

CAREER AND TECHNICAL EDUCATION DEPARTMENT

Career and Technical Education consists of all courses listed under business education, family and consumer sciences, technology education, Certified Nurse Assistance, STEM courses, and Academy of Finance (AOF).

BUSINESS EDUCATION PROGRAM

Students will be prepared to make informed career choices. Students will also gain the skills, knowledge, and competence required for success in meaningful employment, or be qualified to enter post-secondary education.

The major goals of business education are to (1) provide curricular in effective leadership and decision-making (2) provide opportunities for students to master skills in career and technological competencies for college and career readiness; (3) to emphasize basic skills in all areas of instruction; (4) to demonstrate the interdependence of academic and business administration (5) to prepare for gainful life employment or to gain necessary competencies for entry to post-secondary schools.

The Business Education program will:

1. Provide varied and on-going opportunities for students to develop and apply skills in problem solving, communication, computation, critical thinking and decision-making.
2. Help students to understand and apply economic and personal finance concepts.
3. Prepare students to understand and apply technology in the workplace.
4. Develop the students' appreciation for the role of business in a global society.
5. Help students to understand the responsibility of each worker in the business and finance enterprise.
6. Help students to understand the legal and ethical aspects of business.
7. Prepare students to make informed career choices.

College Credits Through College Career Pathways via Tunxis Community College

Students who apply through this program and are accepted by Tunxis Community College, may earn college credits if they complete the following Business courses: Computer Applications, Microsoft Office Specialist, Accounting (AOF), Principles of Finance/Money, Business Management. These credits will be issued by Tunxis Community College and may be transferable to other colleges. In addition to earning college credits in Business Education, students may be issued college credits for their high school Algebra II and Chemistry I classes, as well. For further details, contact the department chairperson or Career Center for other articulation agreements.

Student participation in FBLA (Future Business Leaders of America) is recommended to all Business students.

The level of courses will differ in pace, manner of presentation and selection of materials. The options of course sequence is recommended based on The Connecticut Career Pathways Initiative for Career & Technical Education. Course sequence/ options are not required but merely a recommendation:

THE ACADEMY OF FINANCE (AOF)

The Academy of Finance (AOF), a prestigious model academy designated by the National Academy Foundation (NAF), offers students the ability to learn and directly apply business and financial content and concepts through a hands on, project-based, and collaborative approach. With the help of local and national partners from educational institutions and business organizations, including for-profit and non-profit entities, students are poised to obtain the knowledge and essential skills needed to be college, career, and future ready.

The AOF offers a curriculum that covers entrepreneurship, banking and credit, financial planning, global business, securities, insurance, accounting and economics, among many other topics.

Additionally, these courses introduce students to a wide array business and financial careers. AOF graduates benefit from learning the critical concepts of business management, accounting, and ethics along with the essential skill sets needed to be successful in any workplace. Academy students must complete four AOF courses by graduation, identified as (AOF) in the pathways below. Upon successful completion of 4 courses, requiring receiving a passing score on End-of-Course exams and satisfactory scores on project and internship assessments, students earn NAFTrack certification credentials signifying to post-secondary institutions and employers that they are both college and career ready.

AOF Internship Credit is awarded upon completion of two AOF courses. Successful internship completion is determined by the Work Based Learning Coordinator and includes completion of a total of 120 working hours a satisfactory evaluation by the internship supervisor, and completed student reflection.

NAF education can help you get into college, and even help you get ahead. Some universities award credit for NAF AOF coursework; some restrictions apply.

<p>PATHWAY 1 (Honors/College Dual Articulation*) </p> <p><i>All courses qualify for NAFTrack Certification</i></p> <p>GRADE 9/10 618 Principles of IT (AOF) (.5 cr.) 658 Microsoft Excel (AOF) (.5 cr.) 636 Principles of Finance/Money (AOF) (.5 cr.) 642 Global Business (AOF) (.5 cr.)</p> <p>GRADE 11 628 Accounting (AOF)* 688 Entrepreneurship (AOF) 611 Business Management (AOF)*</p> <p>GRADE 12 638 Applied Finance online (AOF)(.5 cr.) 631 Financial Accounting (AOF)*</p> <p>* Online and Articulated courses are leveled honors.</p>	<p>PATHWAY 2 (Accelerated) </p> <p><i>AOF qualify for NAFTrack Certification</i></p> <p>GRADE 9/10 618 Principles of IT (AOF) (.5 cr.) 602 Career Planning (.5 cr.) 615 Introduction to Business 658 Microsoft Excel (.5 cr.)</p> <p>GRADE 10/11 636 Principles of Money (AOF) (.5 cr.) 642 Global Business (AOF) (.5 cr.) 682 Marketing 1</p> <p>GRADE 11/12 628 Accounting (AOF) *Dual Credit Tunxis 684 Marketing 2 (AOF_prerequisite) 688 Entrepreneurship (AOF)</p> <p>GRADE 11/12 ADDITIONAL COURSES: 601 Career Planning 699 Cooperative Work Program</p> <p>* Online and Articulated courses are leveled honors.</p>
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601 CAREER PLANNING 2

Honors ½ Credit

Grades 10, 11, 12

Prerequisite: Successful completion of Career Planning 1 is recommended

This course is a continuation of Career Planning 1 and addresses NBHS Graduation Requirements beginning with the Class of 2015. The course is designed for the student interested in exploring future career and college options. Career Competencies addressed will include basic skills, customer service, computer literacy, problem solving and decision making, interpersonal communication, personal qualities, and job seeking skills. The employment process is explored through completing a job seeking portfolio, developing interviewing techniques, and acquiring higher level job skills.

602 CAREER PLANNING 1 **Accelerated****½ Credit**

Grades 9, 10

This course addresses NBHS Graduation Requirements beginning with the Class of 2015. The course is designed for the student interested in exploring future career and college options. Career Competencies addressed will include basic skills, customer service, computer literacy, problem solving and decision making, interpersonal communication, personal qualities, and job seeking skills. The employment process is explored through researching career opportunities, completing a career interest inventory, developing a Personal Learning & Career Plan, developing resumes, and acquiring job skills.

611 BUSINESS MANAGEMENT (AOF)  **Honors****1 Credit**

Grades 11, 12

This course introduces the principles and practices of business management. Topics include: Informational and legal foundations for business management, economics, regulatory, and societal environment of business, entrepreneurship, finance and marketing; planning, organizing leading and controlling a business organization. Students will experience a rigorous study and learning experience using technology that integrates various academic disciplines to develop critical thinking skills. Emphasis is placed on enhancing application of math, reading, writing, and communication in a way that has business relevance for each student. Simulations and case studies are explored to develop collaborative analytical skills for lifelong learning. **Dual Credit Articulation – College Credit**

615 INTRODUCTION TO BUSINESS  **Standard****1 Credit**

Grades 9, 10

This course introduces students to the world of business and the dynamics of the business industry while enhancing 21st century skills. Students will explore the range of business industry related to accounting/finance, marketing/entrepreneurship, economics and business law. The course will introduce them to the Volunteer Income Tax Assistance (VITA), Future Business Leaders of America (FBLA) and various industry programs throughout the state.

618 PRINCIPLES OF INFORMATION TECHNOLOGY (AOF/AOITE/NBAHP/PIT)  **Accelerated****½ Credit**

Grades 9, 10, 11, 12

This course is recommended for all Academies of NBHS.

PIT provides an overview of information technology (IT) today and introduces students to the basics of hardware and software. Students examine hardware components including peripherals, connectors, and memory. Students explore common operating systems, software applications, and programming languages. Students learn about types of networks and network topology, and they setup an e-mail client/server connection. Students also consider contemporary issues such as security, privacy, and technological inequality. Finally, students explore career opportunities in IT.

628 ACCOUNTING 1 (AOF)  **Accelerated****1 Credit**

Grades 11, 12

This course is an introduction to basic accounting concepts and principles, with an emphasis on their practical application to recording, classifying, and summarizing financial information that flows within a business enterprise. The accounting cycle is examined: along with such areas as sales, purchases, cash receivables, and payroll. This course also incorporates Volunteer Income Tax Assistance (VITA). Students will be trained to become basic tax preparers.

Dual Credit Articulation – College Credit.

This course is recommended prior to industry work based learning experience in AOF.

631 FINANCIAL ACCOUNTING (AOF)  **Honors****1 Credit**

Grades 11, 12

Financial Accounting is taught as the management tool of modern business with emphasis on the use and interpretation of financial accounting information. The course includes a review of Introductory Accounting principles, advanced accounting theory and analysis of financial reports. This course is designed as a college level course and is recommended for students who are planning to major in accounting, business management, finance or marketing. Computer applications, guest speakers, Business simulations and participation in the Volunteer Income Tax Assistance (VITA) are used to make the curriculum come alive.

636 PRINCIPLES OF FINANCE/MONEY (AOF)  

Accelerated

½ Credit

Grade 10, 11, 12

Do you want to learn how to manage your money responsibly? This is the first course students take in the Academy of Finance and introduces students to the financial world. Students develop financial literacy as they learn about the function of finance in society. They study income and wealth; examine financial institutions; learn how businesses raise capital; and study key investment-related terms and concepts. Students also research how innovations have changed the financial services field. Finally, students explore careers that exist in finance today.

638 APPLIED FINANCE ONLINE (AOF)  

Accelerated

½ Credit

Grade 11, 12

Prerequisite Student of AOF and Principles of Finance/Money

Applied Finance delves into the financial concepts introduced in Principles of Finance/Money. Students learn to identify the legal forms of business organizations and continue to develop an understanding of profit. They learn about various financial analysis strategies and the methods by which businesses raise capital. Students also have the chance to explore, in depth, topics of high interest in the field of finance, and explore the types of careers that exist in finance today.

Pending Dual Credit Articulation – College Credit. Possible online option, see your counselor for more information.

642 GLOBAL BUSINESS (AOF)  

Accelerated

½ Credit

Grades 10, 11, 12

This course exposes students to the unique challenges facing firms doing business internationally and to the potential opportunities available to those businesses. Building on concepts introduced in Principles of Finance/Money, Global Business broadens students' understanding of how businesses operate, grow, and thrive in our ever-changing world.

MOS (MICROSOFT OFFICE SPECIALIST) CERTIFICATION COURSES

- 622 Mobile App Development**   **Accelerated** **½ Credit**
Prerequisite: Principles of IT (PIT)
It is time to develop an APP. Students taking this course can expect to learn about hardware and software in Android-based smartphones. Students will use MIT App Inventor 2 to create apps which are both fun and socially useful. Students will use pre-made apps to guide the relearning and then develop their very own.
- 651 Exploring Computer Science/ECS (AIOTE)**   **Honors** **1 Credit**
Prerequisite: Mobile App Development
Exploring Computer Science is a year long course consisting of six units, human computer interaction, problem solving, web design, programming, computing and data analysis, and robotics. The course was developed around a framework of both computer science content and computational practice. Assignments are designed to be socially relevant and meaningful. Ethical and social issues in computing, and careers and computing, are woven throughout the six units. Emphasis is placed on how computing enables innovation in a variety of fields and the impacts that those innovations have on society.
- 658 MICROSOFT EXCEL**   **Accelerated** **½ Credit**
Grades 10, 11, 12
Students will learn the features and functions of Microsoft Excel 2013 necessary to successfully pass the specialist and expert level MOS Excel tests. Skills learned will include: creating worksheets, using templates, formulas, cell referencing, linking worksheets, data management, and exploring use with other Microsoft applications. These certification tests are given independently by Microsoft and are highly valued by potential employers.
- 661 Mobile Computer Science Principles (AOITE)**   **Honors** **1 Credit**
Prerequisite: ECS, AP Quality points possible.
This course provides an introduction to basic principles of computer science (CS), including programming in App Inventor, a graphical programming language for Android mobile devices. This is a projects-based course. Students will learn CS principles by building socially useful mobile apps and reflecting on the impacts of their work. This course involves a strong writing component. Students will maintain a portfolio of their work, which will include several performance tasks in the areas of programming, data analysis, and the impact of computing technology.
- 682 MARKETING 1**  **Accelerated** **1 Credit**
Grades 10, 11, 12
Students will learn market research, merchandising, distribution, advertising and selling techniques. Students will explore wholesale, retail and service careers. They will learn merchandising, management, advertising, promotion and selling techniques by doing class projects and gaining real world experience through the operation of the school store (Canes Corner).
- 684 MARKETING 2**   **Accelerated** **1 Credit**
Grades 11, 12
Prerequisite: Marketing 1
Students will become more familiar with each area of marketing. They will implement strategies to build brand awareness. They will learn how to assess market segments, understand customer and consumer needs. Product selecting, pricing and creative selling strategies will be used to develop a marketing plan. The marketing plan will include customer profiles and market research.
- 688 ENTREPRENEURSHIP – Small Business Management (AOF)**   **Accelerated** **1 Credit**
Grades: 11, 12
Prerequisite: Introduction to Business
Entrepreneurship introduces students to the critical role entrepreneurs play in the national and global economy. Students learn the skills, attitudes, characteristics, and techniques necessary to become successful entrepreneurs. They explore starting a business and learn about the operational issues and financial risks that new businesses face by analyzing a student run business, Canes Customs. Students examine ethical issues and develop a framework for managing them. Finally, students identify the risks, returns, and other aspects of entrepreneurship as a potential career.
- 699 COOPERATIVE WORK PROGRAM**   **Standard** **1 Credit**
Grades 11, 12
Recommendation of Work-based learning Coordinator
This course develops entry level job skills for those students who have entered the world of work, and will continue when they finish high school or continue in their career preparation. In addition to receiving pay for work, students will receive one credit per year and be graded by their employer and CWE coordinator.

FAMILY / CONSUMER SCIENCES PROGRAM

Family and Consumer Sciences Education (FACS) helps prepare students for family life, work life, college and careers by providing opportunities to develop the knowledge, skills, attitudes, and behaviors needed through character development, creative and critical thinking, interpersonal communication, practical knowledge, and Career and Technology preparation.

The mission of the family and consumer sciences program is:

1. To develop knowledge and skills that support healthy, functioning individuals in family and work roles.
2. To develop the knowledge, skills, and ethical behaviors needed for employment success.
3. To develop and apply critical thinking skills.
4. To enhance self-esteem and the appreciation of self-worth.
5. To provide career exposure in learning lab environments

Our courses are separated into two distinct pathways.

Culinary Pathway:

Grade 9/10

713 – Introduction to Culinary Arts

Grade 10/11

724 – ProStart Culinary Arts 1

Grade 11/12

728 – ProStart Culinary Arts 2

Child/Education Pathway

Grade 10/11/12

748 – Child Development 1

Grade 11/12

752 – Child Development 2

751 – Teacher Cadet

750 – Introduction to Teaching

742 – Kindergarten Classroom Assistant

Grade 12

741 – Introduction to Individual and Family Development

754 – Nursery School Aide

NON-TRADITIONAL ENROLLMENTS:

The Career & Technical Education staff at New Britain High School encourages male students to enroll in Family / Consumer Science classes. Family / Consumer Sciences classes at New Britain High School provide equitable and inclusive opportunities for all students.

742 KINDERGARTEN CLASSROOM EXPERIENCE

Accelerated

1 Credit

Grades 11, 12

This course is designed for students interested in pursuing a career in early childhood education or child related field. The volunteer will go by bus at 1:30 to the assigned school and assist in the Kindergarten classroom. A list of possible activities include: reading to the children, playing games, preparing bulletin boards, distributing mail into students' work folders, assisting with art projects, accompanying children to art classes, etc. The student will never be left alone with a class or group of children. The Kindergarten staff at the school will determine the classroom schedule for the volunteer. A weekly journal of observations and activities will be kept by the high school student and a daily attendance sheet will be signed by the cooperating teacher. Orientation for the volunteers will be held at the high school during the first two weeks of school. Students are dismissed with the elementary students and are provided bussing home.

713 INTRODUCTION TO CULINARY ARTS

Standard

½ Credit

Grades 9, 10

Students will be given an introduction to the National Restaurant Association's ProStart curriculum which prepares students for careers in the restaurant and food service industry. The course will explore career opportunities, the history of food preparation and the food service industry. Students will also explore food and workplace safety and sanitation practices in the industry, and the elements of customer service.

724 PROSTART CULINARY ARTS 1**Accelerated*****1 Credit**

Grades 10, 11

Prerequisite: Algebra 1, Part 1

*Students may receive Honors quality points for receiving at least an 80% average in the course and 70% or above on the National Restaurant Association Educational Foundation's (NRAEF) ProStart 1 competency exam.

The ProStart® Program is a two-year industry-based national program that prepares students for careers in the restaurant and food service industry. Students gain valuable restaurant and food service skills through their academic and workplace experiences. Year 1 covers the topics of Successful Customer Relations, Preparing and Serving Safe Food, Preventing Accidents and Injuries, Kitchen Basics, Food service Equipment, Nutrition, Controlling Food service Costs, Working with People, Business Math, Breakfast Foods and Sandwiches, Salads and Garnishes, and Fruits and Vegetables.

728 PROSTART CULINARY ARTS 2**Accelerated*****2 Credit**

Grades 11, 12

Prerequisite: ProStart Culinary Arts 1

*Students may receive Honors quality points for receiving at least an 80% average in the course and 70% or above on the National Restaurant Association Educational Foundation's (NRAEF) ProStart 2 competency exam.

This second year course allows students to continue the work they began in year one. Year 2 topics include Preparing for a Successful Career, The History of Food service, Potatoes and Grains, the Lodging Industry, The Art of Service, Desserts and Baked Goods, Marketing and the Menu, Purchasing and Inventory Control, Meat, Poultry and Seafood, Standard Accounting Practices, Stocks, Soups and Sauces, Tourism and the Retail Industry, and Communicating with Customers. Students will be encouraged to arrange and complete a mentored worksite experience. Students who successfully complete the NRAEF Prostart 1 & 2 competency exams may be eligible to receive 3 credits at Manchester Community College. In addition, students' completing the worksite experience, will receive NRAEF certification.

741 INTRO TO INDIVIDUAL AND FAMILY DEVELOPMENT/UConn ECE**College****1 Credit**

Grades 11, 12

This course is designed as an introduction to the field of Human Development and Family Science. The course provides students with an understanding of individual and family development over the life span, from pre-natal development to old age. The course will focus on the developing individual in the context of the family system and the changes that occur in the family system over time.

Students will have the opportunity to apply for UCONN college credit for this course (HDFS 1070) in the Early College Experience program (ECE). Students may be eligible for 3 UCONN credits provided the students achieve a minimum grade of C for the course work and they complete 40 internship hours.

748 CHILD DEVELOPMENT 1**Accelerated****1 Credit**

Grades 10, 11, 12

This is a two-semester course designed for students interested in learning about and working with children. Academic classes are alternated with practical experience in the Little Cane's Academy. Students will use critical thinking skills to plan appropriate activities and communicate effectively with preschoolers. Academic topics will include physical, intellectual, social and emotional development, reproduction, genetics, prenatal development, and the birth process. Nursery school opportunities will include observing and interacting with pre-school age children, planning and presenting learning activities.

752 CHILD DEVELOPMENT 2**Accelerated****1 Credit**

Grades 11, 12

Prerequisite: Child Development 1

This course is designed to acquaint students with the field of early care and education and continue their study of children upon completion of Child Development 1. Foundations of early childhood education, curriculum content and significant aspects of child growth and development will be presented. Students will work collaboratively with preschoolers and instructors in NBHS's Little Cane's Academy while they delve into various areas of study. Upon successful completion of the course students can receive 3 college credits from Tunxis Community College.

754 NURSERY SCHOOL AIDE**Accelerated****1 Credit**

Grade 12

Prerequisite: Two years of Child Development Courses and Teacher Recommendation

Limited to two students per period; scheduled along with students in Child Development 1. This course is for students with a keen interest in children and who plan to pursue a career in the field of child development. Responsibilities include setting up the nursery school as well as participating in the daily operation of the nursery school as well as completing individual assignments and projects relating to children's emotional, social and intellectual growth.

751A TEACHER CADET**Honors****1/2 Credit**

Grades 11, 12

This course is offered during the fall semester to all students interested in pursuing a career in education or working with children. It is a study of the history, development, organization and practices of preschool, elementary, and secondary education. Class instructional design consists of lecture, discussions, and field experiences. The course provides opportunities for students to see the benefits of entering the educational industry and prove insights about how to become civic advocates of educations. Students will spend the first semester at NBHS.

751B INTRODUCTION TO TEACHING/CCSU COURSE CREDIT**College****1/2 Credit**

Grades 11, 12

This course will be offered during the spring semester and will explore the issues related to teaching, schools, learning, and cultural and academic diversity in education. This course is offered to students interested in possible careers in teaching or related fields. Field work in the elementary schools is an integral part of this course. Upon successful completion students will receive 3 college credits from Central Connecticut State University.

TECHNOLOGY EDUCATION

The Technology Education program in the New Britain Public Schools is intended to help students to become technologically literate citizens. Through the use of systems and processes students will explore the world of technology and assist in developing solutions to society's technological problems. The knowledge and skills acquired through these experiences will enable students to actively participate in shaping their future and prepare them for the 21st century. Program goals are:

1. Evaluate the effects of existing and emerging technologies on people and the environment over time.
2. Recognize the scope of technology and evaluate the impact and influence technology has on society, culture and the environment – past, present and future.
3. Develop and use strategies for adjusting to new technologies and changing interactions among science, technology and society.
4. Develop cognitive and psychomotor problem-solving skills through applied research, design, production, operation and analysis of technological systems (informational, physical and biological).
5. Safely and effectively use resources, processes, concepts and tools of technology.
6. Create devices for solving problems, using creativity and concepts of design and technology.
7. Understand the influences of technology on consumer and career choices.

*Technology here is defined as the use of knowledge and resources to modify the natural environment, satisfy human needs, solve problems and extend human capabilities which improve the quality of life on earth.

NON-TRADITIONAL ENROLLMENTS:

The Career & Technical Education staff at New Britain High School encourages female students to enroll in Technical Education classes. Technical Education classes at New Britain High School provide equitable and inclusive opportunities for all students.

THE NEW BRITAIN HIGH SCHOOL STEM IN TECHNOLOGY EDUCATION

Students who have an interest in exploring the STEM (Science, Technology, Engineering, and Mathematics) professions can choose to follow one of two STEM Pathways; Pathway 1- Project Lead The Way Pre-Engineering Curriculum, or Pathway 2- which begins with Explorations in STEM Careers and is one of several offerings which will include additional courses that may lead to certification.

Students involved in the NBHS STEM Technology Academy will be involved in any or all of the following activities:

- Career exploration
- Field trips to STEM facilities
- Laboratory experiences
- Job shadowing
- Service learning
- Other as identified by students, teachers, mentors and related stakeholders

The Academy of Information Technology & Engineering (AOITE) prepares students for career opportunities in programming, database administration, web design and administration, digital networks, and other areas in the expanding digital workplace. In addition, Juniper Networks has agreed upon a program of study, linked to NAF assessments, that will qualify students for its professional training program and earn a Juniper certificate. This Academy also answers an acute need for engineers in this country by educating high school students in the principles of engineering, and providing content in the fields of electronics, biotech, aerospace, civil engineering, and architecture. Academies use curriculum from Project Lead The Way, Inc. (PLTW), They also benefit from support provided by National Action Council for Minorities in Engineering (NACME).

802 EXPLORATIONS IN STEM CAREERS

Accelerated

1 Credit

Grade 9, 10

This foundation course introduces students to career opportunities in STEM, technology and engineering. The need for skilled workers trained in the different science, technology, engineering, and mathematics (STEM) fields is increasing dramatically. Topics to be covered in this course include, but are not limited to, basic concepts, processes and skills of technology and engineering; an overview of the varied STEM occupations; engineering design and modeling and engineering systems; and desktop publishing applications. This course is recommended for students who have an interest in technology but need more exploration to choose a pathway such as engineering, manufacturing, graphics.

HIGH SCHOOL PRE-ENGINEERING CURRICULUM: PROJECT LEAD THE WAY (PLTW)

This is a four-year sequence of courses which, when combined with traditional mathematics and science courses in high school, introduces students to the scope, rigor and discipline of engineering prior to entering college. In addition, students will benefit greatly from the knowledge and logical thought processes that result from taking some or all of the courses provided in the curriculum.

PLTW's flexible course sequences and our introduction of new courses recognize the importance of recruiting and retaining all students in our program, students' math and science sequences, and their career goals by dividing our courses into three groups: Foundation, Specialization, and Capstone. PLTW courses provide equitable and inclusive opportunities for all academically qualified students without regard to gender or ethnic origin.

RECOMMENDED SEQUENCE OF COURSES

PROJECT LEAD THE WAY PROGRAM (PLTW):

Grade 9: or 10

Principles of Engineering

Grade 9 or 10

Introduction To Engineering Design

Grade 11 or 12

Select one:

Computer Integrated Manufacturing (Specialization)

Civil Engineering and Architecture (Specialization)

821 INTRODUCTION TO ENGINEERING DESIGN (PLTW) **Honors*** **1 Credit**

Grades 9, 10, 11, 12

Prerequisites: Concurrent enrollment in accelerated or higher science and math (see College Career Pathways section)

*Students may receive college quality points for receiving at least an 80% average in the course and 70 or above on the college credit exam. This is a foundation course that teaches problem-solving skills using a design development process. Models of product solutions are created, analyzed, and communicated using 3D solid modeling computer design software.

841 PRINCIPLES OF ENGINEERING (PLTW) **Honors*** **1 Credit**

Grades 9, 10, 11, 12

Prerequisites: Concurrent enrollment in accelerated or higher science and math

Principles of Engineering qualifies for one-half honors credit as part of the 3-credit graduation requirement for a physical science course.

*Students may receive college quality points for receiving at least an 80% average in the course and 70 or above on the college credit exam. This course helps students understand the field of engineering/engineering technology. Exploring various technology systems and manufacturing processes assists students in learning how engineers and technicians use math, science, and technology in an engineering problem-solving process to benefit people.



851 COMPUTER INTEGRATED MANUFACTURING (PLTW) **Honors*** **1 Credit**

Grades 11, 12

Prerequisites: Concurrent enrollment in accelerated or higher science and math.

Introduction to Engineering Design (PLTW) and Metals 2 is recommended.

*Students may receive college quality points for receiving at least an 80% average in the course and 70 or above on the college credit exam. CIM is a specialization course that applies principles of prototyping, robotics, and automation. It builds on the solid modeling skills developed in Introduction to Engineering Design. Students use computer-controlled equipment to solve problems by constructing models of their three-dimensional designs. Students are also introduced to the fundamentals of robotics and to how this equipment is used in an automated environment. Students evaluate their design solutions using various techniques and modifications before they produce the prototype.

861 <u>CIVIL ENGINEERING AND ARCHITECTURE (PLTW)</u>		Honors*	1 Credit
Grades 11, 12			
Prerequisites: Concurrent enrollment in accelerated or higher science and math.			
Introduction to Engineering Design or CADD 2			
(see College Career Pathways section)			
*Students may receive college quality points for receiving at least an 80% average in the course and 70 or above on the college credit exam. Students will use <i>Rivet</i> which is a state of the art 3D design software package from Autodesk to solve real world problems and communicate solutions to hands-on projects and activities. This specialization course covers topics such as the roles of civil engineers and architects, project planning, site planning, building design, project documentation and presentation.			
816 <u>AUTOMOTIVE TECHNOLOGY 1</u>		Accelerated	1 Credit
Grades 10, 11, 12			
This class offers students the opportunity to learn how to solve problems with tools. Lab safety will be emphasized, and hand tool skills will be focused on, with some power tool skills as well.			
The class will be centered around a year-long small-engine project (i.e., lawnmower engine). Students will disassemble, clean, sandblast, paint, reassemble, and run their engine project. Worn or broken parts will be replaced, and students will need to purchase a gasket set (\$5--\$20) to run their engine. Students can then take their running engine home, or sell it, as they wish. <i>Students are strongly encouraged to find a used small engine for this class, running or not.</i> This is a great class for any career, as the ability to repair broken items will benefit students throughout their lives, regardless of their vocation.			
817 <u>AUTOMOTIVE TECHNOLOGY 2</u>		Accelerated	2 Credits
Grades 10, 11, 12			
Prerequisite Automotive Technology 1			
This class offers students the opportunity to further develop their mechanical problem-solving skills.			
Lab safety will be emphasized, and both hand and power tool skills will be developed. The class will be centered around automotive theory, and automotive repair, though students may work on any mechanical project, including Senior Capstone Projects, with the Instructor's permission. <i>Students are strongly encouraged to bring projects to class that they can work on, for extra credit.</i> This is a great class for any career, as the ability to repair broken items will benefit students throughout their lives, regardless of their vocation.			
843 <u>METALS PROCESSING 1</u>		Standard	1 Credit
Grades 10, 11, 12			
This course is a comprehensive study and exploration of the processes and operations related to the manufacturing of metal products. Emphasis will be placed in the fundamentals of working with metals using both hand and power tools. Experiences will expose students but not limit to sheet metal processing, foundry, precision measuring and machine operations. The metals processing course provides students with a general introduction to the material processing and management components of a manufacturing enterprise. The content and activities reflect the Connecticut Career Clusters of Construction: Technologies and Design and Technologies: Manufacturing, Communications, and Repair.			
846 <u>METALS PROCESSING 2</u>		Accelerated	1 Credit
Grades 10, 11, 12			
Metals Processing 2 is a continuation of Metals Processing 1 with greater complexity. Emphasis will be placed on expanding existing skills and acquiring new processes of working with metals. Experiences will build upon previous concepts with relation to career planning and technological awareness in the manufacturing field. Development of a conceptual understanding of the mechanical processes of separating, forming and combining through hands-on activities. The student uses the managed sequence of manufacturing processes to convert a designer's conceptualization into a product that is manufactured.			
853 <u>GRAPHIC COMMUNICATIONS 1</u>		Standard	1 Credit
Grades 10, 11, 12			
Communications is a major industry in our world. More than half of the American population is involved with the generation, manipulation, storage, transmission, or marketing of information. Students will be introduced to the world of desktop publishing and the field of computer generated art. Adobe Photoshop and Adobe Illustrator are used to prepare the students for a career within this profession. The students learn terminology, technical systems, and processes used by the industry and with the graphics school run business Canes Customs.			

856 GRAPHIC COMMUNICATIONS 2 **Accelerated****1 Credit**

Grades 11, 12

This is a continuation of Graphic Communication 1 with more advanced levels of work in the printing industry. Including running school based graphics business Canes Customs. Emphasis on advanced desktop publishing techniques, advanced digital artwork introduction to Adobe Photoshop and introduction to Internet web design using Macromedia MX and animation using Macromedia Flash.

873 CONSTRUCTION**Standard****½ Credit**

Grades 9, 10, 11, 12

Students will be introduced to computer aided drawing in 3D Kitbuilder and Google Sketch Up. They will use West Point Bridge Builder to create blueprints then create model bridges. Courses to take following Construction 1 include but not limited to Construction 2 or Principles of Engineering offered in STEM.

876 CONSTRUCTION 2**Accelerated****1 Credit**

Grades 10, 11, 12

Construction 2 course provides students with a working understanding of the key elements associated with designing, planning, and constructing a structure on-site. Students learn major concepts through hands-on activities, using contemporary construction tools and materials. Activities involve a variety of types of construction, such as utility sheds, outdoor furniture, and other wood-based projects. Emphasis is placed on student understanding of the major concepts of construction technology as well as the interrelationship of management and production. The content and activities reflect the Connecticut Career Pathway of Design/Pre-Construction.

884 GRAPHIC ARTS (AOITE) **Accelerated****½ Credit**

Grades 9, 10, 11, 12

Students will learn terminology, technical systems, and processes used by the graphics industry with sample activities that support those understandings. The main programs used will be Adobe Illustrator, along with Adobe Indesign and Adobe Photoshop programs. Students will complete a portfolio using digital photography and the Internet.

886 WEB SITE DESIGN 1 (AOITE)**Accelerated****½ Credit**

Grades 9,10, 11, 12

Web Design provides a hands-on introduction to designing, building, and launching websites. First students learn how the World Wide Web works, and they examine successful websites. Then they learn the basics of HTML coding and create their own web pages. From there, students explore various web development tools, the principles of design, usability and accessibility issues, and web-based publishing tools. Finally, students get a chance to discover what types of web design careers exist today.

888 WEB SITE DESIGN 2**Accelerated****½ Credit**

Grades 10, 11, 12

Prerequisite: Web Site Design 1

This course continues the work begun in Web Site Design 1 and introduces more sophisticated software programs used in web site creation.

894 DIGITAL VIDEO PRODUCTION SCHOOL NEWS (AOITE) **Accelerated****½ Credit**

Grades 10, 11, 12

Digital Video Production provides a hands-on introduction to digital video. The course guides students through all phases of digital video production, including pre-production and planning, executing and managing a video shoot, and editing and post-production techniques. Students focus on script writing and interviewing techniques to create stories for Hurricane Happenings, the school newscast. Finally, students have a chance to discover the types of careers that exist in digital media and design today.

896 DIGITAL VIDEO PRODUCTION DOCUMENTARY **Accelerated****½ Credit**

Grades 10, 11, 12

Digital Video Production provides a hands-on introduction to digital video. The course guides students through all phases of digital video production, including pre-production and planning, executing and managing a video shoot, and editing and post-production techniques. Students focus on the creation of documentary type video. They will have the opportunity to enter contests and publish to You Tube. Finally, students have a chance to discover the types of careers that exist in digital media and design today.