry specific projects in customer service through role plays and restaurant dining room set up and service. Students will observe upperclassmen in the Artisan Restaurant and Cafe. The innovative curriculum places an emphasis on the development of employability and professional skills.

HOSPITALITY MANAGEMENT SHOP 1

This course gets students on track to begin a career in the hospitality industry utilizing the Skills, Tasks and Results Training (START) curriculum, developed by the American Hotel & Lodging Educational Institute. START provides introductory training for hotel management and the food and beverage division of a lodging operation, including front desk reservations, housekeeping, restaurant service, meeting and special events, and more.

HOSPITALITY MANAGEMENT SHOP 2

The hospitality industry is a diverse and global industry offering countless opportunities in lodging, restaurant operations, travel and tourism services, gaming and entertainment, and recreation management. The Hospitality Management course provides sophomore students with a basic knowledge of the principles and fundamentals of the hospitality industry. Students are provided with a foundation in general customer service practices, leadership concepts, and the theories that form a basis for success in the Hotel, Travel & Tourism Service industries.

Students concentrating in this program area are introduced to department functions and operational aspects within a department. Students are trained and acquire basic technical skills in safety and security, dining, events, banquet and front desk/customer service practices.
Students will gain real world experience in our Artisan Restaurant and function room. Students will build the confidence and skills necessary for success in food and beverage management. Students will be able to participate in various industry tours, off- premise catering events, school functions, and volunteer opportunities. Student will demonstrate proper service etiquette, work ethic and professionalism to gain experience and confidence. This experience will allow them to advance to work in off campus positions at local hotels working with industry professionals in various departments in their junior year.

HOSPITALITY MANAGEMENT SHOP 3
The Hospitality Management Shop 3 course provides the students with an intermediate knowledge of the principles and fundamentals of the Hospitality industry. Students are provided with a foundation in specific customer service practices, leadership concepts, and the theories that form a basis for success in the supervision of customer service for the hospitality industry. Student will continue to focus on the refinement of basic skills with hand on, individual training to connect classroom theory to real world practice.
This technical program provides on the job experience working in a local hotel. Students are trained and develop technical skills working in the following hotel departments; Front Desk, Human Resources, Restaurant, Kitchen, Banquets, Housekeeping, Laundry, Administration, Accounting, Engineering and as well as a Fitness and Sports Club. Students will continue to develop confidence through this process and start focusing on the direction their career may take.

HOSPITALITY MANAGEMENT THEORY 3
Theory 3 focuses on the organization and technical aspects of operating a successful lodging property with an emphasis on the front office and housekeeping. Students will analyze inventories, operational costs, payroll and labor costs, revenue, etc… while maintaining customer service and expectations through curriculum in Hospitality Services textbooks. Students will also analyze employment handbook policy and procedures to reinforce employability skills.

HOSPITALITY MANAGEMENT SHOP 4
The Hospitality Management Shop 4 course will allow students to participate in various Co-op work study programs with local hospitality businesses or continue to work at local hotel. Students who continue to work in the local hotel will narrow their focus to specific career departments building on competency levels and confidence and employability. The students will assist in training junior students and work towards more management responsibilities in their departments. Students are prepared for future employment or postsecondary education opportunities

HOSPITALITY MANAGEMENT THEORY 4
Theory 4 looks at the business behind the glamour with an introduction to business structures and management principles. Students will do projects on hotel franchises and cultural differences in the hospitality industry. An overview of support areas such as human resources, marketing, sales and accounting is explored. The legal and ethical considerations and practices of managing a lodging property will be reviewed.

Career Opportunities in Hospitality:
Entry Level Occupations

- Banquet Set-up Person
- Bus Person
- Employee's Cafeteria Worker
- Apprentice Clerk
- Bell Person
- Counter Person
- Front Office Trainee
- Laundry Person

With Experience and/or Advanced Training

Accounting Office Cashier/Clerk
Banquet Salesperson
Bell Captain
Broiler Cook
Front Office Cashier
Host/Hostess
Houseman
Linen Room Attendant
Receptionist
Records Clerk
Reservation Clerk
Restaurant Cashier
Room Clerk
Room Service Person
Switchboard Operator

Related Occupations

Apartment Building Superintendent
Bartender
Building Custodian
Flight Attendant
Food Service Manager
Hospital Attendant
Porter
Purser
Sales Manager
Waiter/Waitress

MACHINE TECHNOLOGY EXPLORATORY

This exploratory includes an introduction to the machine trade as well as an overview of the career opportunities. Safety precautions, MSDS, fire safety, proper lathe operation and parts of the lathe are covered in this exploratory.

MACHINE TECHNOLOGY SHOP 1

This course involves in-depth study on parts of the lathe operation, set-up, and safety. Other parts of the course cover safety, blueprint reading, CNC and Mastercam basics. Whenever possible, students are taken on a field trip to a local manufacturer to help the student make a more informed career decision.

MACHINE TECHNOLOGY SHOP 2

This course provides reinforcement in the importance of improved tolerances on size and surface finish of machined parts. Instruction on personal safety equipment and safe working standards used in today's machine shops. How to safely setup and operate precision machining equipment. Instruction in setup and operation of manual lathes, manual milling machines, CNC turning centers, CNC milling centers, pedestal grinders, power saws and drill presses. Instruction of machine shop hand tools, portable power tools and precision measuring equipment. Instruction to include the latest Mastercam software for Computer Aided Machining.

MACHINE TECHNOLOGY SHOP 3

This course provides reinforcement and further development of machine shop skills. Benchwork, drill press, manual and CNC milling and turning, grinding, finishing, and holding tolerances, measurement and inspection are all included. The course combines both technical knowledge and hands-on experiences in the manufacturing of products. Students will be introduced to the proper set up and use of high tech CNC Machines, including HAAS and Prototrak machines. Students also learn basic programming with the latest software in use by local industries.

MACHINE TECHNOLOGY THEORY 3

To further enhance work being performed in shop, this course includes introduction in thread cutting, types of files and saws and the use of milling machines and milling cutters, along with a study of ferrous and non-ferrous metals. Proficiency will be gained in blueprint reading and sketching. Students will learn advanced programming techniques as they write NC programs for the CNC lathe and machining center using G & M codes.

MACHINE TECHNOLOGY SHOP 4

This course is an advanced and more intensive study of machining. Included in the course are both setup and operation of CNC vertical and horizontal machines, basic programming with Mastercam software and G-Codes,

layout, close tolerances, finishing, and production requirements. Students are taught the skills needed to obtain a career in the machining trade.

MACHINE TECHNOLOGY THEORY 4
Included in this course are different forms of threads, precision thread measurement, gauging and tolerancing, use of machine handbooks, taper turning, allowances and tolerances. Also included are studies of surface finishes, geometric tolerancing and dimensioning and advanced blueprint reading. Students will be taught to write NC programs, as well as interfacing procedures for the CNC Milling Machine. Programming of the user friendly ProtoTrak MX3 Milling Machine is also part of this course.

Career Opportunities in Machine Technology:

Entry Level Occupations

- Band Saw Operator
- Drill Press Operator
- Lathe Operator
- Machine Operator
- N.C. Miller Operator
- Surface Grinder Operator

With Experience and/or Advanced Training

- CNC Machine Programmer
- Inspector
- Instrument Maker
- Jig Borer
- Jig and Fixture Maker
- Machine Setup Person
- Machine Technology Teacher
- Tool and Cutter Grinder
- Tool and Die Maker

Related Occupations

- Machine Oiler
- Material Handler
- Tool Crib Attendance

MARKETING EDUCATION EXPLORATORY
This exploratory will introduce and allow students to explore career opportunities in the areas of marketing, retailing, advertising, wholesaling, purchasing, and entrepreneurship. Students will learn to handle money, create mall displays and organize promotional activities for the Marketing Mall Stores.

MARKETING EDUCATION SHOP 1
This shop 1 is designed to provide students who plan to enter this program with the basic skills and abilities necessary for success in the program. Students will be given the opportunity to progress at their own rate by use of competency based projects and methods of instruction. Students will have the opportunity to participate in a mentoring program with junior/senior level students in a variety of job-site situations in the Mall Stores. Hands-on learning activities in the Mall, as well as related instruction, will give each student an opportunity for self-expression through meaningful experiences. Computer applications will be utilized to design promotional flyers, create advertisements and allow participation in a team advertising project. This project is designed for the student to obtain an understanding of the role of marketing in keeping up with industry standards.

MARKETING EDUCATION SHOP 2
The Marketing Mall Stores provide each student with experiential learning activities, aid in the development of basic skills, marketing skills and work skills. Each student is challenged to achieve acceptable performance at a rate that is consistent with their ability, interest and initiative. Competency-based learning materials provide activities that allow each student the opportunity to participate, and perform tasks that are appropriate to marketing occupations. At this level, marketing activities include: purchasing for resale, merchandising products, inventory control systems for retail, cash control systems for retail, materials handling, safety and store maintenance, business and technology applications for retail, entry level retail occupations and entry level/retail promotional occupations, and portfolio development.

In addition, students will learn, apply and perform fundamental financial concepts and applications. These financial concepts are insurance (life, property, health and auto insurance), budgets (personal, family and business), services offered by financial institutions and taxes (sales, property and excise). In addition, students will perform financial functions utilizing an automated simulation. Tasks included in this automation are recordkeeping for sales (cash, charge and returns), open and maintain a business checking account, as well as those financial tasks associated with office manager and bookkeeper industry related positions.

MARKETING EDUCATION SHOP 3

Students are provided with actual management experience in various areas of Marketing which also includes the operation and merchandising of the Mall Stores. Students are responsible for the management of individual departments. Duties include buying, pricing, receiving, advertising and displaying, banking procedures and sales. Students also train in LogiVision, a computerized POS system that includes 4 computer POS terminals, and a back office terminal. LogiVision is a fully integrated, on-line retail management system that provides students with advanced technical training. The system includes Point of Sale; Inventory Control and General Ledger, scanners, customer displays and bar code ticketing. Students are also provided the opportunity to attend in store and out of school merchandise buying trips. This provides the student with an overall view of store operations, the functions of management and an opportunity to actually experience the relationship of the many areas of employment in the field of marketing. Students also have the opportunity to participate in the Greater Lowell teller training program located within the school's branch of the Lowell 5¢ Savings Bank. Students are encouraged to participate in DECA, a national organization for the development of future leaders in the areas of marketing and management. Curriculum materials meet National Marketing Education Standards and the Massachusetts Vocational Technical Frameworks.

MARKETING EDUCATION THEORY 3

Students are exposed to a comprehensive view of the world of marketing through curriculum materials that meet National Marketing Education Standards and the Massachusetts Vocational Technical Frameworks. Course content includes real world applications, DECA curriculum for competitive events, economics, communication and interpersonal skills. Also covered are the areas of product development, management, distribution, marketing information, management, pricing, product/service management, promotion, and selling. Individualized review, assessment, and integration of technology will prepare students for the world of marketing today and in the future. Students also use a variety of workbooks and learning guides that concentrate on store operations, selling and safety. Students will also complete the on-line OSHA course Career Safe and will receive a Career Safe Certificate and OSHA card. Curriculum materials meet National Marketing Education Standards and Massachusetts Vocational Technical Frameworks.

MARKETING EDUCATION SHOP 4

The Marketing Education Cooperative Education Program is most important at this level. Competency achievement, job search, job readiness, job experience and showcase portfolio development are emphasized. Students not participating in Co-op will focus on job readiness and competency accomplishment. Applied learning strategies are emphasized to demonstrate interchangeable skills, changing work skills, the impact of technology on the job, and ethics in the workplace. The Shop instructor will work to assist the student in a Co-op placement. Those students who do not participate in a Co-op experience will continue their studies in accounting practice. Students will gather, process, report and communicate financial information utilizing computerized software. The students will also calculate common depreciation tables and values for capital and equipment in a business environment.

MARKETING EDUCATION THEORY 4 – BUSINESS PLAN & ENTRPRENEURSHIP

This course focuses on the development of future entrepreneurs. The curriculum is designed to instill a sense of entrepreneurship in our students. This curriculum was developed by the marketing education staff at Greater Lowell. It is a model curriculum, competency-based and used throughout the Commonwealth of Massachusetts.

This course concentrates on the skills, characteristics and knowledge necessary to be a successful entrepreneur. A major portion of this course deals with the development of a business plan, business operations and business management. Projects also focus on researching and identifying successful entrepreneurs in our community as well as nationally. Students in this course are also provided the opportunity to discuss problems and situations which may occur on the students' Co-op placement job or in the Marketing Education Mall.

Career Opportunities in Marketing Education:

Entry Level Occupations

- Advertising Clerks
- Advertising & Publication Worker
- Assistant Buyer
- Bank Teller
- Cashier
- Cash Office Worker
- Catalog Sales Representative
- Direct Marketing Representative
- Display Assistant
- Home Shopping Network Representative
- Insurance Sales Worker
- Inventory Control Clerk
- Marketing Research Worker
- Materials Handler
- Public Relations Clerk
- Receptionist
- Retail Salesperson
- Security Personnel
- Service Representative
- Service Sales Representative
- Stock Control Worker
- Telemarketing Representative
- Traffic, Shipping & Receiving Clerk
- Wholesale & Manufacturers Representative

With Experience and/or Advanced Training

- Accountant
- Account Representative
- Advertising/Display Manger
- Advertising Sales Representative
- Assistant Buyer
- Assistant Manager
- Buyer
- Cash Office Manger
- Customer Service Representative
- Department Manager
- Marketing Research Worker
- Direct Mail Order Sales
- E-Commerce Representative
- Entrepreneur
- Management Trainee
- Marketing Education Teacher
- Merchandise Manager
- Operations Manager
- Purchasing Agent
- Store Manager
- Store Owner
- Training Director

Related Occupations

- Accountant
- Account Representative
- Advertising/Display Manager
- Advertising Sales Representative
- Assistant Buyer
- Assistant Manager
- Customer Service Representative
- Department Manager
- Financial Services Marketing
- Floristry Marketing
- Food Products Marketing
- Health Products & Service Marketing
- Home & Office Products Marketing
- Insurance Marketing
- Manufacturer's Sales Representative
- Real Estate Marketing
- Recreation & Hospitality Marketing
- Retail Marketing Operations
- Tourism & Travel Marketing

MASONRY EXPLORATORY

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 used in masonry. Practicing the techniques of paving will help students develop an awareness of the skills necessary to succeed in a masonry career. Projects include basic bricklaying.

MASONRY SHOP 1
The ninth grade masonry shop is an extension of the masonry exploratory program which expands on the use of the basic hand tools, measuring devices and materials through actual construction of projects in the shop. Sufficient related work is covered to give an understanding of these basic projects.

MASONRY SHOP 2
The shop 2 exposes the student to a variety of 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.

MASONRY SHOP 3
This program covers concrete block construction, block types, modular planning (modular spacing ruler), installation of windows, doors and lintels, bonding, and block chimneys. Concrete construction, planning, mixing, pouring, finishing, curing, testing and jointing, and reinforcing are also covered in this shop.

MASONRY THEORY 3
The masonry 11th grade related course emphasizes the principles and theory of concrete block construction, block types, modular planning (modular spacing ruler), estimating, installation of windows, doors and lintels, bonding, block chimneys, concrete construction, planning, mixing, pouring, finishing, curing, testing, jointing and reinforcing. Operation of various power equipment and estimating masonry materials will also be covered.

MASONRY SHOP 4
Students in this shop are involved in concrete formwork, construction of footings and foundations, columns, beams and lintels, chimney construction, fireplace construction, brick walls and partitions (buttresses, pilasters, arches, refractory brick). Maintenance, repair and improvement of brickwork are also covered.

MASONRY THEORY 4
The theory 4 course emphasizes the principles and theory of concrete formwork, design and construction of footings and foundations; columns, beams and lintel design and chimney design, fireplace design and construction, brick walls and partitions (buttresses, pilasters, arches, refractory brick). Maintenance, repair, improvement, and computer estimating are also studied in this course.

Career Opportunities in Masonry:

Entry Level Occupations

Apprentice Bricklayer	Apprentice Cement Finisher
Apprentice Materials Handler/Tender	Apprentice Stonemason

With Experience and/or Advanced Training

Building Inspector	General Contractor
Masonry Contractor	Journeyman Bricklayer Stonemason/
Cement Mason	Project Estimator
Tile Setter	Pipe Coverer
Plasterer	Teacher

Related Occupations

Concrete Form Installer	Masonry Store Clerk

MEDICAL LABORATORY AND ASSISTING EXPLORATORY
This course introduces the student to career opportunities in the medical assistant field. Medical assistants work with physicians in offices, hospitals and clinics. Students are made award of the many skills required of medical assistants, including office management skills, performing routine tests, vital signs, preparing patients for examinations, and a host of others. Basic first aid will be demonstrated and therapeutic communication will be emphasized. While working with upper classmen, students will have an introduction to the medical laboratory. A wide variety of teaching techniques are used to stimulate student curiosity about this interesting health career.

MEDICAL LABORATORY AND ASSISTING SHOP 1
The medical laboratory and assisting shop 1 provides students with an introduction to medical assisting. A variety of activities including administrative and clinical are presented. Students gain knowledge in the fundamentals of medical assisting as well as safety. They are exposed to the basic skills necessary when interacting with patients. A shop uniform is required. All students will be fitted for uniforms at this time to facilitate a smooth transition to shop two.

MEDICAL LABORATORY & ASSISTING SHOP 2
This course introduces the students to the role of the Medical Assistant in a medical practice or outpatient setting. The clinical procedures and techniques will include admitting a patient to the office, assisting with examinations and clinical procedures, communication skills, and measuring and recording vital signs. Students will also learn sterile technique, audiometry and visual screening. Under the direction of the Health Assisting RN, BSN instructor students explore a curriculum that is designed to build an awareness of the many dimensions of the health care field. Special emphasis is placed on developing professionalism, work ethics, and interpersonal skills. Concepts of growth and development, nutrition, infection control, OSHA, HIPAA, anatomy and physiology, and beginning Certified Nursing Assistant skills are introduced. Clinical experiences may include the following: preschool classrooms, adult day care centers, nursing homes, assisted living facilities, and various allied health care facilities.

MEDICAL TERMINOLOGY
The purpose of this course is to provide students with the basic knowledge of the language of nursing and medicine, and an understanding of how complex medical terms are formed. To obtain proficiency in analyzing medical words, students are exposed to knowledge of the word elements as they apply to nursing and medicine. This systemic approach to word building and term comprehension is based on the concept of word roots, prefixes and suffixes. Students also learn the various meaning with which the elements maybe used in different contexts to develop a broad understanding of the root element.

MEDICAL OFFICE MANAGEMENT 1
This course is an introduction to the administrative procedures and skills necessary to operate a basic medical office practice. The medical office procedures will include telephone and reception techniques, appointment scheduling, interpersonal communication, records management, written correspondence and basic bookkeeping skills. The various types of medical insurance will be introduced. The office environment is also studied. Students will learn about the personal characteristics and professionalism involved in being a successful medical assistant, as well as their ethical and legal responsibilities.

MEDICAL LABORATORY & ASSISTING SHOP 3
This course introduces the students to the practical application of urinalysis, special laboratory procedures, basic microbiology, pharmacology, dosage calculation, and medication administration. Students will be instructed in laboratory safety, aseptic technique, and the proper use of universal precautions. Emphasis will be placed on the incorporation of realistic clinic situations and critical thinking skills. The students will be expected to employ the skills they have learned in varied situations. Students will receive training on CLIA and its implications in the laboratory setting. Instruction will include the capillary finger stick procedure. All students will be clinically certified in this procedure before being allowed to puncture independently. Simple to complex procedures will include hematocrit, hemoglobin, glucose, ABO blood typing, WBC differentiation, simple tissue stains and the Gram's strain technique. Students will be introduced to microscopy, as it relates to the observation of blood cells and bacteria. Students will learn about the diseases associated with these tests and will practice the documentation of the laboratory results. Students will be introduced to phlebotomy which prepares the student to perform multiple venipuncture techniques. The program provides training in aseptic techniques and universal precautions. The students will learn the correct tubes and additives used for each venipuncture procedure. In addition, emphasis will be placed upon clinical technique, specimen handling, labeling, charting, and professionalism. In

addition, this course includes a clinical practicum. The practicum is under the direction of the Health Assisting RN, BSN instructor. The practicum will provide learning experiences which will enable students to meet the nurse aide certification requirements. The students will be given opportunities to obtain basic nursing aide skills, personal care skills and basic restorative services. The students are expected to maintain a professional attitude, ethical behavior and develop positive communication skills. Students are prepared for testing by the American Red Cross both for their clinical skills and their knowledge of the requirements for the Commonwealth of Massachusetts Nursing Assistant Certification. Students also complete a 10-hour OSHA certification course.

MEDICAL LABORATORY & ASSISTING THEORY 3

This course offers a strong theoretical framework to accompany the Medical Assisting Junior Shop curriculum. Students will explore the disease processes and rationale for the procedures they are learning. Students will also complete the Pharmacy Technician Certification Board program. In the role of the pharmacy technician they are able to work more effectively with pharmacists to offer better patient care and service. After completion of the program students will be given the opportunity to take the PTCE- Pharmacy Tech Certification Exam and become a Nationally Certified Pharmacy Technician. Emphasis will be placed on critical thinking skills.

MEDICAL LABORATORY & ASSISTING SHOP 4

This course is a continuation of Medical Laboratory & Assisting Shop 3. Students have the opportunity to become certified in basic life support for healthcare providers, first aid, and learn about electrocardiograph procedures. Students have the opportunity to explore the entry-level role of the pharmacy technician. In addition, students will practice their clinical skills including vital signs, admission procedures, sterilization techniques, simulated sterile procedures and specialty examination procedures. The goal is to prepare a multidisciplined health care worker who is cross trained for employment.

MEDICAL LABORATORY & ASSISTING THEORY 4

In the senior year, the focus is on the theory and procedures of electro-cardiology leading to the National Healthcare Association Certified Electro-Cardiograph Tech (CET Tech) Exam. Additional areas of study include resume writing, job interview skills, and first aid/CPR. The remainder of the year will focus on the review of theory and clinical skills necessary to sit for the National Healthcare Association CCMA Exam.

Career Opportunities in Medical Laboratory & Assisting:

Careers as a Medical Assistant

Administrative Medical Assistant
Records Management Clerk
Medical Office Manager
Medical Lab Assistant/Technologist
Blood Bank Technician
Specimen Processing Technician
Clinical Medical Assistant
Phlebotomy Technician
Certified Medical Assistant (in specialty areas i.e., Pediatrics)
Ophthalmology, Internal Medicine

With Experience and/or Advanced Training

Central Supply Technician
EKG Technician
Physical Therapy Aide
Dental Aide
EMT/Paramedic
Respiratory Therapy Aide

Related Occupations

Laboratory Technician
Medical Assistant
Respiratory Technician
Licensed Practical Nurse
Professional Nurse (B.S.)
Technical Nurse (A.D.)

METAL FABRICATION & JOINING TECHNOLOGIES EXPLORATORY
The primary purpose of this program is to expose ninth grade students to the equipment, power machinery, hand tools and welding joining processes of the metal fabrication trade. This course covers the safe use of equipment in both forming and welding metals. Included are small projects that are fabricated and welded in the shop environment. Students will also receive hands-on basic skills in gas metal arc welding. This course is designed to give the students an overview of this trade in assisting them to make a decision for their major area of study.

METAL FABRICATION & JOINING TECHNOLOGIES SHOP 1
This program is an extension of the metal fabrication/welding exploratory program. During the shop 1, each student will fabricate and weld their own hands-on projects, which not only develop student skills but also encourage creativity. The objective of this course is to expose the student to the many areas of the welding industry and to increase the student's confidence in his/her ability.

METAL FABRICATION & JOINING TECHNOLOGIES SHOP 2
This course enables students to perform metal layout and fabrication of both sheet metal and structural metal projects. Additionally, they will be able to join metals with various welding equipment such as oxy-fuel, ARC welding and MIG welding processes. They will safely perform work with both hand tools and power equipment to both shape and form metals.

METAL FABRICATION & JOINING TECHNOLOGIES SHOP 3
This program enables the student to advance in the field of metal fabrication using different types of welding techniques for joining metals, both ferrous and nonferrous. Students will further develop their skills using power forming machines in the fabrication of shop projects. There is an emphasis on print reading and layout methods for both sheet stock and structural materials.

METAL FABRICATION & JOINING TECHNOLOGIES THEORY 3
This program introduces students to the career field of metal fabrication. Emphasis is placed on safety, tool recognition, machinery and their capacities to assist the fabricator. Math, measuring and blueprint reading used in the manufacture of sheet stock and structure materials are stressed. Classroom projects and homework assignments are used to further the students understanding of their potential to become a quality craftsperson.

METAL FABRICATION & JOINING TECHNOLOGIES SHOP 4
This program is an extension of shop 3 with an emphasis on working with minimal supervision. During this course, the student will be evaluated on both quality and quantity of welding and fabrication skills that they have attained. Students will also be taught the basic responsibilities of an employee to their employer and how one must take care of both machinery and tools which they are required to use and operate.

METAL FABRICATION & JOINING TECHNOLOGIES THEORY 4
This course concentrates on the area of blueprint reading for the metal fabricator. Specific elements, such as three-view drawings, dimensional drawing, tolerances, welding symbols, templates and bending fabrication comprise much of the course. The students will also further develop their welding background in related areas of metallurgy terminology, quality assurance, design and layout methods.

Career Opportunities in Metal Fabrication:
Entry Level Occupations

Apprentice Fabricator
T.I.G. Welder
Oxy. Acet. Welder and Cutter
Punch Press Operator
Sheet Metal Worker Apprentice
Arc Welder (all phases)
Iron Worker
Press Brake Operator
Shear Operator
Supervisor

With Experience and/or Advanced Training

Factory Representative
Metal Fabrication Teacher
Precision Sheet Metal Model Maker
Shop Owner
Welding Inspector
Heating & Ventilating Air Conditioning Spec.
Precision Sheet Metal Inspector
Project Estimator
Welding Engineer

Related Occupations

Drill Press Operator
Grinder
Spot Welder
Welding Supply Delivery Person
Factory Benchhand
Salvage Yard Person
Stock Handler
Welding Supply Store Clerk

PAINTING & DESIGN EXPLORATORY

Today's painting & design field offers a variety of career opportunities including interior and exterior painting, wall covering, sign art, faux finishing, historical renovation, theatre set design, mural art, interior design and much more. This exploratory is an exciting, fast-paced, hands-on class which encourages students to express their creativity and artistic talent in a variety of innovative painting and design projects. Working both cooperatively and independently, students will learn interior and exterior painting techniques, how to coordinate colors, have an eye for detail and create one-of-a-kind spaces using the elements of design. In addition, students will be introduced to OSHA safety guidelines, develop employability skills and learn about the basics of entrepreneurship for the painting and design contractor.

PAINTING & DESIGN SHOP 1

This course is a continuation of the exploratory program and expands on the topics introduced in that course. Students will develop basic skills in surface preparation, wall applications, faux finishing techniques, estimating and job planning. Hands-on projects and critical thinking skills are emphasized in this program. Students will work on developing employability skills and positive work behaviors. Students will be introduced to the basics of management and entrepreneurship for the painting and design contractor.

PAINTING & DESIGN SHOP 2

The students learn to use various painting techniques. Students now become familiar with staining, matching paint, color theory and paint failures. Students will become knowledgeable in the safe use of a variety of tools. Students are trained on the use of these tools and equipment to produce a finished product of high quality. Students will also develop skills in the area of cost and material estimation.

PAINTING & DESIGN SHOP 3

The shop 3 students are given more in-depth experience in the painting and design trade. They are exposed to complicated techniques, which require greater skill and craftsmanship, such as the setting up of staging, troubleshooting paint failures and selecting their remedies. Students will learn many faux finishing techniques and apply them to various surfaces. Students now prepare estimates, overhead expenses, surface identification and preparation. They are also exposed to various types of wall coverings and their applications. Students will have the opportunity to work on "off-campus projects" and to develop their skills further as they do real job applications. Students will be a part of the Construction Cluster House Building project. The *Wheels of Learning* program will be used to support the theory program with hands-on activities that correlate to the modules. At the completion of this program, students will receive their OSHA 10-hour card.

PAINTING & DESIGN THEORY 3

This course further develops students' knowledge about the elements of painting and design. Student instruction will include, but is not limited to, paints and coatings, wallcovering, decorative finishes, furniture styles, spray painting, floor plans, textiles and color theory. Students will create resumes and job portfolios in preparation for

employment through our Cooperative education program. Cooperative education placements are available in the 3rd quarter to 11th grade students who meet the school's criteria. Curriculum is based on a variety of trade books including, *the Wheels of Learning* and *Painting & Decorating Skills and Techniques*. In addition, safety is addressed in all units. Reading, writing and math assignments related to the painting & design industry are an important part of this course.

PAINTING & DESIGN SHOP 4

This last year is used to develop speed, accuracy and a greater understanding of the trade as applied to basic business practices, preparing job estimates, figuring material and labor costs, time allotments for certain jobs, etc. Students are allowed to work more independently within the shop and around the school and are given more responsibility such as assisting underclass mates with their duties. Various types of spray painting, such as conventional, airless and HVLP, will be used throughout the school year. As students expand their expertise in the painting and design trade and improve the quality of their work, they will increase the potential opportunities for higher wages and greater chances of employment in the many areas of the painting field. Co-operative education is available to 12th grade students who meet the school's criteria, as students put their training to use in the workplace.

PAINTING & DESIGN THEORY 4

In this course, students will become proficient in their technical knowledge of painting & design technologies. Students will create their own interior design board showcasing a collection of materials, drawings, inspiration, sketches, and finishes, to present their design idea visually. Curriculum is based on a variety of trade books including *Housing and Interior Design as well as The Wheels of Learning.* In addition, students will continue to build upon their resumes and job portfolios in preparation for employment through our Cooperative education program, as well as, employment after graduation. Cooperative education placements are available to 12th grade students who meet the school's criteria, as students put their training to use in the workplace. Finally, students will also learn about colleges and universities with Painting or Interior Design programs as they prepare for a successful career.

Career Opportunities in Painting & Design:

Entry Level Occupations

- Apprentice Painter
- Construction Painter
- Drywall Finisher
- Faux Finisher
- Furniture Finisher
- House Painter (Interior & Exterior)
- Paint & Wallpaper Salesperson

With Experience and/or Advanced Training

- Art Guilder
- Electrostatic Painter
- Industrial Sprayer
- Interior Designer
- Military Painter
- Mural Artist Painter
- Painting Contractor
- Physical Plant Paint Foreman
- Powder Coater
- Set Design
- Union Painter

Related Occupations for Painting & Design

- Estimator
- Lead Paint Inspector
- Facilities Management
- Sales Representatives for Paint Manufactures
- Trade Shop Set-Up

PLUMBING EXPLORATORY

The objective of this course is to give a brief overview of the opportunities available in the plumbing field and the knowledge and skills required to pursue a career in plumbing. Primary objectives are to acquaint the students with the basic facts and fundamentals of plumbing and pipefitting, to show the students the fundamentals of

soldering-threading pipe and cast iron work using rules and tools, to explain the relationship among ecology, environment and other sources of obtaining water supply and disposing of sewage.

PLUMBING SHOP 1
The objective of this course is to expand the student's introduction to the plumbing trade based upon the fundamental skills acquired during the exploratory phase. The student will be introduced to the more technical aspects of the trade including sketching of piping diagrams; learning how to read and use measuring instruments; ordering tools and materials; and using trade related mathematics. All these skills are integrated using hands-on shop projects.

PLUMBING SHOP 2
At this level, the students fabricate projects in all the materials used for water distribution, waste water, venting and gas projects. They also work on material identification, sizes, selection of tools, and their uses. Shop safety is strongly emphasized at all times during this course.

PLUMBING SHOP 3
Students at this level are introduced to the layout and fabrication of practical projects such as bathrooms, kitchens, etc. Shop safety is emphasized at all time since the students are now working more independently. They are also introduced to repair, maintenance, appliances, equipment and practical application of plumbing theory.

PLUMBING THEORY 3 (TIER 1)
The objective of this course is to advance the student through Tier I, as set by the Massachusetts State Plumbing Board, as well as a series of written and oral examinations. He/she is able to identify vents, drains and water pipes, as well as construction symbols in regards to the other trades. The student will be able to recognize by sight the different types of fittings, hangers and pipes. He/she is also introduced to related physics and related drawing.

PLUMBING SHOP 4
Students at this level review the basics and then, with emphasis on safety, proceed with projects that will expand their skill in working with all types of pipes and fittings, fixtures, faucets, hot water heaters, tankless heaters, and gas appliances. All types of power and hand tools and various tricks of the trade are introduced. If sufficient opportunities exist and the students are eligible, seniors are encouraged to participate in the co-op work program. During this program, the student works in the field for a master plumber on his/her shop week, thereby gaining valuable, on-the-job experience. Most co-op jobs result in full-time employment opportunities upon graduation.

PLUMBING THEORY 4 (TIER 2)
The objective of this course is to gradually advance the student through Tier II, as set by the Massachusetts State Plumbing Board and the Plumbing Code Book, as well as a series of written and oral examinations. His/her work covers glazed pipe, pipe fittings, drains, wastes, vents, plumbing fixtures, traps, water wells, water treatment, mains, services, pipe hangers, cross connections, hot water and gas. The student is introduced to related science and fabricates the plumbing system as described by the Plumbing Code Book.

Career Opportunities in Plumbing:
Entry Level Occupations

Apprentice Gasfitter/License	Apprentice Plumber/License
Plumbing Supply Clerk	Stock Clerk

With Experience and/or Advanced Training

Designer-Plumber	Foreman
Journeyman Gasfitter/License	Journeyman Plumber/License
Master Plumber	Mechanical Engineer
Plumbing Contractor	Plumbing Estimator
Plumbing Inspector	Project Supervisor

Purchasing Agent
Teacher
Sanitary Engineer
Trade Guide Office

Related Occupations

Building Maintenance Person
Hydraulic/Pneumatic Technician
Pricing Clerk
Gas Company Worker
Pipefitter
Sprinkler Fitter

PROGRAMMING AND WEB DEVELOPMENT EXPLORATORY

The programming and web development exploratory introduces students to the aspects of the information technology and computer science fields. During the exploratory, students will learn how to develop Windows applications using Visual Basic .NET. They will also develop web sites that incorporate graphics and audio using HTML and a web development tool called Microsoft Expressions Web. Video games will be developed using an object-oriented game development engine called Game Maker.

PROGRAMMING AND WEB DEVELOPMENT SHOP 1

In the programming and web development shop 1 students will continue to develop mastery in the skills of art, science and technology needed to develop video games. The curriculum integrates the rigor and relevance of STEM (science, technology, engineering and mathematics) into fun and exciting classroom projects. Once students have completed the required projects, they will have developed technical proficiency. Students will demonstrate their proficiency by constructing and original designed game. The students' original designed game will incorporate the many competencies developed during the completion of the game development projects. Students will develop the graphic art work for the game's CD case to showcase their game.

PROGRAMMING & WEB DEVELOPMENT SHOP 2

This course is designed to further develop student knowledge in the fields of programming and web development and their mastery in the skills of art, science and technology needed to develop video games, web sites and Apps. The curriculum continues to integrate the rigor and relevance of STEM (science, technology, engineering and mathematics) into fun and exciting classroom projects. Students will be focusing on developing the fundamental knowledge and use of HTML, CSS and JavaScript languages. Students will be introduced to the development, uploading and installation of App on Android platform devices using App development tools.

PROGRAMMING & WEB DEVELOPMENT SHOP 2 – INTRO COMPUTER TECHNICIAN COPTIA A+ ESSENTIALS

IT Essentials: PC Hardware and Software is a hands-on, career-oriented e-learning solution with an emphasis on practical experience to help students develop fundamental computer skills, along with essential career skills. The CompTIA Academy AND the All-In-One CompTIA A+ Certification curriculum helps students prepare for entry-level ICT career opportunities and the CompTIA A+ certification, which helps students differentiate themselves in the marketplace to advance their careers. In addition, the course provides a learning pathway to the CompTIA Network+ certification. IT Essentials: PC Hardware and Software can be delivered as an independent curriculum or integrated into a broader course of study, such as technology or continuing education programs. This course is instructor leadand includes an online component with the expectation that students can complete assignments and assessments on and off campus.

AP COMPUTER SCIENCE PRINCIPLES

Computer Science Principles is designed to introduce students to the central ideas of computing and computer science, to instill ideas and practices of computational thinking, and to have students engage in activities that show how computing and computer science are changing the world. In this course, students will learn how to access the world of mobile services and applications as creators, not just consumers. They will learn to create entertaining and socially useful apps that can be shared with friends and family. In addition to learning to program and how to become better problem solvers, students will also explore the exciting world of computer science from

the perspective of mobile computing and its increasingly important effect on society. This course is part of a national project through the College Board and National Science Foundation and is an Advanced Placement level course.

PROGRAMMING & WEB DEVELOPMENT SHOP 3

This course is designed to further develop student knowledge in the fields of programming and web development attained from programming and web development shop 2. Students will continue developing their competencies in planning and developing programs that apply the use of functions, methods and procedures. Students will apply the techniques of procedural and object oriented programming structures in the development of their programs. Students will develop programs that demonstrate many of the competencies outlined in the Massachusetts VTE Frameworks 2P develop programs that include the use of arithmetic relational and logical operators, iterative and conditional looping, sort routine, file handling, and arrays algorithms. Students will do this through the development of structures, functions, objects methods and classes. Students will also further explore designing and creating web pages using HTML, JavaScript, Cascading Style Sheet and XML through the use of web development tools. Students will integrate multimedia and video into their projects by utilizing multimedia and graphic tools. Students will publish and maintain websites as they develop them, allowing them to test and follow a quality assurance process. Students will prepare for and take the Microsoft Technology Associates Software Development Fundamentals Certification Exam.

PROGRAMMING & WEB DEVELOPMENT THEORY 3- PC TECHNICIAN

This course provides students with the knowledge to become industry certified as a PC technician, a major requirement of our current COOP employers. This course meets the specifications of two different industry certifications and VTE Frameworks Industry Recognized Credentials, the PC Pro certification and the CompTIA A+ certification. The course also introduces students to competencies required for SkillsUSA competition areas of Information Technology Services and Technical Computer Applications. This course will be taught through the combination of traditional hands on demonstration using real hardware and software, lecture, and the use of state of the art interactive virtual training using LabSim.

PROGRAMMING AND WEB DEVELOPMENT SHOP 4

Programming shop 4 continues to develop and build on all the competencies, skills and knowledge attained in 11^{th} grade programming. This program will allow the student to begin a Co-op work study program or Students will be assigned more involved projects that will allow them to demonstrate project management skills. Students continue to develop and build on the understanding of fundamental programming theories examined in 11th grade Programming. Students will continue learning the importance of preparing and presenting documentation, security and risk awareness issues, and be able to demonstrate project management skills. Students will also learn techniques on implementing and managing software using projects they developed during their technical periods. Students will also prepare a digital showcase portfolio that will contain samples of their best work to be used on job and college interviews. Students will prepare for and take one or more of the advanced Microsoft Technology Associates (MTA) Software Development Exams. Students will choose an area of interest that they would like to pursue and take MTA exams in that area. These certifications areas include IT Professional, Windows Development, Web Development and Database Administration.

PROGRAMMING & WEB DEVELOPMENT THEORY 4 - COMPUTER TECHNICIAN A+ ESSENTIALS

Expanding upon what was learned in Programming & Web Development Theory 3- Computer Technician A+ Essentials, students will be provided with the knowledge to become industry certified as a PC technician, a major requirement of our current COOP employers. This course meets the specifications of two different industry certifications and VTE Frameworks Industry Recognized Credentials, the PC Pro certification and the CompTIA A+ certification. The course also introduces students to competencies required for SkillsUSA competition areas of Information Technology Services and Technical Computer Applications. This course will be taught through

the combination of traditional hands on demonstration using real hardware and software, lecture, and the use of state of the art interactive virtual training using LabSim.

Career Opportunities in Programming & Web Development:

Entry Level Occupations

Computer Technicians	Technical Support/Help Desk
Assistant Network Administrator	Associate Computer Programmer
Video Game Tester	Associate Web Designer/Developer

With Experience and/or Advanced Training

Software Engineer	Database Administrator
System Analyst	Mobile App Developer
Information Technology Manager	Video Game Developer
Web Developer/Master	Senior Programmer

Related Occupations

Network Administrator	Security Administrator

ACADEMIC COURSE DESCRIPTIONS

ENGLISH LANGUAGE ARTS

ENGLISH 1 - Honors
English I Honors is a course designed to increase literacy using a variety of student centered techniques in order to foster learning and critical thinking. This survey course exposes students to a variety of literature including novels, dramas, short stories, poetry, speeches, and nonfiction texts. This course prepares students for college level work. Purpose and coherence in paragraph and essay development in response to literature and open response prompts are emphasized. The study of a variety of genre emphasizes the development of students' reading, response and analysis skills. Independent reading and the use of reference materials develop critical thinking and problem-solving skills through the development of questions and response to questions posed in literary and nonfiction texts. Research assignments deepen students understanding of period texts. Objectives of the course are developed to meet state testing requirements. The curriculum is aligned with the Massachusetts ELA Curriculum Frameworks.

ENGLISH 1 - CP
English CP1 is a course designed to increase literacy using a variety of student centered techniques in order to foster learning and critical thinking. This survey course exposes students to a variety of literature including novels, dramas, short stories, poetry, speeches, and non-fiction texts. This course prepares students for college level work. The course focuses on student development of skills in areas of oral and written communication, reading, researching and accessing information, critical thinking, problem solving, responsibility, and collaboration. Objectives of the course are developed to meet state testing requirements. The curriculum is aligned with the Massachusetts ELA Curriculum Frameworks.

ENGLISH 2 - Honors
The aim of this course is to develop the necessary skills to meet the demands and expectations of typical college English courses. Using classic and contemporary selections from World Literature and a variety of genre including the novel, play, short story, dramas, poetry and essay, students will engage in in-depth literary study, discuss common themes, literary techniques and author's purpose. There is an emphasis on the development of students' oral and written reading responses and analysis skills. Students' writing style is developed through a variety of writing assignments. Vocabulary is developed through reading strategies and focuses on MCAS and SAT preparation. Independent reading and the use of technology, as well as reference materials, develop students' reading and writing skills through multi-genre projects. The objectives of this course are developed to meet state testing requirements and curriculum is aligned with the Massachusetts ELA Curriculum Frameworks.

ENGLISH 2 - CP
This world literature course emphasizes the development of reading, writing, speaking, and listening skills to build students' proficiency in English Language Arts and prepare them for college and career. Students continue to develop the reading, writing, note-taking, and discussion skills necessary for college study. The course focuses on a variety of genres including non-fiction, short stories, dramas, novels, and poetry. Vocabulary development, taught through numerous strategies, is text-based and focused on MCAS preparation. Independent reading and the use of reference materials help to build students' independence in learning. When writing about and discussing literature, making connections between current information and instructional texts is emphasized. Students analyze the thematic connections found in both classic and contemporary texts. There is also a focus on purpose, coherency, and citing text evidence when writing both literary and informational responses. The

objectives of the course and the course curriculum are aligned with the Massachusetts ELA Curriculum Frameworks and are developed to meet state testing requirements.

ENGLISH 3 – AP ENGLISH LITERATURE AND COMPOSITION

The AP English Literature and Composition course aligns to an introductory college-level literary analysis course. The course engages students in the critical analysis of imaginative literature to deepen their understanding of the ways writers use language to provide both meaning and pleasure. As they read, students consider a work's structure, style, and themes, as well as its use of figurative language, imagery, symbolism, and tone. Writing assignments include expository, analytical, and argumentative essays that require students to analyze and interpret literary works.

Pre-requisite: Overall average of 90 or better in English II - Honors and English teacher recommendation.

ENGLISH 3 - Honors

The aim of this course is to develop the necessary skills to meet the demands and expectations of typical four-year college courses and focuses on English as a life-long tool for effective communication. Increased complexity of writing assignments and enhanced sophistication of writer response are at the forefront of this course. Students will expand their ability to analyze and compose narrative, argument, and expositional forms as well as effectively and genuinely respond authentic prompts. Using a variety of mentor texts, students will employ the writing process to develop and hone their composition skills. Whole class novel studies will examine the complexities of humanity while excerpts from classic American literature will trace the development of culture and society. Examination and analysis of essays, articles, plays and short stories will foster critical reading and thinking skills. A rigorous self-selected reading unit allows each student to discover themselves as a reader. All curriculum is aligned to the Massachusetts Curriculum Frameworks.

ENGLISH 3 - CP

The aim of this course is to develop the necessary skills to meet the demands and expectations for college and career readiness and focuses on English as a life-long tool for effective communication. Increased complexity of writing assignments and enhanced sophistication of writer response are at the forefront of this course. Students will expand their ability to analyze and compose narrative, argument, and expositional forms as well as effectively and genuinely respond authentic prompts. Using a variety of mentor texts, students will employ the writing process to develop and hone their composition skills. Whole class novel studies will examine the complexities of humanity while excerpts from classic American literature will trace the development of culture and society. Examination and analysis of essays, articles, plays and short stories will foster critical reading and thinking skills. A rigorous self-selected reading unit allows each student to discover themselves as a reader. All curriculum is aligned to the Massachusetts Curriculum Frameworks.

ENGLISH 4 - Honors

This course prepares students for college and career level work. Literature continues to be a major focus in this 12th grade class. Beginning with a study of Greek tragedy, Sophocles and Oedipus Rex, the course then turns towards the year-long study of European literature. The students critically examine the relationship of theme and form with an in-depth study of Anglo-Saxon and Medieval literature, the Renaissance, the Restoration and Enlightenment, Romanticism, Victorian and the age of Modernism. Writing skills continue to be developed, as students study the mechanics of writing, by developing a series of in-depth descriptive, narrative and research papers. Students will utilize the MLA writing conventions for writers of research papers and complete a research project based on a thesis statement related to the themes of the course. The curriculum is aligned with the Massachusetts ELA Curriculum Frameworks.

ENGLISH 4 - CP

This course prepares students for college and career level work. Literature continues to be a major focus in this 12th grade class. Beginning with a study of Greek tragedy, Sophocles and Oedipus Rex, the course then turns

towards the year-long study of European literature. The students critically examine the relationship of theme and form with an in-depth study of Anglo-Saxon and Medieval literature, the Renaissance, the Restoration and Enlightenment, Romanticism, Victorian and the age of Modernism. Writing skills continue to be developed, as students study the mechanics of writing, by developing a series of descriptive, narrative and research papers. Students will utilize the MLA writing conventions for writers of research papers and complete a research project based on a thesis statement related to the themes of the course. The curriculum is aligned with the MA ELA Curriculum Frameworks.

ENGLISH COMPOSITION 1 – DUAL ENROLLMENT
The course will provide three (3) credits at Middlesex Community College. English Composition I includes prewriting, writing, and revising essays of exploration, analysis, argumentation/persuasion, and research. Students write at least three papers of three-five pages in length and one position paper of five-ten pages that requires a thesis and support developed through formal research and documentation. This course emphasizes reading of literature and informal writing as methods through which ideas are developed. Students must receive a 70 or better to receive college credit. Students will be responsible for the Middlesex Community College tuition to receive credits.

Prerequisites include the Accuplacer Test, English 3-Honors, a minimum of GPA 2.0, teacher recommendations and parent approval.

AP ENGLISH LANGUAGE AND COMPOSITION
The AP English Language and Composition course aligns to an introductory college-level rhetoric and writing curriculum, which requires students to develop evidence-based analytic and argumentative essays that proceed through several stages of drafts. Students evaluate, synthesize, and cite research to support their arguments. Throughout the course, students develop a personal style by making appropriate grammatical choices. Additionally, students read and analyze the rhetorical elements and their effects in non-fiction texts, including graphic images as forms of text, from many disciplines and historical periods.

MATHEMATICS

ALGEBRAIC FOUNDATIONS – CP
This course is designed to give the students the fundamentals skills necessary to succeed in Algebra 1-CP and provide assistance to specific learning needs. It will cover expressions and variables, real number properties, solving and graphing equations. Throughout the course, students will learn how to solve real-world and mathematical problems. Pre-Algebra CP is aligned with the Massachusetts Common Core Curriculum.

ALGEBRA 1 - HONORS
This is an intense course aligned closely with the Model Algebra 1 Standard prescribed by the Massachusetts Common Core Curriculum**.** It will cover number and quantity, algebraic expressions, polynomials, rational/irrational numbers, functions, linear, quadratic, and exponential models, and statistics/probability. Daily homework is required.

ALGEBRA 1 - CP
This course focuses on the development of essential math skills. Algebra 1-CP is aligned with the Massachusetts Common Core Curriculum. Students will cover variables, inequalities, equation solving, real number properties, polynomials and slope intercept. In all areas word problems are stressed. Homework is a requirement.

PRE-ALGEBRA
This course is designed to give the students the fundamentals skills necessary to succeed in Algebra 1-CP. It will cover expressions and variables, real number properties, solving and graphing equations. Throughout the course,

students will learn how to solve real-world and mathematical problems. Pre-Algebra CP is aligned with the Massachusetts Common Core Curriculum.

GEOMETRY - HONORS
Geometry-Honors, covers the topics described in Geometry - CP but in greater detail. The course also includes an introduction to trigonometry and unit circle functions.

GEOMETRY - CP
Geometry-CP is a study of angles, polygons and circles, based on the concepts of point, line and plane. Students are provided opportunities to discover geometric concepts in a hands-on, experiential way using graphing, drawing, constructions and more. Real-life models and applications also help students to apply and extend geometric concepts. Analytical and problem solving skills are developed through the study of logic, visualization and the deductive proof. Homework is required on a daily basis.

ALGEBRA 1 WITH GEOMETRY – CP
Algebra 1 with Geometry extends the study of linear models and introduces exponential and quadratic models. In addition, students investigate angles, polygons and circles in the plane, as well as transformations of linear functions and shapes in the plane. Students are provided opportunities to discover concepts in a hands-on, experiential way using graphing, drawing, constructions and more. Real-life models and applications also help students to apply and extend concepts.

ALGEBRA 2 - HONORS
This course covers Algebra 2 topics including terminology, transformations, and operations on functions, rational functions, exponential and logarithmic functions, arithmetic and geometric sequences and series, and right triangle trigonometry and applications. Students must supply their own scientific calculator (TI-30 recommended) or graphing calculator (TI-83 or TI-84 recommended).

ALGEBRA 2 - CP
Students will investigate arithmetic and geometric sequences, and multiple function types including linear, quadratic and exponential functions. Additional topics of study include exponents and irrational numbers. Algebra 2 is aligned with the Massachusetts Math Curriculum frameworks.

TRIGONOMETRY – CP
This course is offered to seniors who have completed Algebra II CP. The content of this course is aligned with the Massachusetts Mathematics Frameworks. The course includes a brief review of key Algebra II concepts that will be required to be successful in Trigonometry. Students will engage in problem solving using various methods of indirect measurement techniques in trigonometry. Concepts are formula and application based with an emphasis on problem solving strategies.

FUNCTIONS AND NUMBER SYSTEM – CP
Functions CP strengthens baseline algebraic skills to transition from Algebra 1 to Algebra 2 with a focus on linear, quadratic, and exponential functions and number systems. Students will learn how to identify, graph, and compare and contrast each type of function. Real-life models and situations will be investigated to solidify understanding of all three function types.

CALCULUS
This course covers Calculus AB topics including limits, derivatives of elementary functions, partial fractions, integrals of elementary functions, and applications of differentiation and integration. Students must supply their own scientific calculator (TI-30 recommended) or graphing calculator (TI-83 or TI-84 recommended).

PRE-CALCULUS – HONORS
This course covers Pre-Calculus topics including triangle, circular and analytic trigonometry, exponential and logarithmic functions and equations, vector analysis, systems of equations and inequalities, matrix algebra, mathematical induction and probability, and analytic geometry. Students must supply their own scientific calculator (TI-30 recommended) or graphing calculator (TI-83 or TI-84 recommended).

PRE-CALCULUS – CP
This course is offered to seniors who have completed Algebra II CP and who are recommended by their Algebra II CP teacher. Precalculus prepares students for a study of Calculus, covering trigonometry, exponential and logarithmic functions and equations, vector analysis, systems of equations, matrix algebra, and conics.

ADVANCED MATHEMATICAL DECISION MAKING - CP
This course emphasizes statistics and financial applications. Advanced Mathematic Decision Making is a college preparatory course and prepares students to use a variety of mathematical tools and approaches to model a range of situations and solve problems.

APPLICATIONS OF ALGEBRA AND GEOMETRY - CP
This course applies the concepts and methods of algebra and geometry to important competencies needed for business, industry, and personal finance, as well as prepares students for career and college. Activities will lead to the discovery and use of math skills related to vocational curriculums at Greater Lowell. The course is designed to enable students to increase their levels of math proficiency, as described in the Massachusetts Math Frameworks. Periodic tests will be administered to measure each student's progress toward math proficiency.

PHYSICAL EDUCATION/WELLNESS

PHYSICAL EDUCATION 9TH/ WELLNESS
Freshmen will be offered a variety of team and individual activities, with an emphasis on fitness and skill development. Units are offered in fitness/weight training, cross country running, soccer, football, basketball, volleyball, speedball, aquatics and health. Freshmen will also complete a fitness test to assess their individual fitness level. Adaptive physical education is also offered for those students who are unable to participate in the traditional physical education program offerings.

TEEN HEALTH
This course addresses the adolescent years with a focus on overall wellness in the physical, mental/emotional, and social categories of health. Issues such as decision making, self-esteem, peer pressure, bullying, nutrition, fitness, smoking, alcohol, drugs, sexually transmitted infections, healthy relationships, and human sexuality are covered in this course. Emphasis is placed on decision making and choices resulting in a high quality of life. The curriculum includes classroom activities and discussions, as well as guest speakers from local community organizations.

PHYSICAL EDUCATION 10th/WELLNESS
The Project Adventure Course is the core of the sophomore curriculum. This course involves concepts taken from Outward Bound Programs. Students are tested on putting on a harness correctly and how to tie several knots. The program also encourages critical thinking/brainstorming through our many group activities and low elements. Through our Full Value Contracts, which are developed by students and teachers, we emphasize the importance of respecting all individuals' opinions and beliefs. The outdoor rope course encourages skills such as taking initiative, problem-solving and group games. Sophomores also take swimming, CPR and First Aid. Students are required to write a reflection essay after the majority of project activities.

PHYSICAL EDUCATION UPPER 1/WELLNESS
Carryover activities make up the senior/junior curriculum. Activities include tennis, racquetball, volleyball, softball, floor hockey, jogging/walking, badminton, ping pong, fitness machines and weights, pickleball, golf, walking and swimming.

PHYSICAL EDUCATION UPPER 2/WELLNESS
Carryover activities make up the senior/junior curriculum. Activities include tennis, racquetball, volleyball, softball, floor hockey, jogging/walking, badminton, ping pong, fitness machines and weights, pickleball, golf, walking and swimming.

UPPER HEALTH 1
This course continues, and furthers, the curriculum of Teen Health from the 9th grade year. As with Teen Health, the primary focus is on overall wellness in the physical, mental/emotional, and social categories of health. Issues such as decision making, self-esteem, peer pressure, bullying, nutrition, fitness, smoking, alcohol, drugs, sexually transmitted infections, healthy relationships, and human sexuality are covered in this course. Emphasis is placed on decision making and choices resulting in a high quality of life. The curriculum includes classroom activities and discussions, as well as guest speakers from local community organizations.

UPPER HEALTH 2
This course continues, and furthers, the curriculum of Teen Health from the 9th grade year. As with Teen Health, the primary focus is on overall wellness in the physical, mental/emotional, and social categories of health. Issues such as decision making, self-esteem, peer pressure, bullying, nutrition, fitness, smoking, alcohol, drugs, sexually transmitted infections, healthy relationships, and human sexuality are covered in this course. Emphasis is placed on decision making and choices resulting in a high quality of life. The curriculum includes classroom activities and discussions, as well as guest speakers from local community organizations.

ADAPTIVE PHYSICAL EDUCATION/WELLNESS
Adapted physical education is a program consisting of developmental fitness activities, games, and sports (fitness, whiffle ball, golf, volleyball, swimming, shuffleboard, bowling, kickball, badminton, weight training, nerf soccer, basketball, country line dancing and games) designed for students who may not be able to successfully participate in a regular physical education program and need adaptations.

SCIENCE

BIOLOGY - HONORS
This one-year course increases the student's awareness of the living world. Major concepts such as cell structure and organization, metabolism, growth, reproduction, biochemistry, genetics, taxonomy, evolution and ecology, are emphasized. Laboratory investigations teach important biological techniques and reinforce major concepts. Students enrolled in Honors Biology are expected to take the biology MCAS at the end of the course. This course has been aligned with the Massachusetts Science Curriculum Frameworks.

BIOLOGY 1 - CP
Biology 1 is the first part of a two-year course. This course provides a concept-based overview of biological principles. Topics include the chemistry of life, cell structure, functions and processes, genetics, classification, evolution, biodiversity, human anatomy and physiology. The goal of this course is that students will make meaningful connections to the curriculum and gain a general understanding of the basic biology concepts through laboratory experiments, group activities, interactive technology activities, projects and classroom work. This course has been aligned with the Massachusetts Curriculum Frameworks.

GENERAL CHEMISTRY HYBRID/LAB 1
A study of the fundamental chemical laws and theories. Topics include atomic and molecular structure or matter, stoichiometry, periodicity, chemical bonding, chemical and physical properties of matter, and change of state. Laboratory work is an important part of this course.

BIOLOGY 2 - CP
Biology 2 is the second part of a two-year course. This course provides a comprehensive coverage of biological principles and their application to real living organisms. Topics include the chemistry of life, cell structure, functions and processes, genetics, classification, evolution, biodiversity, human anatomy and physiology. The objective is that the students will gain a solid understanding of how living things function and interact with their environment. This will be done through laboratory experiments, group activities, interactive technology activities, projects and classroom work. This course has been aligned with the Massachusetts Curriculum Frameworks. Laboratory work is an important part of this course.

CHEMISTRY - CP
This course can be taken in the sophomore, junior or senior year. The course covers the general aspects of chemistry including concepts and patterns in the periodic table, atomic structure, balancing chemical equations, elements, compounds and mixtures. Students will conduct a series of chemical experiments using environmentally friendly substances. Laboratory work is an important part of this course.

ANATOMY & PHYSIOLOGY - HONORS
Honors Anatomy and Physiology is an in depth study of the structure and function of the human body. Students enrolled in the course will learn anatomy and physiology through lectures, hands on experiments, dissection and video presentations. Dissection of a sheep heart, brain and fetal pig are part of the standard laboratory experience for this course; alternative activities are available upon written request by parent/guardian. Students will also be required to contribute to their learning experience by participating in class projects and performing presentations. Laboratory work is an important part of this course.

PHYSICS - HONORS
Physics is the study of how things work. Concepts are developed in a style that will allow students to relate physics to the real world. The course involves hands-on learning experiences, where students will be required to collect, analyze and draw conclusions from derived data. Science skills and physics concepts are integrated with mathematics and technology. Topics covered include speed, acceleration, gravity, momentum, centripetal force, heat, thermal energy, waves, sound, light, electricity, magnetism and electromagnetism. Logical and deductive thinking, problem solving and application are emphasized. Laboratory work is an important part of this course.

ANATOMY & PHYSIOLOGY - CP
This course consists of an in-depth and concentrated study of the structural and functional levels of organization of the human body. Through lectures, videos, experiments and computer use, each curriculum unit covers a separate system of the body and how each system relates to the body as a whole. Dissection of a sheep heart and brain are part of the standard laboratory experience for this course; alternative activities are available upon written request in lieu of dissections by parent/guardian. Laboratory work is an important part of this course.

BIOTECHNOLOGY 1 - CP
In this elective course students will explore the fundamental principles, career pathways and business applications used in the medical, pharmaceutical, and agricultural industries. Topics covered in this class could include DNA, RNA, and protein technologies; medical diagnostics; the healthcare and pharmaceutical industries and food chemistry. A strong emphasis will be placed on laboratory technique and the scientific process. This is a multi-level hands-on, lab intensive science course. There are no prerequisites for this course. Laboratory work is an important part of this course.

BIOTECHNOLOGY 2 – CP
Students will further explore the principles and business applications of biotechnology used in the medical, pharmaceutical, and agricultural industries. Topics covered in this class could include the use of genetically modified plants and animals (GMOs); fermentation technology; energy and environmental management; forensic science; the use of stem cells; and topics in bioethics. A strong emphasis will be placed on laboratory technique and the scientific process. Field trips to visit local biotechnology companies could also be included in the curriculum. This is a multi-level hands-on, lab intensive science course. Biotechnology I is not a prerequisite for Biotechnology II. Laboratory work is an important part of this course.

PHYSICS - CP
This course is required for students who are enrolled in industry-based vocational programs. Students in any other vocational programs can also enroll. The focus of this course is two-fold: the investigation of a variety of physics topics and the development of skills in experimentation and problem solving. Topics include speed, acceleration, gravity, momentum, centripetal force, motion of the planets, heat, states of matter, sound, light, electricity, magnetism, radioactivity and nuclear reactions. Emphasis is placed on logical thinking, problem solving, and the use of basic algebra skills. Laboratory work is an important part of this course.

APPLICATIONS OF SCIENCE - CP (3 credits)
This course will focus on the fundamentals of science and their impact on the technological world. This course will provide students the opportunity to conduct independent research on significant contemporary scientific issues. During their research students will learn how to identify and use reliable internet resources, utilize Google docs, incorporate web-based templates, and present work through an online platform. Research topics include vaccinations, viruses, bacteria, food industry, ethical treatment of animals, and personal and global impact of scientific discoveries of today and tomorrow. Laboratory work is an important part of this course.

ENGINEERING SCIENCE – CP (3 credits)
This is a project based course. Its primary objective is to both engage and excite students with hands-on science & engineering projects. The course will culminate with a challenging, but enjoyable capstone project: students will design their own house and learn how to represent their design through 3-dimensional drawings. Topics include: Engineering Design; Construction Technologies; Energy Systems; and Electric Circuits. Emphasis is placed on logical thinking, problem solving, and the use of basic algebra skills. Further, the course will attempt to integrate knowledge and skills from applicable trades into class discussions and assignments.

SOCIAL STUDIES

WORLD HISTORY- HONORS
The course content will cover the Enlightenment ideas that led to revolutions in Europe and the Americas, the rise of nation states, and the cultural, economic, and political roots of the Modern world. Additionally, students will study the 19th century reform movements, Great Depression, World War I, World War II, and the Cold War. Finally, students will examine self-determination movements throughout the 20th Century. Emphasis is placed on expository writing, close of reading non-fiction and fiction texts, project based learning, and a survey of world geography.

WORLD HISTORY - CP
The course content will cover the Enlightenment ideas that led to revolutions in Europe and the Americas, the rise of nation states, and the cultural, economic, and political roots of the Modern world. Additionally, students study the 19th century reform movements, Great Depression, World War I, World War II, and the Cold War. Finally, students will examine self-determination movements throughout the 20th Century. Emphasis is placed on

study and organizational skills expository writing, close reading of non-fiction and fiction texts, and a survey of world geography.

UNITED STATES HISTORY 2 – HONORS

The course begins with the study of the United States emergence as a powerful, modern and industrialized nation by the turn of the 19th century. Topics will include industrialization, immigration, urbanization and the emergence of the United States as a world power. The course continues with the examination of the political, social and cultural development of the United States in the early 20th century. The causes and effects of World War I, on the United States and the world will also be studied. Students will also study the Roaring 20's and its' aftermath, the Great Depression and New Deal. The course concludes with an examination of the rise of fascism and militarism and how the Allied countries were able to defeat Germany, Italy and Japan, in World War II. Students will accomplish the learning concepts of this course through the use of novels, document based questions, films, documentaries, and discussion. Emphasis is placed on expository writing and close reading of fiction and non-fiction texts.

UNITED STATES HISTORY 2 – CP

The course begins with the study of the United States emergence as a powerful, modern and industrialized nation by the turn of the 19th century. Topics examined include industrialization, immigration, urbanization and the emergence of the United States as a world power. The course continues with the examination of the political, social and cultural development of the United States in the early 20th century. The causes and effects of World War I, on the United States and the world will also be studied. Students will also study the Roaring 20's and its' aftermath, the Great Depression and New Deal. The course concludes with an examination of the rise of fascism and militarism and how the Allied countries were able to defeat Germany, Italy and Japan. Students will accomplish the learning concepts of this course through the use of novels, document based questions, films, documentaries, and discussion. Emphasis is placed on expository writing, close reading of fiction and non-fiction texts, study, and organizational skills.

UNITED STATES HISTORY 3 - HONORS

The course first reviews the effects of World War II. Students examine how the United States began to assume worldwide responsibilities as the leader of the free world in the Cold War Era.

Students will also analyze the important political, economic and social changes during the 1950's through the 1970's. The Civil Rights Movement and Vietnam War Era are major units of focus. The course encompasses the study of The Truman up to Carter presidencies including the New Frontier and Great Society programs, as well as the Watergate Scandal, domestic foreign affair developments and societal trends.

Students will engage in a variety of writing, research and higher level critical thinking related activities and assignments as well as assessments. Technology, media, literary and primary document resources will be utilized to examine the impact of recent contemporary United States history on current day affairs. Graphic and comprehensive nonfiction and historical novel readings serve as tools of understanding as well as expanding thought of how history affects the present and future.

UNITED STATES HISTORY 3 – CP

The course first reviews the effects of World War II. Emphasis is placed on the role the United States played in the postwar era that evolved into the Cold War era.

Students will examine the events and developments within the United States and its role in foreign affairs during the Truman through Carter presidencies. The Cold War emergence, Civil Rights Movement, Vietnam War and Watergate scandal time periods and events will be major areas of concentration, as well as Social Movement causes within the United States.

Students will engage in a variety of writing and analysis activities that lead to understanding how recent contemporary United States History continues to affect our society today.

Various media, including those which connect to primary source documents and video, will be utilized to trace and detail events and analyze historical relevance to the past and present. Letters, speeches and books in graphic and narrative styles will serve as resources of information and deepen understanding of course content.

TOPICS IN UNITED STATES HISTORY 3
This course serves as a topical survey study of United States History of the post-World War II Era up to the post 9/11 era. The Presidencies of Truman to Obama will be addressed and analyzed for major historical and societal impact on the United States and the role it plays in world affairs. Major focus areas include the Civil Rights Movement, the Vietnam War, Watergate as well as the changes the United States experienced with the emergence of The New Frontier and The Great Society programs. Social movements which helped shape government action to provide and protect the rights of women, various ethnic groups and all citizens are also highlighted. Emphasis is placed on how these developments affect the current welfare and status of the United States as a country and its citizens as well. Emphasis is placed on study and organizational skills expository writing, close reading of non-fiction and fiction texts.

ACADEMIC SUPPORT

ENGLISH LANGUAGE LEARNERS - LEVEL 1
This course provides instruction to limited English proficient students that will improve oral proficiency and understanding of English in order to help them to function in both academic and technical classes. English is spoken in each class in order to develop both receptive and expressive skills. Oral language and pronunciation are emphasized by utilizing written exercises and reading materials. A practical and functional vocabulary is gradually developed which contains common words and expressions used frequently at school and in the community. In addition, skills for writing clear, complete sentences will be introduced. Language instruction and course texts are aligned with the World-Class Instructional Design and Assessment (WIDA).

ENGLISH LANGUAGE LEARNERS - BASIC
This course is designed to increase each student's facility with the English language. Opportunities are provided for students to speak, read and write English so that they can function more independently in school and in the community. Emphasis is placed on reading comprehension, vocabulary development, and responding to open response questions to prepare for the state testing requirements. Students are introduced to the writing process and practice editing and proofreading skills. Language instruction and course texts are aligned with the World-Class Instructional Design and Assessment (WIDA).

ENGLISH LANGUAGE LEARNERS - INTERMEDIATE
This course is designed to increase students' fluency in speaking, reading and writing and to build skills that support students' achievement in academic and technical classes through reading and responding to leveled texts, as well as academic and technical course texts and curriculum. Written responses to open-ended questions prepare students for state testing requirements. Language and vocabulary are developed through oral and written assignments. Language instruction and course texts are aligned with the World-Class Instructional Design and Assessment (WIDA).

ENGLISH LANGUAGE LEARNERS - ADVANCED
This transitioning level course is designed to prepare the students to succeed independently in academic and technical classes. Instruction utilizes academic class texts and introduces research skills. Advanced grammar instruction encourages students to incorporate knowledge of various sentence structures into their essay writing to improve both clarity and directness of expression. Language instruction and course texts are aligned with the World-Class Instructional Design and Assessment (WIDA).

ESSENTIAL CONCEPTS OF BIOLOGY
Essential Concepts of Biology is designed for students who have not passed the biology MCAS exam. A diversity of learning methods are utilized to increase student understanding of the key concepts identified in the Massachusetts Learning Standards for Biology. Test taking skills will also be emphasized.

ESSENTIAL CONCEPTS OF ENGLISH
In an effort to provide students additional support in English Language Arts, MCAS support and remediation will be offered to those students identified, as not meeting the minimum Needs Improvement Standard on the MCAS exam.

ESSENTIAL CONCEPTS OF MATH
Essential Concepts of Math is designed for students who have not passed the math MCAS exam. A diversity of learning methods are utilized to increase student understanding of the key concepts identified in the Massachusetts Learning Standards for Math. Test taking skills will also be emphasized.

MATH FOUNDATIONS
Foundations of Math is provided to eligible students based on ability level and specific learning needs. Foundations of Math provides an individualized learning center environment equipped with math software technology and tutoring assistance to meet a wide variety of math student learning needs. Such needs include, but are not limited to, extended time on learning, review of basic math, and skill development in algebraic concepts. Eligible students are identified and given support as needed by math instructors.

READERS/WRITERS WORKSHOP 1
The primary emphasis of this course is to improve each student's ability to communicate effectively through the use of strategic reading, writing, speaking, and listening skills. Instruction is tailored to students' individual learning needs, based on a variety of assessments, and includes extended learning time. The goal is to provide students opportunities to increase motivation, independence, and transfer of literacy skills to their academic, professional and personal lives.

READERS/WRITERS WORKSHOP 2
This course builds on the foundation of Reader/Writer Workshop I with continued opportunities for students to deepen knowledge and improve skills in reading and writing, speaking and listening. Instruction is tailored to students' individual learning needs.

STUDY SKILLS
Students in need of academic support and continued development of independent work habits are assigned a study skills class. Determination of need is based upon decisions made at the student's Individualized Education Program (IEP) Team meeting. The Study Skills class works on developing students' study habits. Students focus on strategies to improve their organization and planning of coursework and assignments as well as test preparation, note-taking, time management skills and self-advocacy skills.

TRANSITIONAL OCCUPATIONS PROGRAM

THE TRANSITIONAL OCCUPATIONS PROGRAM
The Transitional Occupations Program is a specially designed academic program offering functional academic courses and a specialized vocational training experience. The program is designed for students with significant cognitive/intellectual disabilities as determined through the TEAM meeting process. The primary goal of the TOP's program is to provide students with the necessary employability skills to work independently as an adult in the community.