

Westfield Technical Academy

Program of Studies 2017-2018

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TABLE OF CONTENTS

	Page:
Principal's Message	3
Staff	4
Admissions	5
Mission Statement/Philosophy	6
Exploratory Program	8
Automotive Technology	9-11
Allied Health	12-14
Collision Technology	15-17
Business Technology	18-21
Construction Technology	22-23
Information Technology	24-26
Culinary Arts	27-28
Electrical Wiring	29-31
Manufacturing Technology	32-34
Horticulture Technology	35-37
Graphic Communications	38-39
English	40-41
Social Studies	42
Math	43-44
Science	45-46
Physical Education & Health	47
Media Center	48
Career Center	49
Post Secondary Pathways	50
Activities/ Athletics	51

Principal's Message

Dear Parents/Guardians and Students:

The Westfield Technical Academy School Program of Studies provides our students and families 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 selections 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 ensure that our offerings are suitable and relevant in meeting the needs of our students. All academic curricula are aligned to the state curriculum frameworks, thereby promoting success on the MCAS and other assessments. Our technical curricula are aligned with the Chapter 74 Vocational Technical Education frameworks to ensure that our highly skilled graduates will enter the workforce successfully.

The selection of your vocational 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. Academic and vocational programs are directly linked to the budgetary process we reserve the right to change any academic or vocational program.

Our professional staff is 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.

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Kevin M. Daley, Assistant Principal

Peter J. Taloumis, Vocational Director

Robert P. Ollari, Student Services Coordinator

Superintendent of Schools

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Student Services Coordinator

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Guidance Counselor

Andrea Arvanites
Guidance Counselor

Kristine Hupfer
Substance Abuse Counselor

Monica Trybus
School Nurse

Susan Osowski
Administrative Assistant

Westfield School Committee

Honorable Brian P. Sullivan, Mayor and Chairperson--59 Court Street

Mrs. Cindy Sullivan--21 Yankee Circle

Mr. Timothy O'Connor--409 Falley Drive

Mr. Kevin Sullivan--160 Wildflower Circle

Ms. Heather Sullivan--27 Overlook Drive

Mr. Ramon Diaz--242 West Road

Mrs. Diane Mayhew--21 West Glen Drive

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.wta.com

Facts Every Parent Should Know About Technical Education

Your son or daughter will receive two educations in one – a traditional high school education as well as 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 Cooperative 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.

MISSION STATEMENT & PHILOSOPHY:

Mission Statement

Our Mission Statement is to educate and prepare our students academically, technically, and professionally to meet the challenges and opportunities of the 21st century.

Philosophy

Westfield has recognized career and technical education as an integral part of its public school system, its support of this valuable form of education is best exemplified by our modern vocational education facility which meets industry standards and is staffed by certified and professional personnel. Westfield Technical Academy prepares students for careers that are prevalent in modern industry, and which offer an abundance of job opportunities upon graduation.

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 statutes providing for equal opportunity should be reported to the principals.

ACADEMIC EXPECTATIONS:

Demonstrate the ability to read, write and communicate effectively.

Demonstrate the ability to think critically.

SOCIAL EXPECTATIONS:

Recognize the value of healthy and productive lifestyle.

CIVIC EXPECTATIONS:

Demonstrate respect for our diverse society.

Appreciate the importance of and contribute positively to the community.

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.

Substance Abuse Counselor/Adjustment Counselor:

- Assist students who are in need of support for substance abuse/addiction concerns.
- Assist students who are in need of support for social/emotional concerns.
- Assist students and families with referrals to treatment providers.
- Advocate for students based on social/emotional needs and concerns.

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/shop 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 starting students junior year.**

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

The Automotive Technology program of studies at Westfield Technical Academy is divided into eight specialty areas by the National Automotive Technicians Education Foundation (NATEF). Most students participate in student National Institute for Automotive Service Excellence (ASE) end of program tests and become certified in one or more of the following areas:

- Engine Repair
- Automatic Transmission/Transaxle
- Manual Drive Train & Axles
- Steering & Suspension
- Brakes
- Electrical/Electronic Systems
- Heating & Air Conditioning
- Engine Performance

Related Occupations

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

Courses

EXPLORATORY:

During exploratory week, the freshmen will be instructed in multiple 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, safety inspection, and fluid identification. 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.

AUTO TECHNOLOGY 9 SHOP/RELATED SCIENCE:

This NATEF certified course provides an overview of automotive systems, preventive maintenance & basic services, steering & suspension systems, wheel alignment, brake systems, and heating & air-conditioning diagnosis and service. The beginning of this course will serve as an introduction to automotive technology. Students will receive accelerated instruction in automotive systems, preventive maintenance & basic services, steering & suspension systems, wheel alignment, and brake systems nomenclature, component descriptions, theory of operation, diagnosis procedures, system service practices, and workplace health and safety issues related to these areas of study. Instruction will also focus on NATEF service and repair practice competencies including general steering & suspension systems, wheel alignment, drum & disc brake systems, and lubrication systems diagnosis and repair.

This course will primarily focus on heating & air-condition systems and well as advanced air-conditioning diagnosis & service. Students will be provided with instruction in heating & air-conditioning system nomenclature, component description, theory of operation, advanced diagnosis procedures & system service practices, and workplace health and safety issues related to heating and air-conditioning system service. Instruction will also focus on NATEF heating & air-conditioning service and repair practice competencies including A/C system, refrigeration system components, heating system, cooling system, ventilation system, and operating system and related controls diagnosis and repair, as well as, refrigerant recovery, recycling, and handling. Students will have the opportunity to perform all service tasks in the laboratory.

AUTO TECHNOLOGY SHOP 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.

AUTO TECHNOLOGY 10 RELATED SCIENCE:

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. This courses also will provide students with an overview of automatic transmission/transaxles and manual drive train & axles operation and functions.

AUTO TECHNOLOGY SHOP 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.

AUTO TECHNOLOGY 11 RELATED SCIENCE:

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.

AUTO TECHNOLOGY 11 RELATED MATH:

This NATEF certified course provides an in depth study of engine related math & theory. Students will receive extensive instruction in four-stroke engine measurements including; fasteners, compression ratio, volume, bore, and stroke. This is a one year course the meets once a day during class week.

AUTO TECHNOLOGY 11 RELATED ELECTRICAL:

This NATEF certified course provides an in depth study of electrical theory and its application towards automotive systems. Students will receive extensive instruction in ohm's law, battery theory and design, charging systems, starting systems, lighting, and electrical schematics. This is a one year course the meets once a day during shop week.

AUTO TECHNOLOGY SHOP 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.

AUTO TECHNOLOGY 12 RELATED SCIENCE:

This NATEF certified course provides an overview of four stroke internal combustion engines, designs, and proper diagnosis procedures of engine related noises and concerns, engine disassembly & cleaning, lower-end theory & service, upper-end theory & service, engine sealing & reassembly, and lubrication & cooling systems. Students will receive instruction in engine component nomenclature,

component design & description, and theory of operation. Instruction will also focus on NATEF engine service and repair practice competencies including general engine, cylinder head, valve train, lubrication systems, and cooling systems diagnosis 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 Program (NATP) 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 employment and/or college readiness 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, students 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 NATP 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 state Certified Nursing Assistant competency exam.

Students in the Allied Health shop may receive:

- Red Cross Babysitting Certification (Freshmen)
- Paid Feeding Assistant WTA Certification (Sophomore)
- American Heart Association, Basic Life Support for the Healthcare Provider CPR/AED certification (Sophomore and Senior)

- Certified Nurse Aide, through the American Red Cross Nurse Aide Training Competency Exam (\$100) (Junior)
- American Heart Association, Bloodborne Pathogens (Junior and Senior)
- American Heart Association, Heartsaver, First Aid Certification (Senior)
- Home-Health Aide WTA Certification (Senior)
- Certificate of Completion of “Caring for People with Alzheimer’s Disease” habilitation curriculum. (Senior)

In addition to basic nursing skills, classroom instruction covers nutrition, growth and development through the lifespan, human diseases, medical terminology, Alzheimer’s habilitation curriculum, home-health aide curriculum and completion of an employment portfolio. 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.

Occupations upon graduation: Allied Health Certified Nurse Assistant or Aide, Home Health Aide, Patient Care Technician, Direct Care Worker, Homemaker/ Companion, Monitor Technician, Orderly, EKG technician, Patient Care Associate/Assistant, Dietary Aide/assistant, Emergency Room Assistant/ Technician, Resident Care Associate, Patient Support Agent, Preparatory Technician, Transporter, Unit Secretary, Hospice Aide, Day Center Worker, Recreation/ Activities Assistant, Medical Records Assistant, Resident Care Assistant

College Related Occupations: Dental Assistant, Dental Hygienist, Diagnostic Medical Sonographer, Health Information Technology, Human Services Social Worker, Licensed Practical Nurse, Medical Assistant, Medical Coding and Billing, Medical Lab Technician, Medical Transcriptionist, Occupational Therapy Assistant, Phlebotomist, Physician Assistant, Physical Therapy Assistant, Radiologic Technician, Respiratory Care, Registered Nurse, Surgical Technologist, Veterinary Technician

Courses

FRESHMAN EXPLORATORY

In addition to First Aid, Grade 9 students will receive a certificate in Hands-Only CPR (Cardiopulmonary Resuscitation) and Automated External Defibrillator (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 INTRODUCTION TO HEALTH OCCUPATIONS

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. Sophomores receive CPR/AED certification cards. Grade 10 students will be exposed to a variety of healthcare occupations (e.g. nursing, physical therapy, occupational therapy, respiratory therapy, recreational therapy, etc) 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 elementary schools.

ALLIED HEALTH 10 SCIENCE NUTRITION

The focus of this course is on the maintenance of nutritional wellness. This course covers the six nutrient categories and provides an overview of diet recommendations for promotion and maintenance of health. Topics include the My Plate recommendations for individuals across the life span, energy balance, and special dietary modifications for common alterations in health. Principles of normal nutrition at all stages of the life cycle are emphasized. Growth and development needs are incorporated into the maintenance and restoration of nutritional health and in the prevention of nutritional deficit. Exploration is conducted in the social, religious, and cultural factors that affect the family's nutritional health.

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 nurse aide certification (CNA) exam.

ALLIED HEALTH 11 SCIENCE HUMAN DISEASES 1

Students will be taught basic terminology used in the study of human disease; terminology used related to mechanisms of human disease; terminology used in the study of neoplasms; terminology related to the defense mechanisms; and terminology common to the body systems and the disorders of the system. The pathogenesis of disease; cause of disease and the predisposing factors to human diseases, as well as, identify the basic changes in the body occurring in the aging process will be taught. An importance of the Anatomy and Physiology of the body systems will be covered of the following systems: Integumentary, Nervous, Digestive, Musculoskeletal, Respiratory, Urinary, and Reproductive. Students will be able to identify the important signs and symptoms associated with common system disorders.

ALLIED HEALTH 11 SCIENCE MEDICAL TERMINOLOGY

An honors level class devoted to the terminology of medicine and health care, based on the study of medical word: 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, surgical and treatments.

ALLIED HEALTH 12 ADVANCED NURSE AIDE

The senior curriculum includes training in Habilitation r/t Alzheimer's patients, First Aid Certification, Home Health Aide and Advanced Nursing Assistant including Sub-acute, Pediatric, Care of the patient with Cancer, Bariatric, Alzheimer's Disease, Intellectual and Developmental Disabilities, Alternative and Complementary Care. Senior clinical affiliations include Western Massachusetts Hospital and Baystate Noble Hospital where students will act in the role of the certified nurse assistant. Through an affiliation with the Westfield High School Special Education Department, students may also explore job opportunities in working with special needs clients, in the Developmental Learning Program at the Clark Building. Internships at other health related facilities might be explored. Students that successfully have passed the C.N.A. test, meet the requirements, and have found employment may go on cooperative education after 4 weeks of shop to obtain seniors certifications.

ALLIED HEALTH 12 SCIENCE HUMAN DISEASES 2

Part II of the curriculum expands upon material covered in the junior year. Anatomy and Physiology studies continue with the following systems and/or concepts: Blood and blood forming organs, heart, circulation and shock, immune, digestive, fluid and electrolytes, acid base balances, urinary, genetic

development, childhood diseases and mental health. Students will be able to identify the important signs and symptoms associated with common system disorders. Students are assigned a senior project that involves comprehensive interviews with individuals who have at least two diagnosed medical conditions. After completing the personal interview process and doing extensive research on their patients' medical conditions, students demonstrate the knowledge they have acquired via formal presentations to the faculty and/or advisory committee members. Completion of the senior project is a requirement for graduation.

What is Collision Technology?

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 global automotive collision repair market size was estimated at USD 167.76 billion in 2016 and is expected to sustain its growth streak over the forecast period. Increase in number of subscriptions of automobile insurance in addition to technological advancements in the automobile sector are expected to propel market growth which 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 industry.

Westfield Technical Academy offers a four year Collision Technology Program for ninth, 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 three to four times 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 OSHA Career Safe and SP/2 safety training.

Current educational trends have changed the delivery of Westfield Academy's Collision and Refinishing Technology curriculum from textbook to computer based. Using the Interconference of Automotive Collision Repair (ICAR) 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	Automotive Glass Installer
Automotive Retail Sales	Automotive Parts/Equipment Sales
Automotive Damage Appraiser	Collision Repair Technicians
Collision Repair Instructor	Fabricator Technician
Glass Specialist	Insurance Adjuster
Paint /Supplies Sales	Restoration Technician
Refinishing Technician	Vehicle Detailer
Sheet Metal Fabricators	Recycle Technician
Welder	

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 SP/2 and OSHA Career Safe 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 SP/2 and OSHA Career Safe 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 OSHA Career Safe and SP/2 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.

Business Technology

What is Business Technology?

The Business Technology program at Westfield Technical Academy 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. 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 employment in the Business world. 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 in MS Office utilizing the on-line software TestOut and may become certified in MS Word, PowerPoint, and Excel.

Students are actively engaged in the operation of the school store--Tiger's Pride--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, finance and customer service curriculum are put into practice.

Another opportunity for students in the program is to “work” in our own, in-shop 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 create a work portfolio demonstrating job-readiness skills and business competencies gained in Business Technology and may utilize the portfolio on college and job interviews.
- Students have an opportunity to focus on Accounting, Marketing, and Entrepreneurial skills for those students who want to own their own business.
- 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.
- Articulation agreements are available at local colleges and students can earn up to 17 college articulation credits along with participating in dual enrollment where students can earn even more college credits.

Related Occupations

Paralegal/court clerk/reporter
Administrative Assistant
Human Resources Specialist
Database Management
Retail Sales Associate
Accounting/Forensic
Information specialist
Technology assistant
Entrepreneurship
Sports and Entertainment
Business Administration
Banking and Finance
Marketing
Bookkeeper

Hospitality Management
Event Planner
Medical Administration Assistant
Office Manager
Receptionist/Information Clerk
Purchasing/Salesperson

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 presentation about a specific career, create a budget, and present their findings in a PowerPoint presentation.

Business Technology 9th Grade Shop

The focus of the 9th 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 10th Grade Shop

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 10th Grade Related Science

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 11th Grade Shop

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, computerized accounting, 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 utilizing a simulated business experience and continue to enhance their computer and business skills.

Business Technology 11th Grade Related Science

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 11th 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 12th Grade Shop

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 education program where students who are eligible are employed by local business during their shop week. Students not participating in the co-operative education 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 12th Grade Related Science

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**

The Construction Technology Program at Westfield Technical Academy is designed to provide students with relevant skills in the areas of house building, remodeling, finish carpentry, cabinet making, millwork, Architectural CAD software, and CAD/CAM CNC Router Machining. Students begin by developing millwork and cabinetmaking skills in our fully equipped, modern and professional mill carpentry workshop where they complete a large number of diverse hands-on projects. Students then practice wood frame construction and finish carpentry techniques in preparation to work off campus on live construction projects.

During the 11th and 12th grades, students concentrate on carpentry and building construction. This exciting and ambitious learning experience is accomplished through a variety of off campus building projects: new home construction, additions, and garages. These projects provide students with instruction in all aspects of building construction including building planning, energy efficient construction practices, site development, building layout, wood frame construction methods, roofing, window and door installation, siding application, and interior millwork and cabinetry. Additionally, job site safety, teamwork and interpersonal skills are incorporated. Our Co-operative Education program offers students a chance to get on the job training while they are still in school. Our well qualified students are in demand and they have no trouble finding Co-op placement and jobs.

Successful completion in the program grants the following:

- OSHA 10 safety certification.
- ARTICULATION AGREEMENT Between New England Carpenters Apprenticeship & Training Fund And Massachusetts High Schools with Chapter 74-Approved Vocational Technical Education Carpentry Programs.
- MASSACHUSETTS STATE ARTICULATION AGREEMENT between Massachusetts Community Colleges and Massachusetts Chapter 74 approved secondary career/vocational technical programs Carpentry.
- When applying for a Construction Supervisor's License, successful completion of a three- or four-year vocational high school or other vocational school program in the field of building construction shall be deemed as satisfying one year of work experience.

Construction technology students receive classroom instruction in the following courses:

- Wood Frame Construction
- Blueprint Reading I
- Modern Building Materials
- CAD I
- Blueprint Reading II
- Building Code and Theory
- Building Design
- Energy Efficient Construction
- Estimating Materials
- CAD II
- Business Practices and Project Management
- Final Portfolio Development

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 a good work ethic, a willingness to learn, and should be comfortable with physical activity.

Related Occupations:

Career 2017 Mass. Annual Mean Wage

Self Employed Construction / Remodeling

Architectural and Engineering Managers 150,460

Construction Managers 107,680

Architect 100,430

Elevator Installers and Repairers 92,360

Civil Engineer	92,010	
Foreman of Construction Trades	81,620	
Structural Iron and Steel Workers	71,840	
Operating Engineers	68,100	
Drywall Tapers	67,650	
Plumbers, Pipefitters, and Steamfitters	66,900	
Construction and Building Inspectors	66,660	
Brickmasons & Stonemasons	65,570	
Interior Designers	65,540	
Surveyors	64,670	
Architectural and Civil Drafters	61,610	
Carpenters	60,140	
Civil Engineering Technicians	59,450	
HVAC	59,100	
Tile and Marble Setters	58,870	
Carpet Installers	57,590	
Surveying and Mapping Technicians	54,810	
Construction Laborers	53,230	
Glaziers	52,990	
Painters, Construction and Maintenance	49,150	
Drywall Installers	45,190	
Woodworkers	44,990	
Insulation Workers	43,830	

Source: https://www.bls.gov/oes/current/oes_ma.htm#11-0000

Courses

Exploratory

Exploratory students will be introduced to woodworking and construction procedures including safety and tool identification and usage. Students may not use any equipment while in exploratory without the immediate presence of a shop teacher. Students will have the opportunity to begin applying a variety of skills through the production and creation of projects using wood products.

"Construction Technology 9"

Grade 9 Construction Technology Students will learn step by step procedures for proper shop safety, use of safety devices and hand tools, and stationary power tools. Safety procedures and practices are thoroughly taught and reinforced by the teachers in the shop environment. Students learn fundamental cabinetmaking and carpentry skills through a sequential project-based curriculum that is skills-focused. This very effective curriculum teaches students skills that can be applied to all aspects of the construction field.

Construction Science 9 "Carpentry Terminology, Carpentry Math, and Shop Drawings"

This integrated related science course will give students foundational skills in understanding carpentry related terminology. Math for construction, technical drawings, reading shop drawings, and shop / tool safety will also be covered.

Construction Science 10 Now 4 Separate Courses:

Sophomore Related Science Courses:

"Wood Frame Construction"

Students will make use of building code, construction drawings, and multimedia while learning about structural framing systems. Students will make connections between the foundation, floor, wall, and roof framing components and their connection to the overall stability of a wood frame building.

"Blueprint Reading I"

Students will learn to speak the language of construction in understanding blueprints. Students will interpreting drawings as well as draft their own in order to gain blueprint reading skills in print organization, drawings & views, types of lines, symbols, notes, & abbreviations, and dimensions & measurements.

"Modern Building Materials"

Students will explore the different materials used in construction through hands-on demonstrations, presentations, and multimedia. A thorough understanding of the materials used in Construction is integral in completing building projects and working effectively. Students will also begin to lay the framework for estimating by understanding how measurement, area, and volume tie into each material used in constructing a home.

"CAD I"

After getting acclimated with basic two dimensional Computer Aided Drafting features, an introductory home design project will be completed by students using state of the art CAD software which includes 3-D modeling and drawing sheet layout.

Construction Technology 10

Grade 10 students continue to develop their skills in cabinet making and millwork through the sequential project-based curriculum that they began in 9th grade. Additionally, they begin working on their framing, millwork, and finish carpentry skills by alternating between the mill carpentry and construction areas of the shop. Students are also provided an opportunity to work with the CAD/CAM CNC Router Machining as they demonstrate a benchmark level of proficiency with traditional woodworking machines and equipment.

Construction Science 11 Now 4 Separate Courses:

Junior Related Science Courses:

"Blueprint Reading II"

Blueprint reading skills are strengthened in 'Blueprint Reading II' by going deeper into the information contained within the drawings themselves. The complexity in drawings increases and students will need to find and interpret specific information needed to estimate materials and build the structure.

"Building Code and Theory"

Selected sections from the International Residential Code (IRC) will be highlighted and organized. The IRC with Massachusetts Amendments is law, and it governs our building practices. Students will understand where and how to find the valuable and detailed information needed to construct one and two family dwellings.

"Building Design"

Students will utilize the International Residential Code with Massachusetts Amendments to determine proper room size as well as egress requirements. Students will learn about the different styles of homes, and the appropriate ways to layout a floor plan while considering structural feasibility.

"Energy Efficient Construction"

Utilizing the International Energy Conservation Code, with Massachusetts Amendments and the Massachusetts Stretch Energy Code, students will understand how to design a building consistent with the code while considering cost of materials and labor. Topics Covered include careers in Green Energy, Energy efficient systems and materials, HERS, RES Check, Diagnostic Testing, LEED, Air Infiltration, Building Science, and Energy Certifications.

Construction Technology 11 and 12

Students who have mastered the benchmark foundational skills in safety, carpentry, and professionalism may work on the off campus projects and will perform a variety of tasks associated with residential construction. Students will learn to operate hand, electric, battery, and pneumatic tools, safe ladder and scaffolding procedures, and personal protective gear. Subjects covered include wood frame construction, roofing, windows, doors, siding, interior finishes, and cabinetry. There is a strong emphasis on safety, teamwork, and quality of work. Adherence to OSHA regulations is applied to specific tasks during construction.

Construction Science 12 Now 4 Separate Courses:

"Estimating Materials"

Every construction project cannot begin without the proper materials, supplies, and tools available. Students will learn how to estimate all phases of construction to produce a list of materials and supplies with additional consideration for time to complete, tools needed, and Safety/PPE required.

"CAD II"

Students will complete their own original basic home design to specification using CAD software. Students must consider building and energy code compliance when they choose the materials needed and must produce a complete list of materials needed to construct the home.

"Business Practices and Project Management "

Students will understand the structure of a building and remodeling business and become familiar with the licenses and insurance required as well as legal responsibilities. Students will estimate a project considering projected profit and 'pitch' their project to a 'customer/client'.

"Final Portfolio Development"

Students will put their final touches on their project and portfolios in preparation for graduation.

What is Information Technology (IT)?

**Information
Technology**

The Information Technology (IT) Department provides hands-on training to students interested in pursuing a career in the IT field. All students receive a broad background in IT skills (Programming, Web Development, Networking, and PC Service) during the Freshman and Sophomore years. Beginning in the Junior year students will choose one of three pathway tracks: Computer Science, Information Systems, or IT Management.

Curriculum Tracks

Computer Science

Computer Science (CS) track students specialize in writing programs and developing web-based applications for PC's, mobile devices, and consoles. With good technical grades, CS students can earn up to 16 college credits toward advanced degrees in CS when they enroll at Springfield Technical Community College.

Information Systems

Information Systems (IS) students specialize in user support, PC repairs, and networking. IS students build corporate networks that securely connect people's tech to the Internet and provide users with needed network resources. IS students join Cisco Academy – the world's largest on-line classroom – where they can earn professional certifications. IS students can earn up to 21 credits toward an STCC AS degree in Computer Systems Engineering Technology, or 19 credits toward an STCC AS degree in Computer and IT Security.

Information Management

Information Management (IM) students are skilled in both CS and IS. With an understanding of programming, web development, PC Service and Networking, IM students can take advantage of career opportunities in either field (CS or IS) and with their diverse background are more valuable to IT employers. This track is especially suited for college-bound students interested in Business, CIS, MIS, Engineering or IT Security degrees.

Information Technology Courses

IT 9

Exploratory

1-day/1-week: A survey of topics designed to introduce students to the IT field.

Personal Leadership

Students learn to identify and practice personal leadership skills.

Textbook: "7 Habits of Highly Effective Teens", Sean Covey

Linux Command and Shell Programming

Students will explore managing user accounts, remote access using secure shell (SSH), process control, file system types and characteristics, encryption & decryption, file and directory manipulation, remote & local storage, system monitoring & logging, hardware status & configuration, and the contents of key configuration files that configure security, networking, the boot process, scheduling, & applications. Students will write and test programs to monitor users, system status, and detect security violations & events. This course articulates with STCC's course CSE-150.

Front-end Web Development (Web1 and Prog1)

This is a blend of IT courses Web1 and Prog1 which introduce the skills needed to develop websites using HTML5, CSS3 and Javascript. Students program interactive websites while gaining a solid foundation in coding techniques. Students who obtain a technical grade of 80% in this course along with Web 2 and 3 or Prog 2 and 3 can earn six credits toward their CS or CITS Associates degree at STCC.

IT 10

Technical Writing

Students develop skills in the technical writing and communications need for careers in IT. Topics include grammar, syntax, and writing formats; use of a word processor, spreadsheet and presentation software; and oral communications.

PC Service 1

Students are introduced to PC system maintenance and Help Desk operations. Students train for passing the optional CompTIA A+ certification exam. Students participate in the TigerTech Center, a repair depot open to the public. This course plus PC Service 2 articulate for 3 credits at STCC

Network 1

Students are introduced to Network technologies and concepts while building Local Area Networks with Cisco Switches, Wifi and enterprise class routers. This course plus Network2 and 3 articulate for up to 8 credits at STCC.

Programming2

Students are introduced to Object Oriented Programming concepts with a modern high-level language such as Java, C#, or VB. Project management skills are developed.

Web2

Intermediate web development concepts are taught using Server-side programming with Python and/or PHP. This course, along with Web1 and Web3 articulate for credit at STCC.

IT11

Prior to the start of the Junior year, students select their specialization track which determines to courses they will take for the remainder of their time in the department. Depending on their chosen track students may take the following:

Network2

All students, regardless of selected track, take a second course in Networking. This course focuses on the skill set covered in the Cisco Certified Entry Network Technician (CCENT) certification. Students electing the IS track are strongly encouraged to obtain this certification.

PC Service2

All students, regardless of selected track, take a second course in PC Service. This course focuses on the skills needed for a career in the "Internet of Things" field, which requires a blend of hardware, networking, and programming. Students build electronic circuits using Raspberry Pi and Arduino controllers, electronic components and Python programming.

Programming3

Students expand their programming skills with server-side applications and databases. The focus of Programming3 is to develop the skills need to support the collection, storage and manipulation of web-based data.

Web3

Students develop webpage forms for databases and build browser based applications.

IT12

Senior IT Department students may choose from a variety of elective courses, as well as conduct an independent senior project. Senior electives may include: An Integrated IT project, VOIP Telephony, Windows AD Server, IT Security, Programmable Electronics, and/or Virtualization/Cloud Technology, advanced Linux topics.

Leadership Opportunities

The IT Department offers several opportunities for students to develop their leadership skills:

TigerTech Center Manager

Explorer's Assistant

Operations and Technical Assistance

Assistant instructor for 9th exploratory

Skills USA

US CyberPatriot

Competitions in IT

Competitions in CyberSecurity

Student Ambassadors

Cooperative Education

Middle/elementary school visits

working in IT at a local business

WTA IT Department and Springfield Technical Community College Articulation

Computer Science (CS) Track and STCC Computer Science Associates Degree

IT Dept Course

STCC CS Course

PC Service 1,2

PROG-109 Information Systems Fundamentals (3 credits)

Programming 1,2,3

PROG-116 Intro to C# (3 credits)

Network4	CSO-155 Cisco Routing and Switching Essentials (4 credits)
Linux1	CSE-150 Linux Command and Shell Programming (3 credits)
Windows AD	TCOM-336 Windows Active Directory (3 credits)

Culinary Arts

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 in our “Open to the Public” restaurant 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	
Dietician	
Event Planner	
Family and Consumer Scientist	
Restaurant Server	
Pastry Chef	
Host/Hostess	
Bakers	

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 Electrical Wiring curriculum is designed to develop skills for employment in the electrical field and prepare students to become licensed electricians. This program consists of theory and practice based on the current Massachusetts Electrical Code.

The classroom teacher provides the necessary instruction in electrical math, safety, theory, schematic drawings, architectural prints and symbols using the Massachusetts Electrical Code. The shop teacher provides opportunities for students to put theory into practice through hands-on, code-based tasks.

Shop projects are designed to develop the skills in a variety of ways by using various 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, projects provide opportunities for students to engage in a wide range of tasks using a variety of electrical systems and equipment: installing conductors, raceways, lighting fixtures and devices, using power tools, test equipment, and repairing and troubleshooting projects, as well as, purchasing and pricing electrical equipment. Senior students participate in off-campus projects and school-based maintenance projects that provide the necessary practical application of theory and skills. Seniors who meet the necessary requirements may participate in the Cooperative Education Program.

In order to become a licensed Journeyman Electrician in the Commonwealth of Massachusetts, candidates must furnish evidence of having been employed for the preceding four (4) years or have 8,000 hours as a learner or apprentice under the direct supervision of a licensed journeyman electrician and must pass a written examination. The W.T.A. electrical program provides a maximum credit of 1,800 hours of work experience and 300 hours of theory toward licensure.

Related Occupations:

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

Electrical Wiring 9

Students review the exploratory experience, are introduced to the Massachusetts Electrical Code while engaging in projects, signaling circuits, basic residential circuits and wire methods NM and MC.

Electrical Wiring Science 10

Students during the first year of related class gain a deeper understanding of the Massachusetts Electrical Code and history and are introduced to: direct current theory, principles and concepts, basic schematic parameters, circuits, organization of trade materials and safety in support of shop projects.

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 the Massachusetts Electrical

Code. Additionally, residential circuits are explored further with the addition of services and advanced bending techniques of conduits and raceways. The students are exposed to other wiring methods such as EMT, PVC, IMC, Greenfield and Seal- tight/Liquid-tight raceways.

Electrical Wiring Science 11

Students explore advanced concepts of AC and DC theory, motor controllers and the Massachusetts Electrical Code during the beginning of the year. Throughout the year, students will continue to explore intermediate wiring schematics, motor control, voltage drop, circuit design, portfolios, programmable logic controller (PLC) and safety in support of the shop projects.

Electrical Wiring 11

Students begin with a skills review and then proceed to the introduction to motor control, commercial circuits, transformers, timers and relays. PLC training and solar training is introduced later in the year.

Electrical Wiring Science 12

Students, during senior year, delve into advanced concepts of service calculations, blueprint reading and use of the Massachusetts Electrical Code. Senior year incorporates the co-op program and the class explores and discusses concepts and theory that are presented to the students while out on co-op jobs. Post vocational issues are explored such as state licensing requirements, testing, and also exploration of parallel career preparation such as college or post grad technical training.

Electrical Wiring 12

Students engage in co-op and advanced production work during senior year. Further, in shop projects focus on advanced residential mock room projects and service maintenance. Students perform work on and off campus and on their co-op job or with the instructor at locations such as private residences and public facilities.

Manufacturing Technology

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

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.

Horticulture Technology

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			

Courses

Horticulture Technology 9 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.

The Westfield Vocational Technical High School's Graphic Communication Department is a PrintEd Certified Program in the areas of Introduction to Graphics Communications and Offset Press operations. 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			

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. Seniors will complete the PrintEd process and take the certification exam(s).



English

ENGLISH COURSES

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 short stories, poems and essays from the Language of Literature and a wide variety of world authors.

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 task, purpose, and audience. Emphasis is placed on synthesizing multiple texts and sources in order to demonstrate understanding of particular topics. In this course, students will read short stories, poems and essays from the Language of Literature and a wide variety of world authors.

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 a variety of genres and write in multiple modes.

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 hero. Students will also investigate 21st century topics by learning about habits of mind, persuasive techniques, and the marketing industry. In this course, students will read a variety of genres and authors.

*** 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.

*** 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 freshman 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 sophomore 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.

Personal Finance/Financial Literacy

Personal Finance, also known as Financial Literacy, is a junior year course which will help students make wise economic decisions and become informed consumers in the local and global economy. Students will investigate career choices, pay and benefits, work laws, taxes, budgeting, goal setting, decision making, cost-benefit analysis, banking, investing, retirement, credit, renting and real estate, transportation, and risk management.

American Government

This junior year elective 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.

Practical Law

Practical Law is a senior year elective designed to give students a basic overview of the American judicial system and to provide them with opportunities to investigate and study legal concepts commonly encountered in society. Topics covered will include law making and interpretation, voting, jury duty, the trial process, dispute resolution, adult and juvenile criminal law, civil law, current legal issues, and the constant evolution of individual rights and liberties through case law. Additional topics include family law (marriage, divorce, child custody, retirement, and estates), and housing law (the legalities of property ownership and renting).

Human Relations

In this senior year elective, the study and understanding of human relations prepares students to enter the workplace with awareness and achieve long term career success. Psychology and workplace research studies indicate that the better our human relations skills, the more likely we are to grow both professionally and personally. Knowing how to get along and work with colleagues and clients/customers, resolve workplace conflicts, manage professional relationships, communicate well, and make good decisions are skills that are relevant to every profession. In addition, improved human relations skills can have a powerful impact on our personal lives and chosen activities.

MATH COURSES

Westfield Technical Academy Math Course Descriptions:

Algebra 1:

Algebra 1 is an extension of the pre-algebra concepts learned in middle school. Students study generalizations of arithmetic through the lens of algebra. Students also extend their knowledge of graphs on the coordinate plane by analyzing properties of linear, quadratic, and exponential functions. This includes analyzing data sets in effort to identify these relationships. Absolute value and piecewise descriptions of functions are also introduced. Lastly, students will explore the graphs of quadratic functions, and analyze their properties and key features.

Geometry:

Geometry is designed to revisit the geometry studied in middle school with a more formalized description of geometric properties through the use of symbols and algebra. Students learn how to construct proofs from given information, definitions, and properties of geometric objects. Key ideas include the congruence of polygonal figures through the use of rigid transformations, and the concept of similarity and proportions. Determining the area and perimeter of polygons and other geometric figures through the use of formulas is also a focus; this includes finding the surface area and volume of 3-dimensional solids. A study of analytic geometry, geometric figures represented on the coordinate plane and the associated algebra, is also within the scope of this course. Geometry concludes by revisiting and extending the basic ideas of statistics and probability studied in prior courses.

Algebra 2:

Algebra 2 continues the study of real-valued functions by analyzing a larger variety of functions including polynomial, rational, radical, and logarithmic functions. Students will generalize their knowledge of arithmetic on rational numbers to arithmetic on rational algebraic expressions such as multiplying and dividing polynomial expressions. Trigonometric ratios first studied in geometry are generalized to all angular values in effort to model relationships which are periodic in nature. Equation solving is expanded upon through the use of inverse functions and transcendental functions such as logarithms and exponential functions. Statistics is revisited to include methods of data collection, measures of dispersion along with a review of the measures of central tendency learned earlier. The course concludes with a study of elementary probability and statistics, including a variety of counting methods necessary to answer a wider variety of probability questions compared to prior years.

Quantitative Math:

Quantitative Math continues the study of linear functions and linear systems using matrices and vectors. Students learn to see solutions of linear systems not only as the point of intersection of two lines or three planes, but also as vectors, which are defined as a linear combinations of other given vectors. Arithmetic on matrices and vectors is explored as well as a study of matrix equations. Students use matrices and vectors in effort to solve problems and model real-world situations. Trigonometric ratios are reviewed and expanded upon in effort to model situations which are periodic in nature. Lastly, statistics and probability concepts are explored such as data collection and representation, measures of dispersion, and counting principles.

Precalculus:

Precalculus studies include the algebraic techniques and function theory required for success in Calculus. This includes a study of the Fundamental Theorem of Algebra and associated polynomial theorems in effort to factor polynomial expressions over the complex numbers, and solve higher degree polynomial equations. Transformation rules of real-valued functions are explored as a means of efficiently identifying key features of real-valued functions. Trigonometric ratios are analyzed and generalized to all angular values so as to model periodic phenomena. Exponential and Logarithmic functions are explored graphically and algebraically, which are then used to model real-world situations such as compound interest and exponential growth or decay. Student explore statistics and probability such as data collection, measures of dispersion and elementary counting principles. Lastly, the polar coordinate system is introduced, which includes the representation of complex numbers in polar form and the associated arithmetic, algebra, and trigonometry.

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?

Engineering 2

This project-based learning course builds upon and expands on the engineering objectives and principles mastered at previous grade levels. Engineering II focuses on the fundamental areas of engineering that are an intrinsic part of living in a technology-based society. Topics covered include the engineering design process, engineering drawing, civil engineering, energy technologies, construction technologies, mechanical engineering, electrical engineering, waste management, engineering milestones, engineering failures, nanotechnology, communications technology, technology integration, load testing, historical perspectives, current events, and careers in engineering. The Massachusetts State Standards also guide the content taught in this course.

Mechanical Engineering / Robotics

This year-long course is for 10th 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 eleventh grade 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, 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 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

In Physics, 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. 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 & HEALTH EDUCATION

PE/HEALTH 1 credit is needed for graduation

Physical Education

Physical Education is a required half-year course for freshmen. Sophomores, juniors, and seniors may elect to have physical education as part of their schedule for a full year. One credit of PE and/or Health is needed for graduation.

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 cooperative skills. Health related fitness, skill related fitness, safety practices, knowledge of rules, procedures and sportsmanship are all areas of emphasis within 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 may include but are not limited to the following units: Soccer, Tennis, Softball, Ultimate Frisbee, Basketball, Touch Football, Volleyball, 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 for Freshman consists of classroom work in health education with instruction in: Values, decision making, risk taking, media and health, stress management, family communications and healthy relationships. Health is also offered to sophomores, juniors and seniors as part of their full year schedule. The goal of health education is continued through health education instruction in the areas of: 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. One credit of PE and/or Health is needed for graduation.

Current:

PHYSICAL EDUCATION & HEALTH EDUCATION

PE/HEALTH 1 credit is needed for graduation

Physical Education

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Media Center

The Westfield Technical Academy'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
- Vocational technical education program and who have demonstrated the acquisition of the knowledge and skills in the applicable Vocational 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

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 & Activities

Athletics

Westfield Vocational Technical High School 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

Golf

Cheerleading

Activities/Clubs

Acrylic Painting

Drama Club

Future Business Leaders of America

FFA

GSA

Intramural Sports

Key Club

Medical Reserve Corps

National Technical Honor Society

Prom Committee

SADD

Skills USA

Student Council

ULEAD

Yearbook Committee