

NORRISTOWN AREA HIGH SCHOOL



Approved – January 23, 2012

PROGRAM of STUDIES

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FORWARD

The NAHS Program of Studies is designed to help students and parents/guardians choose, follow, and complete a path to graduation that will prepare students for success beyond high school. This document provides general information, including the policies, procedures and requirements of the Norristown Area School District and NAHS, and includes descriptions of all of our course offerings.

Our mission is to maintain high expectations for all of our students. Together as teachers, staff members, and administrators, we strive to consistently improve our instructional practices in order to support student success. We encourage students, parents, and guardians to become familiar with the contents of the Program of Studies that will be supporting the successful educational environment at NAHS.

All courses are college preparatory because we believe that it is our responsibility to provide all students with the opportunity to go to college. There is a Weighted Honors option for many of our core courses. There are also a variety of Advanced Placement offerings in order to enable students to earn college credit while in high school.

All NAHS students and their parents/guardians, have access to a variety of support services to assist them with this course selection process. Our Guidance Office and College and Career Center services are described in detail in our student handbook, The N Book, which all students receive at the beginning of each school year.

TABLE OF CONTENTS

GENERAL INFORMATION

Admission Requirements	2
Subject Level Placement	2
Program Registration and Alteration	2
Advanced Placement	2
Graduation Requirements	3
Graduation Project	4
Promotion Requirements	4
Transfer Credits	4
College-Bound Athletes	5
Course Prerequisites	5
Course Requests	5
Grade Calculation	6

COURSE DESCRIPTIONS

Interpreting Course Descriptions	9
Core Curriculum	
English	11
Mathematics	13
Science	15
Social Studies	17
Health and Physical Education	18
Electives	
Art	20
Business and Finance	22
Engineering and Technology	23
English and Communication	24
Family and Consumer Science	24
Health and Physical Education	25
Junior ROTC	25
Music	26
Science	27
Social Studies	28
Performing Arts	29
World Language	29
Special Programs	
Virtual High School	32
Gifted Education	32
Special Education	34
English as a Second Language	35
Roosevelt Academy	37
Central Montgomery County Center for Technical Studies	38



GENERAL INFORMATION

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Admission Requirements

To be eligible for admission to Norristown Area High School, a student will have satisfactorily completed eighth grade as described and mandated by the Department of Education of the Commonwealth of Pennsylvania. Registration information is available in the guidance office.

Subject Level Placement

In many of our required courses, students are placed at various instructional levels by the professional staff. These decisions are based on the individual needs of students, their ability, and past achievement in each subject area. We encourage students to work to their maximum potential. Parents are encouraged to contact the present subject area teacher should there be a question about their student's subject level placement.

Program Registration and Alteration

During the registration period for the next year's courses, each student and parent should carefully review and select subjects that will comprise the next school year's program. Teachers and Counselors are available for advice and assistance. Once courses have been selected and submitted to the Guidance Counselor, the program becomes a contract for the next year. Every effort will be made to offer the program as selected by the student and parent; however, certain courses may be canceled due to inadequate enrollment, and others may not be available because of an irresolvable conflict in course availability. Norristown Area High School builds its master schedule and projects staff needs on the basis of courses selected by our approximately 1900 students. It is very difficult to make changes to individual programs. ***No change to the program contract is permitted.*** Student selections must be done carefully at the appropriate time as outlined above. Most students should have no changes after the original course selection in the spring. After school begins in the fall, schedule changes will be made only to correct an error or to accommodate scheduling.

Advanced Placement (AP) Opportunities

Advanced Placement courses are designed to expose students to college-level coursework and activities including intense discussions, collaborative problem solving, and challenging persuasive writing assignments. Students enrolling in an AP course must be committed to dedicating time outside of class to reading and writing assignments. **All students enrolled in the course are required to take the AP exam in the spring.** Scores of 3, 4, or 5 on these exams generally translate into college credit at most institutions of higher learning.

AP Writing Sample Requirement

In order to ensure success on AP exams, all students requesting an AP course are required to write an essay as a prerequisite. There are two purposes of this essay. First, since all AP tests have two hours of open-ended work (usually in the form of extended essays), the prerequisite essay will introduce students to the type of writing required for AP success. Second, it will allow teachers of AP courses to have a baseline indication of writing skills for each student, which will better help teachers prepare coursework and help address specific issues that may impede student success on the exam. The essays will be submitted anonymously, with student ID numbers used in place of student names. Also, the essays will be reviewed by a panel of AP teachers to ensure that the process is objective. This writing sample requirement will be in addition to all other prerequisites for the AP course such as the grade requirement (C or better in honors class) and any other details outlined in the Program of Studies. Only one essay needs to be submitted regardless of the number of AP courses the student intends to take.

GRADUATION REQUIREMENTS

Norristown Area School District and the State of Pennsylvania mandate a combination of requirements for graduation:
“Requirements shall include course completion and grades, completion of a culminating project, and results of local assessments aligned with the academic standards. The purpose of the culminating project is to assure that students are able to apply, analyze, synthesize, and evaluate information and communicate significant knowledge and understanding.”

-State Board of Education, Chapter 4

Course Requirements – Class of 2013

Our curriculum addresses the requirements of Chapter 4 and Pennsylvania Standards in the courses required for graduation. Students who have satisfactorily completed a minimum of 27 credits will have demonstrated proficiency in the core standards. Students who do not obtain proficiency on the PSSA must show proficiency through satisfactory completion of the Norristown Area School District’s required courses in reading and mathematics and proficiency on PSSA-aligned local assessments. Graduation requirements include coursework as outlined below:

<u>Discipline Area</u>	<u>Courses</u>
English (I, II, III, IV)	4
Mathematics (Algebra I, Algebra II, Geometry, Mathematics Elective)	4
Social Studies (World Cultures, United States History I and II, United States Government)	4
Science (General Science, Biology, Chemistry, Science Elective)	4
Wellness/Physical Education	1
Electives	10

Exceptions to the course requirements, which are rare, are determined as follows: the Guidance Counselor recommends an exception (exemption, substitution) to a review panel made up of the remaining Counselors, a Vice-Principal, and the Principal. Successful exceptions are recorded for the purpose of establishing past practice. There is no appeal procedure.

Course Requirements – Starting with the Class of 2014

<u>Discipline Area</u>	<u>Courses</u>
English (I, II, III, IV)	4
Mathematics (Algebra I, Algebra II, Geometry, Mathematics Elective)	3
Social Studies (World Cultures, United States History I and II, United States Government)	3
Science (General Science, Biology, Chemistry, Science Elective)	3
Wellness/Physical Education	1
Electives	11

Note: Beginning with the class of 2015 – the Wellness/Phys Ed requirements will increase to 2 credits and electives will be 10 credits.

Remediation

Students who do not demonstrate proficiency in any required course by passing the course, or fail to earn the prescribed number of credits for grade promotion or graduation will be required to recover the missing credits. Students may be required to return to the high school for a fifth year in order to satisfy graduation requirements.

Graduation Project

As indicated in PA Chapter 4 Regulations, all seniors must have completed a graduation project. Beginning with the 2011-2012 school year, the Graduation Project will be introduced to students in grade 10. The project must be completed by the spring of the junior year or the fall of the senior year.

Promotion Requirements – Classes of 2013

Students must earn at least the required number of credits each year in order to make progress toward graduation from high school in four years, as indicated in the chart below. Credit for a subject is awarded at the conclusion of a course after the student has satisfactorily completed all the requirements of that subject; demonstrated proficiency on local or state standards aligned assessments as appropriate; and satisfied all instructional obligations with a passing final grade. High school promotion as related to the earning of a diploma differs from promotion in the lower grades since it is based on the accumulation of credits. The following requirements must be met at the conclusion of summer school for students to advance to the grade indicated:

Minimum Credits required	to enter Grade
6.0	10
12.0	11
20.0	12
27.0	to graduate

As per Board policy, students must have met all graduation requirements by the end of their Senior final exams in order to be eligible to participate in Commencement Exercises

Promotion Requirements – Starting with the Class of 2014

Minimum Credits required	to enter Grade
5.5	10
11.0	11
18.0	12
25.0	to graduate

Transfer Credits

Because of the variety of high school schedule models currently in existence (e.g., traditional, 4X4, A/B), transfer credits present a unique challenge. During the registration/scheduling process, counselors will review an incoming student's transfer credits and provide a detailed path to graduation. Every effort will be made to align transfer credits with the NAHS Program of Studies. However, in order to receive an NAHS diploma, students must meet the NAHS requirements as outlined in this document, particularly with regard to the requirements for English, Math, Science, Social Studies, and Physical Education.

Students who transfer to our school at the end of a complete school year are most easily accommodated. Students who transfer during the school year without a significant interval between the time they left their previous school and the time they enroll here are generally able to attain a path to graduation with their class. However, students, parents, and guardians should be aware that a transfer occurring after a significant interval between the time students left their previous school and the time they enroll here are subject to receiving partial credit that will require some form of remediation in order to graduate with their class.

Transfer Credits (continued)

Beginning with the 2008-2009 school year, transfer students to Norristown Area High School will be awarded weighted honors quality points towards calculation of their GPA according to the following guidelines:

- Grade 9 will receive adjusted quality points for any **four** weighted honors classes. Additional weighted honors classes will be identified as such on the transcript.
- Grade 10 will receive adjusted quality points for any **four** weighted honors classes. Additional weighted honors classes will be identified as such on the transcript.
- Grade 11 will receive adjusted quality points for any **five** weighted honors classes. Additional weighted honors classes will be identified as such on the transcript.
- Grade 12 will receive adjusted quality points for any **six** weighted honors classes. Additional weighted honors classes will be identified as such on the transcript.

College-Bound Athletes

Students should be aware that the National Collegiate Athletic Association (NCAA) maintains strict criteria for the college admission of athletes. Please consult with your Counselor and Athletic Coach concerning these requirements and how they affect your acceptance to the college of your choice.

Course Prerequisites

Many courses, especially Advanced Placement or Weighted Honors courses, have prerequisites listed in the Program of Studies. If students do not demonstrate success with at least a “C” in any Advanced Placement or Weighted Honors course that has been taken against the advice of the teacher or guidance counselor, there will be a *one-year moratorium* on taking another AP or WH course in that subject area. The purpose of this policy is to ensure that students have appropriate grades and demonstrated success on their transcripts in order to successfully apply and be accepted to colleges of their choice. **Once a student has opted into an Advanced Placement or Weighted Honors course, a change to a different course will not be made during the school year.**

Course Requests

If there are not a minimum of 15 requests for a course, that course will not be offered.

GRADE CALCULATION

Grade Point Average (GPA) and Class Rank

Grade point average is calculated at the end of each school year. It is computed by assigning points to the final grade of each course taken, adding the points for all courses taken, and then dividing that total number of points by the total number of credits attempted. The standard grade point scale is as follows:

- A = 4 points
- B = 3 points
- C = 2 points
- D = 1 point
- F = 0 points

Grade Point Average is used to determine class rank within each grade. Class rank is used as an academic descriptor for college admissions and employers. Class rank, grades, and other achievement factors are used by the faculty to select academic honors and awards at graduation.

Weighted Grades

Students receive a weighted grade for successfully completing courses identified as Weighted Honors (WH) or Advanced Placement (AP).

Final Grades for courses in these categories are computed as follows:

- A = 5 points
- B = 4 points
- C = 3 points
- D = 2 points
- F = 0 points

Academic Honors

Three commendations are available to students following each marking period:

- First Honors: all grades 90 or higher
- Second Honors: all grades 80 or higher
- Third Honors: overall average of 80 with no grade lower than 70

In addition, tenth grade students who earn honor roll distinction for their first 7 marking periods, and eleventh grade students who earn honor roll distinction for their first 11 marking periods earn special recognition at the Underclass Awards Program.

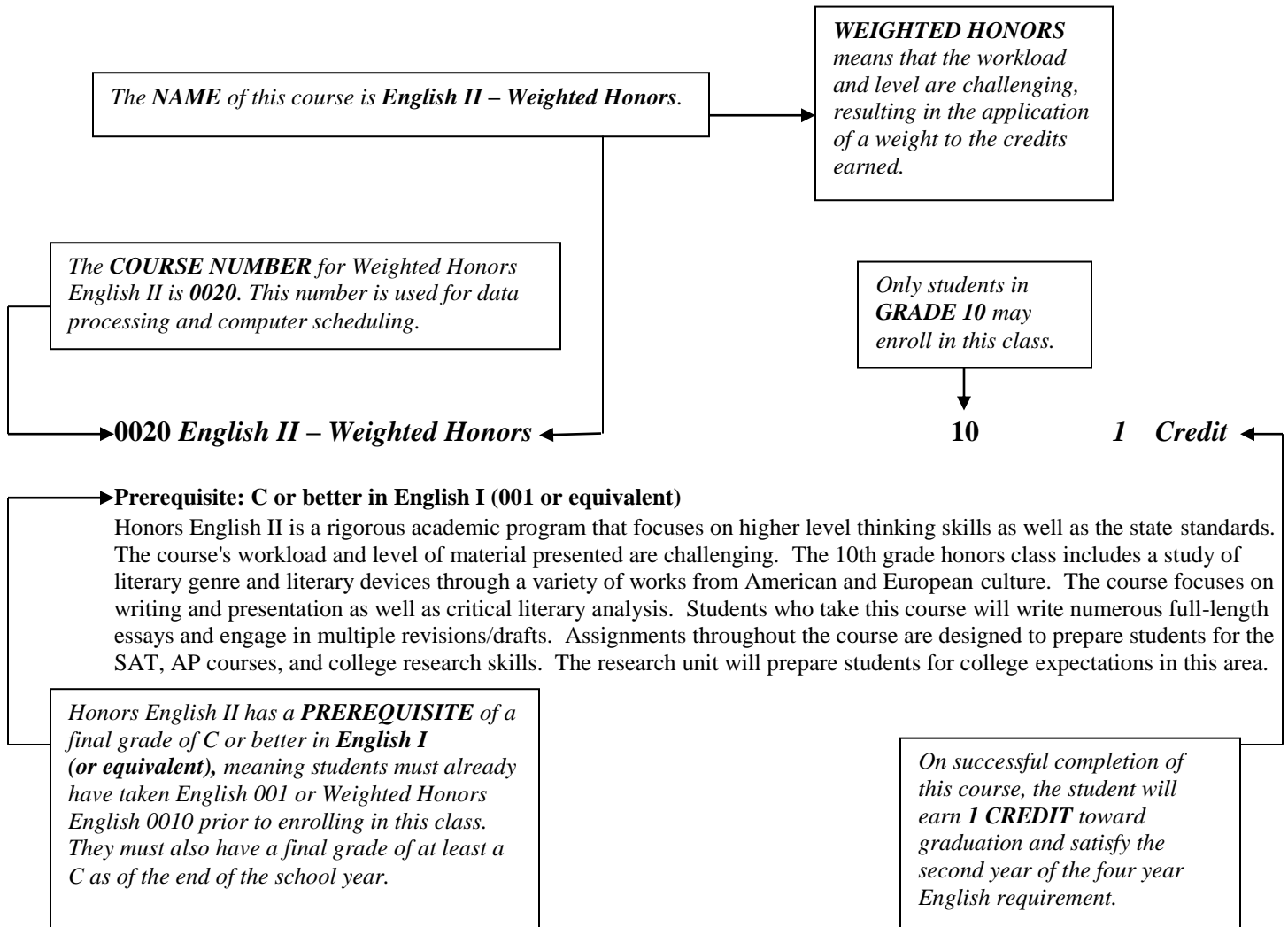
Valedictory and Salutatory Honors

Valedictory and Salutatory Honors designations are based on the highest and second highest GPA respectively. Students with identical GPAs will be further ranked in descending order according to the number of credits earned.



COURSE DESCRIPTIONS

INTERPRETING COURSE DESCRIPTIONS





CORE CURRICULUM

The following courses are graduation requirements in the areas of English, Math, Science, Social Studies, and Health/Physical Education:

ENGLISH

The standard sequence is as follows:

Grade 9	English I
Grade 10	English II
Grade 11	English III
Grade 12	English IV

001	<i>English I</i>	<i>Required</i>	9	<i>1 Credit</i>
English I will consist of an introduction to literature (short stories, "Romeo and Juliet" and poetry, with emphasis on basic literary terminology) and expository writing (organization, unity, development of good paragraph and composition structure, and grammar remediation as needed). In addition, each student is required to read four novels and complete a research project.				
0010	<i>English I – WH</i>		9	<i>1 Credit</i>
Honors English I is a rigorous academic program that focuses on higher thinking skills as well as the state standards. The course's workload and level of material is more challenging and includes additional material and advanced activities presented at an increased pace. The 9th grade Honors class focuses on literary genre and type.				
002	<i>English II</i>	<i>Required</i>	10	<i>1 Credit</i>
Prerequisite: Successful Completion of English I (001)				
English II begins with a review. It expands on basic composition structure and introduces practical writing formats. These structures are applied to the study of literary genre. A vocabulary unit, which includes word lists and a variety of dictionary and verbal skills, prepares students for tests including the SAT and PSSA. Grammar study and remediation follow writing and assignments. A short research paper and several speaking activities are included.				
0020	<i>English II – WH</i>		10	<i>1 Credit</i>
Prerequisite: "C" or Better in English I (001 or equivalent) & Teacher Recommendation				
Honors English II is a rigorous academic program that focuses on higher level thinking skills as well as the state standards. The course's workload and level of material presented are challenging. The 10 th grade honors class includes a study of literary genres and literary devices through a variety of works from American and European culture. The course focuses on writing and presentation as well as critical literary analysis. Students who take this course will write numerous full-length essays and engage in multiple revisions/drafts. Assignments throughout the course are designed to prepare students for the SAT, AP courses and college research skills. The research unit will prepare students for college expectations in this area. There will be summer reading and assignments for this class.				
003	<i>English III</i>	<i>Required</i>	11	<i>1 Credit</i>
Prerequisite: Successful Completion of English II (002)				
English III is an integrated course based on American Literature. Components will include the reading and interpretation of literature (novel, short story, essay, poetry, and drama), literary terminology, vocabulary enrichment, speaking activities, research project, and writing that reflects literary readings.				
0030	<i>English III – WH</i>		11	<i>1 Credit</i>
Prerequisite: "C" or Better in English II (002 or equivalent) & Teacher Recommendation				
Honors English III is a rigorous academic program that focuses on higher level thinking skills as well as the state standards. The course's workload and level of material presented is challenging and presented at an increased rate. The 11th grade honors class focuses on American literature and includes novel study, drama, poetry, and short stories through the lens of American culture culminating in a thematically based analysis of American writing. This course focuses on increasing and enhancing writing skills through regular writing, revision, and rewriting. There will be summer reading and assignments for this class.				
030	<i>AP Language and Composition</i>		11	<i>1 Credit</i>
Prerequisite: "C" or Better in English II-WH & Teacher Recommendation				
The AP English Language and Composition course is designed to help students become skilled readers of prose written in a variety of rhetorical contexts and to become skilled writers who compose for a variety of purposes. This college-level course provides students with opportunities to write about a variety of subjects and to demonstrate an awareness of audience and purpose. The course will also enable students to read complex texts with understanding and to write prose of sufficient richness and complexity to communicate effectively with mature readers. At the end of the course, all students are required to take the Advanced Placement examination in Language and Composition. There will be summer reading and assignments for this class.				

MATHEMATICS

The standard sequence is as follows:

Grade 9	Algebra I
Grade 10	Algebra II
Grade 11	Geometry
Grade 12	Mathematics Elective

Calculator Recommendation: It is recommended that every student have a graphing calculator (Texas Instrument TI-83+ or TI-84+) for use at home. Calculators are provided for student use during each math class. In addition, calculators will be available for sign out **ONLY** for courses required.

209 *Algebra I* *Required* *1 Credit*
This course includes the study of the basic language and concepts of algebra. In alignment with the Pennsylvania State Standards, it focuses on topics related to statistics, data analysis, probability, predictions, functions, and graphing. Students will formulate and solve equations and inequalities to model routine, everyday problems. In addition, they will learn how to graph a linear function, identify its equation, and work with systems of equations. They will do matrix problems and apply them to real life situations.

215 *Algebra II* *Required* *1 Credit*
Prerequisite: Successful Completion of Algebra I
Algebra II includes extension of those concepts learned in Algebra I and incorporates the study of exponential equations, systems of equations, logarithms, functions, sequences and series, and matrix problems. In alignment with the Pennsylvania State Standards, students will also learn how to solve linear and quadratic equations both symbolically and graphically.

2150 *Algebra II – WH* *1 Credit*
Prerequisite: “B” or Better in Algebra I
This is an intensive study of exponential equations, logarithms, patterns, sequences and series, standard deviation, and trigonometric functions. Students will solve systems of inequalities, linear and exponential equations, and equations of degree greater than two.

220 *Geometry* *Required* *1 Credit*
Prerequisite: Successful Completion of Algebra I
This course includes a study of measurement, estimation and algebraic and trigonometric functions. In alignment with the PA State Standards, students will measure and compare angles and make predictions. Students will analyze figures in terms of area, perimeter, volume, symmetry, congruency, and similarity. In addition, they will prove triangles similar or congruent, identify corresponding parts of congruent triangles and use the properties of angles, arcs, chords, tangents, and secants to solve problems involving circles.

2200 *Geometry - WH* *1 Credit*
Prerequisite: “C” or Better in Algebra II WH (2150) or “B” or Better in Algebra II (215) & Teacher Recommendation
This course is an intensive study of the basic properties and relationships of geometric figures. Students will analyze figures in terms of area, perimeter, volume, symmetry, congruency, and similarity. In alignment with the Pennsylvania State Standards, this course will also include topics of trigonometry. Students will also construct geometric figures and will perform various types of proofs. This course requires a protractor, compass, and ruler.

235 *Algebra III* *1 Credit*
Prerequisites: Successful Completion of Algebra I, Algebra II & Geometry
This course is designed to prepare students for college-level mathematics courses. This course provides a thorough examination of topics necessary for College Algebra or Pre-Calculus, and puts more emphasis on Algebra with advanced topics. Students in this course will also study set theory, counting and probability theories, nonlinear system of equations, matrices and the standard concepts of trigonometry.

225 *Pre-Calculus* *1 Credit*
Prerequisites: Successful Completion of Algebra II, Geometry & Teacher Recommendation
This course is recommended for those students who plan to continue the study of mathematics beyond high school. This course includes the study of the algebra of polynomial, absolute value, exponential, logarithmic, trigonometric, and other functions. It also includes the study of triangle trigonometry and the unit circle. **A graphing calculator is required for home use.**

SCIENCE

The standard sequence is as follows:

Grade 9	General Science
Grade 10	Biology I
Grade 11	Chemistry
Grade 12	Science Elective

300	<i>General Science</i>	<i>Required</i>	9	<i>1 Credit</i>
This introductory physical science course is required of all 9th grade students. Subjects introduced include metric measurement, matter, energy, forces, motion, work, machines, heat, sound, light, and magnetism.				
3000	<i>General Science – WH</i>		9	<i>1 Credit</i>
This course presents a rigorous and comprehensive examination of the fundamental physical science themes including the metric system, structure of the atom, elements, chemical reactions, simple machines, and mechanics. All laboratory exercises support these themes and demand proper written communication of scientific method, techniques, manipulation of data, analysis of scientific data, and the use of experimental data and critical thinking to support conclusions. High expectations are maintained to ensure that students are academically challenged. Students will be responsible for many independent reading and writing assignments outside of class. Students need to be highly motivated in science to take this course.				
301	<i>Biology I</i>	<i>Required</i>	10	<i>1 Credit</i>
Prerequisite: Successful Completion of General Science (300, 3000)				
This introductory course in life science begins with a detailed study of the characteristics of living things and the environment in which they live and progresses to a study of the cell, DNA, genetics, and Linnaean Classification. Appropriate laboratory work is included.				
3010	<i>Biology - WH</i>		10	<i>1 Credit</i>
Prerequisite: Successful Completion of General Science (300, 3000)				
This course presents a rigorous and comprehensive examination of the fundamental biological themes including investigative inquiry, ecology and classification, levels of biological organization, cell biology, biochemistry, energy metabolism and nutrition, homeostasis, cell transport, genetics, and biotechnology. All laboratory exercises support these themes and demand proper written communication of scientific method, techniques, manipulation of data, analysis of scientific data, and the use of experimental data and critical thinking to support conclusions. High expectations are maintained to ensure that students are challenged academically. Students need to be highly motivated in science to take this course.				
306	<i>Chemistry</i>	<i>Required</i>	11	<i>1 Credit</i>
Prerequisites: Successful Completion of General Science (300, 3000), Biology I (301, 3010) & Algebra II (may be taken concurrently)				
This chemistry course is an introduction to chemical principles. A comprehensive examination of the fundamental chemical themes including stoichiometry, properties of gases, liquids, solids and solutions, nomenclature, and scientific measurement are presented. All laboratory exercises support these themes and demand proper written communication of scientific method, techniques, manipulation of data, analysis of scientific data, and the use of experimental data and critical thinking to support conclusions. High expectations are maintained to ensure that students are academically challenged.				
3060	<i>Chemistry - WH</i>		11	<i>1 Credit</i>
Prerequisites: “A” in Biology (301) or “B” or Better in Biology WH (3010), “B” in Algebra I & II				
This chemistry course is designed to prepare students for college-level general chemistry. A rigorous and comprehensive examination of the fundamental chemical themes is presented including the periodic table, atomic theory, chemical bonding, stoichiometry, properties of gases, liquids, solids and solutions, chemical equilibrium, nomenclature, acids and bases, and pH. All laboratory exercises support these themes and demand proper written communication of scientific method, techniques, manipulation of data, analysis of scientific data, and the use of experimental data and critical thinking to support conclusions. High expectations are maintained to ensure that students are academically challenged. Students need to be highly motivated in science.				
308	<i>Earth-Space Science</i>		12	<i>1 Credit</i>
Prerequisites: General Science (300, 3000), Biology I (301, 3010) & Chemistry				
Earth-Space Science includes the study of the universe, solar system, sun and moon, structure of the earth and its movements, weather and erosion, oceanography and motion of the seas, meteorology, ecology and conservation.				

SOCIAL STUDIES

The standard sequence is as follows:

Grade 9	World Cultures
Grade 10	U.S. History I
Grade 11	U.S. History II
Grade 12	American Systems

100	<i>U.S. History I</i>	<i>Required</i>	10	<i>1 Credit</i>
With this course, the student will be able to understand the problems of a young and developing nation. Presented are the political, social, and cultural accomplishments of the United States from the 1850's to World War I.				
1000	<i>U.S. History I – WH</i>		10	<i>1 Credit</i>
Prerequisites: “B” or Better in World Cultures & Teacher Recommendation				
This course is specifically designed for college bound students who are highly motivated and want an in-depth view of the political, social, and cultural accomplishments of the United States from the 1850's to World War I. The course presents the political, economic, social, and cultural contributions Americans have made both in this country and abroad. This course will challenge the creativity of students in the cognitive domain and higher level thinking skills as well as the use of technology.				
102	<i>World Cultures</i>	<i>Required</i>	9	<i>1 Credit</i>
World Cultures will provide students with the opportunity to develop an appreciation of the various cultures of the world. The course progresses from the emergence of Islam in 600 AD to the present time.				
1020	<i>World Cultures – WH</i>		9	<i>1 Credit</i>
Prerequisites: “B” or Better in U.S. History I & Teacher Recommendation				
This course is specifically designed for college bound students who are highly motivated and want an in-depth view of the various cultures of the world. The course progresses from the emergence of Islam in 600 AD to the present time.				
103	<i>U.S. History II</i>	<i>Required</i>	11	<i>1 Credit</i>
Prerequisite: Successful Completion of U.S. I				
In this interdisciplinary social studies course, students will study the United States from the 1920's to the present. Using traditional approaches, this course presents the political, economic, social, and cultural contributions Americans have made here and abroad.				
1030	<i>U.S. History II - WH</i>		11	<i>1 Credit</i>
Prerequisites: “B” or Better in U.S. History I & Teacher Recommendation				
This course is specifically designed for college bound students who are highly motivated and want an in-depth view of United States History from the 1920's to the present. The course presents the political, economic, social, and cultural contributions Americans have made both in this country and abroad. This course will challenge the creativity of students in the cognitive domain and higher level thinking skills as well as the use of technology.				
105	<i>American Systems</i>	<i>Required</i>	12	<i>1 Credit</i>
This course focuses on the political and economic systems of the American government. Emphasis is on the everyday activities of the government and how it tries to solve some of the major political and economic problems facing the country today.				
1090	<i>American Systems - WH</i>		12	<i>1 Credit</i>
Prerequisites: “B” or Better in U.S. History II & Teacher Recommendation				
This course focuses on the nature of the American Political system, its development over the past 200 years, and how it functions today. There will be a detailed examination of the principal processes and institutions through which the political system functions, as well as some of the public policies that these institutions establish and how they are implemented.				
1050	<i>AP U.S. Government/Politics (WH)</i>		12	<i>1 Credit</i>
Prerequisites: “B” or Better in U.S. History II & Teacher Recommendation This course is concerned with the nature of the American Political system, its development over the past 200 years, and how it works today. There will be an examination in some detail of the principal processes and institutions through which the political system functions, as well as some of the public policies that these institutions establish and how they are implemented. At the end of the course, all students are required to take the AP test.				

HEALTH and PHYSICAL EDUCATION

7050 **Wellness I - H/PE** **Required, Class of 2016** **9** **.5 Credit**

This is the first of three courses to fulfill the graduation requirement for Health and Physical Education. This course will focus on team sports and team building activities to continue adolescent development in physical education. Students will also be assigned a health component that will be centered around responsible decision making with an emphasis on Pregnancy/Childbirth, STDs and adolescent issues.

7051 **Wellness II - H/PE** **Required, Class of 2015** **10** **.5 Credit**

Prerequisite: Successful Completion of Wellness I

This is the second course of three required to fulfill the graduation requirement for Health and Physical Education. Students taking this course must have successfully completed Wellness I. Wellness II will continue to focus on team activities and team sports. Individual activities will be introduced as well as fitness activities to help students develop an individual lifetime fitness plan. Each student will also be assigned to aquatics for a session. The aquatics component will focus on water safety and water sports/activities as lifetime fitness activities. Students will also be assigned to Health session with an emphasis on lifestyle choices centered on Nutrition, Tobacco Use and other Drug uses.

7052/7029 **Wellness III - H/PE** **Required** **11** **1 Credit**

Prerequisite: Successful Completion of Wellness II

This is the third required course needed to fulfill the graduation requirement. Student must have successfully completed Wellness I and II to take Wellness III. Students will continue to build a wellness plan through participation in various individual activities, team sports/activities and fitness activities. Students will select various activities to create a wellness plan. Students will also be provided the opportunity to get certification in lifeguarding/CPR/First Aid/AED through the American Red Cross. Students will be assigned a health component that will focus on the development of an individual wellness plan. Each student must complete a presentation outlining their individual wellness plan to receive credit for Wellness III.



ELECTIVES

The following courses are electives that can be chosen during the grades indicated in the course descriptions. They are organized according to content area.

606	<i>Art Major Studio, Ceramics I</i>	11, 12	<i>1 Credit</i>
Prerequisite: Successful Completion of Art Major I (601) & Art Major II (602)			
Students will gain a strong foundation in all basic hand building and throwing techniques, working with coils, slabs, sculptural forms, and the potter's wheel to create functional and non-functional forms. The basics of different clay bodies, glazes, and firing techniques will also be studied.			
6062	<i>Art Major Studio, Ceramics II</i>	12	<i>1 Credit</i>
Prerequisite: "B" or Better in Studio-Ceramics (606) & Teacher Recommendation			
This is an advanced studio course for those students who have successfully completed Ceramics I. Students will be working on a more independently guided course of study based in the techniques learned from Ceramics I.			
608	<i>Art Major Studio, Sculpture and Jewelry</i>	11, 12	<i>1 Credit</i>
Prerequisite: Successful Completion of Art Major I (601) & Art Major II (602)			
The first half of the year, students are exposed to a variety of sculpture media and techniques that will expand their cognitive skills and artistic abilities. Second semester, students will develop knowledge of jewelry making/wearable art with various materials.			
621	<i>Art Major Studio, Graphic Design I</i>	11, 12	<i>1 Credit</i>
Prerequisite: Successful Completion of Art Major I (601) & Teacher Recommendation			
This course emphasizes both hand-drawn and computer art. Logo design, web page layout, advertisement/marketing will be analyzed and created using Adobe Illustrator, Photoshop and InDesign.			
6212	<i>Art Major Studio, Graphic Design II</i>	11, 12	<i>1 Credit</i>
Prerequisite: Successful Completion of Graphic Design I			
Building off skills acquired in Graphic Design I, this course is designed to teach advanced design concepts. With heavy emphasis on computer imaging using the Adobe Creative Suite, students will develop composition/layout skills, packaging design, commercial art, illustrations, animations, digital photography, and web page layout.			
611	<i>Art Major Studio, Painting</i>	11, 12	<i>1 Credit</i>
Prerequisite: Successful Completion of Art Major I (601) & Art Major II (602)			
Students will be exposed to a variety of painting techniques and media with inspiration from an art historical point of view. They will be given an opportunity to express personal creativity through color design and composition to develop original works of art.			
605	<i>Art Major Studio, Photo Graphics</i>	11, 12	<i>1 Credit</i>
Prerequisite: Successful Completion of Art Major I (601) & Art Major II (602)			
In this hands-on art course students explore the traditional process of black and white photography as well as the newer fields of digital photography and graphic design. Students will be introduced to the mechanics of a single lens reflex camera and the developing/printing of 35 mm black and white film. Computer programs such as Adobe Photoshop and Illustrator are introduced and used as tools to learn digital photography and graphic design principles.			
6052	<i>Art Major Studio, Photography II</i>	12	<i>1 Credit</i>
Prerequisite: "B" or Better in Photo Graphics (605) & Teacher Recommendation			
Students who are interested in furthering their exploration of black and white photography are encouraged to take this course, by recommendation only. Advanced printing techniques in the dark room will be explored and mastered. Some of these techniques will include: hand colorization, burning and dodging, sandwiching negatives, and advanced methods for creating strong visual compositions.			
609	<i>Art Major Studio, Portfolio Preparation</i>	11, 12	<i>1 Credit</i>
Prerequisite: Successful Completion of Art Major I (601), Art Major II (602) & Teacher Recommendation			
This course is designed for serious art students who have an interest in applying to fine arts programs in college. The objective of this course is to build and document a strong body of work called a portfolio. Development of the artistic process in assorted media is the goal of this course. College application and portfolio review process will be a component of this course.			

529 *Hospitality and Restaurant Marketing* **10, 11, 12** **1 Credit**
 This course covers the growth and progress of the hospitality and restaurant industries. This course provides an overview of the various challenges and responsibilities encountered in managing a food and beverage operation. Topics include planning, administration, organization, accounting, marketing and human resources from an integrated managerial viewpoint. Upon completion, students should be able to demonstrate an understanding of the background, context, and career opportunities that exist in the hospitality and restaurant industries.

ENGINEERING and TECHNOLOGY ELECTIVES

Project Lead the Way (PLTW) is a pre-engineering program for high school students offering an in-depth, problem solving and project based curriculum. The learning model is based on a flow from foundation to specialized courses requiring teamwork and long term learning. To enroll in PLTW, students must have a B or higher in Algebra I. All PLTW classes are Weighted Honors courses.

Beginning with 2012-2013 school year, students in Engineering and Technology who have not met the PLTW prerequisite begin with Foundations of Technology. Students who fail this course should enroll at Central Montco Technical High School (CMTHS) in eleventh grade. Students who do not pass the beginning course, Introduction to Engineering Design, should give the strongest consideration to attending CMTHS in eleventh grade to pursue a hands-on approach to learning in an authentic setting.

650 *Foundations of Technology (Not in PLTW)* **9, 10** **1 Credit**
 Students will be introduced to the basic systems model approach to problem solving and design.

653 *Structural Engineering* **10, 11** **1 Credit**
Prerequisite: Successful Completion of Foundations of Technology
 A thematic course in which structures and the forces that act on them are studied through a hands-on approach with each quarter focusing on a different theme: housing transportation, civil, etc. Students will study the history, and then build a scale model.

654 *Non-Metallic Systems* **11, 12** **1 Credit**
Prerequisite: Successful Completion of Structural Engineering
 Students will use engineering and design skills to design and develop a product using nonmetallic systems.

656 *PLTW - Introduction to Engineering Design - WH* **9, 10, 11, 12** **1 Credit**
Prerequisite: "B" or Better in Algebra I
 A pre-engineering path course based on learning engineering principles and concepts through computer modeling and hands-on lab experiences.

659 *PLTW - Principles of Engineering - WH* **10, 11, 12** **1 Credit**
Prerequisites: Successful Completion of Intro to Engineering or Math & Science Proficiency
 A continuation of the pre-engineering path based on learning engineering principles and concepts through computer modeling and hands-on lab experiences.

655 *PLTW - Computer Integrated Manufacturing - WH* **11, 12** **1 Credit**
Prerequisite: Successful Completion of Introduction to Engineering Design
 Students will learn and explore computer controlled machining and associated processes through their use of CNC machines and computer software packages. Not be offered in 2012-2013

657 *PLTW - Civil Engineering and Architecture - WH* **11, 12** **1 Credit**
Prerequisite: Successful Completion of Introduction to Engineering Design
 Students learn about various aspects of civil engineering and architecture and apply their knowledge to the design and development of residential and commercial properties and structures. In addition, students use 3D design software to design and document solutions for major course projects. Students communicate and present solutions to their peers and members of a professional community of engineers and architects.

HEALTH AND PHYSICAL EDUCATION ELECTIVES

- 7053/7028** *Wellness IV - H/PE* **12** **1 Credit**
Prerequisite: Successful Completion of Wellness III
Any student taking Wellness IV must have completed all other wellness courses and have completed an individual wellness plan. Students will use their individual plan while taking part in Wellness IV. Students will also have the opportunity to get certified in lifeguarding/CPR/First Aid/AED through the American Red Cross.
- 7054/7030** *Advanced Physical Education* **12** **1 Credit**
Prerequisite: Successful Completion of Wellness I & Teacher Recommendation
**Note: this course is an elective and does NOT satisfy the PE requirement.* This course is designed for students who have a strong interest in physical education, a competitive nature and /or interested in learning some non-traditional sports as well as their history and theory. Students will be exposed to classroom-style instruction in addition to activity, and will explore a topics not covered in the traditional PE program including planning activities and learning techniques to teach others (recreation, camps).
- 7055/7040** *Life Fitness & Recreation* **12** **1 Credit**
**Note: this course is an elective and does NOT satisfy the PE requirement.* This course includes classroom exploration of relationships between diet, exercise, proper nutrition, and goal setting in regard to performance. Physical education games emphasizing cardiovascular conditioning as well as performance in the fitness center and weight room will be emphasized. Activities will be geared toward weight control, muscle toning, and cardiovascular improvement including fitness walking, jogging, running, biking, lifetime activities and recreational games.

JUNIOR ROTC

- 9291** *Junior ROTC: LET I* **9, 10, 11, 12** **1 Credit**
Junior ROTC is designed to teach students the value of citizenship, leadership, service to the community, personal responsibility, and a sense of accomplishment while instilling in them self-esteem, teamwork, and self-discipline. Its focus is reflected in its mission statement, "To motivate young people to be better citizens." It prepares high school students for responsible leadership roles while making them aware of their rights, responsibilities, and privileges as American citizens. There are six core blocks of instruction including Character and Leadership Development; Leadership Theory and Application; Foundations for Success; Wellness, Fitness, and First Aid; Geography and Earth Science; and Citizenship and American History. Junior ROTC is not a recruitment tool. Its focus is on developing young people and orienting them positively in preparation for whatever role in life they might choose. The levels of responsibility for LET II, LET III, and LET IV students (2nd, 3rd, and 4th year cadets respectively) increases with each additional year in the program.
- 9292** *Junior ROTC: LET II* **10, 11, 12** **1 Credit**
Prerequisite: Successful Completion of LET I (9291)
LET II cadets are placed into entry level leadership positions responsible for training and induction the first year LET Is. Their curriculum focuses on Wellness, Fitness and First Aid, Geography and Earth Science, and Physical Fitness.
- 9293** *Junior ROTC: LET III* **11, 12** **1 Credit**
Prerequisite: Successful Completion of LET I (9291) & LET II (9292)
LET III cadets are mid-level leaders responsible for commanding the companies in the battalion. Advanced levels of leadership training and greater leadership opportunities are the primary focus for third year cadets. Their curriculum focuses on Leadership Theory Application, Foundations for Success, Wellness Fitness and First Aid, Financial Planning, and Community Service.
- 9294** *Junior ROTC: LET IV* **12** **1 Credit**
Prerequisite: Successful Completion of LET I (9291), LET II (9292) & LET III (9294)
The LET IV cadets command the battalion and hold the key staff functions of Personnel, Logistics, and Operations. The battalion Service Learning Project is planned and executed by LET IVs. Their curriculum focuses on Leadership Theory and Application, citizenship and American History, and Community Service.

402	<i>French III</i>	11, 12	<i>1 Credit</i>
Prerequisite: Successful Completion of French I & French II			
Students are exposed to advanced grammatical structures and vocabulary. Increased emphasis is placed on oral/aural skills. Students add to their knowledge of the culture and customs of French-speaking people.			
403	<i>French IV</i>	11, 12	<i>1 Credit</i>
Prerequisite: Successful Completion of French I, French II & French III			
This course emphasizes advanced grammatical construction and vocabulary with emphasis on reading and communication. Emphasis is placed on communicating personal ideas in class discussions in French. A variety of materials is utilized including short stories, magazine articles, and videos.			
406	<i>German III</i>	11, 12	<i>1 Credit</i>
Prerequisite: Successful Completion of German I & German II			
Students are exposed to advanced grammatical structures and vocabulary. Increased emphasis is placed on oral/aural skills. Students add to their knowledge of the culture and customs of German-speaking people.			
407	<i>German IV</i>	11, 12	<i>1 Credit</i>
Prerequisite: Successful Completion of German I, German II & German III			
This course emphasizes advanced grammatical construction and vocabulary with emphasis on reading and communication. Emphasis is placed on communicating personal ideas in class discussions in German. A variety of materials is utilized including short stories, magazine articles, and videos.			
419	<i>Mandarin Chinese</i>	9, 10, 11	<i>1 Credit</i>
Mandarin Chinese is a proficiency-oriented, beginning course in which the student is introduced to basic listening, speaking, reading, and writing skills. The course also includes the discussion of Chinese people.			
412	<i>Spanish I</i>	9, 10, 11	<i>1 Credit</i>
Spanish I is a proficiency-oriented, beginning course in which the student is introduced to basic listening, speaking, reading, and writing skills. The course also includes the discussion of Spanish-speaking people.			
4120	<i>Spanish I - WH</i>	9, 10, 11	<i>1 Credit</i>
Prerequisite: 8th Grade English Teacher Recommendation			
Spanish I Weighted Honors is a rigorous academic program that focuses on the national standards. The course's workload and material is more challenging and includes additional material and advanced activities presented at an increased pace.			
413	<i>Spanish II</i>	10, 11, 12	<i>1 Credit</i>
Prerequisite: Successful Completion of Spanish I			
Students continue to increase their knowledge of Spanish by studying more advanced vocabulary and structure. There is continued discussion of Spanish-speaking people and cultures.			
414	<i>Spanish III</i>	11, 12	<i>1 Credit</i>
Prerequisite: Successful Completion of Spanish I & Spanish II			
Students are exposed to advanced grammatical structures and vocabulary. Increased emphasis is placed on oral/aural skills. Students add to their knowledge of the culture and customs of Spanish-speaking people.			
415	<i>Spanish IV</i>	11, 12	<i>1 Credit</i>
Prerequisite: Successful Completion of Spanish I, Spanish II & Spanish III			
This course emphasizes advanced grammatical construction and vocabulary with emphasis on reading and communication. Emphasis is placed on communicating personal ideas in class discussions in Spanish. A variety of materials is utilized including short stories, magazine articles, and videos.			



SPECIAL PROGRAMS

VIRTUAL HIGH SCHOOL

938/939

VHS Virtual High School

11, 12

1 Credit

Prerequisite: Approval from Coordinator and Principal Required

Imagine classrooms without walls, where students are able to attend their classes 24 hours a day, seven days a week. Imagine a nearly limitless selection of courses that are innovative and technologically rich in the areas of core academics, technology, and language minorities. Imagine students working cooperatively online with others from a wide variety of ages, ethnicities, backgrounds, and geographic locations. What you are beginning to imagine is the reality of the Virtual High School. VHS is an opportunity for NAHS students to take over 150 elective courses available over the Internet. The student takes the course during the regular school day and reports to class regularly. The course is a normal class except the instructor is in a classroom in another participating VHS school. There are full and half year courses for students with strong personal initiative and solid academic interests. VHS includes AP, honors, and regular classes. The courses may only be taken as electives and cannot replace a regular course. Solid computer skills are necessary. The course catalogue is available at www.govhs.org.

GIFTED EDUCATION

Prerequisite: District screening and Gifted IEP

The courses listed below are available to students who have been identified as mentally gifted. The Gifted Seminar program is designed to expand and build upon learning taking place within the Core Curricular areas. Students receive enrichment and goal support from the Teachers of the Gifted in order to meet their GIEP goals.

GIFTED SEMINAR CLASSES

05290	Gifted Seminar I	9
052100	Gifted Seminar II	10
052110	Gifted Seminar III	11
052120	Gifted Seminar IV	12

Within the Gifted Seminar course, students work with the Teachers of the Gifted to tailor an individualized course of study. They may select from a variety of activities and offerings. Students are encouraged to focus on offerings which enhance their particular strengths and talents. Below serves as a sample of Gifted Seminar Activities & Offerings (available to students in grades 9-12 unless otherwise noted):

Moody's Mega Math Challenge (Grades: 11 & 12 ONLY)

The M3Challenge spotlights applied mathematics as a powerful problem-solving tool, as a viable and exciting profession, and as a vital contributor to advances in an increasingly technical society. Students have 14 hours to solve an open-ended, realistic, applied math-modeling problems focused on real-world issues.

Mathematics League

The Math League is dedicated to bringing challenging mathematics materials to students. Contest problems are designed to cover a range of mathematical knowledge for each grade level. All of the problems on each contest require no additional knowledge of mathematics beyond the grade level they test.

Pennsylvania High School Computer Fair

The Pennsylvania High School Computer Fair is an annual event that highlights Pennsylvania high school students' application skills and computer knowledge. Students are able to unleash their creativity, learn how to convey information more dynamically, and enhance the learning process.

Emerging Issues

Students will discuss important issues of the modern world and learn to clarify thoughts and share information in a coherent fashion.

History Seminar

In order to understand where we are and where we are going as a civilization, we must understand where we have come from. History Seminar seeks to explore the nuances of history. Topics are varied, from local history to state and national history, as well as history on a global scale.

Great Books Seminar

Established in 1947, the Great Books Foundation is an independent educational organization whose mission is to provide students of all ages with the opportunity to read, discuss, and learn from outstanding works of literature. Using this program of interpretive reading, writing, and discussion, students will build strong critical thinking skills and improve reading comprehension.

Book of the Month Club

Inspired by the popular Oprah Book Club, the Book of the Month Club will focus on contemporary, best seller, or popular titles. Books will be selected based upon titles students suggest. Utilizing this program of interpretive reading, writing, and discussion, students will build stronger critical thinking skills as well as improve reading comprehension.

Drama Study

Students in this program will gain insight into the creative process. They will be introduced to the thematic issues or a particular aspect of the design of a production prior to attending a performance. After viewing a performance the student will have an opportunity to participate in a talk-back discussion with members of the cast and/or production team to gain a better understanding of the collaborative efforts necessary to mount a theatrical production.

Film Study

Students in this program will gain insight into the art of filmmaking, as well as analyze how film impact and change thinking in any given society or culture. After viewing the film the student will have an opportunity to participate in a round-table discussion with other gifted students and a faculty facilitator.

Writer's Workshop

Writer's Workshop is a monthly offering aimed at getting students to release their creativity and refine their writing skills. Students are encouraged to share their work with peers and provide each other with constructive criticism. Participants will come away from Writer's Workshop having composed a piece and received the constructive criticism necessary to further refine their writing through revision.

ArtTrak

ArtTrak is an outreach program that enables students to interpret artwork through their own eyes, ideas, and experiences while developing verbal, written and organizational skills. Participation in the program requires students to attend all sessions. During the initial visit, students participate in an in-depth tour of the museum's exhibits and permanent collections. They will select a favorite artwork to explore and begin preliminary investigation. On the second visit, time will be provided for careful observation of the chosen artwork and preparation for presentations. Students give their presentations before a group of peers and invited guests during their final visit.

Student Issues

Students who enroll in the seminar offering will meet on a monthly basis to discuss topics students face in today's global society. Each month the group will focus on a different topic. Seminars may consist of brief readings, discussion or exposure to media related to the topic of the month.

College Search

Students may opt to work individually or in small groups to locate and access information on career choices and academic areas of study at the collegiate level, as well as locate colleges that offer rigorous programs in their area of academic interest. They will be encouraged to maintain an active dialogue with their College Career Counselor regarding the college search and the college application process. Students will access both printed material, online sources, and material available in the NAHS guidance office.

SAT Prep

Information regarding applying to take the SATs, test centers and test dates will be made available to all NAHS gifted students. Students may opt to work individually or in small groups on SAT Prep strategies, as well as reading, writing, and math skills. They will become familiar with what the test scores indicate, how they are interpreted by college admissions staff, and are encouraged to strive to improve their scores based upon the published norms for colleges they are interested in. A variety of test prep materials are available to students who opt to practice independently.

I-Search Project

Search is an approach to research that uses the power of student interest, builds a personal understanding of the research process, and creates stronger writing skills. This process includes four steps: selecting a topic; finding information; using information, and developing a final product. Students will use 21st Century skills to design, investigate, and report on a research topic of their interest.

SPECIAL EDUCATION

The courses listed below are adapted from the same titled courses in the Core Curricular areas. Students will receive learning support from special education teachers in order to meet IEP goals while still addressing state standards and the general education Course of Study.

ENGLISH CLASSES with LEARNING SUPPORT:

The goal of these courses is to adapt English content in order to improve students' listening, speaking, reading, writing, and spelling skills.

0015	English I	9	1 Credit
0025	English II	10	1 Credit
0035	English III	11	1 Credit
0045	English IV	12	1 Credit

MATHEMATICS CLASSES with LEARNING SUPPORT:

The mathematics program is designed to develop practical skills that parallel the regular education curriculum and can be applied in daily living situations. Each course is adapted from the general education mathematics courses and the calendar of topics will be followed with modifications as needed.

2155	Algebra II	10	1 Credit
2205	Geometry	11	1 Credit
2375	Survey of Mathematics	12	1 Credit

SCIENCE CLASSES with LEARNING SUPPORT:

The science program has three distinct targets which are approached simultaneously: improving reading skills, attaining content knowledge, and improving thinking and study skills. The curriculum seeks to impart an understanding of science and to develop skills and abilities that will enable the student to approach and solve the problems encountered in daily living.

3015	Biology	10	1 Credit
3065	Chemistry	11	1 Credit
3145	Environmental Science	12	1 Credit

0915	<i>Beginning ESL Reading</i>	9, 10, 11, 12	<i>1 Credit</i>
Prerequisite: Diagnostic Testing			
This course develops listening, speaking, reading and writing skills in English for students who are new to the United States from non-English speaking backgrounds. Literacy skills are emphasized. Both Beginning Grammar and Reading sections must be scheduled. Students must read Level 1 to advance to next level.			
0825	<i>Low Intermediate ESL Grammar</i>	9, 10, 11, 12	<i>1 Credit</i>
Prerequisite: Diagnostic Testing			
This course develops listening, speaking, reading and writing skills in English for students with low intermediate English proficiency. Grammar and Vocabulary are highlighted. Both Low Intermediate Grammar and Reading sections must be scheduled.			
0925	<i>Low Intermediate ESL Reading</i>	9, 10, 11, 12	<i>1 Credit</i>
Prerequisite: Diagnostic Testing			
This course develops listening, speaking, reading and writing skills in English for students with low intermediate English proficiency. Literacy skills are emphasized. Both Low Intermediate Grammar and Reading sections must be scheduled. The Read 180 program is used. This program uses a combination of teacher-directed lessons, individualized computer work and independent student reading to help students achieve reading success.			
0845	<i>High Intermediate ESL Grammar</i>	9, 10, 11, 12	<i>1 Credit</i>
Prerequisite: Diagnostic Testing			
This course develops listening, speaking, reading and writing skills in English for students with high intermediate English proficiency. Grammar and Vocabulary are highlighted. Both High Intermediate Grammar and Reading sections must be scheduled.			
0945	<i>High Intermediate ESL Reading</i>	9, 10, 11, 12	<i>1 Credit</i>
Prerequisite: Diagnostic Testing			
This course develops listening, speaking, reading and writing skills in English for students with high intermediate English proficiency. Literacy skills are emphasized. Both High Intermediate Grammar and Reading sections must be scheduled.			
0955	<i>Advanced ESL I</i>	9, 10, 11, 12	<i>1 Credit</i>
Prerequisite: Diagnostic Testing			
This course emphasizes literacy skills development. Students also take a regular English class. For 9 th grade course only, the Read 180 program is used. This program uses a combination of teacher-directed lessons, individualized computer work and independent student reading to help students achieve reading success.			
0965	<i>Advanced ESL II</i>	10, 11, 12	<i>1 Credit</i>
Prerequisite: Diagnostic Testing			
This course develops literacy and speaking skills through an emphasis on the transition into further education, career training, and career advancement. It helps students orient themselves to future goals in their academic pursuits. Students also take a regular English class.			
3515	<i>ESL General Science</i>	9, 10, 11, 12	<i>1 Credit</i>
This course offers a survey of fundamental science concepts in physics, geology, and chemistry. Emphasis is placed on laboratory skills, report writing and the research process. A variety of methods for ESL students to demonstrate their knowledge of the sciences are made available in order to accommodate for limited knowledge of English.			
3525	<i>ESL Biology I</i>	10, 11, 12	<i>1 Credit</i>
This course presents the fundamental biological themes including levels of biological organization, biochemistry, cell biology, energy metabolism, genetics and ecology. Emphasis is placed on laboratory skills, report writing and the research process. A variety of methods for ESL students to demonstrate their knowledge of the sciences are made available in order to accommodate for limited knowledge of English.			
3035	<i>ESL Biology II</i>	11, 12	<i>1 Credit</i>
This course is a continuation of Biology I, concentrating on the structure and function of organisms in the six kingdoms. Emphasis is placed on laboratory skills, report writing and the research process. Laboratory investigations include the dissection of various invertebrates and vertebrates. A variety of methods for ESL students to demonstrate their knowledge of the sciences are made available in order to accommodate for limited knowledge of English.			

ROOSEVELT ACADEMY

Students at the Academic Academy at Roosevelt will engage in an intensive scholastic program designed around a core academic curriculum. Programs in this small learning community are tailored to address the academic and social needs of each student using standards-based performance data. By working hand-in-hand with families, The Academy staff will provide opportunities for the students to achieve academic success. Teachers use a differentiated approach to teaching, emphasizing multiple learning styles, where students are free to discover the lifelong process of learning and achievement. The Academic Academy at Roosevelt affirms the premise that when given the opportunity all students can learn and succeed.

CENTRAL MONTCO TECHNICAL HIGH SCHOOL – NAHS CRITERIA FOR ADMISSION

The following pages include information about the programs offered at CMTHS. It is a privilege to attend CMTHS. As such, you must meet the criteria in the table below in order to apply and to attend. Students in Grades 10-12 are eligible to attend CMTHS, provided they meet the criteria below.

CATEGORY	SPECIFIC CRITERIA
Attendance	<ul style="list-style-type: none">• No more than 3 unexcused absences during preceding school year• No more than 3 tardies to school per marking period during preceding school year
Behavior	<ul style="list-style-type: none">• No more than 3 Category 100 referrals• No more than 2 Category 200 referrals• No more than 1 Category 300 referral
Academic Performance	<ul style="list-style-type: none">• Passed all classes• Completed final exam
On Track for Graduation	<ul style="list-style-type: none">• Has the required number of credits to move into next grade level

APPLYING FOR ADMISSION

Please contact your counselor for information regarding these programs.

CENTRAL MONTCO TECHNICAL HIGH SCHOOL (CMTHS)

THE LEARNING ENVIRONMENT AND THE FACULTY

From the first day's orientation to graduation, students learn a broad-based technical curriculum in a relaxed and supportive environment. Having just completed a 20 million dollar renovation, Central Montco Technical High School is a first-rate facility with state-of-the-art equipment and technology.

At CMTHS, a caring and highly qualified professional staff share their skills while challenging and encouraging their students. Many of the instructors have established high profiles in their fields of expertise prior to becoming teachers. Students not only get to know their teachers, but the teachers get to know them and respond to their individual needs as they extend their support and enthusiasm while preparing students for the future. The students are able to obtain a variety of state and nationally recognized certifications and licenses.

PHILOSOPHY

Central Montco Technical High School provides educational programs in cooperation with each member school district which will prepare students to pursue post-secondary career studies and/or obtain employment in a global economy. The educational programs are designed to provide students with the necessary knowledge, skills and attitudes that will enable them to become a contributing member of society in an ever-changing workforce need.

MISSION STATEMENT

Shaping Today's Students for Tomorrow's Careers

SPECIAL SERVICES

SCHOLARSHIPS

In order to address our philosophy of encouraging all students to be prepared for "lifelong learning," the Central Montco Technical High School has allocated in excess of \$800,000 in financial aid to graduating seniors. Through this competitive privately funded program, seniors have been able to attend a wide variety of post-secondary schools. Preparation for a scholarship commences with the first day at CMTHS and culminates with the formal application for a scholarship, made in January of the senior year.

WORK-BASED STUDIES

How do you get experience in your chosen field while still in school? At Central Montco Technical High School, Work-Based Studies (WBS) connects classroom learning with work-based experience and teams employers, educators, community leaders, students and parents.

The Work-Based Studies Experiences at CMTHS include:

Clinical Experiences: Non-paid, work-based experiences in hospitals, long term care facilities and day care centers.

Internships: Paid and non-paid work-based experiences for a specified length of time.

Cooperative Education: Program related placements that are paid, on-the-job training positions and are considered an extension of the classroom. The timeline for placement is individualized and based on student need. Students are trained under the direct supervision of the employer and are assigned a mentor. Students' progress is monitored and evaluated by the school and the employer on a continual basis.

STUDENT ASSISTANCE CENTER

The purpose of the Student Assistance Center is to enhance student achievement by providing a variety of support services. These services are available to any student who is experiencing some difficulty or impediment to learning.

SUPPORT SERVICES

CMTHS provides supplementary assistance to our students who are enrolled in an approved technical program. Career evaluation, instructional counseling and placement are provided. These evaluation services are designed to provide the student with the necessary information to make a more informed career choice. An assessment counselor is also present to interpret the career interest and aptitude information about the student, and help them maximize the educational value of their chosen career or technical program. Career related math and reading instruction are also provided through Perkins funding. The academic instructional staff includes a certified math teacher and reading specialist. The math and reading programs are designed to address the needs of students in their chosen technical area and provide assistance with home school assignments.

PROGRAM OPTIONS

There are 15 programs operating during the AM and PM sessions. They are open to 10th, 11th and 12th grade students. The programs are clustered into 4 major areas; Human Services, Communications/Computers, Transportation and Construction.

HUMAN SERVICES

ALLIED HEALTH TECHNOLOGY Honors (Dual Enrollment)

Course Description

Allied Health Technology is an Honors College Prep course designed for academic students who wish to pursue a career in the health care professions. This course is currently located at the work-based site of Mercy Suburban Hospital where students are supervised during clinical rotations in medical, surgical, support services, administrative and internships. This program is open to 11th and 12th grade students who meet the required prerequisites which are at least a 3.0 GPA, Algebra I, Biology and a commitment to take Algebra II and Chemistry along with excellent attendance and discipline record. **Students are also offered the opportunity of dual enrollment at Montgomery County Community College.**

Course Content

Students learn to plan, organize, interact, assume responsibility and develop critical thinking and problem solving skills. The curriculum is designed to facilitate communication, cognitive, social-emotional, and the developmental skills necessary for an entry-level position in the health field and continued education on the post-secondary level.

Topics of study include legal and ethical standards in health care, communications, body systems in wellness and disease, health care delivery systems, safety and emergency systems, infection control, language of medicine, principles of nutrition, current issues in health care, and leadership through HOSA (Health Occupations Students of America), seminar visitations to other hospitals/schools.

Related Occupations

- Physician
- Pharmacist
- Physician's Assistant
- Physical Therapist
- Occupational Therapist
- Registered Nurse
- Respiratory Therapist
- Speech Therapist, Dietician
- EKG Technician
- Emergency Medical Technician
- Medical Assistant
- Licensed Practical Nurse
- Radiology/Nuclear Medicine
- Medical Lab Technician
- Surgical Technician
- Invasive Cardiovascular Technologist

Clinical Rotations

Medical, Surgical, Support Services, Administrative, Internship/Preceptor

Medical: Cardiac Rehab, Nursing, Emergency Room, Specialty Units, Infection Control, Ob/Gyn, Oncology, Education Department, EKG/EEG, Radiology

Surgical: Operating Room, Short Procedure, Nursing, Anesthesia, Endoscopy, Tumor Registry

Employment Outlook

More people are employed in the health care field, both locally and nationally, than in any other occupation.

State and/or National Industry Recognized Certifications Available

PA and NOCTI Skills Certificate, CPR, First Aid

BIOMEDICAL TECHNOLOGY (Dual Enrollment)

Course Description

This program is designed for those students who want to keep up with the pace of new discoveries in Biomedical Technology. Students learn to understand the biochemical machinery of microbes to manufacture new pharmaceuticals, improve forensic techniques and help combat bioterrorist threats. The course is a laboratory-based program and the students are in the laboratory setting every day. This program also emphasizes the importance of research reading, presenting and discussion of current scientific articles in the Biomedical Technology field. **Students are also offered the opportunity of dual enrollment at Montgomery County Community College.**

Course Content

Each of the topics below has several laboratory investigations that introduce the topic and strengthen our understanding of the topic:

Proper utilization of laboratory equipment, preparation of laboratory solutions, aseptic techniques to laboratory investigations, basic microbiological techniques, cell biology, DNA and DNA-RNA interconnections, protein chemistry, immunology, forensics (criminal investigations), bioterrorism, radiation technology, tissue culture

Related Occupations

Forensic Scientist
Veterinarian Technician
Laboratory Technician
Research Specialist

Internship Programs

Local Hospital, Health Department and Microbiological laboratories will be utilized as a part of our internship program. The second year students will spend at least two days per week in a professional laboratory. The type of laboratory will depend on the age and interest of the individual.

Employment Outlook

We live in very exciting times. It seems that every day newspapers are announcing a new and exciting discovery concerning biomedical technology. Many of these findings elicit a great deal of hope as they open new avenues for solving the ever-growing problems of our modern world. Biotechnology provides us with useful research to cure and prevent diseases, feed the world populations, improve the criminal justice system and even solve environmental problems.

State and/or National Industry Recognized Certifications Available

PA and NOCTI Skills Certificate

COSMETOLOGY

Course Description

The basic course requires 1250 hours of study and takes 3 years to complete. Along with the required Pennsylvania State Cosmetology regulations, it is mandatory for each student to complete a job shadowing program consisting of 25 hours per school year. Students will learn the theory and practical skills of Cosmetology and the art of customer service and professionalism.

The Cosmetology Program is a three-year standards-based educational program. The 1250-hours required for this course are earned when a score of 75% or above is achieved for each individual unit which includes both theoretical and hands-on training. Attendance is extremely important. The Pennsylvania State Board of Professional and Occupational Affairs mandates 50 hours in professional practices including sterilization, sanitation, professionalism & law; 200 hours in related sciences such as histology, trichology, chemistry, physiology, and dermatology, and 1000 hours in cognitive & manipulative skills. If a student fails, Pennsylvania State Board of Cosmetology will not accept hours towards their Cosmetology License. It is mandatory to report student hours on a quarterly basis. Students are identified by their Social Security number, not their name. Therefore, a Social Security number is necessary. The ultimate goal upon completion of the program is **for all students to pass the state board exam and become a licensed professional.**

Course Content

There is a 200 hour manicuring component of the program which offers practical clinic demonstrations, application and classroom instruction of the nail and nail related arts, products and treatments in a customer serving client setting.

The Natural Hair Braiding portion of the program is a 150 hour competency-based educational program. The 150 hours required for this course are earned when a score of 80% or above is achieved for each individual unit which includes both theoretical and hands-on training. The Pennsylvania State Board of Professional and Occupational Affairs mandates 150 hours of instruction in professional practices including scalp care, hygiene, sterilization, sanitation, professionalism & law, which are included in this curriculum to individuals currently holding the Natural Hair Braider license to be eligible for renewal. The ultimate goal upon completion of the program is for all students to pass the state board exam for Natural Hair Braiding.

The esthetics component of the program requires 300 hours of instruction, which offers a well-rounded schedule of classroom instruction and demonstration rooted in practical application of products and treatment in a real customer serving client clinical setting.

Related Occupations

- Esthetician
- Manicurist
- Cosmetologist
- Shampoo Technician
- Stylist Assistant
- Color Specialist
- Make-up Artist
- Retail Specialist
- Salon Owner
- Salon Manager
- Cosmetology Teacher
- Platform Artist
- Salon Educator

Employment Outlook

There is always a demand for skilled, licensed cosmetologists, manicurists, and estheticians. Fashion trends are always on the move and the needs of the salons are continuously updated. The Cosmetology course will prepare students to meet the State licensing requirements.

State and/or National Industry Recognized Certifications Available

PA and NOCTI Skills Certificate, PA State License for Esthetician, Cosmetologist, Manicurist, Teacher

CULINARY ARTS/BAKING & RESTAURANT PRACTICES (Dual Enrollment)

Course Description

The Culinary Arts/Baking and Restaurant Practices program offers a cutting edge curriculum for all students interested in culinary arts, baking, service management and related fields to study in our brand new state of the art kitchen and restaurant. Students have the opportunity to demonstrate skills at our in-house restaurant and catering program while providing services to residents of the local community. This program directly articulates with several two and four-year colleges and many graduates are employed locally, statewide, nationally and internationally. **Students are also offered the opportunity of dual enrollment at Montgomery County Community College.**

Course Content

Students get hands-on experience in: safety practices, sanitation practices, stocks, soups and sauces, cooking techniques, pastries and baking, breakfast cookery, guest services and dining, production controls, meal planning and presentation, buffet presentation.

Students participate in a special classroom management system validated by the American Culinary Federation. This system incorporates culinary arts, baking, service management and workplace skills achieved through high academic standards and challenging yet realistic practical experiences.

Related Occupations

- Executive Chef
- Pastry Chef
- Line Cook
- Restaurant Manager/Owner
- Banquet Chef
- Caterer
- Bakers
- Dieticians
- Waiters/Waitresses
- Food Equipment Buyers
- Television Chef
- Food Wholesaler
- Food Stylist,
- Culinary Arts Educator

Employment Outlook

More Americans are eating out today than ever before. One out of every three meals consumed today is eaten away from home. Every part of the food service industry offers opportunity, not only for employment but for advancement. The job market is virtually unlimited. Opportunities exist in restaurants, industrial institutions, planes, trains, office buildings, schools, and hospitals. The successful food service employee is one who enjoys being with the serving people.

State and/or National Industry Recognized Certifications Available

PA and NOCTI Skills Certificate, Servesafe Sanitation, American Culinary Federation (ACF),

EARLY CHILDHOOD EDUCATION (Dual Enrollment)

Course Description

The Early Childhood Education program is designed for students who have a sincere desire to teach and care for young children. It prepares students for either an entry-level position in the child care industry or to pursue a college degree in early childhood education or elementary education. Students observe and interact in a variety of early childhood settings including elementary schools, child care centers, Head Start programs, and early intervention programs as well as our own on-site preschool, "Little Hands." **Students are also offered the opportunity of dual enrollment at Montgomery County Community College.**

Program Content

Topics of study include principles of child development, health, safety and nutrition, observation and teaching skills, communication skills, team building skills and child care center management and organization. Along with classroom instruction, students will learn skills by preparing and presenting both individual and team projects appropriate for children ages infant through young school-age. The students will reflect upon these experiences and record them in their journals as a required competency.

Related Occupations

- Teacher's Assistant
- Child Care Assistant
- Nanny
- Assistant Group Supervisor
- Family Home Child Care Provider
- Early Childhood Teacher
- Elementary School Teacher
- Child Care Center Director
- Office of Child Development Inspector

Employment Outlook

Today, more than 66% of all women with children under the age of six years old work outside the home. There is a strong demand for child care services.

State and/or National Industry Recognized Certifications Available

PA and NOCTI Skills Certificate, CPR, First Aid, preparation for Child Development Associate Certificate (CDA)

HEALTH OCCUPATIONS (Dual Enrollment)

Course Description

The Health Occupations Program offers a core academic curriculum and skill-based competency tasks linked to careers in the health care industry. This program provides the knowledge base for Health Occupations careers, including the Certified Nurse's Assistant curriculum, as well as preparing the student to enter the health care system as a competent assistant to the health professional. This program is a state certified course and allows the eligible student to become a Certified Nurse's Aide or Medical Assistant. **Students are also offered the opportunity of dual enrollment at Montgomery County Community College.**

Course Content

This program provides the student with the necessary cognitive skills including communication methods, anatomy and physiology, medical terminology and the skills necessary for assisting in community health care facilities.

Topics of study include anatomy and physiology, medical ethics, medical terminology, nursing skills, leadership and employment skills, clinical experience, CPR and first aid.

The clinical experience the students receive is an integral part of the program; providing the students with the laboratory setting to perfect their procedures and hands-on experience in local health care agencies as well as helping them to develop communication skills that are essential in today's job market.

Related Occupations

- Radiological Technologist
- Surgical Technician
- Physical Therapy Assistant
- Medical Records Technician
- Occupational Therapy Assistant
- Medical Secretary
- Home Health Aide
- Certified Nurse Aide
- Electrocardiogram Technician
- Respiratory Technician
- Pharmacy Technician
- Veterinary Assistant

Employment Outlook

Employment in the health care industry is the fastest growing workforce in the state and in the nation. Nationally, the industry will grow by 50% to 9.8 million workers. In Pennsylvania, Health Occupation professions place in 13 of the 15 fastest growing occupations; locally, the health care field is the largest employer in the area.

State and/or National Industry Recognized Certifications Available

PA and NOCTI Skills Certificate, PA Registered Nursing Assistant, CPR, First Aid

PRE-NURSING (Dual Enrollment)

Course Description

The Pre-Nursing Program is intended for the academic student who is interested in the field of nursing and has a serious commitment to the nursing profession. The environment encompasses the entire campus of Montgomery Hospital. Added enrichment will be provided through the ancillary departments where students will also rotate. The clinical rotations include: Cardiac (cath lab, heart station, ICU, telemetry floor), Surgical (operating room, PACU, short stay, CSS), Med-Surg (3rd floor, physical therapy, respiratory), Obstetrics (labor & delivery, nursery, clinic) and Radiology (interventional radiology, women's center). This program is open to 11th and 12th grade students who meet the required prerequisites which are at least a 2.5 GPA, Algebra I, Biology and a commitment to take Algebra II and Chemistry along with excellent attendance and discipline record. Students are also offered the opportunity of dual enrollment at Montgomery County Community College.

Course Content

The curriculum consists of the communication, cognitive, social-emotional and developmental skills necessary to obtain an entry level position in the health care field. Continuing education on the post-secondary level is expected and reinforced through the learning process.

Topics of study include legal and ethical standards in health care, communications, body systems in wellness and disease, health care delivery systems, safety and emergency systems, infection control, language of medicine, principles of nutrition, and current issues in health care.

Related Occupations

- Registered Nurse
- Respiratory Therapist
- EKG Technician
- Medical Assistant
- Licensed Practical Nurse
- Radiology/Nuclear Medicine
- Surgical Technician

Employment Outlook

More people are employed in the health care field, both locally and nationally, than in any other occupation.

State and/or National Industry Recognized Certifications Available

PA and NOCTI Skills Certificate, Health Care Provider CPR and First Aid

PUBLIC SAFETY

Course Description

The Public Safety Program is designed to prepare students to enter careers related to Law Enforcement, Emergency Medical Services, Fire Sciences, and Industrial Safety. The program is based at Central Montco Technical High School with many of the learning experiences performed at off-campus locations such as the Montgomery County Fire Academy, local police departments and local businesses. Students are able to obtain state and national certifications such as First Aid, Cardio Pulmonary Resuscitation, Hazardous Materials and Fire Fighting. Mastering of the competencies will be accomplished in supervised simulated situations.

Course Content

Topics of study include emergency response, safety, criminal justice, criminal investigation, defensive tactics, drug laws, arson investigation, security systems, patrol/traffic/guard duties, essentials of firefighting, employability skills, computer skills, community relations, emergency communications, hazardous materials awareness, leadership training, rescue techniques, accident investigation, fire science, ethics, equipment maintenance, physical and mental fitness, evidence collection, photography.

Internships provide first-hand experiences in an occupation selected by the student while under the direct supervision of a mentor.

Related Occupations

- Criminal Justice
- Municipal or State Police Officer
- Security Officer
- Corrections Officer
- Waterways Patrol Officer
- Game Protector
- Safety Supervisor
- Code Enforcement Officer
- Safety Inspector
- Industrial Hygienist
- Environmental Protection Officer
- Emergency Medical Technician
- Paramedic
- Emergency Management Worker
- Dispatcher
- Probation Officer
- Fire Control Technician
- Fire Fighter
- Victim Assistance Counselor
- Military Police

Post-Secondary Opportunities

Articulation agreements have been developed with colleges and universities and will provide advanced placement opportunities. Program completers are also better prepared to meet candidate requirements for selective training programs such as the military, police academy and fire academy.

Employment Outlook

Recently, the need for technical, academic and practical training in the Emergency Medical Services and Law Enforcement fields has become significantly greater. The need and importance of well-trained employees in these fields has been bolstered with the Homeland Security Initiative. Locally, statewide and nationally, communities are looking proactively, to secure and protect their citizens. The occupational choices in these programs continue to provide many employment opportunities for students who take this training seriously.

State and/or National Industry Recognized Certifications Available

PA and NOCTI Skills Certificate, First Aid, CPR, Chemical Aerosol Spray, Emergency Response. Student involvement in volunteer service organizations will receive additional training certifications which will be recognized in the curriculum.

COMMUNICATIONS/COMPUTER

ENGINEERING TECHNOLOGY/COMPUTER-AIDED DESIGN - CAD (Dual Enrollment)

Course Description

The Engineering Technology program is geared towards students that enjoy design, technical sketching, invention and “hands-on” activities. Any student considering a career in architecture or engineering related fields will gain immediate entry-level employability skills and a solid foundation for continued studies. Students in the program may pursue two general tracks: architectural and/or mechanical. The architectural track covers the fundamentals of residential design. The mechanical track focuses on basic design and manufacturing processes. CAD (Computer-Aided Design) software is used to generate drawings of structures and components with an emphasis on modeling and other hands-on projects.

The unique aspect of this program is that it allows students to learn the fundamentals of architecture and design by allowing them to pursue applied building projects utilizing many of their own original ideas. Additionally, the integration of math, critical thinking and presentation skills is emphasized as essential to the make-up of the successful architect or engineer. *Students are also offered the opportunity of dual enrollment at Montgomery County Community College.*

Course Content

The course utilizes "AutoCAD 2009" software, which is used by a majority of manufacturing and construction industries as well as most colleges and universities.

Topics of study include: Basic Drawing Techniques, Structural Design and Testing, Mechanical Design, Basic Engineering Principles, Architectural Models, Residential Design Project, Three Dimensional (3-D) CAD (AutoCAD Inventor), Applied Physics, Creation of Computer Generated Drawings, Plotting & Printing, 3-D Rendering.

Students learn the basics of design through functional and challenging projects. Emulating the real world environment, students have entered their designs in National Rocketry competitions as well as Science and Physics Olympiads. The projects develop the concept of engineering as a team effort.

Related Occupations

- Design Drafter
- Mechanical Designer
- Mechanical Engineer
- Architect
- Civil Engineer
- Technical Illustrator
- ADDA Certified Drafter
- Architectural Drafter
- Civil Drafter
- Engineering Drawing Checker
- CAD Operator
- Landscape Architect
- Interior Designer

Employment Outlook

Careers in design, architecture and engineering are in high demand nationally as well as in the Philadelphia area. Individuals with skills and training in Engineering and Architecture continue to be listed as in demand. These careers represent a stable industry that traditionally offers job security, challenging work, a good working environment, excellent compensation, paid education and outstanding growth potential. The modern technology boom has magnified the need for people who can merge a creative mind with an eye for technical detail. Salary levels and compensation are upwardly mobile, especially for those with the determination to gain higher education and experience.

State and/or National Industry Recognized Certifications Available

PA and NOCTI Skills Certificate. Additionally, successful program completers have the opportunity to obtain the industry recognized ADDA (American Design Drafting Association) Certification.

NETWORKING TECHNOLOGY (Dual Enrollment)

Course Description

The Networking Technology program at Central Montco Technical High School is intended to meet the needs of the technology industry both now and in the future and with the Internet growing continually, there are many opportunities available to Networking Technology students. Students can earn CompTIA Network+ certification as well as a CCNA (Certified Cisco Network Associate) certificate. With an education in infrastructure-level networking, students are highly sought after by employers in all areas of business and education. **Students are also offered the opportunity of dual enrollment at Montgomery County Community College.**

Course Content

Each student starts the program with an introduction to networking that is the CompTIA Network+ program. The technology community identifies CompTIA Network+ as the perfect entry into a networking career. Topics of study include networking basics with the CompTIA Network+ Program, routers and routing basics, switching basics and inter-network routing and WAN technologies. Upon completing the Network+ curriculum, students move into the Cisco Networking Academy course work.

CCNA® is a comprehensive curriculum that includes four separate modules. These modules cover the learning objectives of the CCNA certification exam, which is the first step in a Cisco career certification path. The curriculum emphasizes the use of decision-making and problem-solving techniques to resolve networking issues. Students learn how to install and configure Cisco switches and routers in local and wide-area networks using various protocols, provide Level 1 troubleshooting service, and improve network performance and security. Additionally, training is provided in the proper care, maintenance, and use of networking software tools and equipment.

Related Occupations

Network Engineer
Network Specialist
PC Specialist
CCNA (Certified Cisco Network Associate)
Computer/Network Specialist
LAN Administrator
Wide Area Network Implementer/Security Specialist
A+ Certified Network Administrator
Network+ Certified Administrator
Copper and Fiber Cabling Specialist
Wireless LAN Specialist
Cabling Specialist, Wireless LAN Specialist, MCSA Certified, Panduit Approved Installer certified

Employment Outlook

With the Internet growing continually, there are many opportunities available to Networking Technology students. With an education in infrastructure-level networking, students are highly sought after by employers in all areas of business and education. Major corporations involved in the Networking Technology industry would not be leaders in their field if not for the fact that the networks which they develop and maintain are so reliable. As a result, more and more companies are paying for additional education, higher starting salaries, industry certifications, and stock options for competent Network Specialists.

State and/or National Industry Recognized Certifications Available

PA and NOCTI Skills Certificate, Cisco Networking Academy

VISUAL COMMUNICATIONS CLUSTER

The Visual Communication Cluster is comprised of two programs: Commercial Art and Digital Media. All students entering either program participate in the same course of study during their first year. This foundational year program addresses such areas as use of traditional art tools, color theory, design theory, and typography. In addition, first year students are introduced to computer graphic applications and develop a strong working knowledge of Adobe Illustrator and Adobe Photoshop. At the end of the first year portfolios are reviewed and students make a decision to enter into either the Commercial Art program or the Digital Media program.

COMMERCIAL ART

Course Description

Students in the Commercial Art program pursue studies in traditional media such as watercolor, pencil drawing, pen and ink, block printing and air brush with an emphasis on illustration. Work is also done in advanced color theory and design theory. Computer based studies continue with an emphasis on graphic design, or design to a printed end. Commercial Art students are also introduced to photography using the most current technology. Most of the students completing the Commercial Art course continue their education at the college level or at other post-secondary art schools.

Course Content

Some of the media studied include pencil drawing, pen and ink rendering, watercolor painting, airbrush, and digital photography. As reflects the trend in the graphic design field, there is an ever-increasing emphasis on computer-generated art. Students work with Macintosh computers using such programs as Photoshop, PageMaker and Illustrator.

Related Occupations

- Graphic Designer
- Illustrator
- Computer Graphic Artist
- Sign Maker
- Paste-Up Artist
- Interior Decorator
- Fashion Designer
- Display Designer
- Theatrical Set Designer
- Package Designer

Employment Outlook

Employment opportunities for commercial art graduates vary widely, reflecting the diversity of the field. The graphic communications industry remains strong and has expanded greatly in the area of multi-media presentations. Students with layout, typographic and mechanical preparation skills coupled with computer design talents will find numerous positions available in the area of graphic design. Positions are also available in such areas as sign making, visual merchandising, package design and display and exhibit design.

State and/or National Industry Recognized Certifications Available

PA and NOCTI Skills Certificate

DIGITAL MEDIA

Course Description

Students choosing the Digital Media program pursue a primarily computer-based course of instruction. Students learn to design web pages utilizing such programs as Adobe Dreamweaver and Adobe Flash. They also study such multimedia areas as video editing, sound editing and animation using a wide variety of software. Students entering the program with previous experience will be given a comprehensive test to determine their placement in the programs.

Program Content

Topics of study include computer hardware and software, digital imaging, print preparation, page layout and design, desktop publishing, video editing, digital photography, and applicable principles and graphic and web page design.

A person in this trade will be able to develop their skills in programs such as Illustrator, Photoshop, QuarkXPress, InDesign, Flash, Director and other various applications to excel in the world of graphic design. Along with the creative graphics side of the industry there is a strong need for production artist, photo retouching and prepress. Although these skills work hand in hand together there are still so many options to specialize in one area of the graphic arts field.

Related Occupations

- Art Director
- Production Artist
- Pre-Press Designer
- Web Designer
- Multi-media Design
- Flash Designer
- Print Advertising
- Press Operation
- Digital Retouching
- Print Preparation
- Mechanical Artist
- Photo Manipulation
- Catalog/Magazine/Newspaper Layout
- Desktop Publishing
- Video Production

Employment Outlook

The world of visual communications is growing faster with each new day, the programs and the computers have advanced to speeds in which the old saying of "It can't be done"... can. The Desktop Publishing and Digital Imaging field gives us the ability to combine all forms of mixed media to create endless possibilities through the print, web and multi-media.

State and/or National Industry Recognized Certifications Available

PA and NOCTI Skills Certificate, ADOBE Certificate

CONSTRUCTION

CONSTRUCTION TECHNOLOGY

Course Description

The Construction Technology Program is an excellent option for students interested in a career related to residential and commercial construction. This program includes studies in Carpentry, Masonry, Electricity and Plumbing. The first and second level students rotate through each of the construction trade laboratories, providing exposure to the skills required for success in each occupation. In the third year, the student has the option of remaining in the rotation or selecting a major for the year. This major can be incorporated with work-based learning in a paid or unpaid position

Course Content

The curriculum used is developed by the National Center for Construction Education and Research. Students also utilize the state-of-the-art construction software systems to supplement their classroom and shop learning experience. Incorporated into the programs are trade math, estimation, safety, blueprint reading, drawing and building codes.

Carpentry and Masonry topics include the use of a variety of hand and power tools and following technical specifications to produce many different types of projects, such as site layout, framing, siding, and finish trim along with installation of brick/block walls, fireplaces, and patios.

Plumbing and HVAC topics include oil and gas heating systems, air conditioning equipment along with plumbing, water supply, gas supply and drainage systems, copper, cast iron, PVC, and installation, maintenance and repair of gas line. Students also install and repair various plumbing fixtures.

Electrical topics include residential and commercial electrical systems in addition to category 5 and fiber optic cable systems, used in video, voice, and data transmission, will be properly installed and repaired.

Related Occupations

- Carpenter
- Plumber
- Electrician
- General Contractor
- Project Manager
- Sales and Service Technician
- Mason, Architect
- Estimator
- Building Inspector
- Job Site Supervisor
- Construction Engineer

Employment Outlook

This training can prepare students to enter the workforce immediately after high school or provide a pathway to a college, technical school, or university. Students may obtain up to 18 credits toward a college degree or certification program at various institutions such as Thaddeus Stevens College of Technology and Pennsylvania College of Technology. Students are also eligible to obtain a variety of industry recognized certifications and advanced placement into paid trade apprenticeship programs.

Since the program maintains close relationships with local employers and professional organizations, students readily participate in on-the-job internships, cooperative education and can easily obtain summer employment. There are also many scholarships available to Construction Technology Program graduates. The Housing and Commercial Construction industry has been on the increase for the past five years.

State and/or National Industry Recognized Certifications Available

PA and NOCTI Skills Certificate, Associate Builders Apprenticeship Program, EPA Section 608 Certificate, Premises Networking Cabling Systems Certification, OSHA 10-hour Certificate

TRANSPORTATION

AUTOMOTIVE TECHNOLOGY (Dual Enrollment)

Course Description

The Automotive Technology program introduces students to the Automotive Service Industry. The course focuses on developing the hands-on and intellectual skills required of an entry-level technician. This course is NATEF (National Automotive Technicians Education Foundation) certified. Students who meet the academic and employability skills qualifications may apply for the AYES (Automotive Youth Educational Systems) Program. Students are also offered the opportunity of dual enrollment at Montgomery County Community College.

Program Content

Topics of study include Tools/Fasteners, Suspension and Steering, Brakes, Electrical and Electronics Systems, Engine Repair, Engine Performance, Vehicle Maintenance and Reconditioning, Heating and Air Conditioning.

This program integrates science, math, communication and technical skills with on the job training so that students apply and enhance their classroom experience

Related Occupations

- Mechanic
- Automotive Technician
- Parts Sales
- State Emissions Inspector
- General Line Technician
- Service Writer
- Used Car Mechanic
- Specialty Technician

Employment Outlook

In dealerships across the country, challenging and well-paying jobs are going unfilled because there aren't enough qualified service technicians to fill the thousands of positions available today. This condition developed in the 1990's and is expected to continue for some years to come.

Twenty first century cars and trucks are very sophisticated high tech machines, with as many as two dozen different computers on board to monitor and control different systems. This means that today's automotive technician needs to have a much higher level of skill than was needed a generation ago. In fact, he or she needs to have the same kind of critical thinking skills as an electrical engineer. The individual who has such skills and the appropriate training has virtually unlimited career opportunities.

State and/or National Industry Recognized Certifications Available

PA and NOCTI Skills Certificate, Automotive Service Excellence (ASE 8 areas), Freon Handler's License

COLLISION REPAIR TECHNOLOGY

Course Description

Collision Repair Technicians are skilled workers who repair minor and major defects such as scratches, chips, dents, surface rust and rust outs. The technician also welds torn metal, replaces damaged parts, and estimates repairs. A person in this trade should have the desire to work with metal and finishing metals such as paints, solvents, and waxes. The program is A.S.E. (Automotive Service Excellence) and ICAR gold certified. Among the areas of study are Collision Repair and Paint Technician. Upon completion, students can pursue a college degree program in Collision Repair Technology at many colleges throughout Pennsylvania.

Course Content

The nationally recognized curriculum, I-Car prepares students to remove excessively damaged fenders, panels and grills using wrenches and cutting tools and attaching or manufacturing replacements by bolting, gluing or mig welding them in place. Other skills taught in this course include dent removal, body filling using plastic filler, fiberglass, and grinding, sanding and applying base coat, and clear coat paints using today's newest technology. This well-equipped lab contains state of the art equipment such as a prep station and a down draft spray booth.

Related Occupations

- Frame Equipment Specialist
- Repair Technicians
- Glass Specialist
- Insurance Estimator
- Customizing Specialist
- Auto Body Technician
- Industrial Spray Painter
- Sales/Auto Body Parts
- Car Detail Specialist
- Auto Refinisher Technician

Employment Outlook

The employment outlook for Collision Repair and Painting is connected to the number of vehicles damaged through accidents, vandalism, weather and age. As the accident rate is expected to increase over the next several years, employment is expected to rise faster than the average for all occupations. Industry needs workers who have knowledge and ability to assist in the development of the fast-changing technology of the latest automobile designs and styles.

State and/or National Industry Recognized Certifications Available

PA and NOCTI Skills Certificate, Automotive Service Excellence (ASE 5 areas), I-CAR (11 areas)

TECH PREP PROGRAMS

All programs at CMTHS are Tech Prep approved by the Pennsylvania Department of Education. Students who attend Central Montco Technical High School have the opportunity to get a head start on a technical career. The head start occurs through a process known as articulation via a program referred to as Tech Prep.

What is Tech Prep?

Tech Prep is a career preparation through articulation, advanced placement and dual enrollment. It is designed to prepare students to enter specific programs of study. The College Prep programs of study focus on academic and technical preparation with a course of study that combines two or four years of secondary education with two or more years of post-secondary education.

Through articulation, post-secondary institutions grant recognition for the achievement of college-level learning acquired through course work at CMTHS.

Are you a Tech Prep Student?

You are a Tech Prep student if you have taken a rigorous academic course of study, established a career objective and plan on continuing your education after high school. If you're unsure that you are a Tech Prep student, ask your guidance counselor. Be sure to ask about Tech Prep programs and special college articulation agreements, which may gain you college credit while in high school.

What are the advantages of advanced placement?

Articulation agreements recognize the students' mastery of college level learning during their secondary technical program of study. Through documentation or examination, students may obtain college credits. By obtaining credits, students will avoid duplicating course work and are eligible to select courses in advanced skilled areas. By taking advanced skill courses, students enhance their opportunities for high tech career employment.

Why do students need to take more rigorous academic courses?

Students planning on entering a post-secondary program can save time and money by successfully completing more rigorous academic courses. Most importantly, the requirement for 85% of all jobs in the United States economy require individuals who can perform at the highest level possible. Employers are seeking workers who are proficient at reading,

ARTICULATION AGREEMENTS

An articulation agreement is a formal document that matches coursework between secondary and post-secondary schools. These are designed to help students make a smooth transition from the high school setting to a post-secondary experience. Articulation agreements describe the scope and sequence of courses and in many cases, offer advanced placement options. As of September 2003 every program at Central Montco Technical High School has at least one articulation agreement with a post-secondary institution.

What is Dual Enrollment?

Dual Enrollment denotes that a student at CMTHS is receiving credit both for the CMTHS course and a Montgomery County Community College course. This is possible when the CMTHS instructor has been approved as an adjunct instructor at MCCC or when a student enrolls in one of the two Psychology courses offered once a week by MCCC instructors. Both options take place during normal class time.

**CENTRAL MONTCO TECHNICAL HIGH SCHOOL
ARTICULATION AGREEMENT**

CMTHS Program	Post-Secondary Entity	Type of Articulation
Allied Health	Gwynedd-Mercy College PA College of Technology Philadelphia University MCCC (Surgical Technology) MCCC (Radiography) Immaculata University University of the Sciences King's College	Advanced Placement & 9 Credits Advanced Placement Advanced Placement Preferred Admission Preferred Admission Preferred Admission Preferred Admission
Automotive Technology	Automotive Training Center PA College of Technology MCCC Universal Technical Institute	Advanced Placement Advanced Placement 6 Dual Enrollment Credits 7 Credits
Biomedical Technology	MCCC Immaculata University	6 Dual Enrollment Credits + 9 more available Preferred Admission
Collision Repair Technology	PA College of Technology Automotive Training Center	Advanced Placement Advanced Placement
Construction	PA College of Technology ABC Apprenticeship Trust	Advanced Placement Advanced Placement – 2 nd Level Student
Cosmetology	PA College of Technology (Business Management/Cosmetology)	Advanced Placement
Culinary Arts	PA College of Technology MCCC MCCC Johnson & Wales University The Restaurant School at Walnut Hill College	Advanced Placement 9 Dual Enrollment Credits 9 Articulation Agreement Credits 15 Credits 5 Credits
Early Childhood Education	MCCC	Advanced Placement + 6 Dual Enrollment Credits
Engineering Technology	PA College of Technology MCCC	Advanced Placement 9 Dual Enrollment Credits
Health Occupations	PA College of Technology MCCC (Surgical Technology) MCCC (Radiography) MCCC (Dental Hygiene)	Advanced Placement Preferred Admission Preferred Admission Preferred Admission
Networking Technology	MCCC	Dual Enrollment Credits
Pre-Nursing	PA College of Technology MCCC (Surgical Technology) MCCC (Radiography)	Advanced Placement Preferred Admission Preferred Admission
Public Safety	PA College of Technology MCCC (Criminal Justice/Fire Science)	Advanced Placement Advanced Placement & 3 credits
Visual Communications	PA College of Technology Art Institute of Philadelphia	Advanced Placement 12 Credits

SUMMARY OF SHOP REQUIREMENTS

Students interested in Central Montco Technical High School should know that each shop may have its own set of requirements. These are outlined below. It should be noted that any costs listed are approximate and subject to change.

ALLIED HEALTH TECHNOLOGY

- Light blue scrubs and light blue lab coat - \$60
- 1 or 2 GB USB drive - \$10
- White leather shoes - \$20
- A watch with a second hand - \$10
- Stethoscope - \$20
- Three ring binder - \$5
- Criminal history check completed on-line - \$10
- Physical examination, a 2-step Mantoux test and the Hepatitis B series performed by his/her family doctor or the school physician (cost depends on individual insurance coverage). This is a requirement for participation in clinical experience.
- All body art must be covered and no facial piercing or artificial nails are permitted via guidelines of Mercy Suburban Hospital.

AUTOMOTIVE TECHNOLOGY

- Dark blue T-shirt supplied by CMTHS (with program name and CMTHS logo) - \$10
- Dark blue Dickies® pants - \$25
- Leather work boots - \$40
- Safety glasses - \$5
- Three ring binder - \$5
- It is required that students purchase a basic tool set to aid in their future employment (approximate cost \$125.00)

BIOMEDICAL TECHNOLOGY

- White lab coat - \$15
- Safety glasses - \$5
- Leather shoes - \$20
- Three ring binder - \$5

COLLISION REPAIR TECHNOLOGY

- Black T-shirt supplied by CMTHS - \$8
- Dickies® pants - \$25
- Work boots with leather tops - \$40
- Safety glasses - \$5
- Three ring binder - \$5
- It is required that students purchase a paint respirator and complete an OSHA questionnaire signed by a doctor - \$60
- It is suggested that over a three-year period that students purchase a basic tool set to aid in their future employment (approximate cost \$125).

CONSTRUCTION TECHNOLOGY

- Green T-shirt supplied by CMTHS - \$8
- Leather work boots - \$40
- Safety glasses - \$5
- 25' tape measure, 6' folding ruler, leather work belt, nail apron, hammer holster, combination or padlock - \$50 (or purchase set of tools listed below)
- Three ring binder - \$5
- Two pencils, 1 pen
- 1 or 2 GB USB drive - \$10
- It is suggested that over the course of three years, students should purchase a basic set of tools that will enable them to become employed (approximate cost \$200).

COSMETOLOGY

- Complete Cosmetology Kit (Required by Pennsylvania State Board of Cosmetology)
- Two New Mannequins each year in addition to full kit (second & third year students only)
- Black Smock – included in kit
- Black Professional Pants (must be all black) - \$20
- Black Professional Shoes (must be all black) - \$20-\$50
- Three ring binder (3 inch) - \$5
- Pens/Pencils/Highlighters/Index Cards
- Students must apply for their State License in order to continue in the Cosmetology program for Manicuring at a cost of \$149 per exam per announced deadline.
- In order to successfully complete the Cosmetology course and receive 1250 clock hours, third year students must apply to take the State Board Exam by the end of the third marking period at a cost of \$149.

CULINARY ARTS/BAKING AND RESTAURANT PRACTICES

- Double breasted long sleeved white chef's coat*
- Properly hemmed black and white checked pants*
- **A floppy white cloth cooks hat***
- White apron*
- Work boots (No sneakers or athletic shoes) - \$40
- Black polo shirt/black apron* (restaurant uniform)
- Pens, pencils and a 3 or 4 inch three ring binder for the portfolio - \$5

**As of 2005 we have arranged with New Chef Fashions Uniform Inc. of California to ship directly to you the required uniform complete with the CMTHS logo. Please follow the directions on the order form that will be included in the summer mailing. Allow three weeks for delivery as each uniform is embroidered with the students name on it (approximate cost \$145).*

EARLY CHILDHOOD EDUCATION

Due to PA Department of Welfare, Office of Child Development and Early Learning laws, all students must provide the following documents.

- PA Criminal History Check (\$10)
- PA Child Abuse Clearance (\$10)
- Staff Health Appraisal with Mantoux T.B. Test (cost depends on individual insurance coverage)
- Confidentiality Contract
- All students must wear sneakers or closed toe shoes. Modest jeans and shirts are appropriate.
- Light blue lab jacket - \$20
- 1 GB USB drive - \$10
- Three ring binder (3 inch) - \$15

ENGINEERING TECHNOLOGY

- 1 GB USB drive - \$15
- Scientific calculator - \$15
- Metric/inch ruler - \$1
- Three ring binder - \$3

HEALTH OCCUPATIONS

- Navy blue scrubs - \$30
- White leather nursing shoes - \$20
- Stethoscope - \$20
- A watch with a second hand - \$10
- 1 or 2 GB USB drive - \$10
- Three ring binder (3 or 5 inch) - \$15
- Criminal history check completed on-line - \$10
- Physical examination, a 2-step Mantoux test and the Hepatitis B series performed by his/her family doctor or the school physician (cost depends on individual insurance coverage). This is a requirement for participation in clinical experience. All body art must be covered and no facial piercing or artificial nails are permitted via guidelines of the healthcare facilities.

NETWORKING TECHNOLOGY

- Five class shirts supplied by CMTHS (color is based on program level) – \$60

PRE-NURSING

- Navy blue scrubs and navy blue scrub jacket - \$60
- White leather nursing shoes - \$20
- Stethoscope - \$20
- A watch with a second hand - \$10
- Three ring binder (3 or 5 inch) - \$15
- 1 or 2 GB USB drive - \$10
- Criminal history check completed on-line - \$10
- Physical examination, a 2-step Mantoux test and the Hepatitis B series performed by his/her family doctor or the school physician (cost depends on individual insurance coverage). This is a requirement for participation in clinical experience. All body art must be covered and no facial piercing or artificial nails are permitted via guidelines of the healthcare facilities.

PUBLIC SAFETY

- Standard police style blue shirt with epaulets worn with navy blue or black dress trousers - \$33
- Physical training T-shirt supplied by CMTHS - \$8
- Belt, black shoes or boots - \$60
- Blood pressure cuff and stethoscope for emergency medical training - \$30
- Proper physical fitness attire is also required at the discretion of the instruction - \$20
- Large three ring binder - \$5
- 1 GB USB drive - \$10

VISUAL COMMUNICATIONS (DIGITAL MEDIA/COMMERCIAL ART)

- Foundation year tool kit consisting of brushes, pencils, ink and water color set, a toolbox to hold supplies, a portfolio and a three ring binder - \$75
- USB drive for computer files - \$20
- Students will be required to purchase their classroom uniform from the school at a cost of \$7

STUDENT ORGANIZATIONS

SkillsUSA and Health Occupations Students of America (HOSA) have chapters at Central Montco Technical High School. These programs are nationally recognized organizations in which all students participate. SkillsUSA is a national partnership of students, teachers and industry working together to ensure America has a skilled work force through leadership training and student government.

COUNCIL OF PRESIDENTS

Council of Presidents is established for each session with representation from all program areas. Meetings are held on a monthly basis with the primary goal of functioning as a student government.

NATIONAL TECHNICAL HONOR SOCIETY

The National Technical Honor Society is the acknowledged leader in the recognition of outstanding student achievement in career and technical education. Over 2000 schools and colleges throughout the U.S. and its territories are affiliated with the Society. Member schools agree that NTHS encourages higher scholastic achievement, cultivates a desire for personal excellence, and helps top students find success in today's highly competitive workplace.

Qualifying Criteria

1. Have a combined home school and Central Montco Technical High School Grade Point Average (GPA) of 3.3.
2. Have at least a GPA of 3.75 in their vocational major at Central Montco Technical High School.
3. Be nominated to the society by their vocational instructor.
4. Obtain approval from their home school principal and the Director of Central Montco Technical High School.
5. Be involved in community and/or school service activities.
6. Have a 90% attendance record with no major disciplinary actions.
7. Obtain two recommendations: one from a home school teacher and one from a non-school reference.

APPLYING FOR ADMISSION

Admission to Central Montco Technical High School is based upon the recommendation of home school teachers and guidance counselors and/or IEP team. An application with PSSA scores, transcript and a copy of the IEP if applicable is required before enrollment. The school enrolls students who thrive in a competitive environment. If you seek a learning environment where academics and applications are taught in tandem, are hardworking and highly motivated, you should consider CMTHS. Through careful scheduling with home school guidance counselors, students are able to meet most college entrance requirements and attend CMTHS. We encourage all students and parents to visit our school and meet with the CMTHS Guidance Counselor in order to select the most appropriate program and schedule of academic classes. Although our programs are developed around a three-year curriculum, you may enter CMTHS in 10th, 11th or 12th grade.

EQUITY STATEMENT

The Central Montco Technical High School does not discriminate in its educational programs, activities or employment practices based on sex, color, national origin, sexual orientation, disability, age, religion, ancestry, political opinions or affiliations, or lawful activity in any employee organization.

CENTRAL MONTCO TECHNICAL HIGH SCHOOL

<u>Subject</u>	<u>Grade Level Eligibility</u>
<u>Human Services</u>	
Allied Health Technology H	11-12
Biomedical Technology	11-12
Cosmetology	10-12
Culinary Arts/Baking & Restaurant Practices	10-12
Early Childhood Education	10-12
Health Occupations	10-12
Pre-Nursing	11-12
Public Safety	10-12
<u>Communications/Computer</u>	
Commercial Art	10-12
Digital Media	10-12
Engineering Technology	10-12
Networking Technology	10-12
<u>Construction</u>	
Carpentry/Masonry	10-12
Electricity	10-12
Plumbing	10-12
<u>Transportation</u>	
Automotive Technology	10-12
Collision Repair Technology	10-12

The Norristown Area School District does not discriminate in employment or educational programs, services or activities, based on race, color, national origin, sex, handicap, or age in accordance with State and Federal laws including Title IX of the Education Amendments of 1972, Section 504 of the Rehabilitation Act of 1973, Title VI of the Civil Rights Act of 1964, the Age Discrimination Act of 1975, and the Americans with Disabilities Act. Inquiries or complaints should be directed to the Director of Human Resources, Norristown Area School District, 401 N. Whitehall Road, Norristown PA 19403, (610) 630-5000.