TECHNOLOGY and ENGINEERING EDUCATION
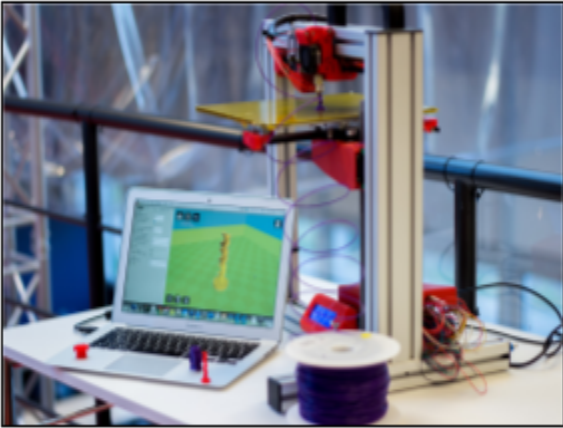
Overview Video of all Technology and Engineering Classes

SOME OCCUPATIONS RELATED TO INTEREST AND ABILITY IN TECHNOLOGY AND ENGINEERING EDUCATION

Engineering: Civil, Mechanical, Industrial, Architectural, Electrical, Chemical, Environmental, Manufacturing, Networking, Software, Structural, Packaging, and Aeronautical

Design Engineer   Technology Education Teacher   Electrician   Aircraft Technician

CAD Designer   Welder   Sheet Metal Fabricator

CNC Machinist   Electro-Mechanical Technician   Mason

Construction Management   Cabinet Maker   IT Specialist

Draftsperson Architectural   Network Associate

Heavy Machine Operator   Logger

Carpenter   Plumber

Machinist   Painter

Press Operator   Drafter   Plant Operator

Diesel Technician   Web Designer

Cement Mason   Sheet Metal Worker   Programmer

Technical Engineer   Mechanical Designer   Automotive Technician   Tool and Die Maker

Mechanical Maintenance   Project Manager

Architect

Lineman   Auto-Body Technician

Pathway	1st Level (9-12)	2nd Level (9-12)	3rd Level (10-12)	4th Level (11-12)
Maintenance, Installation, & Repair	Small Engines		Automotive Technology	*Raider Products - Auto - 1 cr.
Manufacturing/Production			Metal Processes 3	
	Metal Processes 1	Metal Processes 2	Metal Processes Machining - 1 cr.	*Raider Products - 1 cr.
Construction/Production	Residential Wiring		Residential Construction	
	Wood Technics 1	Wood Technics 2	Wood Technics 3 -1 cr.	*Raider Products - Woods - 1 cr.
Engineering & Technology	CNC Technology	Electronics		
	Advanced Robotics			
	Intro to Engineering Design - 1 cr.	Principles of Engineering - 1 cr.		*Engineering Design & Development (11-12)-1 cr.
	Computer Aided Drafting	Architecture	Civil Engineering/Arch -1 cr.	
	Design Essentials: In & Around the Home			
Information Technology	IT Support: Hardware Intro		Computer Science Principles - 1 cr.	
	Game and App Design		Cybersecurity and Networking 1---	Cybersecurity and Networking 2
	Graphic Communication		Web Page Design	*Raider Graphics - 1 cr.
			3-D Animation	

Notes:

All courses are 1/2 credit unless otherwise noted.

Arrows represent a prerequisite or recommendation.

* These courses are for only juniors and seniors.

TECHNOLOGY and ENGINEERING EDUCATION

Course Length	Credit	Name of Course	Course Number	9	10	11	12	Prerequisite	
1 Year	1	Intro to Engineering Design [idx]	600B1X	X	X	X	X		PLTW Group
1 Year	1	Principles of Engineering-ES [idx]	601B1X	-	X	X	X	Intro to Engineering Design	
1 Year	1	Computer Science Principles [idx]	602B1X	-	X	X	X		
1 Year	1	Civil Engineering & Arch [idx]	604B1X	-	X	X	X	IED or Architecture	
1 Year	1	Engineering Design & Development	610B1X	-	-	X	X	See Chart Above	
1 Sem	.5	Game and App Design	648B1A	X	X	X	X	None	
1 Sem	.5	CNC Technology	611B1B	X	X	X	X		
1 Sem	.5	Robotics	612B1B	X	X	X	X		
1 Sem	.5	Computer Aided Drafting	613B1A	X	X	X	X		
1 Sem	.5	Architecture	614B1B	X	X	X	X		
1 Sem	.5	Graphic Communication	615B1A	X	X	X	X		
1 Year	1	Raider Graphics	654B1X	-	-	X	X	Graphic Communication or Graphic Design, or Web Page Design & successful completion of interview and application	
1 Sem	.5	Residential Wiring	616B1B	X	X	X	X		
1 Sem	.5	Electronics 1	618B1B	-	X	X	X		
1 Sem	.5	Metal Processes 1	621B1C	X	X	X	X		
1 Sem	.5	Metal Processes 2	622B1C	X	X	X	X	Metals 1	
1 Sem	.5	Metal Processes 3	623B1C	-	X	X	X	Metals 2	
1 Sem	1	Metals Processes Machining	624B1A	-	#	X	X	Metals 2	
1 Year	1	Raider Products: Metals	625B1X	-	-	X	X	Metals 2 & completion of application and interview	
1 Sem	.5	Residential Construction	630B1B	-	X	X	X		
1 Sem	.5	Wood Technics 1	634B1C	X	X	X	X		
1 Sem	.5	Wood Technics 2	635B1C	X	X	X	X	Woods 1	
1 Year	1	Wood Technics 3	636B1X	-	X	X	X	Woods 2	
1 Year	1	Raider Products: Woods	638B1X	-	-	X	X	Woods 2 & completion of application and interview	
1 Sem	.5	Small Engine Technology	640B1C	X	X	X	X		
1 Sem	.5	Automotive Technology	641B1B	-	X	X	X	Valid Drivers License & Small Engine	
1 Year	1	Raider Products: Auto	642B1X	-	-	X	X	Automotive Technology & completion of application and interview	
1 Sem	.5	DIY Living	645B1A	X	X	X	X	See Course Description	
1 Sem	.5	Cybersecurity and Networking 1	650B1B	-	X	X	X		
1 Sem	.5	Cybersecurity and Networking 2	651B1B	-	X	X	X	Cybersecurity and Networking 1	
1 Sem	.5	Web Page Design	655B1B	-	X	X	X		
1 Sem	.5	IT: Support: Hardware Intro	656B1A	X	X	X	X		
1 Sem	.5	3-D Animation	658B1B	-	X	X	X	Computer Aided Drafting or IED	

600B1X - INTRODUCTION TO ENGINEERING DESIGN (PLTW)*			Grade Indexed (see pg 16)
Year Course	Grades 9 – 12	1 Credit	Prerequisite: None

Potential Careers: All Engineering Fields, CAD Designer & Drafter
Students will dig deep into the engineering design process, applying math, science, and engineering standards to hands-on projects. They will work both individually and in teams to design solutions to a variety of problems using 3D modeling software, and document all their work. Students interested in this course should have taken or are in Math 1 or Math 1 Advanced.

● Students enrolled in this course have the opportunity to receive college credit through UWGB and the CCIHS program.

* Students meeting the proper requirements upon completion of this course may be eligible for dual enrollment through PLTW affiliated universities.

601B1X - PRINCIPLES OF ENGINEERING—ES (PLTW)*			Grade Indexed (see pg 16)
Year Course	Grades 10 – 12	1 Credit	Prerequisite: Intro to Engineering Design

Potential Careers: All Engineering Fields, Mechanical Engineer, Materials Engineer
Through problems that engage and challenge, students explore a broad range of engineering topics, including mechanisms, the strength of structures and materials, and automation. Students will develop skills in problem solving, research, and design while learning strategies for design process documentation, collaboration, and presentation. Students who successfully complete Principles of Engineering will receive a third year science equivalency credit.
The University of Wisconsin school system has agreed to accept the DPI determination that this course can be considered as science equivalent and count as part of the three high school units of science required for admission to UW institutions.

● Students enrolled in this course have the opportunity to receive college credit through UWGB and the CCIHS program.

*This course carries advanced standing with NWTC's Mechanical Design-Exploring (10-606-111) if the student earns a "B" or better when taken as a junior or senior.
* Students meeting the proper requirements upon completion of this course may be eligible for dual enrollment through PLTW affiliated universities.

602B1X – COMPUTER SCIENCE PRINCIPLES (PLTW)*			Grade Indexed (see pg 16)
Year Course	Grades 10 – 12	1 Credit	Prerequisite: None

Potential Careers: Computer Programmer, Software Engineer
Using Python® as a primary tool and incorporating multiple platforms and languages for computation, this course aims to develop computational thinking, generate excitement about career paths that utilize computing, and introduce professional tools that foster creativity and collaboration. This course can be a student's first course in computer science. CSE helps students develop programming expertise and explore the workings of the Internet. Projects and problems include app development, visualization of data, cyber-security, robotics, and simulation.
*This course carries advanced standing with NWTC's Program: Logic (10-152-140) if the student earns a "B" or better when taken as a junior or senior. * Students meeting the proper requirements upon completion of this course may be eligible for dual enrollment through PLTW affiliated universities.

604B1X - CIVIL ENGINEERING and ARCHITECTURE (PLTW)*			Grade Indexed (see pg 16)
Year Course	Grades 10 – 12	1 Credit	Prerequisite: IED or Architecture I

Potential Careers: Architect, Civil Engineer, Environmental Engineer, Surveyor
Students will learn important aspects of building and site design and development. They will apply math, science, and standard engineering practices to design both residential and commercial projects and document their work using REVIT, a 3D architecture design software.

* Students meeting the proper requirements upon completion of this course may be eligible for dual enrollment through PLTW affiliated universities.

610B1X - ENGINEERING DESIGN AND DEVELOPMENT (PLTW)			
Year Course	Grade 11-12	1 Credit	Prerequisite: See Pathway Map

Potential Careers: All Engineering Fields, Project Manager
Engineering Design and Development (EDD) is the capstone Project Lead the Way course which allows students to use their skills and knowledge from previous PLTW courses to design a solution to a technical problem of their choosing. This course is an engineering research course in which students will work in teams to research, design, prototype and test a solution to an open-ended engineering problem. At the conclusion of the course, students will present and defend their solution to a panel of outside reviewers. Students will need to build a prototype of their design. Students will be allotted $50 for their prototype, but anything above and beyond would need to be donated by businesses or purchased by the student.

- Students enrolled in this course have the opportunity to receive college credit through UWGB and the CCIHS program.

648B1C - GAME AND APP DESIGN

Semester Course	Grades 9 – 12	.5 Credit	Prerequisite: None

Potential Careers: Video Game Designer, Computer Programmer, Software Developer
Students will develop games and apps to solve real world problems. Structured activities using multiple programming languages allow students to progress to open-ended projects and problems that require planning, documentation, communication, and other professional skills. Each unit will culminate with students designing an authentic game or app.

611B1B – CNC TECHNOLOGY

Semester Course	Grades 9 – 12	.5 Credit	Prerequisite: None

Potential Careers: CNC Machinist, CNC Technician, CNC Programmer
Students use CNC equipment (Laser engraver, CNC router, CNC plasma cutter, CNC mill, and 3D printer) to produce actual models of their two-dimensional and three-dimensional designs. Students will be designing parts and products using CAD/CAM software and then producing those parts on a CNC machine.

612B1B - ROBOTICS

Semester Course	Grades 9 – 12	.5 Credit	Prerequisite: None

Potential Careers: Robotics Engineer, Electromechanical Technician, Software Developer
Students apply the principles of robotics and automation to solve real world problems. Fundamental concepts of robotics used in automated manufacturing are embedded throughout the course.
NOTE: This class is open to both students who took Robotics in middle school and those who did not.

613B1A - COMPUTER AIDED DRAFTING

Semester Course	Grades 9 – 12	.5 Credit	Prerequisite: None

Potential Careers: Drafter, Mechanical Designer, Architectural Drafter
This course introduces the student to Computer Aided Design (CAD) technology as well as traditional sketching methods. Areas of study include multi-view drawing, dimensioning, auxiliary views, sectional views, technical illustration, mechanical and architectural design. Students will be introduced to AutoCAD, Inventor, and REVIT from the AutoDESK suite of software.

- Students enrolled in this course have the opportunity to receive college credit through UWGB and the CCIHS program.

614B1B - ARCHITECTURE

Semester Course	Grades 9 – 12	.5 Credit	Prerequisite: None

Potential Careers: Architectural Drafter, Architect, Urban Planner
This course is concerned with the basic detail, design, and presentation of residential architecture. A problem-based approach will be used and is aligned with a local design competition which provides cash payouts to the top three entries. Emphasis will be on creativity, construction details, structural design, and planning. The course utilizes REVIT, a 3D Computer Aided Design (CAD) system.

615B1A - GRAPHIC COMMUNICATION

Semester Course	Grades 9 – 12	.5 Credit	Prerequisite: None

Potential Careers: Graphic Designer, Printing Press Operator, Graphic Artist
This course gives students the opportunity to develop 21st century skills in both software and hardware as it relates to digital image creation, collection, preparation, and file handling through many forms of digital media used in the industry. Students will work with various methods and materials in order to perform real-world printing applications and concepts. Students will be able to explore many different career opportunities in and relating to the graphic communications field including color-electronic prepress operations.

654B1X - RAIDER GRAPHICS

Year Course	Grades 11 – 12	1 Credit	Prerequisite: Graphic Communication or Graphic Design, or Web Page Design & successful completion of interview and application

Potential Careers: Graphic Designer, Web Page Designer, Graphic Artist, Entrepreneur
Raider Graphics students will engage in solving real-world problems while gaining hands-on work experience in graphic communication and graphic design through the use of necessary software programs that are used in the Graphics Industry, creating a "Job Shop" manufacturing business. Employees of the student-run business will receive and process real client's requests from within the school district, local businesses and individuals for products, which they will perform design layout, cost estimating, material planning, ordering, invoicing, billing, shipping, and all other aspects in addition to the actual production of the products. Students will

also develop interpersonal written and oral communication skills, teamwork and collaboration skills, technology and manufacturing skills, responsibility and time management skills, and quality assurance understanding as it applies to work-based learning.

616B1B - RESIDENTIAL WIRING

Semester Course	Grades 9 – 12	.5 Credit	Prerequisite: None

Potential Careers: Electrician, Lineman, Electrical Installer
This course covers the fundamentals of residential electrical wiring procedures and codes. Knowledge of electrical principles and wiring skills are developed with several individual and group hands-on exercises in the electrical lab. Careers in the electrical trade will also be explored. Safety glasses are required.

618B1A - ELECTRONICS 1

Semester Course	Grades 10 – 12	.5 Credit	Prerequisite: None

Potential Careers: Electronic Technician, Electro-Mechanical Technician, Electronic Engineer
This introduction course is designed for the first-time student to progress from no previous electronics experience to actual circuit design by the end of the term. Lab projects involve hands-on learning mixed with theory, constructing circuits using schematics, modifying existing circuits and designing new ones, troubleshooting techniques, a digital electronics introduction, soldering, and an introduction to basic stamp microprocessor programming

621B1C - METAL PROCESSES 1

Semester Course	Grades 9 – 12	.5 Credit	Prerequisite: None

Potential Careers: Welder, Fabricator, HVAC, Machinist
This course explores a variety of metal processes and other processes used in the manufacturing of products. Modern Technology in the form of precision measurement, CNC-Machining, Research & Development, Manufacturing Systems experimentation, and Entrepreneur/Enterprise will be taught. Traditional areas such as welding, Sheet Metal, and Machine Tool Technology are also studied and skills developed. Safety glasses are required.

622B1C - METAL PROCESSES 2

Semester Course	Grades 9 – 12	.5 Credit	Prerequisite: Metal Processes 1

Potential Careers: Welder, Fabricator, HVAC, Machinist
This course is designed to expand on the Metals 1 program of metal processes used in manufacturing. Closer tolerances will be required in areas of sheet metal work, CNC-Machining, welding, machine tooling, and lathe work. Safety glasses are required.

623B1C - METAL PROCESSES 3

Semester Course	Grades 10 – 12	.5 Credit	Prerequisite: Metal Processes 2

Potential Careers: Welder, Fabricator, HVAC, Machinist
Students who have successfully completed Metal Processes 1 & 2 can take this course with the idea that they will complete a major project of their choice. Areas that can be worked in are welding, machine tool technology, sheet metal, casting, and forging. Students must select, design, and construct their project. Problems that arise on projects will be explored by all class members using a manufacturing type environment. Safety glasses and good work habits will be required. May be taken more than once only with Instructor approval.
NOTE: The cost of a project will depend on size, type of material used, and the hardware installed. Depending on their project, students may need to purchase items (steel, hardware, etc.) outside of the lab. Although many of the projects made in this course are larger, students can meet the requirements by constructing smaller projects (ex. cattails, flowers, metal signs. etc.). Students in the past have built projects for other people (family, neighbors, teachers, etc.), so they did not have to pay anything for the class and actually made money. All students will be allotted $25 towards a project. Anything over the $25 cost will need to be paid by the student. Safety glasses are required.

Students can take more than one time with the instructor's approval.

624B1A – METALS PROCESSES MACHINING

Semester Course	Grades 11 – 12 (#)	1 Credit	Prerequisite: Metal Processes 2

Potential Careers: Machinist, Lathe Operator, Mill Operator
Students who have successfully completed Metal Processes 1 & 2 can take this course.No individual projects are made in this class. With the extended block, two class periods running back to back, students will be able to set-up and construct more complex projects. Areas of emphasis include precision drilling, milling, turning, precision measurements, and CNC machine tool technology. Problems that arise on projects will be explored by all class members using a manufacturing type environment. Safety glasses and good work habits will be required.

Students can take more than one time with the instructor's approval.

625B1X – RAIDER PRODUCTS: METALS

Year Course	Grades 11 – 12	1 Credit	Prerequisite: Metals 2 and successful completion of the application and interview process

Potential Careers: Welder, Fabricator, HVAC, Machinist, Project Manager
The students participating in Raider Products will have practical real-world and hands-on work experience in metalworking, fabrication, machining, and welding in a "Job Shop" manufacturing business. Employees of the student-run business will receive and process real client's requests from local businesses and individuals for products to which they will perform cost estimating, material planning and ordering, invoicing, billing, shipping, and all other business aspects in addition to the actual fabrication of the products. As an added bonus, the students in Raider products will have developed interpersonal written and oral communication skills, teamwork and collaboration skills, technology and manufacturing skills, responsibility and time management skills, and quality assurance understanding as it applies to work-based learning. Safety glasses are required.

Students can take more than one time with the instructor's approval.

630B1B - RESIDENTIAL CONSTRUCTION

Semester Course	Grades 10 – 12	.5 Credit	Prerequisite: None

Potential Careers: Carpenter, Mason, Plumber, Roofer, HVAC, Any Construction Trade
Residential construction places emphasis on the practices and construction of houses, garages, and small structures. Students learn how the site is cleared, the structure is designed, how to have designs approved, how to obtain permits needed, and methods used in construction of these structures. Students will be divided into groups for the purpose of research, designing and constructing models, full size structures, and hands-on building experiences. Students will learn to read blueprints, make material lists, make cost estimates, plan the construction sequence, and build a structure. Safety glasses are required.

634B1C - WOOD TECHNICS 1

Semester Course	Grades 9 – 12	.5 Credit	Prerequisite: None

Potential Careers: Cabinetmaker, Finish Carpenter, Any Construction Trade
Wood Technics Project Overview
Wood Technics 1 covers the areas of shop and machine safety, proper use of woodworking machines, use of power and non-power hand tools, construction of joinery, assembly techniques, use of fasteners, wood finishing, exploration of careers, and Computer Numerical Control (CNC) technology. Being a project-based class, students will be able to hone not only their hands-on abilities but also their problem-solving skills. Required projects being completed include a cutting board, mantel clock, choice project, and a CNC project. Students will be supplied with pine as the base material for their wood projects. If they are using a more expensive wood, they will pay the difference in price. Safety glasses are required.

635B1C - WOOD TECHNICS 2

Semester Course	Grades 9 – 12	.5 Credit	Prerequisite: Wood Technics 1

Potential Careers: Cabinetmaker, Finish Carpenter, CNC Operator, Any Construction Trade
Wood Technics Project Overview
Wood Technics 2 covers the following areas of woodworking: reading drawings, wood identification, bill of materials, shop and machine safety, proper use of woodworking machines, proper use of power and non-power hand tools, construction and identification of joinery, wood finishing, and installation of hardware. In addition to constructing a nightstand, students will complete a Computer Numerical Control (CNC) project and a solid surface material project. Students will be supplied with pine as the base material for their wood projects. If they are using a more expensive wood, they will pay the difference in price. Safety glasses are required.

636B1X - WOOD TECHNICS 3

Year Course	Grades 10 – 12	1 Credit	Prerequisite: Wood Technics 2

Potential Careers: Cabinetmaker, Finish Carpenter, Any Construction Trade
Wood Technics Project Overview
Wood Technics 3 is intended for students that want to further develop their cabinet making skills. With the extended amount of time, all year long, students will be able to construct more complex projects than would normally be attempted. In addition to personal projects, students will also have advanced cabinetmaking exercises to complete throughout the semester. The cost of a project will depend on size, type of wood used, and the hardware installed. Depending on their project, students may need to purchase items (plywood, hardware, etc.) outside of the lab. Although many of the projects made in this course are larger, students can meet the requirements by constructing smaller projects (ex. jewelry box, wall vanity, etc.). Students in the past have built projects for other people (family, neighbors, teachers, etc.), so they did not have to pay anything for the class and actually made money. All students will be allotted $25

towards a project. Anything over the $25 cost will need to be paid by the student. Safety glasses are required. Students may take this course multiple times for credit. Safety glasses are required.Safety glasses are required.

Students can take more than one time with the instructor's approval.

638B1X – RAIDER PRODUCTS: WOODS			
Year Course	Grades 11 – 12	1 Credit	Prerequisite: Wood Technics 2

Potential Careers: Cabinetmaker, Finish Carpenter, CNC Machinist, Any Construction Trade, Project Manager
Wood Technics Project Overview
Raider Products: Woods will have students solve practical real-world and hands-on work experience in woodworking, fabrication, and using CNC technology in a "Job Shop" manufacturing business. Employees of the student-run business will receive and process real client's requests from local businesses and individuals for products to which they will perform cost estimating, material planning and ordering, invoicing, billing, shipping, and all other business aspects in addition to the actual fabrication of the products. Students will also develop interpersonal written and oral communication skills, teamwork and collaboration skills, technology and manufacturing skills, responsibility and time management skills, and quality assurance understanding as it applies to work-based learning. Safety glasses are required.

640B1C - SMALL ENGINE TECHNOLOGY			
Semester Course	Grades 9 – 12	.5 Credit	Prerequisite: None

Potential Careers: Small Engine Technician, Parts Manager, PowerSports Technician
In this course students will learn a fundamental understanding of internal combustion engine operation, components, and mechanical systems. The topics of this course will cover safety, fluid powers, lubrication, cooling, fuel, and exhaust systems. It will also include a fundamental understanding of basic power equipment operation and applications. This course will be a core introductory understanding of technicians troubleshooting techniques. Safety glasses are required.

641B1B - AUTOMOTIVE TECHNOLOGY			
Semester Course	Grades 10 – 12	.5 Credit	Prerequisite: **Valid Drivers License & Small Engine**

Potential Careers: Automotive Technician, Parts Manager, Car Salesperson
This course is an introduction to automotive technology for both consumer and technician perspectives. Students will be learning and developing key understandings of technological improvements of vehicles as well as modern industrial standards involving vehicle repair and maintenance. Students will perform numerous hands-on activities within class and lab while working on his/her own vehicle to perform a variety of assignments. Emissions, technological, and consumer impacts will be heavily stressed in addition to the exploration of automotive careers. Safety glasses are required.

642B1X – RAIDER PRODUCTS: AUTO			
Year Course	Grades 11 – 12	1 Credit	Prerequisite: **Automotive Tech. & successful completion of interview and application**

Potential Careers: Automotive Technician, Parts Manager, Station Manager
Raider Products: Auto will have students solve practical real-world and hands-on work experience in the automotive industry. Employees of the student-run business will receive and process real client's requests from individuals for diagnosis and repair. From there, students will form cost estimating, material planning and ordering, invoicing, billing, and all other business aspects. Students will also develop interpersonal written and oral communication skills, teamwork and collaboration skills, technology and manufacturing skills, responsibility and time management skills, and quality assurance understanding as it applies to work-based learning. Safety glasses are required.

645B1A – DIY Living			
Semester Course	Grades 9 – 12	.5 Credit	Prerequisite: See below

Potential Career: Interior Design,(meant to be an informative course about general home and auto maintenance)
This is an introductory DIY home and auto care course,
Do you like to watch HGTV and DIY videos? This class will give you skills that you can use to go from watching to actually completing those projects. By learning how various systems (car, house structure, home mechanicals, etc.) function in and around the home, students will be able to apply that knowledge through various projects. Projects that will be completed will include: ceramic tiling, drywall repair and texturing, flooring, basic electrical and plumbing, furniture repurposing/refurbishing, basic car, repairs/maintenance, project of choice
This is a life skill course meant for students without previous construction and auto repair experiences. Safety glasses are required.

650B1B - CYBERSECURITY AND NETWORKING 1			
Semester Course **(Fall Semester)**	Grades 10 – 12	.5 Credit	Prerequisite: None

Potential Careers: Network Technician, Network Specialist, Network Programmer
This class is designed to provide students with classroom and lab experience in current and emerging network technology. Instruction includes, but is not limited to: cybersecurity safety, networking, network terminology and protocols, network standards, LANs, WANs, OSI model, cabling, cabling tools, routers, router programming, star topology, and IP addressing. Particular emphasis is given to the use of decision-making and problem solving techniques. In addition, instruction and training are provided in the proper care, maintenance, and use of networking software, tools, and equipment in compliance with all local, state, and federal safety, building, and environmental codes and regulations.

651B1B - CYBERSECURITY AND NETWORKING 2*			
Semester Course **(Spring Semester)**	Grades 10-12	.5 Credit	Prerequisite: Cisco Networking 1

Potential Careers: Network Specialist, Network Programmer, Network Engineer, Network Administrator
This is the second course in the networking series. This class is designed to provide students with classroom and lab experience in current and emerging networking technology. Instruction includes, but is not limited to, cybersecurity safety, networking, network terminology and protocols, network standards, LANs, WANs, OSI model, Ethernet, token ring, fiber distribution interface, TCP/IP addressing protocol, dynamic routing, routing, and the network administrator's role and function. Particular emphasis is given to the use of decision making and problem solving. In addition, instruction and training are provided in the proper care, maintenance, and use of networking software, tools, and equipment in compliance with all local, state, and federal safety, building, and environmental codes and regulations.
*This course is transcribed with NWTC's IT: Network: Cisco 1 (10-150-163) when taken as a junior or senior.

655B1B - WEB PAGE DESIGN			
Semester Course	Grades 10 – 12	.5 Credit	Prerequisite: None

Potential Careers: Graphic Designer, Web Designer
Students will be able to perform multiple methods techniques used in web page development as it relates to business and industry. Students have the opportunity to understand the technical aspect of website development utilizing current methods and trends. Web browsers, mobile devices, industry standards, content management, and hosting will all be important topics of this course. This will be accomplished by using various types of software to understand the fundamental design and operation of websites.

656B1A – IT: SUPPORT: HARDWARE INTRODUCTION*			
Semester Course	Grades 9 – 12	.5 Credit	Prerequisite: None

Potential Careers: Network Technician, Network Installer
This course provides an excellent introduction to the IT industry and interactive exposure to personal computers, hardware, and operating systems. Students participate in hands-on activities and lab-based learning to become familiar with various hardware and software components and discover best practices in maintenance and safety. In addition, the course covers laptops and portable devices, wireless connectivity, security, safety and environmental issues, communication skills, and customer support.
*This course carries advanced standing with NWTC's IT: Support: Hardware Introduction (10-154-150) if the student earns a "B" or better when taken as a junior or senior.

658B1B - 3D ANIMATION			
Semester Course	Grades 10 – 12	.5 Credit	Prerequisite: Computer Aided Drafting or IED

Potential Careers: Graphic Designer, Design Animator
This course is offered to provide students with the ability to explore and develop skills in the popular world of 3-D animation. Through the use of industry standard software packages, students will gain valuable experience in character creation, animation, lighting, scene development and rendering techniques. Students will work on the development of a variety of projects throughout the course to demonstrate comprehension of the skills needed to become a 3D animator. Potential career areas will also be discussed during the course.