

Career and Technical Education Department

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Career and Technical Education Department



**** Business Education ****

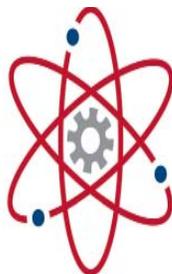
**** Family and Consumer Science ****

**** Industry and Technology ****

2015 - 2016

PROJECT LEAD THE WAY

IED and POE offer scholarships and university credit unique to certain colleges and universities both in and out of the state of Illinois. * Each student should see his/her advisor to make the best college credit transition for these courses.



PROJECT LEAD THE WAY
PLTW

PROJECT LEAD THE WAY courses lead to free College Credit/Accreditation at many schools across the USA, including but not limited to:

MILWAUKEE SCHOOL OF ENGINEERING
UNIVERSITY OF ILLINOIS
NORTHERN ILLINOIS UNIVERSITY
ILLINOIS STATE UNIVERSITY
UNIVERSITY OF IL AT CHICAGO
PURDUE UNIVERSITY
INDIANA UNIVERSITY
IOWA STATE UNIVERSITY
UNIVERSITY OF IOWA
DUKE UNIVERSITY
MISSOURI UNIVERSITY OF SCIENCE AND TECH
UNIVERSITY OF MARYLAND
UNIVERSITY OF SOUTH CAROLINA

Each year the list is updated at WWW.PLTW.ORG/COLLEGES-UNIVERSITIES and additional course-related transfer information can be found at www.transfer.org.

CTE -- It's the Place to Be!

Career and Technical Education Courses prepare students for a future in today's world of work, college and career skills. **Eleven** courses currently available to **all students** at Willowbrook High School in CTE are offered as dual credit - transferable courses – from College of DuPage at **NO COST** to WBHS students.

These classes transfer as elective or department credit to any college/university who accepts credit from College of DuPage:

<u>WBHS CTE COURSE</u>	<u>COD COURSE CODE & CREDITS</u>	
ACCOUNTING II Honors	ACCY 1140	4 credits
ARCHITECTURAL DRAFTING	ARCH 1211	3 credits
AUTO UPKEEP	AUTO 1040	3 credits
COLLEGE & CAREER TECH	OFTI 1210	3 credits
COMPUTER REPAIR	CIT 1100	2 credits
CULINARY ARTS III	CA 1120	2 credits
FITNESS & NUTRITION	PHYS 1554	1 credits
INTRO TO SPEECH/TECH	OFTI 1250	3 credit
KEYBOARDING	OFTI 1100	2 credits
PHOTOGRAPHY I	PHOTO 1100	3 credits
PHOTOGRAPHY II	PHOTO 1102	3 credits

Currently 29 college credits are available to each WBHS/CTE student; average savings is \$475 per course above.

WB CTE CERTIFICATE PROGRAM

Culinary Arts II: Food Handler Certificate
Culinary Arts III: Food Safety & Sanitation Managerial Certificate
Preschool I: ECE Level 1 Certificate
 Mandatory Reporting Certificate
 Shaken Baby Syndrome Certificate
 SIDS Certificate

CTE – Business Education

Accounting I (Full-Year Course)

This course is highly recommended for students who plan to study any field of business in college. The study of accounting emphasizes the accounting principles and concepts necessary to process financial data. Students acquire the background essential for a solid foundation for the further study of accounting, as well as work in a wide range of accounting, clerical, and data processing jobs or any other business field. Computerized accounting software and spreadsheets are integrated into the curriculum. (Option of Honors Credit)

Prerequisite: None **Grades:** 10, 11, 12



Accounting II - Honors (Full-Year Course)

This course is highly recommended for students who plan to study any field of business in college. This is an introductory college accounting course. It includes departmentalized accounting, cost accounting, accruals, deferrals, controlling financial resources, and accounting for partnerships and corporations. Computerized accounting software and spreadsheets are integrated.

Dual credit is available through the College of DuPage for 11th and 12th graders only while taking the class at WBHS with a WBHS instructor.

Prerequisite: Accounting I **Grades:** 11, 12

Business Explorations (One Semester)

This course will provide students with basic career management tools required in today's workforce, which includes how to design an impressive resume and cover letter. The class is designed to prepare students to successfully enter today's rapidly changing job market and develop skills to ensure lifelong career success. One of the main objectives of the course is to allow students to examine a variety of employment opportunities in the business world that range from professional careers to those that involve technical and service-based training. Areas of study will include desktop publishing, accounting, advertising, international business and management.

Prerequisite: None **Grades:** All



Advanced Screen Printing and Production (One Semester)

This course is a continuation of Screen Printing with a greater emphasis on equipment operation, long run production, and the creation of professional screen print designs. Varying levels of specialization are undertaken with emphasis upon the area of the student's choice. Activities and projects will allow students to develop the skills necessary to seek employment in the field of Graphic Communications. After a general level of competency is achieved, specific advanced skill development can be directed into the following areas: desktop publishing, design and screen-printing. Basic math computation skills and the ability to read a ruler are recommended.

Prerequisite: Screen Printing **Grades:** All



Woods I (One Semester)

This course will introduce students to basic woodworking skills.

Students will learn how to properly operate and maintain woodworking tools and machines, learn to identify different types of wood, and the characteristics of various types of woods while completing basic projects. This is primarily a hands-on lab course where students learn through demonstration and project-based learning activities. Through the completion of projects and classroom activities, students will learn and improve skills in safety, organization, basic math, project planning, and reading.

Prerequisite: None **Grades:** All

Woods II (One Semester)

The course is a continuation of Woods I where students will enhance their woodworking skills by creating more complex projects that require them to follow proper project planning guidelines, safety procedures, machine operation techniques, and finishing techniques. Students choose which projects they will work on throughout the year. This is primarily a hands-on lab activity course with projects to reinforce student learning. All projects must get approval by the instructor before students begin work. Students are required to pay for the materials they use in class; price will vary depending on project and wood used.

Prerequisite: Woods I **Grades:** All



Photography I (One Semester)

This course will cover the technical area of photography including both black and white film and digital photography. This course stresses the proper practices and techniques as they apply to taking and printing quality photographs. Students will learn how to use Adobe Photoshop to edit, process and print high quality, professional photographs.



Dual credit is available through the College of DuPage for 10th, 11th, and 12th graders only while taking the class at WBHS with a WBHS instructor.

Prerequisite: None **Grades:** 10, 11, 12

Photography II (One Semester)

Advanced Photography continues to build on the previously acquired skills. Students will learn advanced techniques in both black and white film and digital photography. Students will work with studio and commercial lighting as well as learn the proper techniques for flash photography. Advanced Adobe Photoshop techniques will be taught throughout the semester. *Dual credit is available through the College of DuPage for 10th, 11th, and 12th graders only while taking the class at WBHS with a WBHS instructor.*

Prerequisite: Photography I **Grades:** 10, 11, 12

Screen Printing (One Semester)

Screen Printing is offered as an introductory course in Graphic Communications. This course includes study and projects in the areas of layout and design, computer-assisted design (Adobe Illustrator), desktop publishing, with an emphasis in screen printing. Screen printing is a process that is used to create prints on a wide variety of materials, from fabric to wood. Many commercial printers use screening to print, due to cost factors and ease of use and can result in high quality prints. Screen printing is widely used today to create many mass or large batch produced graphics such as posters,



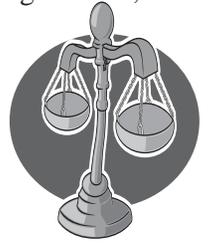
clothing designs, or displays.

Prerequisite: None **Grades:** All

Business Law (One Semester)

This course informs the student about everyday law. The course discusses one's legal rights and benefits as well as one's legal duties, obligations, and liabilities. Topics covered in business law include criminal and civil law, contracts, juvenile law, and a variety of current legal issues that arise in today's society. (Option of Honors Credit)

Prerequisite: None **Grades:** 10, 11, 12



College & Career Technology (One Semester)

Don't be left out when it comes to learning and knowing how to use Microsoft Office Suite. Learn word processing, database, and spreadsheet applications (Microsoft Word, Access, and Excel) and how to integrate them all together. This is a skill you should know whether you plan on going to college or are entering the world of work. (Option of Honors Credit) *Dual credit is available through the College of DuPage for all grades only while taking the class at WBHS with a WBHS instructor.*

Prerequisite: None **Grades:** All

Consumer Management (One Semester)

This course focuses on specific consumer problems that students will encounter now and as an adult. This subject relates to everyday living and helps prepare individuals for making wise purchasing decisions. Topics include: budgeting, savings/checking accounts, investments, comparison-shopping, using credit wisely, tax preparation, insurance, advertising practices, labor relations, and various consumer protection laws. **This course meets the consumer education graduation requirement.**



Prerequisite: None **Grades:** 10, 11, 12

Entrepreneurship (One Semester)

Managers play an important role in the success of a business. This course prepares students with the skills managers need to make a positive impact on implementing change in the workplace. Topics include interviewing skills, communication skills, training programs, characteristics of good leadership, how to evaluate employees, motivational strategies, writing job descriptions, and knowledge of labor unions. The course explores new and popular trends in business management. (Option of Honors Credit)

Prerequisite: None **Grades:** 10, 11, 12

Financial Math and Analysis (Full-Year Course)

This course focuses on mathematical skills necessary for personal and corporate use. Topics may include: personal financial math & analysis (i.e. payroll - gross and net pay, banking services, loans & credit, spending, owning a home or car, and insurance & investments) and business/corporate financial math & analysis (i.e. data analysis, inventory, business costs, sales & marketing, profit & loss, and international business). Students will utilize mathematical concepts such as solving problems involving whole numbers, decimals, fractions, percents, ratios, averages, and proportions, using algebraic operations to solve problems, and analyzing and interpreting data using common statistical procedures. **This course satisfies the math graduation credit requirement.**



Prerequisite: None **Grades:** 11, 12

Introduction to Business (Full-Year Course)

This course presents the everyday business activities that the student will experience in his or her own personal life. It is a general orientation course in the business field, including such topics for exploration as business careers, money management, investing, banking services, consumerism, and types of insurance. The course contributes to a better understanding of American business and where we as consumers and business persons will fit into this social and economic environment. **This course**

meets the consumer education graduation requirement. Highly recommended for those who wish to pursue a career in the business field.

Prerequisite: None **Grades:** All

Introduction to Speech / Technology (One Semester)

This course is a one-semester integrated English and Business Education course designed to teach students the basic elements of oral communication in combination with technology. Students will perform several different types of speeches utilizing presentation software. **This course meets the speech graduation requirement. Dual credit is available through the College of DuPage for 10th, 11th, and 12th graders only while taking the class at WBHS with a WBHS instructor.**

Prerequisite: None **Grades:** 10, 11, 12

Introduction to Engineering Design (IED) (Full-Year Course)

Introduction to Engineering Design (IED) is for students who are interested in design and engineering. The major focus of the IED course is to expose students to design process, research and analysis, teamwork, communication methods, global and human impacts, engineering standards, and technical documentation. IED gives students the opportunity to develop skills and understanding of course concepts through activity-project, and problem-based (APPB) learning. Students will employ engineering and scientific concepts in the solution of engineering design problems. In addition, students use Auto Desk INVENTOR, a 3D solid modeling design software package, to help them design solutions to solve proposed problems. Students will also be able to utilize a 3D Printer to build a prototype of their design solutions. Students will develop problem-solving skills and apply their knowledge of research and design to create solutions to various challenges that increase in difficulty throughout the course. (Option of Honors Credit) ***University credit available***

Prerequisite: None **Grade:** All (*See page 16 for details)



Principles of Engineering (POE) (Full-Year Course)

Principles of Engineering (POE) exposes students to major concepts they will encounter in a post-secondary engineering course of study. Topics include mechanisms, energy, statics, materials, and kinematics. Students develop problem-solving skills and apply their knowledge of research and design to create solutions to various challenges, document their work and communicate solutions, along with utilization of a 3D printer and APPB learning. This course will lead to paths of other specializations, including aerospace, biotechnical, civil engineering and architecture, computer integrated manufacturing, digital electronics, and engineering design and development.

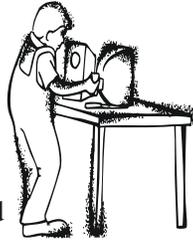
(Option of Honors Credit) ***University credit available***

Prerequisite: Introduction to Engineering Design (IED) OR 11th/ 12th Grades with Department Chair approval** **Grade:** 10, 11, 12

(*See page 16 for details)

Computer Repair - Servicing (One Semester)

This course is designed to equip beginner and semi-experienced students with entry-level computer technician proficiencies. The course follows CompTIA A+ Certification objectives for computer hardware. Students will become proficient with computer hardware components including the motherboard, processor, memory, drives, power supplies and other devices. Classroom activities include demonstrations, videos and lab work to help master the theory and operation of computer hardware. This course follows industry-recognized curriculum and is strongly recommended for students who have an interest in pursuing Computer Servicing and Technology as a career or as a computer enthusiast. ***Dual credit is available through the College of DuPage for all grades only while taking the class at WBHS with a WBHS instructor.***



Prerequisite: None **Grades:** All

Digital Imaging (One Semester)

Students will explore the many applications of digital media. The focus in class will include processing, compression, storage, printing, and professional display of images. Time will be spent in learning how to edit and use still shots as well as digital video. Students will learn how to manipulate images creatively from different genres including, but not limited to, photo editing, illustrations and typography. The Adobe Creative Suite with a strong emphasis in Adobe Photoshop will be used in the production of the projects.



Prerequisite: None **Grades:** All

Home Repair & Maintenance (One Semester)

This course is designed for students interested in doing some of their own home maintenance and repair work or those that may be interested in learning about a career in the building trades. Students learn the basic information and techniques necessary to use the major tools and various building materials required for routine repair and maintenance of a residential structure and its systems, including exterior and interior walls, roofs, windows, plumbing, masonry, and insulation. Students will work independently, in a large group, or in pairs while going through individual units of study throughout this course.



Prerequisite: None **Grades:** All

Keyboarding/ Word Processing I (One Semester)

This semester course is strongly recommended for college-bound students as well as those students interested in entering the workforce. The objective of this course is to develop the skills necessary to accurately keyboard and word process reports, letters, outlines, and a variety of materials that the individual may have occasion to use. This course develops the skills necessary to key and format material for personal, professional and school use quickly and accurately, as well as increasing speed and accuracy for online testing programs - including PARCC online ACT testing, college entrance exams, and online college courses. ***Dual credit is available through the College of DuPage for all grades only while taking the class at WBHS with a WBHS instructor.***



Prerequisite: None **Grades:** All

Marketing – Sports and Entertainment Focus (One Semester)

The student will study the four P's of marketing—product, price, place and promotion and how they relate to sales, advertising, and the distribution of goods and services in a sports/entertainment environment. Sales, promotion, consumer behavior, interviewing, and market research are broken down to show how these areas benefit the business world and the consumer. Students will practice their marketing skills by utilizing role playing and engaging in realistic business activities that occur in the sports and entertainment industries. (Option of Honors Credit)



Prerequisite: None **Grades:** 10, 11, 12

CTE – Family and Consumer Science

Culinary Arts I (One Semester)

This course combines both a classroom setting and a laboratory experience. The course focuses on kitchen safety and sanitation, recipe selection and reading, food assembly techniques, and the nutritional value of basic recipes. This course is designed for both everyday cooking and those aspiring to work in the food service industry.



Prerequisite: None **Grades:** All

Culinary Arts II (One Semester)

This class expands upon the knowledge and culinary skills obtained in Culinary Arts I. Students will be reading and preparing more complex recipes involving the use of more difficult preparation techniques. Students will also be introduced to careers within the food service industry. ***Food Handler Certification**



Prerequisite: Culinary Arts I **Grades:** All

Culinary Arts III - Catering (Full-Year Course; One or Two Period Block; Repeatable as Advanced Chef)

Students will learn how to operate a small catering business located at our high school. Course content will include food preparation including plating and garnishing, serving food on occasion, and addressing the cleanup activities that follow. Students gain real life experience (and high school credits) as part of their school day.



Activities include planning, scaling recipes, ordering of groceries, and figuring costs in a lab setting. Opportunities to work with clients to determine themes and menus for morning, afternoon and evening events will be included. Students are required to work some hours before/after the school day throughout the semester as is typical in the Hospitality industry. This

course is designed for students having an interest in food service as a possible career.

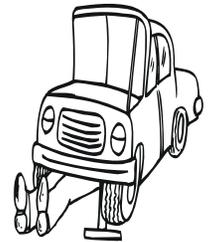
***Food Safety & Sanitation Managerial Certification.**

Dual credit is available through the College of DuPage for all grades only while taking the class at WBHS with a WBHS instructor.

Prerequisite: Culinary Arts I & II **Grades:** 10, 11, 12

Automotive Technology I (Full-Year Course)

Auto Technology I covers theory and operation of the basic components of the modern automobile. Areas of study include the safe and efficient use of automotive tools, automotive engine fundamentals including theory and operation, automotive maintenance, cooling systems, tire and wheel repair, brake and suspension inspections. This is a prerequisite for Auto Technology II and stresses entry level job skills. It is recommended for students interested in becoming an automotive technician as well as for those who wish to learn basic automotive repair for personal use. **+Alignment with NATEF Standards.**



Prerequisite: None **Grades:** All

Automotive Technology II (Full-Year Course)

This course will provide a more advanced study of design and construction of automotive technology and practical experiences in automotive repair. Areas of study include brake system operation and repair, steering and suspension systems, engine mechanical diagnosis and servicing of fuel injection, emission control systems and electronic engine controls. This is primarily a hands-on lab course where students learn through demonstration and project-based learning activities.

Prerequisite: Automotive Technology I **Grades:** 10, 11, 12

Automotive Technology III/Internship (Full-Year Course)

This is an advanced level course providing a study of design and construction of automotive technology and practical experiences in automotive repair. Areas of study include driveline systems including manual and automatic transmissions, A/C system diagnosis and repair, and Engine performance diagnosis. This course allows students who are interested in a career in automotive repair and maintenance to gain additional knowledge and experience in an area of particular interest. The Auto Technology III course is a yearlong class in which students put into practice what they have learned and run a service center repairing “customer vehicles”.



***Ford AAA, Engine Competition, SkillsUSA and Certification.**

Prerequisite: Automotive Technology II **Grade:** 11, 12

CTE – Industry and Technology

Architectural Drafting (One Semester)

This course will explore the options, careers, education and skills related to architecture and building construction. It will focus primarily on residential design and the required drawings for constructing buildings ranging from as small as a shed or garage up to large houses. Topics will include building codes, construction plans, room layouts, roofing and more. Students will learn principles of CAD Drafting software and design as well as modeling with balsa wood and foam core board. *Dual credit is available through the College of DuPage for all grades only while taking the class at WBHS with a WBHS instructor.*



Prerequisite: None **Grades:** All

Advanced Architectural Drafting (One Semester)

This course will further explore the concepts of architecture and architectural design. Students will also learn about energy efficiency and “green” building practices as well as supplemental construction plans related to electricity, plumbing, heating and air conditioning, framing practices, and detailed plans for kitchens and bathrooms. This course will use 3-dimensional



CAD software and modeling materials.

Prerequisite: Architectural Drafting **Grades:** All

Automotive Upkeep (One Semester)

Do you plan on owning a car? This course is designed to introduce students to the basic operation and maintenance of the automobile. Topics covered will be beneficial to ALL current and future car owners, both male and female, and will provide students with the skills necessary for owning and maintaining a car. This course will include classroom demonstrations and lab activities including oil changes, under the hood inspections, under the car inspections, changing and rotating tires, replacement of essential maintenance parts on an automobile, and how to properly care for your vehicle. This is the first step to owning a vehicle. *Dual credit is available through the College of DuPage for all grades only while taking the class at WBHS with a WBHS instructor.*



Prerequisite: None **Grades:** All

Fitness & Nutrition (Full-Year Course; Repeatable)

This course is an inter-departmental course taught by Physical Education and Family & Consumer instructors. The focus of the course is upon physical fitness activities that can be pursued into adulthood and today’s nutritional needs. Included topics are body composition testing, computer dietary analysis, laboratory experiences in nutritional food preparations and physical conditioning activities, such as yoga.

This course can fulfill daily PE requirement.

Dual credit is available through the College of DuPage for 11th and 12th graders only while taking the class at WBHS with a WBHS instructor.

Prerequisite: Junior or Senior status **Grades:** 11, 12



Fashion I (One Semester)

This laboratory class is designed for the student interested in all aspects of the fashion apparel industry. Emphasis is upon fashion trends, methods of basic fashion design, design principles, color theory, and personal fashion analysis.

Prerequisite: None **Grades:** All

Interior Design (One Semester)

This laboratory course is designed for the student interested in the study of interior design. Emphasis is upon the application of art design principles to achieve effective interiors. Units of study include: personal needs and housing, historical development, consumer issues, elements and principles of design, floor plans, and construction basics used in the interior design industry.



Prerequisite: None **Grades:** All

Human Growth and Child Development (One Semester)

Students explore topics focusing on child growth and care from conception through childhood with emphasis on the techniques and skills necessary to promote healthy physical, social, emotional, intellectual and moral development. This course incorporates concepts from child psychology, educational research, biology, sociology and philosophy. Students will spend a full weekend with a computerized baby to further their understanding of the care needed for an infant.



***4 Certificates in alignment with the Gateways to Opportunity ECE Program (www.ilgateways.com).**

Prerequisite: None **Grades:** All

Preschool I (One Semester)

Students will apply the knowledge that they learned in Human Growth and Child Development, in the preschool lab setting. Children from the community attend the Little Warrior Preschool which is directed by the course instructor, a lead teacher and the assistance of the high school students. Students will have the opportunity to observe the preschoolers as well as work with each child on a one-on-one basis. The course curriculum includes positive guidance techniques, observation skills, reflection and additional information that can be used in Preschool II and a future career related to young children.



***4 Certificates in alignment with the Gateways to Opportunity ECE Program (www.ilgateways.com).**

Scholarship Opportunity and University Credit Available

Prerequisite: Human Growth and Child Development **Grades:** All

Preschool II - Preschool Practicum (One Semester)

Students will research, explore and implement the most current teaching trends and techniques for children with a variety of needs in The Little Warrior Preschool. Students will apply the knowledge and practice the skills gained in previous courses. Students will gain further knowledge about a career in education and other child related professions.



Prerequisite: Preschool I **Grades:** 10, 11, 12

Preschool Teaching Internship (One Semester)

This internship opportunity is given to those students who have successfully completed Human Growth and Child Development, Preschool I and Preschool II and have been given permission, after an application process, to enroll in this course. As an advanced continuation of Preschool II, the student works as an individual lead teacher in the Little Warrior Preschool acting as a facilitator to those students enrolled in Preschool I. The student will further their education and knowledge in working with young children by conducting research, observing, planning, implementing and individual reflection. The student will work closely with the classroom teacher who will guide them throughout the course.



Prerequisite: Preschool II and teacher approval
Grades: 10, 11, 12