Career and Technical Education

Agriculture, Food, and Natural Resources

3952 Prin of Ag
This course allows students to develop knowledge and skills regarding career opportunities, personal development, globalization, industry standards, details, practices, and expectations. To prepare for success, students need to have opportunities to learn, reinforce, experience, apply, and transfer their knowledge and skills in a variety of settings.

3955 Wildlife, Fisheries & Eco.
This course examines the management of game and non-game wildlife species, fish, and aquacrops and their ecological needs as related to current agricultural practices.

3950 Livestock Production
To prepare for success, students need opportunities to learn, reinforce, apply, and transfer their knowledge and skills in a variety of settings. Animal species to be addressed in this course may include, but are not limited to, beef cattle, dairy cattle, swine, sheep, goats, and poultry.

3951 Small Animal Mgmt.
To prepare for success, students need opportunities to learn, reinforce, apply, and transfer knowledge and skills in a variety of settings. Suggested small animals which may be included in the course of study include, but are not limited to, small mammals, amphibians, reptiles, avian, dogs, and cats.

3953 Veterinary Medical App
Topics covered in this course include, but are not limited to, veterinary practices as they relate to both large and small animal species.

3954 Adv. Animal Science
This course examines the interrelatedness of human, scientific, and technological dimensions of livestock production. Instruction is designed to allow for the application of scientific and technological aspects of animal science through field and laboratory experiences.

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Architecture & Construction

Heating Ventilation Air Conditioning Technology

3818 Principles of Architecture and Construction-HVAC
Students will develop an understanding of industry qualification, job safety communication and critical thinking skills for work success, leadership and teamwork. There will be an introduction to hand and power-tools, and industry career opportunities.

3819 HVAC & Refrigeration Technology
First year instruction is designed to provide job-specific training for entry level employment in the expanding labor market for heating, ventilation, air conditioning and refrigeration installation and service. Students acquire knowledge and skills in safety, principles of HVAC theory, tools, codes, and installation of HVAC & Refrigeration equipment.

3820 Advanced HVAC & Refrigeration
Second year instruction is designed to enhance job-specific training for entry-level employment. Knowledge and skills in safety, electrical theory, tools, codes, installation of commercial HVAC equipment, heat pumps, and troubleshooting techniques, various duct systems, and maintenance practices will be expanded upon.

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Mill & Cabinet Technology

3806 Principles of Architect and Const-Cabinet
Students will be introduced to a career involving woodworking. Woodworking involves careers ranging from custom cabinetry, furniture design & construction, commercial & trade show fixtures and CNC machinery.

3807 Construction Technology-MILL
In this course students will be given instruction in blueprint reading, job safety, industry terminology and hand & power tool instruction. Students will need to be self motivated, enjoy working with their hands, work well in groups, and take pride in their work and able to follow rules.

3808 Mill & Cabinetmaking Technology
Students will build projects ranging from furniture to cabinets. Instruction includes blueprint reading, measuring, planning, and material selection, learn how to use hand and power tools. First year instruction is designed to provide job-specific training for entry level employment in cabinet making and carpentry.

3809 Practicum in Construction
Management Second year instruction you will have more hands-on experiences while learning to build cabinets, furniture and finish trim work. Students will gain a sense of craftsmanship and pride in workmanship.

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Electrical Technology

3812 Principles of Architecture and Construction-Electrical
Students use self-knowledge, educational, and career information to set and achieve realistic career and educational goals. Students develop an understanding of industry qualification, job safety communication and critical thinking skills for work success, leadership and teamwork.

3813 Electrical Technology-Electrical
Students will acquire knowledge and skills in safety, electrical theory, tools, codes, installation of electrical equipment, and the reading of electrical drawings. Students study the basic principles of electricity and receive the practical training needed to qualify for entry level employment in residential and commercial/industrial electrical careers.

3814 Advanced Electrical Technology
In advanced electrical technology, students gain knowledge and skills in safety, electrical theory, tools, codes, installation of electrical equipment, alternating current and direct current motors, conductor installation, installation of electrical services, and electrical lighting installation.

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Architectural Design

3824 Principles of Architecture and Construction-ARCHDESIGN
Careers in the field of architecture and construction require skills which span various industrial aspects from job specific training to basic reading of technical drawing.

3825 Architectural Design
Learn to read and understand a set of residential blueprints and specifications. Identify blueprint symbols, as well as to locate, identify and interpret air conditioning, carpentry, electrical, masonry and plumbing portions of a set of drawings. Add to your working knowledge of the AutoCAD drafting program and develop a portfolio. Concepts and skills are directed toward engineering, manufacturing and architectural fields.

3826 Advanced Architectural Design
Learn to read and understand residential blueprints and specifications. Identify blueprint symbols, as well as to locate, identify and interpret air conditioning, carpentry, electrical, masonry and plumbing portions of a set of drawings. Add to your working knowledge of the AutoCAD drafting program and develop a portfolio. Concepts and skills are directed toward engineering, manufacturing and architectural fields.

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Arts, A/V Technology & Communications

Media Technology

3830 Principles of Arts, A/V Technology & Communications
Students utilize state-of-the-art computer applications to develop fundamental skills in art, animation, audio/video production, graphic design photography, and fashion design. Students identify target audiences and media to create projects and presentations utilizing the elements and principles of design, email, the internet and computer applications.

3831 Audio Visual Production
Audio/Visual Production will introduce the various elements required for filmmaking and how to create a quality product. Students will develop into the history of motion pictures in order to gain an understanding of the growth of film. Using digital audio/video, students will produce a variety of projects while studying the effects of film/media on society. Utilizing the skills learned students will have an opportunity to produce critique and promote their own short films by end of year.

3832 Advanced Audio Visual Production
Students develop an advanced understanding of the Audio/Video Production industry with a focus on pre-production, production, and post-production activities.

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Printing and Imaging

3836 Principles of Printing & Imaging
Students will be expected to develop an understanding of the various and multifaceted career opportunities in this cluster and the knowledge, skills, and educational requirements for those opportunities. Emphasis is placed on Printing & Imaging Technology and Graphic Design & Illustration.

3837 Printing & Imaging Technology
In addition to developing technical knowledge and skills needed for success in this career cluster, students will be expected to develop an understanding of the printing industry with a focus on prepress and desktop publishing.

3838 Advanced Printing & Imaging Technology
In addition to developing advanced knowledge and skills needed for success in this career cluster, students will be expected to develop an advanced understanding of the printing industry with a focus on press operations.

3839 Practicum in Printing & Imaging Technology In addition to developing advanced knowledge and skills needed for success in this career cluster, students will be expected to develop an advanced understanding of the printing industry with a focus on finishing and bindery operations and customer-based projects. Instruction may be delivered through lab-based classroom experiences or career preparation opportunities.

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Business Management

3841 Business Information Management I
Have you dreamed of becoming an entrepreneur? You will implement personal and interpersonal skills to strengthen individual performance in the workplace and in society to make a successful transition to the workplace and postsecondary education. Students apply technical skills to address business applications of emerging technologies, create word processing documents, develop a spreadsheet, and formulate a database. Networking, operating systems and emerging technology topics are also included.

3842 Business Information Management II
Develops advanced technology skills to have the opportunity to take exams to get certified in Word, Excel, Access, and Power Point. Course work includes learning about the job search and application processes, work and business ethics, oral and written communication skills, interpersonal skills, computer skills, and other subjects and topics timely to the business world.

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Career Development

3846 College Career Readiness (Problems and Solutions)
Designed to provide the knowledge, skills, and abilities necessary to be active and successful learners both in high school and in college. Students examine numerous research-based learning strategies that are proven to lead to academic success such as goal-setting, effective time management, handling stress, note-taking, active reading, test-taking strategies, and conducting research to name just a few.

3848 Career Preparation I
This course provides opportunities for students to participate in a learning experience that combines classroom instruction with paid business and industry employment experiences and supports strong partnerships among school, business, and community stakeholders. The goal is to prepare students with a variety of skills for a fast-changing workplace. This instructional arrangement should be an advanced component of a student's individual program of study. Students are taught employability skills, which include job- specific skills applicable to their training station, job interview techniques, communication skills, financial and budget activities, human relations, and portfolio development. Career preparation is relevant and rigorous, supports student attainment of academic standards, and effectively prepares students for college and career success.

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Education and Training

3852 Principles of Education & Training
This course is designed to introduce learners to the various careers available within the education and training career cluster. Students use self-knowledge and educational and career information to analyze these various careers.

3853 Human Growth and Development
This class is an examination of human development across the lifespan with emphasis upon research, theoretical perspectives, and physical, mental, emotional, and social developmental milestones.

3854 Instructional Practice in Education & Training
This is a field-based internship that provides students with background knowledge of child and adolescent development as well as principles of effective teaching and training practices. Students work under the joint direction and supervision of early childhood education teacher at the elementary level.

3855 Practicum in Education & Training
This advanced field-based internship class provides students with background knowledge of child and adolescent development as well as principles of effective teaching and training practices. Students learn to plan and direct individualized instruction and group activities, prepare instructional materials, assist with record keeping, make physical arrangements, and complete other responsibilities of classroom teachers, trainers, paraprofessionals, or other educational personnel.

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Finance

Banking and Financial Services

Banking & Financial Services
In this course students incorporate a broad base of knowledge that includes the operations, sales, and management of banking institutions to gain a complete understanding of how banks function within society.

3858 Accounting I
Students become aware of financial records, provides the fundamental equation and its application to accounting procedures, including the basic steps of the accounting cycle, special journals and ledgers.

3859 Accounting II
Students gain an advanced level of knowledge in the accounting field. Students formulate and interpret statistical data.

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Health Science

Allied Health Services

3863 Principles of Health Science
An overview of the health care industry with a focus on career exploration and the health care system. This is the first course required to be taken in this program of study.

3864 Medical Terminology
A course designed to develop a working knowledge of the language of health care and medicine with emphasis placed on anatomy and physiology, pathophysiology, medical treatment and diagnostic procedures.

3865 Health Science
The course is designed to provide for development of advanced knowledge skills related to variety of health fields. This course prepares students for transition to clinical or work-based experiences in health care. Focus in on leadership, teamwork, and legal and ethical issues.

3866 Practicum Health Sciences
Practicum experiences can occur in a variety of locations appropriate to clinical or work-based experiences in health care.

3867 Emergency Medical Technician (EMT)
Practicum experiences can occur in a variety of locations appropriate to the nature and level of experience. Students will work in the career chosen area for certification obtainment. Focus on receiving Emergency Medical Technician certification after school instruction will be required to meet Emergency Medical Technician hospital runs.

3869 Pharmacy Technician
Practicum experiences can occur in a variety of locations appropriate to the nature and level of experience. Students will work in the career chosen area for certification obtainment. Students will be required to apply for pharmacy.

3870 Anatomy & Physiology
Student will conduct laboratory investigations and will study the structures and functions of the human body and body systems.

3871 Medical Microbiology
Students will study the relationships of microorganisms to wellness and disease.

3872 Pathophysiology
Students study disease processes and how humans are affected. Emphasis is placed on prevention and treatment.

Alamo Academy Dual Credit San Antonio College (SAC)

Application process to be completed for admissions (See Counselor)

Health Professions
Yr 1-3108 English III DC
Yr1- 3400 Biology DC
Yr 2 fall- Chemistry DC
Yr 2 fall- Psychology DC
Yr 2 spring- Med Micro DC
Yr 2 spring- Pathophysiology DC
Students who enroll in the Health Professions Academy and successfully complete the two-year program of studies will automatically be accepted into San Antonio College's Nursing program to complete the remaining credits towards their Nursing degree.

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Hospitality & Tourism

Culinary Arts

3877 Principles of Hospitality & Tourism
The hospitality and tourism industry encompasses lodging, travel and tourism; recreation, amusements, attractions and reports; and restaurants and food beverage service. The hospitality and tourism industry also maintains the largest national employment base in private business. Students use knowledge and skills that meet industry standards to function effectively in various positions within this industry.

3878 Lifetime Nutrition & Wellness
This laboratory course allows students to use principles of lifetime wellness and nutrition to help them make informed choices that promote wellness as well as pursue careers related to hospitality and tourism, human services, and health sciences.

3879 Culinary Arts
This laboratory course begins with the fundamentals and principles of the art of cooking, the science of baking; and includes management and production skills, and techniques. Students can pursue a national sanitation certification (ServSafe Certification) and includes an internship in extended learning experiences.

3880 Practicum in Culinary Arts
This course is a unique practicum that provides occupationally specific opportunities for students to participate in a learning experience that combines classroom instruction with actual business and industry career experiences. The practicum supports strong partnerships among schools, businesses, and community institutions with the goal of preparing students with a variety of skills in a fast changing workplace.

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Human Services

3885 Intro Cosmetology
This is a first year course in a two year sequence of classroom laboratory instruction. Students must complete 1,000 clock hours over the two year course prior to taking the Texas Licensing Exam. Instruction is designed to provide job specific training for entry level employment, in cosmetology careers. Instruction includes sterilization and sanitation processes shampooing and rinsing hair, application of conditioning creams and color rinses, application of scalp and hair treatments, shaping and thinning hair, hair-styling, permanent waving, hair coloring, manicuring, facial massage and makeup. This course meets the Texas Department of Licensing and Regulations requirements for licensure upon passing exam.

3886 Cosmetology I
This is a first year course in a two year sequence of classroom laboratory instruction. Students must complete 1,000 clock hours over the two year course prior to taking the Texas Licensing Exam. Instruction is designed to provide job specific training for entry level employment, in cosmetology careers. Instruction includes sterilization and sanitation processes shampooing and rinsing hair, application of conditioning creams and color rinses, application of scalp and hair treatments, shaping and thinning hair, hair-styling, permanent waving, hair coloring, manicuring, facial massage and makeup. This course meets the Texas Department of Licensing and Regulations requirements for licensure upon passing exam.

3887 Cosmetology II
Instruction is designed to provide job specific training for entry level employment in cosmetology careers. Students must complete 1,000 clock hours over the two year course prior to taking the Texas Licensing Exam. Instruction includes sterilization and sanitation processes, shampooing and rinsing hair, application of conditioning creams and color rinses, application of scalp and hair treatments, shaping and thinning hair, hair styling, permanent waving, hair coloring, manicuring, facial massage and makeup. This course meets the Texas Department of Licensing and Regulations requirements for licensure upon passing exam.

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Information Technology

3891 Principles of Information Technology
Students develop computer literacy skills to adapt to emerging technologies used in the global marketplace. Students implement personal and interpersonal skills to prepare for a rapidly evolving workplace environment. Students enhance reading, writing, computing, communication, and reasoning skills and apply them to the information technology environment.

3893 Web Technology
Through the study of web technologies and design, students learn to make informed decisions and apply the decisions to the field of information technology. Students apply emerging technologies to innovative Websites for business and personal use.

Computer Maintenance Dual Credit St. Phillips College

3899 Research Information Technology Solutions I
Students gain advanced knowledge and skills in the application, design, production, implementation, maintenance, evaluation, and assessment of products, services, and systems. Knowledge and skills in the proper use of analytical skills and application of information technology concepts and standards are essential to prepare students for success in a technology-driven society. Critical thinking, information technology experience, and product development may be conducted in a classroom setting with an industry mentor, as an unpaid internship, or as career preparation.

3900 Research Information Technology Solutions II
Students gain advanced knowledge and skills in the application, design, production, implementation, maintenance, evaluation, and assessment of products, services, and systems. Knowledge and skills in the proper use of analytical skills and application of information technology concepts and standards are essential to prepare students for success in a technology-driven society. Critical thinking, information technology experience, and product development may be conducted in a classroom setting with an industry mentor, as an unpaid internship, or as career preparation.
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Law, Public Safety, Corrections & Security

3903 Principles of Law, Public Safety, Corrections & Security
Professions in law enforcement, security, corrections, and fire and emergency management services will be covered. Examine the roles and responsibilities of police, courts, corrections, private security, and protective agencies of fire and emergency services.

3904 Law Enforcement I
Learn to assess a mock crime scene and be able to demonstrate the steps to be taken to maintain scene integrity, safeguard evidence, and minimize contamination. Introduction to the steps involved in preliminary documentation and evaluation of a crime scene.

3905 Law Enforcement II
Provide an in-depth study of criminal law based on Texas and federal statutes, polices, and case law. Focus will be on student understanding of 911 curriculum.

3906 Court Systems and Practice
Identify the roles of judicial officers and the trial processes from pretrial to sentencing and examines the types and rules of evidence. Emphasis placed on constitutional laws for criminal procedures such as search and seizure, stop and frisk, and interrogation.

3907 Correctional Services
The student will prepare for certification required for employment as a correctional officer. Learn the role and responsibilities of a correctional officer, discuss relevant rules, regulations, and law, and discuss defensive tactics, restraint techniques, and first aid procedures as used in the correctional setting.

3408 Forensic Science (Science)
Students will learn terminology and investigate procedures related to crime scene, questioning, interviewing, criminal behavior, characteristics, truth detection, and scientific procedures used to solve crimes. Using scientific methods, student will collect and analyze evidence through case studies and simulated crime scenes such as fingerprint analysis, ballistic, and blood spatter analysis.

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Manufacturing

3910 Principles of Manufacturing
Course is designed to provide broad introductory skills and a basic understanding of career and training requirements for four metal manufacturing related careers:
- Metal Trades
- Welding
- Sheet Metal
- Machine Shop

3911 Welding
Career instruction is designed to provide job specific training for entry level employment in welding careers. First year instruction includes blue print reading, cutting and welding with oxygen and gas fuels, shielded metal arc welding, gas tungsten arc and gas metal arc welding processes.

3912 Advanced Welding
Advanced welding enhances job specific training for employment in welding careers.

Welding Dual Credit St. Phillips

St. Phillips Application process to be completed for admissions. (See Counselor)

3914 Advanced Precision Metal Manufacturing (Yr 1)
This course is designed for high school juniors to enhance the technical knowledge and skills learned in Precision Metal Manufacturing by allowing students the opportunity to explore career preparation that has resulted from the rapid advances in technology and career demands in high-skill, high-wage opportunities. Advanced Precision Metal Manufacturing provides the knowledge, skills, and technologies required for employment in a globally competitive manufacturing environment. This course may also address a variety of materials in addition to metal such as plastics, ceramics, and wood. Students need to develop concepts and skills related to this system in order to apply them to personal and professional development. Career and technical education supports the integration of academic and career and technical knowledge and skills. Students must have opportunities to reinforce, apply, and transfer knowledge and skills to a variety of settings and problems. Knowledge about career opportunities, requirements, and expectations and the development of workplace skills prepare students for future success.

3917 Manufacturing Engineering (Yr 2)
In Manufacturing Engineering, high school seniors gain knowledge and skills in the application, design, production, and assessment of products, services, and systems and how those knowledge and skills are applied to manufacturing. Knowledge and skills in the proper application of Manufacturing Engineering, the design of technology, efficient manufacturing technology, and the assessment of the effects of production technology prepare students for success in the global economy. The study of Manufacturing Engineering allows students to reinforce, apply, and transfer academic knowledge and skills to a variety of interesting and relevant activities, problems, and settings in a manufacturing setting.

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Science, Technology, Engineering & Mathematics

3920 Introduction to Engineering Design (PLTW IED)
Provides you with opportunities to be creative and to apply your decision making and problem solving skills. You will use powerful computer hardware and software (Inventor) to develop 3D models or solid rendering of objects.

3921 Principles of Engineering (PLTW POE)
Designed to help you understand field and career possibilities of engineering and engineering technology.

3922 Digital Electronics (PLTW DE)
A course in applied digital logic. You will be introduced to the digital circuits found in video games, watches, calculators, digital cameras, and thousands of other devices. This course is similar to a first semester college course, and it's important for anyone in engineering or engineering technology.

3923 Computer Integrated Manufacturing (PLTW CIM)
A course that applies principles of prototyping, robotics, and automation. It builds on the solid modeling skills developed in IED. Students will also be introduced to the fundamentals of robotics and how this equipment is used in an automated manufacturing environment.

3924 Engineering Design Presentation
This course will provide students the opportunity to master computer software applications in a variety of engineering and technical fields. This course further develops the process of engineering thought and application of the design process.

3925 Robotics and Automation
Using the design process, students transfer advanced academic skills to component designs in a project-based environment. Students will build prototypes or use simulation software to test their designs. Student will learn basic of electronics, mechanics, pneumatics and computer programming.

3926 Engineering Design & Development (PLTW)
This course you will work in a team one to three other to design and construct a solution to an engineering problem. Each will be responsible in making final presentation to an outside review panel . The completed project will be very useful in your college application.

3927 Engineering Math
Students solve and model robotic design problems. Students use a variety of mathematical methods and models to represent and analyze problems involving data acquisition, spatial applications, electrical measurement, manufacturing processes, materials engineering, mechanical drives, pneumatics, process control systems, quality control, and robotics with computer programming.

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Transportation, Distribution & Logistics

Collision Repair Refinishing

3929 Principles of Transportation, Distribution & Logistics-Collision
Designed to provide a broad basic understanding of career opportunities and training requirements and introduce skills in six transportation related careers:
- Aircraft mechanics
- Auto body and collision repair
- Automotive technology
- Diesel engine mechanics
- Small engine repair and mechanics

3930 Collision Repair & Refinishing
Instruction is designed to provide job specific training for entry level employment in the automotive after market field of auto body repair and refinishing. Students will emphasize on frame and body repair, metal, fiberglass, and synthetic materials repair, welding skills preparation and application of primers and paints.

3931 Advanced Collision Repair
Instruction is designed to provide job specific training for entry level employment in the automotive after market field of auto body repair and refinishing. Students will emphasize on frame and body repair, metal, fiberglass, and synthetic materials repair, welding skills preparation and application of primers and paints.

Automotive Technology

3933 Principles of Transportation, Distribution & Logistics-Auto

Designed to provide you a broad basic understanding of career opportunities and training requirements and introduce skills in six transportation related careers:
- Aircraft mechanics
- Auto body and collision repair
- Automotive technology
- Diesel engine mechanics
- Small engine repair and mechanics

3934 Automotive Technology
Designed to provide job specific training for entry level employment in the automotive engine repair and services career field. Students will study the use of repair manuals, service and/or repair basic automobile components, fuel systems, engines, emission, controls, power trains, chassis, electrical systems, brakes, heating and air conditioning.

3935 Advanced Automotive Technology
Designed to provide job specific training for entry level employment in the automotive engine repair and services career field. Students will study the use of repair manuals, service and/or repair basic automobile components, fuel systems, engines, emission, controls, power trains, chassis, electrical systems, brakes, heating and air conditioning.

Aircraft Dual Credit St. Phillips

St. Phillips Application process to be completed for admissions. (See Counselor)

3937 Aircraft Technology
This course is designed to teach the theory of operation of aircraft airframes, power plants, and avionics systems and associated maintenance and repair practices. Aircraft services include knowledge of the function, diagnosis, and service of the electrical, electronic, hydraulic, pneumatic, airframe, mechanical, and power plant components of aircraft.

3938 Advanced Aircraft Technology
This course is designed to apply the theory of operation, repair, and maintenance of aircraft airframe, power plant, and avionics systems. Aircraft services include knowledge of the function, diagnosis, and service of the electrical, hydraulic, pneumatic, airframe, mechanical, and power plant components of aircraft as governed by federal aviation regulations.

Heavy Equipment Dual Credit St. Phillips

St. Phillips Application process to be completed for admissions. (See Counselor)

3910 EPT System (Yr 1)
3941 Heavy Equipment (Yr 1)

Earn a college certificate and national industry certificates at no cost! Approximately $3,000 in a paid internship between the junior and senior year. Graduates can expect starting salaries from $10/hour to $15/hour. Students explore specific career paths and acquire hands-on learning experiences, job-specific training, paid internships and college credit coursework in diesel and construction equipment technology. HOLT CAT, ASCO (Case), ROMCO (Volvo), RDO (John Deere), Cooper Equipment, Zachry Construction, Dean Word Co., Martin Marietta and other heavy equipment dealers and construction businesses are partnering with the Alamo Academies to start a fifth Academy in August 2014. The new Academy will provide a college pathway for high school juniors and seniors to attain industry and academic certificates helping to lead to high wage jobs or to further higher education while addressing critical industry workforce needs.

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