

Westfield Technical Academy



## Program of Studies 2015-2016

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# Principal's Message

Dear Parents/Guardians and Students:

The Westfield Technical Academy Program of Studies Catalog provides our students and our parents with the information necessary to make informed decisions in completing a course of study for the coming academic year. Whether your future plans include college, military, or entering the workforce, course selection must be done with care. Giving this matter the serious consideration it deserves, will secure the selection of a meaningful and appropriate course of study.

Our departments continually review curriculum to insure our offerings are suitable and relevant in meeting the needs of our students. The curriculum is aligned to the state curriculum frame works, thereby promoting success on the MCAS exams. It is also aligned with the Chapter 74 Career Technical Education frameworks to ensure that our highly skilled graduates will enter the workforce successfully.

The selection of your career technical and academic courses is a collaborative process that should be taken seriously. Consider your courses carefully as they are the foundation upon which to build your future educational and career pathway. Our professional staff stands ready to assist you in this most important endeavor. Do not hesitate to contact us with any questions and/or inquiries regarding any aspect of the scheduling process.

Stefan Czaprowski - Principal

Kevin Daley - Assistant Principal

Peter Taloumis - Career Technical Education Director

Robert Ollari - Student Services Coordinator

## Superintendent of Schools

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## Administration

Stefan Czaporowski  
*Principal*

Kevin Daley  
*Assistant Principal*

Peter Taloumis  
*Career Technical Education Director*

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Laurie Gaido  
*Administrative Assistant*

Patricia Lecrenski  
*Special Education Office Paraprofessional*

Darlene Fernandez  
*Special Education Supervisor*

## Student Services:

Rob Ollari  
*Student Services Coordinator*

Tara Bean  
*Guidance Counselor*

Andrea Arvanites  
*Guidance Counselor*

Henry Bannish  
*Adjustment Counselor*

Kristine Hupfer  
*Substance Abuse Counselor*

Marianne Swenson  
*School Nurse*

Sue Osowski  
*Administrative Assistant*

## Westfield School Committee

- Daniel Knapik, Mayor & Chairperson-43 East Silver St.
- Cindy Sullivan- 21 Yankee Circle
- Jeffrey Gosselin- 36 Darby Drive
- Kevin Sullivan- 160 Wildflower Circle
- William Duval-277 Sackett Road
- Ray Diaz-242 West Road
- Diane Mayhew-21 West Glen Dr

## Admissions

Westfield Technical Academy admits students and makes available to them its advantages, privileges, and course of study without regard to race, color, sex, religion, national origin, sexual orientation, disability, or home status. Please contact us to set up a meeting or tour. Our application and admission policy are available at our main office or online @ [apply.wvths.com](http://apply.wvths.com)

## Facts Every Parent Should Know About Career Technical Education

Your son or daughter will receive two educations in one – a traditional high school education plus specialized training in a technical major. We recognize that not everyone learns the same way. Our programs emphasize inquiry-based and project based learning in addition to traditional classroom studies. Our co operative education program allows students to earn money for college and to apply their technical skills in the corporate environment while working in their technical area during high school.

## WESTFIELD TECHNICAL ACADEMY MISSION STATEMENT

### MISSION

The mission of Westfield Technical Academy is to educate and prepare our students academically, technically, and professionally to meet the challenges and opportunities of the 21<sup>st</sup> century.

### VISION

Westfield Technical Academy will be recognized as a student-centered learning community focused on integrating academic and technical achievement with career and college readiness.

### PHILOSOPHY

Westfield Technical Academy provides students with unique academic and technical experiences based on the philosophy and goals of the Massachusetts Curriculum Frameworks, and Massachusetts Career Vocational Technical Education Frameworks.

We are committed to providing a supportive and safe environment in order to meet the intellectual and social needs of our diverse student body. This philosophy is implemented by adhering to our core values:

Perseverance

Respect

Integrity

Diversity

Excellence

Westfield Technical Academy actively strengthens community and business partnerships with career and employment opportunities, parent organizations, mentoring programs, advisory boards, grant partnerships, field placements and volunteerism. Comprehensive counseling and special service programs complement the academic and career technical programs.

### GOALS:

- To use demographic, educational, and performance data to increase student achievement.
- To provide integrated academic and vocational programs which optimize the potential of each student.
- To maintain a current and demanding curriculum that is aligned to the academic and vocational Massachusetts Curriculum Frameworks and standards.

- To align technical programs to national standards and accreditation requirements, allowing students to obtain relevant licensure/certifications.
- To teach and model the importance of respect for everyone regardless of race, color, sex, religion, national origin, gender identity, sexual orientation, disability, or home status.
- To improve student achievement through relevant staff development.
- To enhance parent and school communication.
- To strengthen involvement and participation with Chapter 74 program advisory boards.
- To increase public awareness of Westfield Vocational Technical High School through expanded recruiting strategies and communication of student successes.
- To increase our graduation rate through a variety of intervention programs.

**ACCESS TO EQUAL OPPORTUNITY:**

In conformity with Chapter 622 of the Acts of 1971 and Title IX all courses of study offered at Westfield Technical Academy are open and available to all students without regard to race, color, sex, religion, or national origin. Any suspected failure to abide by the provisions of federal and state statues providing for equal opportunity should be reported to the principals.

**STATEMENT OF OBJECTIVES:**

**Administrative Staff**

The goal of the administrative staff is to:

- Promote an atmosphere that stimulates learning
- Provide a well-equipped learning environment for all students
- Maintain a certified, well-trained staff
- Provide support to the total school staff
- Keep abreast of the changing needs of the industry and the community
- Maintain an active advisory board which is representative of all career offerings

**Instructional Staff**

The instructional staff is committed to:

- Develop and maintain an on-going professional relationship with students
- Develop student employability skills and knowledge for acceptable workforce development performance;
- Develop student communication skills to ensure post-graduate success in the work-place and/or in postsecondary education
- Deliver state wide curriculum to enable all students to successfully pass MCAS
- Develop and maintain an effective and active advisory board

**Guidance**

Student guidance counselors:

- Assist students in achieve their academic/technical, workplace readiness, and personal/social potential
- Provide career and academic counseling to all students
- Advocate for students based on developmental needs.

## Curriculum

The goal of curriculum development is to:

- Provide modern and relevant objectives and learning materials
- Provide for all levels of ability
- Provide support services to all those who need assistance beyond the regular program
- Provide curriculum that will stimulate development, remedial, and enrichment growth
- Prepare students to meet the demands of the current labor market and meet MCAS graduation requirements.

The staff of Westfield Technical Academy is dedicated to serving all students according to their individual needs. A challenging curriculum is offered to stimulate all levels of ability, and to help each student fulfill his/her learning potential and career objectives.

## CAREER TECHNICAL AND EXPLORATORY PROGRAMS:

### Technical Programs

Allied Health  
Automotive Technology  
Aviation Maintenance Technology  
Business Technology  
Collision Technology  
Construction Technology  
Culinary Arts  
Electrical Wiring  
Graphic Arts  
Horticulture Technology  
Information Technology  
Manufacturing Technology

### Exploratory Program

All ninth grade students have the opportunity to explore the eleven career technical programs for a one day overview. These students will begin their individual career plans and goal setting standards as they assess each shop. At the conclusion of the one day experience, the students will examine four of their top six programs of interest. Ongoing career development throughout the one week rotation is critical to every student as they will have to narrow their career technical program to two choices before the end of the second term.

Final shop selection is based on shop performance, grades, attendance, behavior and aptitude. Upon selection, students are responsible for working closely with their parents, guidance counselors, administration and teachers to assure that their choices aligns with their career plan and goals.

# Automotive Technology

## What is Automotive Technology?

The goal of the Automotive Technology program is to prepare students for employment in the automotive service trades.

Preparation for success means that students must acquire technical knowledge, problem-solving skills, hands-on skills, and the ability to work cooperatively and harmoniously with their peers and instructors.

To help prepare students for employment, the curriculum is comprised of annually updated, industry-validated learning tasks which include:

- Three and a half years of related classroom instruction with hands-on, team-based learning
- A shop environment which is designed to replicate the key features of a well equipped operating repair facility
- Participation in job shadowing and cooperative education opportunities with local businesses (Grade ten through twelve)

For many years, the number of motor vehicles on the road has increased dramatically, while at the same time there has been a decline in the number of competent technicians to repair them. The automotive industry looks, in large part, to vocational schools to meet this growing demand for trained, competent, motivated, entry-level mechanics. For example, in Massachusetts, there are currently 22,100 automotive technicians to repair almost five million motor vehicles registered in the state. In the next few years, according to the Department of Employment & Training, 6,400 of these positions will need to be filled as technicians retire or leave the profession. In addition, it is predicted that the number of jobs opening up will increase by 13 percent, creating additional 2,800 automotive technician positions.

The automotive industry is actively recruiting individuals who are able to integrate diagnostic ability and manual dexterity in the repair process.

The program of studies at Westfield Vocational Technical High School and the automotive repair trade are divided into six specialty areas by the National Institute for Automotive Service Excellence (ASE). Most technicians are tested and become certified in one or more of the following areas:

- Suspension & Steering Systems Repair
- Brake Systems Repair
- Electrical Systems Repair
- Automotive HVAC Systems Repair
- Engine Repair
- Engine Performance Service



## Related Occupations

Aircraft Technician  
Automotive Technician  
Automotive Sales  
Diesel Technician  
Insurance Claims Adjuster  
Snow/ ATV/ Motorcycle / boat Tech  
NASCAR / Race Car Technician  
Recreation Vehicle Technician  
Welder  
Service Writers or Managers  
Factory Machine Maintenance  
Forklift Technician

## Courses

### Exploratory

During Exploratory week, the freshmen will be instructed in eighteen different tasks such as hand tool identification, shop safety, oxyacetylene torch instruction, tire and wheel service, charging system service, cooling system service, disc and drum brake service, and wheel bearing service. At the end of the one week exploratory, the freshmen will be required to take a hands-on test as well as a written test. Once students are chosen for the shop they will spend the remainder of the year being instructed in hand tool identification, correct shop and lifting safety procedures and automobile heating, air conditioning and cooling system service.

### Automotive Technology 9

This NATEF certified course will provide students with instruction in brake system nomenclature, brake system component description, theory of operation, diagnosis procedures, system service practices and workplace health and safety issues related to brake system service. Students will have the opportunity to perform numerous brake system repair tasks. Students will also receive instruction in steering and suspension nomenclature, component description, theory of operation, diagnostic troubleshooting procedures, system service practices and work place health and safety issues. In addition, students will receive instruction in four wheel alignment theory and the use of computerized alignment equipment.

### Automotive Technology 10

This is a full year course that meets all day on shop week. Students will apply knowledge from science class to diagnose and repair brake and steering and suspension systems.

### Automotive Technology Related 10

This NATEF certified course provides an overview of engine volumes, engine design, bore, and stroke and compression ratios. This is a one year course one year course that meets once a day on class week.

### Automotive Technology 11

This is a full year course that meets all day on shop week. Students utilize knowledge from science class to diagnose and repair engine performance related problems, tune-ups, fuel, ignition and emission repairs are performed during this course. Oscilloscopes, five gas analyzers and scan tools will be used extensively for the tasks on hand.

**Automotive Technology Related 11**

This NATEF certified course provides an overview of systems designed to manage engine performance and emissions. Students will receive extensive instruction in the use of oscilloscopes, multi-meters, and scan tools. This is a one year course that meets once a day on class week.

**Automotive Technology Related 11**

This NATEF certified course provides an in depth study of electrical theory and its application towards automotive systems. This is a one year course the meets once a day during shop week.

**Automotive Technology 12**

This is a full year course that meets all day on shop week. Students utilize knowledge from science class to diagnose and repair engine related problems, advanced engine performance diagnosis and engine component repairs are typically done at this level.

**Automotive Technology Related Science 12**

This course provides an overview of four stroke internal combustion engines and proper diagnosis procedures of engine related noises and concerns. Students will receive instruction in engine component nomenclature, component design and description, and theory of operation. Instruction will also focus on engine trouble-shooting and advance3d OBDII diagnostic procedures, engine service and repair practices, and workplace health and repair. Students will have the opportunity to perform engine service tasks in the laboratory.

## What is Allied Health?

Allied Health is a Nurse Aide Training (NAT) Program along with being a Ch 74 Health Assisting shop. The goal is to familiarize students with the diverse opportunities available in the healthcare field, in order to prepare students for work after graduation. Allied Health provides students with exposure to hospital, long-term care, and other medical venues, as well as career opportunities in the field of early childhood education. Through affiliations with institutions in the Westfield community, including Western Massachusetts Hospital, Baystate Noble Hospital, and the local long-term care facilities, student gain hands-on clinical experience, giving them a valuable edge in the job market. Allied Health students may also explore other health-related careers through shadowing programs.

The curriculum ensures that students are capable of reading, spelling, understanding, and communicating in appropriate medical terminology. Allied Health students learn the importance of maintaining patient/resident confidentiality and gain an understanding of their responsibility in ensuring that patients'/residents' rights are not violated. Class work and clinical skills reflect the needs of the geriatric patient, and care is delivered in local nursing homes. Students develop interpersonal, organizational, problem solving and computer skills as they apply in the healthcare setting. Instructors strive to instill a good work ethic by establishing realistic standards for attendance, appearance, and attitude both in the classroom and clinical settings.

Our NAT program is accredited by the Department of Public Health and, by the end of the junior year; students are capable of demonstrating a thorough understanding of nursing assistant skills necessary to successfully complete the Certified Nursing Assistant competency exam, which is administered by the American Red Cross.

### Students in the Allied Health shop may receive:

- Certified Nurse Assistant, through the American Red Cross Nurse Aide Training Competency Exam (\$93)
- American Heart Association, Basic Life Support for the Healthcare Provider CPR/AED certification
- American Heart Association, First Aid Certification
- Nutritional Assistant WVTHS Certification
- Homemaker/Home-Health Aide WTA Certification
- Certificate of Completion of "Caring for People with Alzheimer's Disease" Rehabilitation curriculum.

In addition to basic nursing skills, classroom instruction covers nutrition, child growth and development, human diseases, medical terminology, Alzheimer's habilitation curriculum, home-health aide curriculum and a senior project. At the time of their high school graduation, Allied Health students are well prepared to enter the workforce in any of several healthcare related career paths. They are also prepared academically to continue their education at the college level, should they choose to pursue a nursing, paramedic, or other post-high school degree in the health care field.

### **Related Occupations**

Administrative Assistant  
Dental Assistant  
Health Care Administrator  
Health Records Professional  
Licensed Practical Nurse  
Medical Lab Technician  
Medical Secretary  
Medical Transcriptionist  
Nurse  
Nursing Assistant  
Phlebotomist  
Physical Therapy Assistant  
Physician Assistant  
Psychiatric Aide  
Receptionist/ Information Clerk  
Surgical Technologist

### **Automotive Technology Courses**

#### **Exploratory**

In addition to First Aid, Grade 9 students will receive training in Cardiopulmonary Resuscitation (CPR) and Automatic External Defibrillation (AED). The students are introduced to concepts in Certified Nurse Aide: Roles and Responsibilities, Patients Rights, Interpersonal Skills, Body Mechanics, Infection Control, Vital Signs, Safety and Emergency Procedures, Nutrition, and Understanding Long-Term Care. The students learn the Body Systems and Organs as well as function and common diseases related to individual body systems. Finally the students are developing Basic Medical Math and English skills with journaling, reading relevant materials and writing papers. Clinical site work is based on developing communication and interpersonal skills in a geriatric recreational setting as well as early childhood sites.

#### **Allied Health 10**

Students receive classroom instruction prior to beginning clinical rotation of a nursing facility in the following: communication/interpersonal skills, infection control, aseptic technique and respecting patients' rights. Roles and Responsibilities of the Nurse Assistant, Community Healthcare, Ethical and Legal issues learned during the freshmen year are reemphasized. Basic Skill instruction includes: hand washing, bed making, vital signs, heights/weights, assistive devices in ambulation and transferring as well as CPR/AED skills. Grade 10 students will be exposed to a variety of healthcare occupations (e.g. nursing, physical therapy, occupational therapy, respiratory therapy, recreational therapy, and so on.) in the clinical settings. The importance of infection control while students practice bed making and observe the role of the nurse assistant is stressed at the clinical site. Successful students may participate in job internship at an assisted living facility performing recreational aide duties. Sophomores may affiliate at local hospitals, assisted living facilities and early childhood classrooms including elementary schools.

**Allied Health 10 Science CHILDHOOD GROWTH AND DEVELOPMENT**

Childhood growth and development provides an overview of the physical, cognitive, social, and emotional characteristics of young children. Students are exposed to practical techniques for guiding children, establishing rules, and handling daily routines. They learn to plan developmentally appropriate curriculum and handle special concerns related to infants, toddlers, and school age children. Special needs and developmental delays are discussed as related to the early childhood individual.

**Allied Health 11 NURSE AIDE COMPETENCY TRAINING**

The nurse aide competency training process for nurse assistants and its requirements are followed as the students follow the state and federal mandatory guidelines. Classroom theory and clinical practice encompass training for personal care skills some of which include: bed bath, range of motion, elimination needs, nutritional needs, positioning, transferring, oral care, back care, hair care, foot care and hand and nail care. Geriatric and rehabilitation care are stressed for the long-term care resident and the age-related changes for the elderly. Clinical practice to obtain the needed long-term care hours is obtained at area nursing homes. Students will have attained the skills necessary to successfully complete the state nursing assistant certification (CNA) exam.

**Allied Health 11 Science HUMAN DISEASES 1**

Students learn Human Diseases in relation to anatomy and physiology. Weekly reading assignments about diseases and other medical conditions, lead to written reports. Students identify important signs and symptoms related to diseases and identify age-related conditions per body system. Mechanisms of disease, neoplasm, inflammation and infection, integumentary system, musculoskeletal, nervous, eye and ear disorders, endocrine, liver, gallbladder, and pancreas disorders will be studied.

**Allied Health 11 Science MEDICAL TERMINOLOGY**

An introduction class devoted to the terminology of medicine and health care, based on the study of medical work roots, prefixes, and suffixes. Terminology is presented according to physiologic systems. In addition to basic medical terminology, the course introduces medical abbreviations and some common pharmacological terms.

**Allied Health 12 ADVANCED NURSING ASSISTANT 2**

Grade 12 students that successfully have passed the C.N.A. test and have found employment may go on cooperative education. The senior curriculum includes training in Habilitation r/t Alzheimer's patients, First Aid Certification, Home health/homemaker and Advanced Nursing Assistant including Sub-acute, Pediatric, Care of the patient with cancer, alternative and complementary care. Senior clinical affiliations include Western Massachusetts Hospital where care is given for patients with severe dementia.

**Allied Health 12 Science: HUMAN DISEASES 2**

Part II of the curriculum, Anatomy and Physiology is stressed. Senior human diseases encompass specific systems along with childhood and mental health diseases. Students are assigned a senior project that involves comprehensive interviews with individuals who have at least two diagnosed medical conditions. Students demonstrate the knowledge they have acquired via formal presentations to the faculty, Completion of the senior project is a requirement for graduation.

# Collision Technology

## What is Collision Technology?

Have you always had an interest in form and substance? Do you have a passion for design and cars? These two interests combine for a solid, secure, and a stimulating career working within the collision technology field.

The Automotive Service Association estimates that collision repair is nearly a \$30-billion a year industry. That translates into tremendous job security and mobility!

Repairing and repainting damaged vehicles back to their pristine condition is very rewarding. A basic talent, such as an eye for color and dimensions, is only the beginning to a successful career in Collision Technology.

Westfield Technical Academy offers a three year collision technology program for tenth, eleventh, and twelfth grade students. This program is based on one hundred eighty school days of which fifty percent of the time is spent in the shop, and the remainder in the academic and related classrooms.

A wide variety of state-of-the-art equipment throughout the shop provides students proper training and understanding necessary to develop a positive work ethic, a strong sense of achievement, social skills needed to become productive citizens, and technical skills to obtain an entry level position in the collision repair industry. The program also has a diverse advisory committee, comprised of shop owners, ASE Certified Instructors, student advisors, who meet at least twice during the school year.

The primary goals of Collision Technology Program are to develop entry level auto body skills through the implementation of a competency based curriculum and provide an academic curriculum, which allows the students to further their education beyond the high school level. Students will continually develop skills in proper shop health and safety practices relevant to the collision industry through SP2 training.

Current educational trends have changed the delivery of Westfield Vocational Technical High School's Collision Technology curriculum from textbook to computer based. Using the Inter-conference of Automotive Collision Repair (I.C.A.R.) electronic curriculum, students now use laptop computers in conjunction with Smartboard Technology to align with the national, state and district goals.

Capturing technology even further, all Collision Technology students create their own individual electronic portfolio. These portfolios reinforce methods and tooling required to complete given tasks and facilitate student reflection. Portfolios are developed during freshman year and are continually updated through senior year.

Daily journals are also required as a means of integrating writing skills and promoting student reflection.

### **Related Occupations**

Auto Detailer  
Automotive Refinisher  
Auto Assemblers  
Auto Body Repairer  
Automotive Glass Installer  
Automotive Retail Sales  
Collision Technology Instructor  
Automotive Parts/Equipment Sales  
Insurance Adjusters  
Vehicle Appraiser  
Sheet Metal Fabricators  
Welder  
Nascar Pit-crew Mechanic

### **Collision Technology Courses**

#### **Exploratory**

Grade 9 students will receive an introduction to the Collision Technologies Program. A comprehensive safety program will be initiated with a completion of a safety certificate from SP2 on-line testing. Students will be introduced to a variety of career opportunities within the collision repair-refinishing field. Students will receive classroom and shop instruction on proper hand and power tool use along with basic skills on panel straightening, plastic filler application and refinishing techniques. Students begin portfolios at this time.

#### **Collision Tech Science 10**

Reading, writing, and basic math skills will be reinforced throughout this course. Tenth grade curriculum includes a comprehensive notebook that will be kept to develop effective organizational skills. Math skills will be developed through the use of precision measuring tools. Students will learn how to compare and contrast fasteners, identify hand and power tools along with multiple forms of metal welding and cutting techniques. Students will identify and understand the functions of automotive mechanical and electrical components including headlamps, brake components and SRS systems.

#### **Collision Tech Shop 10**

Students will continually develop skills in proper shop health and safety practices relevant to the collision industry through SP2 training. Students will use hand and power tools to demonstrate proper tool to fastener compatibility. They will practice multiple forms of metal welding and cutting techniques including M.I.G., Oxyacetylene, and Plasma arc cutting. Students will be introduced to the proper repair of automotive mechanical and electrical repairs including, headlamp, brake components and SRS systems.

#### **Collision Tech Science 11**

Reading, writing, and basic math skills will be reinforced throughout this course. Students will continue to receive instruction on shop safety practices. This course provides an overview of automotive vehicle

construction, diagnosing minor and major collision damage, plastic repair procedures, glass identification and replacement. Multiple forms of vehicle measuring will be incorporated with the use of Chief's Universal Measuring System and Genesis Laser Measuring System. The curriculum will include a comprehensive notebook that will be kept to develop effective organizational skills.

### **Collision Tech Shop 11**

Junior students will develop skills in proper shop health and safety practices relevant to the collision industry through SP2 training. Junior students will be introduced to automotive vehicle construction focusing on diagnosing structural damage, developing basic frame and unibody straightening techniques while keeping an emphasis on safety. Students will demonstrate how to analyze structural damage and perform vehicle frame and unibody straightening. In addition, they will develop proper techniques and non-structural sheet metal alignment, proper surface preparation, advanced M.I.G. welding and metal patching.

### **Collision Tech Shop 12**

Students develop skills in proper shop health and safety practices relevant to the collision industry through SP2 training. Students will demonstrate the fundamentals of painting and refinishing including surface preparation, taping, color matching and vehicle detailing. Grade 12 students will practice computerized estimating and develop proper office managerial skills through ordering parts, tracking inventory, organizing work orders and customer service.

Co-operative placement is available for students who meet all academic and technical standards.

### **Collision Tech Science 12**

Reading, writing, and basic math skills will be reinforced throughout this course. The curriculum will include a comprehensive notebook that will be kept to develop effective organizational skills. Students will receive the fundamentals of painting and refinishing including surface preparation, taping, computerized color matching and vehicle detailing.



# Aviation Technology

## What is Aviation Technology?

Aviation is one of the world's fastest growing industries. The Federal Aviation Administration (FAA) 2013-2033 Forecasts predicts that demand for air travel will continue to grow as the economy grows. By 2033, US commercial carriers are projected to transport 1.15 billion passengers. What does this mean for our students?

It means manufacturers are increasing aircraft production to meet these growing demands and will need qualified technicians to service and maintain them. Boeing, the largest manufacturer of jet aircraft in the United States, anticipates delivery of over 35,000 new airplanes over the next 20 years. The same forecast states that in North America, there will be a need for 97,900 AMT's from 2013 to 2033.

Our Aviation Maintenance Technician (AMT) program utilizes both lecture and extensive hands on training, in labs and on aircraft, to meet the requirements of Federal Aviation Administration (FAA), Part 147. The program is comprised of three parts; General, Airframe and Powerplant.

Some of the many subjects that students will receive instruction in include; Basic Electricity, Aircraft Drawings, Weights and Balance, Ground Operation and Servicing, Corrosion Control, Assembly and Rigging, Airframe Inspection, Landing Gear Systems, Hydraulic and Pneumatic Systems, Instruments, Communication and Navigation Systems, Fuel Systems, Fire Protection, Reciprocating and Turbine Engines, Ignition and Starting Systems, Exhaust and Reverser Systems, Propellers and many others.

Upon successful completion of this program, students will be qualified to become certified A&P (Airframe & Powerplant) mechanics, ready for a career in aviation.

## Related Occupations Include:

- Field Service Technicians
- Commercial Aircraft Technicians
- Service Technicians for Corporate and Private Jets
- Jet Engine Mechanics
- Quality Control Flight Line Assembly
- Prototype Aircraft Manufacturing
- Research and Development
- FAA Aircraft Inspectors
- Safety Agents
- Airport Managers
- FAA Instructors
- Insurance Accident Inspectors
- Technical Writers

## Aviation Technology Courses

Throughout our program, students will continue to grow confidence in their overall knowledge of general aircraft, airframe and powerplant systems. They will have extensive practical application of principles through various labs and projects. Our students will learn by doing.

### **Exploratory**

Students will have a chance to see an aircraft close up. They will become acquainted with Aircraft Drawings, Maintenance Publications, Operations and Servicing. Additionally, a general introduction to the many different aircraft systems will be performed. Students can expect to become more comfortable with the language and concepts of aviation.

### **Aviation Technology 9**

General Part I - Basic Electricity, Aircraft Drawings, Maintenance Publications, Maintenance Forms and Records, Mechanic Privileges and Limitations, Materials and Processes, Cleaning and Corrosion Control and Weights & Balance.

### **Aviation Technology 10A**

General Part II - Ground Operation and Servicing, Fluid Lines & Fittings, Mathematics and Basic Physics.

### **Aviation Technology 10B**

Airframe Part I - Wood Structures, Aircraft Covering, Aircraft Finishes, Sheet Metal and Nonmetallic Structures, Welding, Assembly & Rigging and Aircraft Landing Gear Systems.

### **Aviation Technology 11A**

Airframe Part II - Hydraulic and Pneumatic Power Systems, Cabin Atmosphere Control Systems, Aircraft Instrument Systems, Communication and Navigation Systems, Aircraft Fuel Systems, Aircraft Electrical Systems, Positions and Warning Systems, Ice and Rain Control Systems, Fire Protection Systems, Airframe Inspection.

### **Aviation Technology 11B**

Powerplant Part I – Reciprocating Engine Theory, Design and Construction, Inspection, Maintenance and Operation, Engine Instrument Systems, Lubrication Systems, Ignition and Starting Systems, Engine Fuel & Fuel Metering Systems, Electronic Engine Systems.

### **Aviation Technology 12**

Powerplant Part II - Induction and Airflow Systems, Engine Cooling Systems, Engine Exhaust Systems, Reciprocating Engine Familiarization and Differences, Turbine Engine Theory and Development, Turbine Engine Operating Principles, Design and Construction, Nomenclature, Inspection, Maintenance, & Trouble shooting, Instrument Systems, Lubricating Systems, Ignition and Starting System, Fuel & Fuel Metering system, Electronic Engine Systems, Inlets and Nacelles, Cooling Systems, exhaust Systems, familiarization and Differences, Fire Protection Systems, Electrical Systems, Basic Propeller Principles, Types of Propellers, Fixed-pitch Propellers, Constant-speed Propellers, for Light A/C, Turboprop Propellers, Propeller Ice-Control Systems, Propeller Inspection & Maintenance.

## What is Business Technology?

The **Business Technology** program at Westfield Vocational Technical High School offers some of the most exciting work on campus because its curricula reflect the rapid changes taking place in the business world. With the emergence of highly sophisticated electronic technology, a new breed of business professional is needed in the workforce. The “Office of the Future” has arrived, bringing with it integrated office systems and administration.

The skills that are learned by students in **Business Technology** are going to be directly related to that which is needed by future employers of these skills. Office Administrators use computers frequently for word/information processing, spreadsheet and graphical presentations, database processing, and desktop processing. Also covered in **Business Technology** will be subjects related to web-page design, introduction to business, business math and accounting, general office procedures and machines. *The Business Technology program is geared to help the graduating seniors find an entry-level position in the Business environment.* The program also provides an excellent foundation to prepare students to continue his/her education at a 2- or 4-year college.

Students will have the opportunity to become certified by Microsoft (MOS) in MS Word, PowerPoint, Excel, Access, Outlook, and Publisher.

Students are actively engaged in the operation of the school store--**Tiger’s Den**--which aides them in the development of their customer service skills. The school-based store is an effective educational tool in helping to prepare students for the transition from school to work or college. For many students, it provides the first work experience; for others, it provides an opportunity to build management, supervision and leadership skills. The school store lab is where the concepts of marketing/business education curriculum are put into practice.

Another opportunity for students in the program is to “work” in our own, in-class Copy Center/Help Desk. In this center, students operate various types of equipment including copiers, laminators, and binding equipment. Through the Help Desk students have to apply competencies learned in shop and work on “real life” jobs from individuals throughout the school and community.

Aptitudes and talents that would add to the students’ learning experience include: ability to work with others, good communication skills, being goal oriented, and having a great desire to work and learn.

### **Business Technology Benefits**

- Latest and most current hardware and software technology are being used.
- Students will have their own workstation assigned to them throughout the program.
- Shadowing opportunities are made available for qualified students so that they can gain practical knowledge.
- Cooperative education will allow qualified students to earn money while they work. Students gain great experience and pride with these opportunities.
- Students will have the access to the Internet for worldwide access to unlimited information.

- Students will benefit from learning and working in an office environment with open communication lines to their peers.
- Graduating students from Business Technology will have the solid foundation to pursue higher educational degrees.

### Related Occupations

Paralegal  
 Administrative Assistant  
 Web Page Design  
 Database Management  
 Retail Sales Associate  
 Accounting specialist  
 Information specialist  
 Technology assistant  
 TTY Operator  
 Office Assistant  
 Business Administration  
 Banking and Finance  
 Marketing  
 Bookkeeper  
 Court Clerk  
 Court Reporter  
 Medical Administration Assistant  
 Office Manager  
 Receptionist/Information Clerk  
 Purchasing/Salesperson

### Business Technology Courses

#### Exploratory

During the one-day exploratory, utilizing seniors as mentors, students will have the opportunity to explore various aspects of the program with a hands-on approach to a wide variety of business applications. Students will experience projects that introduce the various software programs used throughout the Business Technology curriculum. As the students progress to the one-week exploratory, students will be able to achieve competencies in keyboarding, office machines, Microsoft Office, web design, office procedures and practices, and business math with calculators. Students will create a business or product and produce marketing materials, a web page, and related business documents.

#### Business Technology 9

The focus of the 9<sup>th</sup> grade curriculum is to have the students gain skills utilizing a wide variety of computer applications. Students focus on becoming proficient in MS PowerPoint, MS Word, and MS Publisher. Students are introduced to document processing, web page design, business machines, computer literacy, and general office procedures. Freshmen also have the opportunity to begin training at the school store. Here they learn cash management skills, customer service skills, inventory, and overall store operations. Portfolios are also introduced.

### **Business Technology 10**

As students continue from 9th grade to 10th grade year, core curriculum is enhanced. Microsoft Office is still a major focus adding Microsoft Excel to the curriculum. In addition, students begin to focus on accounting, business math, and office procedures. Adobe elements is introduced as well as continuing student portfolios. Students continue to work at the school store developing decision making and other marketing strategies to attract customers to the store. As the year continues, students become contributing members of the program learning various skills and tasks used throughout their career.

### **Business Technology Science 10**

The accounting cycle for two types of businesses, proprietorships and partnerships, for both a service and merchandising business are covered in accounting I. Students learn how to analyze transactions, journalize, post, work with petty cash, prepare financial statements, and complete adjusting/closing entries. Accounting concepts are introduced using a modern business with owners that students can relate to in each cycle.

### **Business Technology 11**

Grade 11 is a significant transition for the Business Technology student. In this course students enter an in-depth program of study designed to polish their computer, presentation, writing, desktop publishing, spreadsheet, and advertising skills. Database management with Microsoft Access and simulation software are introduced during the junior year. Students become more adept at producing desktop publishing documents and brochures, creating projects from the ground-up and producing various ad-hoc reports. Also, to simulate a business-like environment, a less formal teacher-led course is stressed where students learn to prioritize work and enhance time management skills. Students apply real life business skills through various business simulation software in a shop setting and continue to enhance their computer and business skills.

### **Business Technology Science 11**

This course is an overview of business concepts and its environment. Through practical applications, students learn about the skills required in today's marketplace. Core elements of the 11<sup>th</sup> Grade Related Science program focus on the areas of entrepreneurship, strategic planning, business management, teamwork, business law, marketing, decision making and financial management of a business. Students will engage in developing a business plan for a business of their choosing. Students will take this business plan and participate in developing their business idea from concept, to reality, to execution (sales) and finally to financial summary (profit and loss statement).

### **Business Technology 12**

This course is designed to provide students with the opportunity to utilize the skills learned during the previous three years. This can be achieved through our co-operative program where students who are eligible are employed by local business during their shop week. Students not participating in the co-operative program, focus on mastery of the skills used in the business world. The Business Technology Program prepares students for employment in one of the largest major occupational areas- Business/Computer Information Systems. The Business Technology program provides the students with

the necessary skills to be successful in the modern business world and prepares the students to be successful in the new millennium.

### **Business Technology Science 12**

This course is designed to refine the fundamental skills necessary for success in the business world today. Attention is given to courses and simulations that allow the student to demonstrate mastery of written and oral communications skills, financial responsibility skills and skills characteristic of reliable, dependable and competent workers. The final senior project and accompanying presentation, will demonstrate the student's Business Technology competencies within the frameworks as well as the integration of the principles of business: planning, organizing, staffing, leading and controlling.

## What is Construction Technology?

Construction Technology Program at Westfield Technical Academy is designed to provide students with entry level skills in the areas of house building, remodeling and millwork. Students begin their career by developing millwork and cabinetmaking skills in our fully equipped, modern and professional workshop where they complete a large number of diverse hands-on projects.

During their 11th and 12th grade years, students concentrate on carpentry and building construction. This exciting and ambitious learning experience is accomplished through a variety of off campus building projects. These projects provide the students with instruction in all aspects of building construction including site development, building layout, house framing, roofing, siding, and interior finishing. In addition job site safety, teamwork and interpersonal skills are taught. Our Co-operative Education program offers students a chance to get on the job training while they are still in school.

Construction technology students receive classroom instruction in building code and theory, estimating, blueprint reading and building layout.

Building construction and its related fields are some of our nation's largest and most vital industries. There are a wide range of career opportunities that offer well paid and challenging work. Students wishing to enter our program should have good basic math skills, mechanical aptitude, physical fitness and a good work ethic.

### Related Occupations

Building Inspector  
Cabinetmaker  
Drywall Installer  
Home Builder  
Electrician  
Architect  
Home Inspector  
Roofer  
Plumber  
Tile setter  
Mason  
Glazier  
Flooring Installer  
Bricklayer  
Home/ Business Renovations  
Restoration and Remodeling

## **Construction Technology Courses**

### **Exploratory**

Grade 9 students will be introduced to basic woodworking and construction procedures including safety and tool identification and usage. Students will have the opportunity to begin applying a variety of skills through the production and creation of projects using wood products.

### **Construction Science 10**

Students will learn step by step procedures for proper shop safety, use of safety devices and hand tools, and stationary power tools. The second half of the year students will be introduced to the construction industry, building codes and planning, estimating and scheduling, and reading and drawing plans. A strong foundation in math is essential and will be reinforced and applied to the above tasks and objectives.

### **Construction Technology 10**

Grade 10 students continue to develop their skills in alignment with the COPS (Certificate of Occupational Proficiency). Safety procedures and practices are thoroughly taught and reinforced by the instructor in the shop environment. Students learn the correct use of hand tools, portable power tools, and stationary power machines. 10th grade students practice using higher order skills through the development of jigs and fixtures and other problem solving techniques. Students transition from woodworking/millwork into carpentry skills toward the end of this course.

### **Construction Science 11**

Construction Science focuses on carpentry and building construction along with the principles of building foundations. Wood and steel frame construction is covered along with closing in the structure and the finished carpentry work. A variety of math is utilized in the related curriculum.

### **Construction 11**

Students will perform a variety of tasks associated with residential construction. Students will be able to read and interpret construction blue prints and building codes. Students will also learn to operate hand and motor tools, safe ladder and scaffolding procedures, and personal protection gear. Subjects covered include wall framing, flooring, ceilings, and roofs. Interior and exterior finish work is also covered. There is a strong emphasis on safety, teamwork, and quality of work. Adherence to OSHA regulations is applied to specific tasks and jobs in this occupational area.

### **Construction Technology 12**

Project based learning will take place off campus at a selected sight in the community with the completion of a building structure.

### **Construction Science 12**

Students will understand the dynamics of construction drawings and design sequences. International Residential Code and State Building Codes are also reviewed along with material estimating. Appropriate math is integrated into subject matter.



## What is Information Technology (IT)?

Information Technology provides a hands-on learning environment for teaching the skills needed today by businesses large and small. Students will learn how computers function, as well as how to build and repair them. Students will learn how to build client/server computer networks, and how to manage the networking needs of information age businesses.

Upon completion of this program, many students pursue higher education. IT is a member of the Computing Technology Industry Association. CompTIA supports vendor neutral training and certifications. Our curriculum is tailored to meet the objectives covered in their A+ Certification exams.

With your A+ Certification you will enjoy the benefit of your internationally recognized status as a competent computer service technician. Employers will know that you have the skills they need to keep their computers running. Consumers will have the confidence to trust you for their upgrade and repair needs.

CNET partnered with Cisco Systems, Inc. and Springfield Technical Community College in 2011 to create one of the first Cisco Networking Academy Programs in western Massachusetts. Now the world's largest on-line classroom, the Cisco Academy is designed to give students the training they need to design, build and support computer networks for all types of businesses, from the small home office to Internet Service Provider's (ISP's) to global enterprises. It also prepares students to get the highly coveted CCNA certification, recognized the world over for excellence in networking.

Graduates from the IT department are currently employed in a variety of careers that include network security, help desk support, field service engineer, network administrator, computer repair technician, cable TV/internet installers, and others. Students have also gone on to receive degrees from Westfield State College, Western New England University, Worcester Polytechnic Institute, University of Massachusetts, High Tech Institute of Tennessee, and others. Many IT students pass industry standardized exams, becoming Certified Professionals in their field, while they are in high school.

### Related Occupations

Business Systems Analyst	Web Developer
Computer Engineer	Webmaster
Computer Programmer	Data Security Analyst
Computer Scientist	Network Security Specialist
Computer Support Technician	
Computer Trainer	
Database Developer	
E- Business Consultant	
Network Administrator	
Technical Sales Representative	
Linux/Unix administrator	
Telecommunications	

## Information Technology Courses

### **Exploratory**

During IT Exploratory, IT exploratory students learn the skills needed to manage Linux workstations and to develop basic web pages. Students build a web server with Linux and publish a web site on it that is visible from the Internet. Students also learn personal leadership skills and are introduced to basic networking concepts.

### **IT 10**

#### **Technical Writing**

Students will be introduced to technical writing and communications needed for careers in Information Technology. Topics include grammar, syntax, and writing formats; use of a word processor, spreadsheet and presentation software; and oral communications.

#### **PC Support Concepts**

Students review the concepts, skills, and procedures involved in preparing to take the CompTIA A+ certification exam for computer repair and maintenance.

#### **Cisco IT Essentials: Fundamentals**

This hands-on course challenges students to master computer hardware objectives from the CompTIA A+ certification exam for computer repair and maintenance. Topics include hardware installation, troubleshooting, and repair; component specifications and configuration, and upgrading computer technology.

#### **Cisco IT Essentials: Advanced**

This hands-on course challenges students to master computer operating system objectives from the CompTIA A+ certification exam for computer repair and maintenance. Topics include operating system installation, configuration, security, troubleshooting, maintenance and upgrading. Students who successfully complete courses 2081 and 2082 may elect the CompTIA A+ industry certification exam.

### **IT 11**

#### **Intro to Programming**

Students in this course learn fundamental elements of programming through a project-based curriculum using an object-oriented language such as Microsoft's Visual Basic .Net.

#### **Networking Administration**

This course covers computer networking concepts involving the OSI model, cabling, network hardware, network security, network management and documentation. It provides students the opportunity to learn the skills needed to pass CompTIA's Network+ industry certification exam.

#### **Networking the Physical Layer**

This course covers the first quarter of the Cisco Networking Academy program. The course includes objectives in networking fundamentals, network cabling, network math, and subnetting. Students complete a case study project in network design as part of this course.

**Networking Operating Systems**

This course challenges students to learn how to build a secure network fileserver. Concepts include directory objects, directory structure, file system and user rights, security, automated workstation and application management, printing, and scripting. Students successfully completing this course may take an exam to become professionally certified.

**Switching and Routing**

This course is the second in the four-part Cisco Networking Academy program. Topics include basic router configuration, router management, routing protocols, TCP/IP, and wireless routing and network address translation. Students perform numerous lab exercises to develop proficient hands-on skills with network routing.

**IT 12**

12th grade year program provides several options for students that may include; Cisco Networking Academy parts 3 and 4, a senior project, or a field experience, internship or co-operative education experience (Co-op)

This 12th grade level, *Career Management*, course gives students an opportunity to focus on the skills needed to further their careers. Topics include researching colleges, college programs and admissions procedures; researching employment opportunities, developing a resume, and portfolio; preparing for interviews, and managing a personal career plan.

## What is Culinary Arts?

The food service industry is one of the fastest growing career tracks. Many career opportunities are available to individuals who pursue a career in a food service field. With the proper training, students can obtain the skills necessary to achieve their future goals including going on to a post secondary Culinary Arts school.

The Culinary Arts Program exposes students to the many aspects of this ever changing pathway. In the dining room, the students learn how to set a table properly and correctly serve an a la carte menu to patrons. Our patrons include faculty and staff as well as many people from the community. The students also learn how to serve banquet style for different functions and satellite catering events.

In the kitchen, students work at many different stations including the range and bakery. The restaurant menu features many different items and students are expected to perform many tasks in the preparation of soups, appetizers, entrées, starches and vegetables, along with different types of sandwiches. We bake our own bread weekly as well as a variety of palate pleasing desserts. For our showcase, students prepare many types of cookies, brownies, danish, pies, turnovers, tarts and other scrumptious delights. Students are also required to assist in the maintenance of the working kitchen. Their jobs also include washing dishes, pots and pans, sweeping and mopping the floors and emptying the trash barrels. Sanitation is a very important part of our work, and students are taught the techniques and procedures that are needed to keep our food safe.

This is a fast paced demanding industry that requires a certain amount of endurance. Students are required to do light and heavy lifting and will be standing for extended periods of time. With the proper attitude and motivation, a student can acquire the necessary skills to obtain a basic entry-level job or continue on to one of the many Culinary Arts schools and begin a very rewarding career in the Food Service industry.

### Related Occupations

Chef	Short Order cooks
Bartender	Fast Food Workers/Supervisors
Beverage Manager	Restaurant Manager
Butcher	Food Scientist
Caterer	Host/Hostess
Dietician	
Event Planner	
Family and Consumer Scientist	
Restaurant Server	
Pastry Chef	
Bakers	

## **Culinary Arts Courses**

### **Exploratory**

During the exploratory process, students will prepare food in small groups and assist in the daily operations for running the restaurant. Students will quickly gain a comfort level that will help them build confidence as a food service worker in the industry.

### **Culinary Arts Tech 10**

Students will rotate through the dining room, kitchen and bakery to produce and serve food in the student operated restaurant. Students will be expected to wait on tables, prepare salads, vegetables, starches, and make sandwiches and simple bakery goods. Students learn how to operate the dish machine, pot area and general shop maintenance.

### **Culinary Science 10**

This class is an introduction to Culinary Arts. Students will learn about food service careers, food safety and sanitation, tools equipment, kitchen safety, basic food items, cooking methods, breakfast preparation, batter cooking, appetizers, herbs and spices. This course will give them the basic foundations of cooking so that they can progress to a higher level of cooking.

### **Culinary Arts Tech 11**

Students will be doing tasks that involve sandwich preparations, soups, entrée preparations, as well as yeast breads and an assortment of cookies and bars. All students will help with daily maintenance tasks.

### **Culinary Science 11**

Students will learn about salads and dressings, cheeses, fruit and vegetable preparation, starch preparation, stocks and soups, sauces and gravies. Students will increase independence and become self directed learners while continuing to build upon previous years of experience.

### **Culinary Arts Tech 12**

Students will apply previously learned skills to prepare more difficult food items such as specialty soups, entrees, cakes and plated desserts. Students will become involved with menu planning and ordering food. Grade 12 students will mentor Grade 9 students during the exploratory process.

### **Culinary Science 12**

Students will learn about the different meat categories such as beef, veal, pork, lamb, poultry, and seafood. Students will be exposed to the many aspects of the bakery. Topics such as quick breads, cookies, yeast dough, pies, cake, icings and specialty desserts will be covered in detail. Students will continue to become more independent workers while building their skills.

# Electrical Wiring

## What is Electrical Wiring?

The curriculum is designed to train students and develop skills for employment in the electrical field and will prepare students to become licensed electricians. This program is divided into the areas of theory and practice; the requirements based on the current National Electrical Code. Safety is a major consideration when installing any electrical system or equipment.

The classroom teacher provides the students with the necessary instruction for electrical math and theory, along with exposure to schematic drawing and architectural prints and symbols. The national Electrical Code is covered and is coordinated with the projects that the students are developing during the shop program. Students put classroom theory into practice when projects are constructed in the shop area.

The shop teachers provide the students with the necessary techniques and projects from the curriculum to develop the skills in an acceptable manner that is governed by the National Electrical Code.

The shop projects are designed to increase the skills of the student in a variety of ways by using different electrical systems and equipment. The electrical shop is equipped with the latest up to date tools and equipment, identical to those used in the field.

In the shop area the students are involved in a variety of tasks such as: installing conductors, raceways, lighting fixtures and devices, using power tools, test equipment, and repairing and troubleshooting electrical appliances. Students are also involved in purchasing and pricing electrical equipment. Senior students also participate in the Cooperative Education Program, as well as off campus projects and on campus maintenance projects. The program provides the necessary practical application for students.

In order to become a journeyman electrician in the Commonwealth of Massachusetts, candidates are required to be a U.S. citizen; have reached eighteen years of age; have had at least 8,000 hours of training in a variety of electrical installations under the direct supervision of a licensed electrician; have 600 hours of electrical theory and pass the state licensing board examination. A percentage of these hours can be obtained while attending this Program.

### **Related Occupations**

Electrician  
Broadcast Technician  
Building Inspector  
Electrical Inspector  
Cable Installer/Repairer  
Electrical Engineer  
Electronics Repairer  
Home Inspector  
Line worker  
Construction Tradesperson  
Security Systems  
Technician  
Industrial Machinery Mechanic  
HVAC Technician  
Appliance Technician

### **Electrical Wiring Courses**

#### **Exploratory**

Upon entry into the full program the students review what they did during their exploratory experience and begin to be exposed to the Massachusetts Electrical Code during their projects. Signaling circuits, basic residential circuits and wire methods NM, AC, MC, EMT, PVC, Surface Raceways as well a Rigid Metal Conduit are introduced.

#### **Electrical Wiring Science 10**

The first year of related classes consists of an introduction to the Massachusetts Electrical Code and history, direct current theory, principles and concepts, basic schematic parameters, circuits, nomenclature of trade materials and safety in support of shop projects. Magnetism and atomic structure are explored in depth as a basis for advanced theory later in the program.

#### **Electrical Wiring 10**

Students begin to go more in depth with the wiring methods that were introduced during their 9th grade experience with a greater emphasis on skill level achievement and Massachusetts Electrical Code understanding. In addition, residential circuits are explored further with the addition of services and advanced bending techniques of conduits and raceways. The student will also be exposed to team building and further career options and the state requirements for testing and licensing.

**Electrical Wiring Science 11**

Advanced concepts of direct current, Kirchhoff's laws, and super-position are explored during the beginning of the year. Introduction to alternating current theory, principles and concepts, intermediate schematics, introduction to motor control, nomenclature and safety in support of the shop projects.

**Electrical Wiring 11**

Juniors begin with a skills review and then proceed on to more advanced residential applications, bending techniques and projects. Introduction to motor control and commercial circuits along with the beginning of doing production jobs on campus during the year.

**Electrical Wiring Science 12**

During the senior year advanced concepts of alternating current, impedance, power factor and use of the Massachusetts Electrical Code are covered. The senior year incorporates the co-op program and the class often explores and discusses concepts and theory as they are presented to the students while out on their co-op jobs. Post vocational issues are explored such as State licensing requirements, testing, licensing and also exploration of parallel career preparation such as college or post grad technical training.

**Electrical Wiring 12**

Co-op and advanced production work take place during the senior year. Further, in shop projects focus on advanced motor control, bending techniques, and three phase power equipment. Students perform work on and off campus and on their co-op job or with the instructor at locations such as private residences, City Hall, School Administration Building, Parks and Recreation facilities and the Department of Public Works.



## What is Manufacturing Technology?

Westfield Technical Academy was founded over 100 years ago. The purpose of WTA was to train people in a particular trade to become productive citizens in and around the Westfield area. Since its inception the Manufacturing Technology Department has been an important partner in training students for employment among the many manufacturing companies in Western Massachusetts. Today, 32% of all employment in Westfield comes from manufacturing jobs.

The Manufacturing Technology Department has kept pace with ever-changing technologies in our industry. The highly trained staff along with the “Award Winning” Advisory Committee of our department helps to prepare the students to enter the ever-changing world of work. Our teachers are sensitive to the students’ needs.

The small class size offers individualized instruction and attention that our students need to achieve success. Our Co-operative Education program offers students a chance to get on the job training while they are still in school. Our students are always in demand because of the quality of instruction they receive as well as the high number of manufacturing facilities in our area.

The course of study in the Manufacturing Technology Department is often referred to as a basic engineering course. We offer a variety of career opportunities for both females and males. The choices or the graduating student from the Manufacturing Technology Department are many. Our students can enter a well paying manufacturing job in industry, a Community College, a Technical College or pursue a four-year degree in Mechanical or Manufacturing Engineering.

### Related Occupations

Mechanical Engineers  
CAD / design / mechanical drafters  
Machinists  
Tool and Die Makers  
Mold Makers  
Computer Numerical Control (CNC)/ Operators  
Computer Numerical Control (CNC)/ Programmers  
Industrial Mechanics  
Quality Control Inspectors  
Applications Engineering

## **Manufacturing Technology Courses**

### **Manufacturing 9**

This course is designed to teach the fundamentals of basic machining. The student will learn how to set up and operate vertical milling machines, manual lathes and manual surface grinders.

### **Manufacturing 10**

Intermediate manufacturing and quality control procedures associated with the manufacturing process. The course is designed to include best machine practices from tool room to large scale manufacturing companies. Skills acquired from freshman year are reinforced throughout this course along with an introduction to conversational programming using tool room trak-type vertical milling machines. The project based curriculum helps to develop problem solving skills, inspection techniques, and machining skills. An emphasis is placed on developing and maintaining a strong work ethic.

### **Technical Math 10**

This course is designed to cover the fundamentals as well as the application of algebra, geometry and trigonometry related to manufacturing technologies. Most calculations are performed with a scientific calculator.

### **Interpreting Engineering Drawings 10**

This course will instruct the student how three dimensional objects are represented and interpreted using orthographic projection. It will include: six view drawings, primary and secondary auxiliary views, sectional views, revolved and removed sections as well as inclined surfaces, circular features and scaled drawings. Current machine process symbols such as surface finish, hole processes, tolerances and thread representation are covered, as well as additional intermediate blueprint reading concepts.

### **Computer Aided Design 10**

Beginning applications in effective and efficient creation of parametric feature based solid models. The course utilizes AutoDesk Inventor's Parametric Feature Based Solid Modeling Software.

### **Manufacturing 11**

Beginning applications in effective and efficient creation of parametric feature based solid models. The course utilizes AutoDesk Inventor's Parametric Feature Based Solid Modeling Software.

### **Technical Math 11**

This course is designed to cover the intermediate application of algebra, geometry and trigonometry related to manufacturing technologies. Most calculations are preformed with a scientific calculator.

### **Interpreting Engineering**

#### **Drawings 2/Geometric Dimensioning and Tolerancing 11**

The topics that will be discussed are: intermediate and advance interpretation of drawings, working drawings, inclined surfaces, circular features, drawing to scale, machining symbols, sectional views, surface texture, tolerancing and allowances, revolved and removed sections, primary auxiliary views and many more intermediate blueprint reading concepts. This second half of this course is designed to cover the fundamentals as well as advanced applications of Geometric Dimensioning & Tolerancing (GD&T). This course is programmed to accompany the Geometric Dimensioning & Tolerancing video series as well as ASME Y14.5M-1994.

**Computer Numerical Control Programming 11**

Basic and intermediate applications in manually creating various Computer Numerical Control (CNC) programs, set-up and operation for both a Matsuura CNC Machining Center and a HAAS CNC Lathe with live tooling.

**Computer Aided Design 11**

Intermediate applications in effective and efficient creation of parametric feature based solid models. The course utilizes AutoDesk Inventor's Parametric Featured Based Software.

**Manufacturing 11**

Intermediate-Advanced manufacturing and quality control procedures associated with the manufacturing process. The course is designed to include best machine practices from tool room to large scale manufacturing companies. The project based curriculum helps to develop problem solving skills, inspection techniques, and manufacturing skills. An emphasis is placed on developing and maintaining strong work ethic.

**Technical Math 12**

This course is designed to cover the application of algebra, geometry and trigonometry related to manufacturing technologies. Most calculations are performed with a scientific calculator.

**Geometric Dimensioning and Tolerancing 12**

This course is designed to cover the second part fundamentals as well as advanced applications of Geometric Dimensioning & Tolerancing (GD&T). This course is programmed to accompany the Geometric Dimensioning & Tolerancing video series as well as ASME Y14.5-1994.

**Intro to Statistical Process Control 12**

This course is designed to take an introductory approach to the concepts and purpose of Statistical Process Control (S.P.C). We will focus on how S.P.C. Can aid manufacturing by providing the pertinent data that allows us to make better decisions for continuous improvement.

**Computer Aided Manufacturing 12**

This course will utilize beginning, intermediate and advanced applications Computer Aided Manufacturing (CAM) utilizing FeatureCAM. This course will explore the creation of Computer Numerical Control (CNC) programming constructing 2-Dimensional geometry, solid modeling, feature based tool paths, importation of solid models created in other software packages, 4th- axis machining, 5-axis positioning and complex surface-modeling for both machining center and lathes with live tooling.

**Manufacturing 12**

This course is designed to include Cooperative learning from manufacturing companies in our area. Advanced manufacturing and quality control procedures associated with the manufacturing practices from tool from to large scale manufacturing companies. The project based curriculum helps to develop problem solving skills, inspection techniques, and machining skills. An emphasis is placed on developing and maintaining strong work ethic.

## What is Horticulture Technology?

The Horticulture Department provides students with the technical skill proficiencies and workplace skills required to be effective workers in the expanding “Green Industry,” as well as a solid foundation for life-long learning. Upon graduation students will possess cooperative attitudes, be able to tolerate working in all types of weather, and be safe minded, articulate problem solvers.

The four year curriculum provides a solid academic background and skill based foundation, preparing students to enter the workforce or pursue further college education in Horticulture. Each year students build skills and knowledge in various areas of Horticulture and are required to tackle progressively more difficult projects as they advance through the program. This includes landscape maintenance and installation, plant identification, landscape equipment operation and repair, landscape construction, design and related business skills.

In addition to landscaping, students gain skills in other areas of Horticulture including: green house production and management, shop and pesticide safety, small engine mechanics, interior plantscaping, plant propagation, floral design, marketing and sales.

We expect all students to fully participate in all the varied activities, thus maximizing their exposure to the diverse opportunities available in the field of Horticulture.

During the Junior and Senior years, students can decide which area to “specialize” in and gain more focused skills and training through internships and co-ops in the community.

Our own campus, Grandmothers Garden, and Stanley Park provide training areas used by our students to develop Horticulture/Landscaping skills and knowledge. After working in these job-like atmospheres, the students who graduate from the Ornamental Horticulture program can enter a number of occupations which include; Landscape Construction, Golf Course Management, Greenhouse Operator/Grower, Florist, Interior Plantscaper, and Grounds Keeping.

Our shop provides approximately 6,300 square feet of enclosed workspace and a 1,200 square foot greenhouse. We house an impressive plant collection as well as a varied assortment of landscape equipment.

The Horticulture program has an articulation agreement pending with Springfield Technical Community College, which enables student to receive college credits as seniors.

### **Related Occupations**

Arborist  
Botanist  
Civil Engineer  
Civil Engineering Tech  
Construction Trades  
Florist  
Produce Grower  
Gardener  
General Contractor  
Small Equipment Operator  
Small Engine Repair  
Horticulturist  
Landscape Design / Architect  
Nursery / Greenhouse Grower  
Paver Installer  
Hardscape Design / Installation

### **Horticulture Technology Courses**

#### **Exploratory**

Grade 9 exploratory students will be exposed to the wide variety of skills required for the diverse jobs presented to the students at the completion of the program. The exploratory process was developed to give a better understanding of the large number of career pathways that the horticulture program develops.

#### **Horticulture Technology 10**

Grade 10 students in shop focus on continued skill development in tractor, lawn and garden equipment operation and Landscape maintenance. Students also study plant propagation, basic woodworking, equipment maintenance, small engine repair and introduction to hardscaping (paver walkways, patios and walls). Grade 10 students also participate in greenhouse production and management concluding with a Mother's Day plant sale in May.

#### **Horticulture Science 10**

This is an introduction to horticulture. Topics covered include careers in Horticulture, Taxonomy and Naming Plants, Soils, Fertilizers and the Plant Environment, Introduction to Floral Design, Basic Plant science and Introduction to Landscape Design. This course is designed to integrate math, literacy, writing, applied science and problem solving skills within the context of Horticultural Science.

#### **Horticulture Technology 11**

Much of our time is spent off-campus doing landscape operations such as installation of plants, mulching, laying sod and some hardscaping – patios and walks & walls. Students work on small engine repair and equipment maintenance during winter. This is when students also practice landscape woodworking – such as building a picnic table. Throughout the school year, especially in winter until mid-May, plants are produced in the school greenhouse. The students have a big plant sale in the spring.

**Horticulture Science 11**

Grade 11 students in related class learn about Landscape Design, Construction and maintenance. In the design portion of the course, students learn how to conduct a Family Inventory survey and how to discuss the clients' needs for improving a landscape occur. Measurements are taken and drawn to scale; an improved bed layout and plant materials are included. In the construction portion students learn how to do hardscaping - proper base preparation, ordering & installing pavers or wall systems.

**Horticulture Technology 12**

In the Grade 12 shop students are responsible for part of the Grade 9 exploratory, by demonstrating proper use of equipment and mentoring Grade 9 students to expose them to the type of work done in this shop. Grade 12 students increase their responsibility, such as operating more equipment and being held accountable for the quality of the finished product, while continuing a variety of outside work.

**Horticulture Science 12**

The Grade 12 related class finishes off the study of the Principles of Landscaping: concentration on maintenance and business practices. The Grade 12 final Project involves a complete residential design project with a PowerPoint presentation. Each 12th Grader presents his/her project to the class. The Grade 12 students also develop a portfolio that includes a variety of works representative of the student's achievements.

## What is Graphic Communications?

Graphic Communications is America's most geographically dispersed manufacturing industry and is a major force in the economy of every state.

What has traditionally been referred to as the printing business encompasses many segments: general commercial printing; imaging; magazine ;newspaper and book printing; financial and legal printing; screen printing; thermography; business forms printing; label and tag printing; packaging; greeting cards; and, trade and finishing services.

The graphics communications industry helps the world communicate across a wide range of platforms. Graphic communications encompasses the latest technologies and engineering, from digital imaging to optics, and of course, the internet.

Graphic communications is a multifaceted industry, with a wide range of career opportunities. This highly technical industry employs men and women working as chemists, engineers, computer programmers, writers and editors, designers, marketing specialists, researchers, press operators, technicians, sales associates, managers, photographers, and bindery workers, as well as a variety of other positions.

Graphic communication companies are entrepreneurial and innovative. They range from small companies to larger facilities.

Additional instruction is given in:

- Electronic pre-press
- Digital output and computer to plate
- Print production and copy center
- Paper and bindery
- Silk screen printing

### Related Occupations

Animator  
Art Director  
Cartoonist / Comic Illustrator  
Computer Animator  
Desktop Publisher  
Exhibit Designer  
Illustrator  
Industrial Designer  
Photographer  
Set Designer  
Sign Maker  
Printer / Press Operator  
Website Designer  
Bindery Technician  
Screen Printer  
Pre Press Technician

## Graphic Communications Courses

### **Graphic Arts Science 9**

The Freshman Graphics Communication course is set up and designed to follow the Print Ed Certification Program. Print Ed certification provides the graphics communication student with a career pathway to enter the workplace with variable credentials, and or to pursue further education with college credit already in hand.

### **Graphic Arts Science 10**

Sophomores in the Graphic Communications Department will complete various projects and tasks using both tutorials and live production jobs. Students will use iMac Workstations, Adobe Illustrator, Adobe Photoshop, and QuarkXpress Software, offset printing presses, and bindery and finishing equipment to explore different career path within the graphics communications industry.

### **Graphic Arts Science 11**

Juniors in the Graphic Communications Department will continue to develop and strengthen skills in the electronic pre-press, digital output, computer-to-plate, press operation, copy center, silk screen production, and paper handling and bindery areas of the graphic communications industry.

### **Graphic Arts Science 12**

Eligible seniors will participate in Job Shadowing, internships, and Cooperative Education. In addition to the continued development of skills in the print production areas, students will explore the management and entrepreneurship aspects of the graphics communication industry.



## ENGLISH COURSES

### English 9

Grade 9 English, which is aligned with the 2011 Massachusetts Curriculum Frameworks for ELA, challenges students to read both fiction and non-fiction in a multitude of genres in order to improve comprehension, enhance critical thinking skills, and offer insight into the human condition. Students are guided step by step through the writing process for narrative, argument, and informational genres, and they are taught specific structures and strategies to address a variety of tasks, purposes, and audiences. Research is integrated throughout the writing process. Emphasis is placed on citing examples to support claims and addressing more complex issues in both reading and writing. In this course, students may read from Steinbeck, Angelou, Wright, Homer, short stories, poems and essays from the Language of Literature.

### English 10

Grade 10 English, which is aligned with the 2011 Massachusetts Curriculum Frameworks for ELA, challenges students to read both fiction and non-fiction focusing on text structure, and textual evidence to determine themes and examine complex characters. Students are expected to produce clear and coherent writing which the development, organization, and style are appropriate to talk, purpose, and audience. Emphasis is placed on synthesizing multiple texts and sources in order to demonstrate understanding of particular topics. In this course, students may read from Beah, Hobbs, Miller, short stories, poems and essays from the Language of Literature.

### English 11

Grade 11 English, which is aligned with the 2011 Massachusetts Curriculum Frameworks for ELA, challenges students to read and write at a more complex level in order to be career and college ready. Emphasis is placed on the research process and studying the rhetorical devices used by authors across a variety of genres. Students will also be expected to enhance their speaking and listening skills by presenting information to the class and/or by leading a group discussion. In this course, students will read include a variety of genres, and authors may include William Faulkner, ML King, and Paul Zindel.

### Honors English 11

Grade 11 Honors English, which is aligned with the 2011 Massachusetts Curriculum Frameworks for ELA, extends the skills needed for reading and writing in the workplace and at the college level. A significant amount of time is dedicated to teaching the research process and synthesizing a variety of sources to practice research skills. Students will also analyze and discuss literature and the rhetorical devices used by authors of non-fiction. Both fiction and non-fiction texts may draw from authors such as Fitzgerald, Faulkner, ML King, and Zindel. Students taking this Honors course are expected to be able to work independently and at an advanced pace. **In order to register for this course, a student must be recommended by his or her sophomore English teacher.**

**English 12**

Grade 12 English, which is aligned with the 2011 Massachusetts Curriculum Frameworks for ELA, challenges students to learn and practice more advanced reading strategies and techniques. Emphasis is placed on the study of literature from the Middle Ages, including the *Arthurian Legends*, and Elizabethan England while focusing on the archetype of the tragic hero. Students will also investigate 21<sup>st</sup> century topics by learning about habits of mind, advertising techniques, and the marketing industry. In this course, students will read a variety of genres, and authors may include Shakespeare, Maxine Hong Kingston, Dan Pink, and Jonathan Fields.

**\*Scholastic Read 180**

Read 180 is an intensive reading intervention that meets the needs of students whose reading achievement is below the proficient level. Students participate in small group teacher-led instruction, work independently with Read 180 computer software, and read self-selected books in their reading range. This course provides instruction in spelling, fluency, reading comprehension, writing and grammar skills.

**\*Scholastic System 44**

System 44 provides phonics instruction for the most challenged older readers. Students work independently with System 44 computer software, participate in small group teacher-led instruction, and read self-selected books in their reading range. Instruction is in spelling, fluency, reading comprehension, and writing and grammar skills. This course is a foundation for higher level reading comprehension instruction.

**\*These courses are not taken for English credit.**

## SOCIAL STUDIES COURSES

### **United States History 1**

This full year course will analyze the political, economic, and social development of the United States from 1763 to 1898. Concepts and content of history will be developed through discussion of the following areas: the Revolutionary and Constitutional eras, the formation and frameworks of American democracy, political democratization, westward expansion, the United States' role in world affairs, economic growth in the North and South, the Civil War, Reconstruction, the Industrial Age, immigration and urbanization, and the beginnings of American Imperialism. This course fulfills the US History 1 graduation requirement.

### **United States History 2**

This full year course will analyze the political, economic, and social development of the United States from 1898 to the present. Concepts and content of history will be developed through discussion of the following topics: America as a world power, World War 1, Depression and the New Deal, World War 2 and the Cold War, the Civil Rights Movement, the Vietnam War and its aftermath, the end of the Cold War, the War on Terror, and the US role in current world affairs. This course fulfills the US History 2 graduation requirement.

### **American Government**

This full year course is designed to provide the students with the knowledge of our government at its three levels, national, state and local. Topics will include the Constitution, congress, the Presidency, Federal Courts and Political Parties at the national level as well as the roles of state and local governments. Students will learn how the system has evolved through the years and how it has adapted to the changing times. Students will also focus on current events to make connections between their studies and their lives. An integral component of the course will stress the rights roles and responsibilities of the individual in our system, emphasizing the participatory nature of a well functioning democracy.

### **Financial Literacy**

A full year course specifically focused on the development of basic personal finance skills that are relevant to the lives of high school students. The course will provide the students with learning experiences which are designed to build their confidence to make sound financial decisions, exhibit mindful money management behaviors, and apply learned strategies throughout the many stages of life. The course is organized into six module topics: Money Management, Borrowing, Earning Power, Investing, Financial Services, and Insurance.

### **Current Issues**

Current Issues is a full year course that will provide student students with the opportunity to examine topics and crises that our society faces in today's world. Both global and domestic issues will be studied. Research, discussion, and problem solving are essential skills for this class as we try to understand the relationship between cause and effect by linking ideas to their results.

### **Practical Law**

This half-year course is designed to give students a basic overview of the American judicial system and to provide them with opportunities for practical applications of legal concepts. Topics covered will include the history of law and the American judicial system, adult and juvenile criminal law, tort law, current legal issues, and numerous actual cases involving individual rights and liberties. Additional topics might include family law, housing law and consumer law.



**Math**

## **MATH COURSES**

### **Algebra 1**

This course is designed to provide a basic overview of algebra. It is intended for students to continue to work on developing their mathematical reasoning skills to solve practical and vocational problems.

### **College Algebra 1**

Algebra 1 is designed to use a function approach to develop mathematical reasoning and intuitive thinking. Functions can be used in the context of math modeling, symbolic reasoning with expressions, equations and inequalities, and their relationships. In this course, students will engage in the creation and interpretation of tables and graphs while developing an understanding of families and systems of functions. This will enable them to connect Algebra to the real world and investigate mathematical structures linking them to the multitude of problems they will encounter in the technological world.

### **Geometry**

This course will enable the students to identify and classify geometric figures and apply geometric properties to practical situations. Geometric concepts will be related to perimeter, area volume, parallel and perpendicular lines, similarity and triangle relationships, and angle measure. There is an additional emphasis on Algebra skills within the geometry concepts. The course is also designed to meet the requirement of the MCAS test.

### **College Geometry**

Geometry develops an understanding of geometric relationships and proofs: teaches the methods of inductive and deductive reasoning: develops the ability to think creatively, critically, and logically and integrates geometry with arithmetic, algebra, and trigonometry. It is also designed to meet the requirements of the MCAS test.

### **Algebra 2**

This course is designed to continue a thorough investigation into Algebra. It continues to use function approach while still applying algebra concepts to the real world. It will build on the concepts learned in algebra and geometry and prepare students for statistics and probability.

### **College Algebra 2**

Algebra II is designed to continue a function approach in developing the student's ability to reason and think mathematically in a world increasingly influenced by technology. It builds on the concepts and the relationships developed in both Algebra I and Geometry. The course encourages higher-level Mathematical understanding by focusing on critical thinking, problem-solving, graphing and modeling, and communicating in the language of mathematics. Learning will be augmented through the use of technology in order to conduct more extensive investigations in the field of mathematics.

### **Quantitative Math**

The Quantitative Math course is constructed as an alternative to pre-calculus, which meets career and college ready standards. There are three main points of focus in the Quantitative Math course. These points of focus are to analyze and critique quantitative data, use matrix and vector mathematics to solve real-world problems, and to investigate and apply various mathematical models. Throughout the course students will continue to solidify their skills in algebra and trigonometry in addition to exploring modeling concepts using the mathematical constructs of linear algebra.

**Pre-Calculus**

Pre-calculus is an elective class that provides the necessary foundation for calculus. Study of discrete math topics such as vectors, matrices, sequences and series provide the math framework for contemporary applications. Scientific and graphing calculators are used as a tool to facilitate learning and applying mathematics. Students develop quantitative reasoning, problem solving skills, and the ability to communicate math ideas. The course is intended to increase students' appreciation of mathematics through seeing a wide variety of math applications.

**Quantitative Reasoning**

Statistics and Probability is designed to develop critical thinking and mathematical literacy. Students will engage in hands-on projects to explore various math problems affecting the world and develop an appreciation for mathematics as a powerful means of decision-making. Students will also learn to apply theories to real-world problems.

## SCIENCE COURSES

### Engineering 1

Science and Technology is offered to ninth, tenth, and eleventh grade students. The goal is that this course aligns with the student's affiliated vocational technical shop. This course is aimed specifically at seven standards in technology and engineering: Engineering Design, Manufacturing, Construction, Communication, and Energy Systems: Fluid, Thermal, and Electrical. The course is consistent with the National Standards for Technological Literacy (ITEA 2000). The major goal of the course is to give students opportunities to develop increasingly complex answers to the following questions: What is technology? What do engineers do? What are the implications of new technologies?

### Mechanical Engineering / Robotics

This year-long course is for 10<sup>th</sup> grade students that have completed Engineering 1 with a recommendation from their instructor. The Fischertechnik STEM Lab Program is used in this course. This is a standards-based curriculum involving inquiry, design and group problem solving, especially developed for use with the Fischertechnik construction system.

This unique STEM education program, which combines curriculum with hands-on exploration and creation consists of various theme projects for teachers to use with their students to enable them to explore and understand different essential STEM concepts areas.

Project Themes include:

- Sketching and Documentation
- Structures
- Mechanical Systems
- Electronic Systems
- Control Systems
- Sensor Systems
- Motors and other Actuators
- Automation
- Fundamentals of Robotics
- Mobile Robotics

### Biology

This class meets 2 periods per day during academic week. Biology is an introductory based biology course that provides both a practical and theoretical approach to cell biology and animal systems. The course provides students with laboratory experiments and technical that will prepare them for future course work in the science and health fields.

### Anatomy and Physiology

This course is designed to provide the student with an introduction to the specialized terms, basic concepts, and principles important to an understanding of the human body. Content covered will consist of the 11 organ systems. The depth and analysis of each system will be varied based upon materials and equipment used per instruction of each organ system.

### **Forensics**

This course will explore the history of forensic science, methods of investigating a crime scene, types of evidence, criminal profiling, and handwriting analysis, analysis of fingerprints, hair, fibers, drugs, glass, soil, and blood. The goal of this course is to give the student the opportunity to think critically, solve problems using scientific process, and to discuss your interpretations of the evidence soundly and respectfully.

### **Environmental Science**

This course will explore the dynamics of how the climate impacts the conditions of which we live. This course is designed to cover the topics that underpin environmental issues at the local and global levels. Topics of human populations, ecosystems, biodiversity, ecological restoration, natural disasters, wildlife and climatology will be studied. This course will look into the possible solutions for most critical environmental problems.

### **Physics 1**

In Physics Part 1, students recognize the nature and scope of physics, including its relationship to the other sciences. Students learn basic topics of motion, forces, energy, and heat. They will also learn about natural phenomena by using physical laws to calculate quantities such as velocity, acceleration, momentum, and energy. The relationships between motion and forces through Newton's laws of motion will be addressed. Students will learn the difference between vector and scalar quantities and how to solve basic problems involving these quantities. In addition, students gain an understanding about conservation of energy and momentum and how these are applied to everyday situations. Information about how heat and thermal energy is transferred through the different phases of matter will be covered. Students extend their knowledge of waves and how they carry energy.

Projects include:

- Sled building and races
- Rube Goldberg Machines
- Egg Drop
- Six Flags Physics in the Park

### **Physics 2**

In Physics 2, students will continue to recognize the nature and scope of physics, including its relationship to the other sciences. Students will learn about topics such as waves, sounds, light, electricity, and magnetism. Students will gain a better understanding of electric current, voltage, and resistance by learning Ohm's Law. They will also gain knowledge about the electromagnetic spectrum in terms of wavelength and frequency. In addition, they will learn about the properties of light and sound.

### **Chemistry**

This course is designed for the student who intends to pursue studies at the collegiate level. This course will study composition, structure and properties of substances and reactions. The information will be connected to "real life" situations. Students will use the scientific method in the classroom and laboratory to solve problems. The lab experiences integrate the concepts and principles presented in class; providing the student with the opportunity to learn investigative skills and techniques



## **PHYSICAL EDUCATION & HEALTH EDUCATION**

### **Physical Education**

Physical Education is a required half-year course for all freshmen. Sophomores, juniors, and seniors may elect to have physical education as part of their schedule for a full year.

Physical Education includes developmental lessons that challenge students to demonstrate their knowledge and skills involved during individual, team and lifetime sports. Physical Education promotes and improves physical fitness, wellness and cardiovascular capacity. The program provides opportunities for positive social interaction and enjoyment of sports. Other benefits include healthy competition, acquiring proper values involved with winning and losing, and the development of social and co-operative skills. Safety practices, knowledge of rules, procedures and sportsmanship are all areas of emphasis in the program.

Class requirements and grading policies include evaluation of effort, attitude, participation, preparation and performance in class. Test, quizzes and homework assignment are other measurements used in grading performance. An example of the freshman half-year curriculum: Term 1: Orienteering, Soccer, Tennis (singles), softball, Ultimate Frisbee. Term 2: Basketball, Touch Football, Volleyball, Table Tennis, Introduction to Weight Training and Fitness Walking.

### **Health Education**

Health Education promotes positive health practices, self-esteem, and self-control, as well as the ability to make informed lifestyle decisions. The goal is healthy, responsive learners who can build communities, resolve conflicts, and promote everyone's optimal well-being. This is a half year course consisting of classroom work in health education with instruction in: consumer health, disease prevention and control, environmental health, family life and sexuality, growth and development, nutrition, personal health (emotional, social, and physical), conflict resolution and substance abuse and addictive behaviors.

## Media Center

Westfield Technical Academy's School's Steven Pippin Library Media Center supports teaching and learning through the integration of school library media programs and technologies with the educational process. The Steven Pippin Library Media Center is a resource used as an integral part of classroom instruction. Teachers may access library resources for or with students as they deem appropriate.

The goal of the Steven Pippin Library Media Center curriculum is to acquaint students with the type of information sources available within the school and teach students how to search for, evaluate, and use information. Technology and media resources in support of this instruction include:

- Books which support both the academic and vocational area and the personal interests of the students
- Large collection of periodicals and trade magazines
- Computers
- Internet access
- Online databases and services
- Online card catalog

Students are encouraged to ask for assistance in locating and using appropriate materials. The Steven Pippin Library Media Center continues to expand and change to meet the needs of the students and staff at Westfield Technical Academy.

## Career Center

The Career Center, located in the Student Services Department, assists students with career exploration, job searches, pre-employment skills, job shadowing, career field visits, internships, and much more.

### Cooperative Education

The Cooperative Education Program provides an opportunity for deserving students to participate in paid employment in their career and technology programs. Third semester juniors and seniors who have met academic, attendance and discipline requirements and received a positive recommendation from all of their teachers are eligible to work during their training week for area employers. They receive fair and competitive wages and valuable work experience. During this time, students are expected to maintain their vocational and academic grades and continue to have good attendance and discipline at school.

#### Grades, Attendance, Performance Requirements

Student eligibility criteria are a very important part of cooperative education. Students are encouraged to work hard to become eligible to participate in cooperative education. The criteria used is checked for the marking period prior to cooperative education commencing and maintained during the cooperative education experience. The following is a list of eligibility criteria:

- Minimum age of 16
- Shop/related grade minimum (please see your teacher)
- Academic grade minimum (minimum grade of 70 per class)
- Student enrolled in an approved
- Career technical education program and who have demonstrated the acquisition of the knowledge and skills in the applicable Career Technical Education Framework and the Massachusetts Curriculum Frameworks associated with at least one and one half years of full time study in the vocational technical cooperative education program area, and in no case enroll students earlier than midway through the junior year
- Teacher recommendation/approval (shop/ related/ academic)
- Administrative recommendation/approval to ensure good discipline/conduct and attendance
- Guidance counselor recommendation/approval
- Parent/guardian approval
- Career Plan

#### Application and Selection Process

Every student who wishes to participate in cooperative education must complete an application. The application must include the student's biographical information. The form should be circulated to all teachers (technical & academic) to ensure that eligibility requirements are being met. The school counselor, dean of students or principal must also sign the application.

Contact Mr. Ollari at: Phone 413-572-6533 extension 6004

E-mail: [r.ollari@schoolsofwestfield.org](mailto:r.ollari@schoolsofwestfield.org)

## Post-Secondary Pathways

Our graduates continue to strive for and achieve their goals through post-secondary pathways including but not limited to the following:

### Education

Bay Path College  
Becker Junior College  
Cape Cod Community College  
Framingham State College  
Holyoke Community College  
Johnson & Wales University  
Keene State College  
Massachusetts College of Art  
De Vry Institute  
MCLA  
New England Culinary Institute  
Northeastern University  
Porter and Chester  
Roger Williams  
RPI  
Salem State College  
Springfield College  
Springfield Technical Community College  
State University of New York  
Technical Careers Institute  
University of Massachusetts of Amherst  
University of Mass-Stockbridge School  
UTI  
Wentworth Institute of Technology  
Western New England University  
Westfield State College  
Worcester Polytechnic Institute

### United States Armed Services

Army  
Air Force  
Coast Guard  
Marines  
Army National Guard  
Air National Guard  
Navy

### Area Employers

B & E Tool  
Balise Automotive  
Berkshire Industries  
Big-Y Corporation  
Elm Electric  
Geno's Auto Body  
Governors Center  
Hamilton Sundstrand  
Hartley Brothers Landscaping  
Home Depot  
Westfield Head Start  
Westfield Red Cross  
Westfield Electro Plating  
Kurtz Construction  
Log Cabin  
Morin Mechanical  
Noble Hospital  
Renaissance Manor  
Westfield Police Department  
Stanley Park  
Tell Tool  
Westfield City Hall  
Westfield School Department  
Mestek

## **Athletics**

Westfield Technical Academy offers interscholastic sports to both young women and young men on the varsity and junior varsity level. The following are offered:

*Women's Soccer*  
*Women's Basketball*  
*Women's Softball*  
*Men's Soccer*  
*Men's Basketball*  
*Men's Baseball*  
*Men's Lacrosse*  
*Golf*  
*Cross Country*

## **Activities/Clubs**

*Art Club*  
*Future Business Leaders of America*  
*Cheerleading/Pep Squad*  
*GSA*  
*Friends of Rachel*  
*Intramural Sports*  
*Key Club*  
*Medical Reserve Corps*  
*National Technical Honor Society*  
*Class Officers*  
*Skills USA*  
*Student Council*  
*Intramural Volleyball*  
*YOU LEAD*  
*Yearbook Committee*  
*School Council*  
*WTA School Committee Presenters*