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# Central Campus

Central Campus complements and extends the programs of Central Iowa Schools, offering unique academic and career opportunities that direct, inspire, and motivate a diverse group of students.

Central Campus serves as a Career Center within the Des Moines Public Schools where students can explore and specialize in career pathways. We specialize in work-based learning and ensuring our students gain access to their career fields prior to graduation. Students completing a Career and Technical program will earn industry recognized certifications, meet and interview with employers, and have access to both unpaid and paid internship/apprenticeship opportunities with local businesses and employers. With academic planning and support in high school, students have the opportunity to earn community college credit and two-year Associates Degree at no extra cost.

Campus offers hands-on, real-world work-based educational programs to a highly diverse community and surrounding areas. One of our greatest strengths is the friendships and networking of students from diverse backgrounds and communities. Central Campus commits itself to providing equal access and prospects through rigorous academic and career training experiences for all.

Requests for Central Campus courses begin with inquiries made through your home high school counselor. You are also welcome to call Central Campus at 515-242-8117. Central Campus is open to all qualifying high school students regardless of home district. Students wishing to request a program at Central Campus need to find the course request document at <https://centralcampus.dmschools.org/enrollment/>. Out of district students will also need to reference the course request document just mentioned to make their course requests as it is a different process than what DMPS students follow.

For additional information about Central Campus, please talk with your school counselor and visit <http://centralcampus.dmschools.org>

## **Director of Central Campus:**

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## **Curriculum Coordinator**

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# Career & Technology Education

Through our career and technical education programs, Des Moines Public Schools equips students with the knowledge and skills necessary for college, career, and life. Career pathways include a focus on academic; technical, job-specific; and employability skills; and work-based learning components. Students develop these skills through rigorous instruction and authentic practice, that allows them to experience real-world application of the learning.

In addition, Des Moines is home to the nationally renowned Career & Technical Institute at Central Campus, providing students with specialized courses that may allow them to earn college-level credit and/or industry certifications. For courses and programming housed at Central Campus, students can register with their school counselor or by following the process listed [on the Central Campus enrollment information page](#). Career & Technical Education courses delivered at home high schools have no admissions requirements beyond the prerequisites listed with the course description.

## Curriculum Coordinator

Jean Bahls

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## Availability and Notification (281 IAC 22.32(2))

School districts shall make descriptions of PLTW courses available to students through a course registration handbook. The handbook shall identify which courses, if successfully completed, generate college credit under the program. Information about available PLTW shall be provided to every junior high school student or middle school student prior to development of a core curriculum plan pursuant to Iowa Code 279.61.

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## Career & Technical Pathways:

Architecture

Construction & Design Engineering

Arts/Communications Information Solutions/Multi Media

Business

Construction Skilled Trades

Education and Leadership

Environmental & Agri-Sciences

Family and Consumer Sciences

Human Services,

Future Ready

Health Sciences

Transportation Academy

Work Based Learning

Aviation Technology Academy

# Architecture, Construction & Design Engineering

## **PLTW Computer Int Mnfg(CIM) (TEC363) and \*PLTW Computer Int Mnfg(CIM) (TEC364) @ Central Campus**

Recommended prior courses: Intro to Engineering Design, Principles of Engineering, or Introduction to Computer Aided Design (Engineering/Manufacturing or Architecture/Construction) | Yearlong Course | Grades: 11-12

TEC364 offers DMACC EGT 450, PLTW-Computer Integrated Manuf, 3 credits

Computer Integrated Manufacturing (CIM) is one of the specialization courses in the PLTW Engineering program. The course deepens the skills and knowledge of an engineering student within the context of efficiently creating the products all around us. Students build upon their Computer Aided Design (CAD) experience through the use of Computer Aided Manufacturing (CAM) software. CAM transforms a digital design into a program that a Computer Numerical Controlled (CNC) mill uses to transform a block of raw material into a product designed by a student. Students learn and apply concepts related to integrating robotic systems such as Automated Guided Vehicles (AGV) and robotic arms into manufacturing systems. Industry leading software packages learned and used include Autodesk products: Inventor CAM, Fusion. Software certified user certifications are available.

## **\*PLTW Introduction to Engineering Design (IED) (TEC501/502)**

COREQUISITE: Algebra I or higher, meets / exceeds proficiency in previous math course or teacher's approval.

Offered: Yearlong Course | .5 Credit/Semester

DMACC EGT 400, PLTW Intro to Engr Design, 3 credits

Introduction to Engineering Design (IED) is a high school engineering course in the PLTW Engineering Program. In IED, students explore engineering tools and apply a common approach to the solution of engineering problems, an engineering design process. Utilizing the activity-project-problem-based (APB) teaching and learning pedagogy, students progress from completing structured activities to solving open-ended projects and problems that require them to plan, document, communicate, and develop other professional skills. Through both individual and collaborative team activities, projects, and problems, students apply systems thinking and consider various aspects of engineering design including material selection, human-centered design, manufacturability, assemblability and sustainability. Students develop skills in technical representation and documentation, especially through 3D computer modeling using a Computer Aided Design (CAD) application. As part of the design process, students produce precise 3D-printed engineering prototypes using an additive manufacturing process. Student-developed testing protocols drive decision-making and iterative design improvements. Students apply computational methods to inform design and problem solutions in IED by developing algorithms, performing statistical analyses, and developing mathematical models. Students build competency in professional engineering practices including project management, peer review, and environmental impact analysis as part of a collaborative design team. Ethical issues related to professional practice and product development are also presented.

### **\*PLTW Principles of Engineering (POE) (TEC503/504)**

Prerequisite: Typical progression is TEC501/502 (Intro to Engineering Design) is taken first: Grade Level or Higher Math Course  
Offered: Yearlong Course | .5 Credit/Semester

DMACC EGT 410, PLTW Principles of Engineering, 3 credits

Principles of Engineering (POE) is a foundational course of the high school engineering pathway. This survey course exposes students to some of the major concepts they will encounter in a postsecondary engineering course of study. Through problems that engage and challenge, students explore a broad range of engineering topics, including mechanisms, the strength of materials and structures, automation, and kinematics. The course applies and concurrently develops secondary level knowledge and skills in mathematics, science, and technology. Students can develop skills and understanding of course concepts through activity-, project-, and problem-based (APB) learning. By solving rigorous and relevant design problems using engineering and science concepts within a collaborative learning environment, APB learning challenges students to continually hone their interpersonal skills, creative abilities, and problem-solving skills. Students will also learn how to document their work and communicate their solutions to their peers and members of the professional community. It also allows students to develop strategies to enable and direct their own learning.

### **Intro to Robotics/Electronics (EGR218) @ Central Campus, Engineering Academy**

Grades: 9-12 | Offered: Fall or Spring | .5 credit

Intro to Robotics is a course that introduces eager students to the world of robotics. Students will work with multiple robotic platforms and learn the C++ programming language. In addition to programming, students will assemble multiple circuits to enable their robot to navigate their world through the use of touch sensors, infrared light sensors, and ultrasound sensors. Students apply this knowledge to project-driven course work, including the operation and programming of robotic and automation systems. This course is designed for students interested in STEM. Although not a prerequisite, this class will greatly prepare the student for the Digital Electronics & Robotics class.

### **\*Computer Aided Design (CAD) Technology (EGR327/EGR3272/EGR328) and CAD Tech HS S2 (EGR3282) @ Central Campus**

Recommended prior courses: Introduction to Computer Aided Design (Engineering/Manufacturing or Architecture/Construction) or Mechanical/architectural drafting/design recommended | Yearlong Course | Grades: 10-12

EGR327 offers DMACC CAD 119, Intro Computer-Aided Drafting, 3 credits

EGR3272 offers DMACC CAD 125, Intermediate CADD-Mechanical, 3 credits

EGR328 offers DMACC CAD 126, Intermed CADD-Architectural, 3 credits

This program provides occupational and technical skills for job entry in manufacturing and construction or college entrance in the fields of engineering, design, and architecture. You will be introduced to principles and practices, engineering/construction/manufacturing standards, and the use of references and technical information. In this program, students design, document, and build their activities using industry leading software and equipment. Participation in a student organization is encouraged and industry software certifications are available.

The Computer Aided Design Technology program is a two or four semester career area that provides students with the occupational and technical skills for job entry in manufacturing and construction or college entrance in the fields of engineering, design, and architecture.

The engineering/manufacturing curriculum of this course emphasizes principles and practices, engineering standards and the use of references and technical information for production of manufactured goods. Industry based 2D and 3D computer aided design skills will be taught, as well as introduction to computer aided machining (CAM) and computer aided coordinate measuring (CMM). Rapid prototyping will be integrated with the use of multiple types of 3D printers and computer numerically controlled (CNC) equipment.

The architectural curriculum of this course emphasizes design studies and technical information, and the production of construction drawings. Interior design, landscape design and the development and study of energy efficient housing is incorporated in the curriculum to prepare students for changes in the housing industry. 2D and 3D computer aided design skills in architecture and construction industries are practiced and critiqued by professionals. Model building is used to improve visualization skills.

Industry leading software packages learned and used include Autodesk products: AutoCAD, Inventor, Revit; Dassault Systems Solidworks, and CNC Software Inc. Mastercam. Software certified user certifications are available.

## **PLTW Digital Electronics HS (EGR505) @ Central Campus, Engineering**

### **\*PLTW Digital Electronics (EGR506)**

CO-REQUISITE: Grade level Math course | Offered: Yearlong Course | .5 Credit/Semester

Prerequisites: Intro to Robotics

EGR506 offers DMACC EGT 420, PLTW-Digital Electronics, 3 credits

Digital Electronics is the foundation of all modern electronic devices such as cellular phones, MP3 players, laptop computers, digital cameras and high-definition televisions. The major focus of the course is the process of combinational and sequential logic design, teamwork, communication methods, engineering standards and technical documentation.

## **College Civil Engineering & Architecture (CEA) (EGR507/5082) @ Central Campus**

### **\*College Civil Engineering & Architecture (EGR508)**

Recommended prior courses: Intro to Engineering Design, Principles of Engineering, or Introduction to Computer Aided Design (Engineering/Manufacturing or Architecture/Construction) | Yearlong Course | Grades: 11-12

EGR508 offers DMACC EGT 460, PLTW-Civil Engr/Architecture, 3 credits

Civil Engineering and Architecture emphasizes design studies and technical information, and the production of construction drawings. Interior design, landscape design and the development and study of energy efficient housing is incorporated in the curriculum to prepare students for changes in the housing industry. 2D and 3D computer aided design skills in architecture and construction industries are practiced and critiqued by professionals and model building is used to improve visualization skills. Industry leading software packages learned and used include Autodesk products: AutoCAD, Inventor, Revit; Dassault Systems Solidworks, and CNC Software Inc. Mastercam. Software certified user certifications are available.

## **PLTW: Engineering Capstone (EGR523/524) @ Central Campus**

Prerequisites: POE or IED recommended | Yearlong Course | .5 Credit/Semester

The curriculum of the Engineering Design and Development course emphasizes principles and practices, engineering standards and the use of references and technical information for production of manufactured goods. Industry based 2D and 3D computer aided design skills are taught, as well as introduction to computer aided machining (CAM) and computer aided coordinate measuring (CMM). Rapid prototyping is integrated with the use of multiple types of 3D printers and computer numerically controlled (CNC) equipment. Industry leading software packages learned and used include Autodesk products: AutoCAD, Inventor, Revit; Dassault Systems Solidworks, and CNC Software Inc. Mastercam.

## Arts, Communications, Information Solutions/Multi-Media

### **Commercial Photography is a 2-year program at Central Campus' Information Technology & Arts Academy**

PREREQUISITES: None

#### **Year 1 = \*Commercial Photography (ART319/320)**

ART319 offers DMACC ART 184, Principles of Photography, 3 credits

ART320 offers DMACC ART 186, Principles Digital Photograph, 3 credits

#### **Year 2 = \*Commercial Photography II (ART421/422) and Commercial Photography II HS (ART4213/4223)**

ART421 offers DMACC ART 292, Studio Photography, 3 credits

ART422 offers DMACC ART 225, Photoshop for Photography, 3 credits

In the Commercial Photography program, students obtain skills in film processing, darkroom procedures, studio shooting techniques, camera techniques, photographic history, presentation skills and digital imaging. Portfolio development enables students to apply for employment, scholarships and college admission. Students will publicly display work at the Central Campus Student Art Exhibit and other exhibitions.

### **Advanced Graphic Communications is a 3-year program at Central Campus**

Prerequisites: Two courses in any of the following areas highly recommended: Art, Graphic Design, Computer Applications, Journalism, and Technology Education.

#### **Year 1 = \*Advanced Graphic Communications (ART361/3622)**

ART361 offers DMACC GRD 403, Communication Design, 2 credits

ART3622 offers DMACC GRD 459, Illustrator, 3 credits

#### **Year 2 = \*Adv Graphic Comm II (ART461/4612/462) and Adv Graphic Comm II HS (ART4622)**

ART461 offers DMACC GRD 301, Illustrator, 3 credits

ART4612 offers DMACC GRD463, Photoshop, 3 credits

ART462 offers DMACC GRD 405, Illustrator, 3 credits

#### **Year 3 = Adv Graphic Comm III HS (ART469/470)**

Advanced Graphic Communication provides education, training and real-world graphic design and print production experiences. Through close relationships with industry experts, the program's curriculum and industry experiences reflect the technological expectations of the graphic communication industry. First-year students complete a wide variety of hands-on projects in design, pre-press, print production, and bindery. Participation in frequent industry tours allows students to increase the range and depth of their understanding. All students enrolled in the second year of the program are expected to complete a variety of increasingly complex project work. They also are expected to participate in the design, layout and production of various "live jobs." Both the "live jobs" and the projects are intended to further develop their skills and overall understanding of the graphic communication industry. Second-year students may choose the privilege of participating in job-shadow and internship experiences. Job shadowing and internships provide a stronger foundation and background for the advanced student desiring to enter the industry. For students planning to continue their postsecondary education, these foundational experiences provide the opportunity to earn additional college credit.

## **Information Technology I-III HS (ITP201/202/301/302/401/402) @ Central Campus**

Grades: 10-12

Information Technology is a multi-year program with two block courses designed to assist students in acquiring the knowledge and skills needed for success in one of today's fastest growing career areas. Students learn about firewalls, vpns, computer forensics, ethical hacking, and so much more! We have a ton of fun doing hands-on work, going on field trips, and especially participating in the Cyber Defense Competition where we defend servers from hackers. Students who complete this course can earn IT! Students may have the opportunity to participate in paid registered apprenticeships. The skills learned in this course will be a solid foundation for a career in Information Technology!

## **Info Systems: Comp Programming (ITP435) @ Central Campus**

Prerequisites: Computer class recommended along with strong interest in field.

Information systems is a multi-year program that will focus on preparing students for a future in the software side of technology. This industry is in great demand for talented professionals. Locally there are always many opportunities for work in this field that covers a wide variety of job titles.

## **Broadcasting & Film is a 3-year program at Central Campus**

Prerequisites: None

### **Year 1 = Broadcasting/Film I HS (MDA211/212) and \*Broadcasting/Film I (MDA2112/2122)**

MDA2112 offers DMACC HUM 120, Introduction to Film, 3 credits

MDA2122 offers DMACC HUM 121, America in the Movies, 3 credits

### **Year 2 = Broadcasting & Film II (MDA311/312) and \*Broadcasting/Film II (MDA3112/3122)**

MDA3112 offers DMACC MMS 480, Video Production I, 3 credits

MDA3122 offers DMACC MMS 484, Premiere/Video Editing I, 3 credits

### **Year 3 = Broadcasting & Film III HS (MDA411/412)**

The Broadcasting & Film Department at Central Campus is a dynamic, three-year program which concentrates on the creative and communication aspects of the radio/television/film industry. Emphasis is placed on analysis of career paths and the production techniques associated with gainful employment. Considerable time is spent working on the craft of writing, reading, equipment operation, announcing, creative thinking and management skills. The program may include studio assignments in the FCC-licensed radio station, KDPS 88.1 FM (and streaming live online: kdpscentral.streamon.fm), or submission of film and television projects to DMPS-TV. Students also have the opportunity to submit work to various contests and festivals, such as the Wild Rose Film Festival, 48 Hour Film Festival, Iowa Motion Pictures Association Film Festival, Cedar Rapids Film Festival and John Drury Radio Awards. Projects may be submitted to colleges and universities in pursuit of scholarships in the area of Broadcasting & Film.

## **Business / Technology**

### **Money Moguls (BUS347)**

PREREQUISITE: NONE | Offered: Fall or Spring | .5 credit

Welcome to Money Moguls, your gateway to understanding the fast-paced world of banking, insurance, and finance. This course will introduce you to the skills that many of the largest employers in the Des Moines area, such as Principal Financial Group, Wells Fargo, and Nationwide Insurance, want their employees to know and be able to do. Get a head start on your learning in this course!

### **Business Start Up (BUS355)**

PREREQUISITE: NONE | Offered: Fall or Spring | .5 credit

This class, formally known as Small Business Start-up, will teach you how to turn your passion and skills into a small business opportunity where you are the boss. You will learn what you need to know to develop and start your successful business. In this course, you will: find a business niche, determine legal requirements for start-up, develop budgets and marketing strategies, determine human resources needs, and present your start-up plan. Students have the opportunity to take a proficiency exam. Upon passing, students will be awarded University of Iowa credit in ENTR:1010 Exploring Entrepreneurship, 3 s.h.

### **\*Digital Influencers – Social Media and Advertising (BUS357)**

PREREQUISITE: NONE | Offered: Fall or Spring | .5 credit

Offers DMACC MKT 150, Principles of Advertising, 3 credits

Learn how to use social media and content marketing to generate interest in your product or service. Investigate the risks and rewards with digital marketing and learn how to create dynamic ads that make people want to buy! Students will develop and implement a social media and digital marketing plan and will learn how to use data analysis tools to assess its effectiveness. In addition to exploring social media tools and advertising principles, students will learn about using websites, blogs, search engine optimization (SEO), lead generation, and email to market their business.

### **Investments & Real Estate (BUS369) @ Central Campus**

PREREQUISITE: NONE | Offered: Fall or Spring | .5 credit

Have you ever wondered how investing works or what cryptocurrency is? This course will dive into the investing process and give you practical experience establishing and maintaining an investment portfolio. We will learn about stocks and bonds, mutual funds, retirement investments, real estate, and cryptocurrency. You will gain experience analyzing information to determine if, and how, your investment portfolio is growing.

### **\*Student CEOs (BUS371) @ Central Campus**

PREREQUISITE: NONE | Offered: Fall or Spring | .5 credit

DMACC BUS 148, Small Business Management, 3 credits

Do you want to be the boss? This class is for you! You'll learn about business operations from managing employees and customers to using data to make decisions that will make your business a success. This course gives you a little bit of everything you need to be a leader in the fancy corner office!

### **Business Incubator (BUS373) @ Central Campus**

PREREQUISITE: NONE | Offered: Fall or Spring | .5 credit

The course is for juniors and seniors who are ready to apply what they know about business. In this class, students will run the school-based store and work with our business partners to complete their real-world projects. There is also opportunity for students to internship with a community partner. This course is repeatable!



# Construction Skilled Trades

## Intro to Const (Skilled Trades) (STA221) @ Central Campus

PREREQUISITE: NONE | Offered: Fall or Spring | 1.0 credit

***This course is a good option for students who are unable to take Industrial Technology classes, such as Woodworking and Carpentry at their home school.*** Students taking this course will be introduced to the Carpentry, Welding, Plumbing/Mechanical, and Electrical trades. They will learn about the materials used in these industries and develop an understanding of the fundamentals of construction within each of these types of industries. Students will work with various power tools and hand tools common to the different industries and will learn how to analyze workplace hazards and identify how to safely work around these hazards. Students will learn to take precise and accurate measurements, what a jobsite looks like, and how a project is completed from start to finish. The course will help students identify the type of construction they enjoy and provide them with the starting point towards a pathway in skilled trades.

## Carpentry is a 2-year program at Central Campus

Prerequisites: Technical Education course recommended | Grades: 10-12

### Year 1 = \*Carpentry (STA265/2652/2653/2654) and Carpentry HS (STA2662)

STA265 offers DMACC CON 336, Care/Use of Hand/Power Tools, 1 credit

STA2653 offers DMACC CON 337, Common Blueprint Reading, 1 credit

### Year 2 = Carpentry II HS (STA3653/3662)

This program concentrates on craftsmanship in the areas of woodworking and carpentry. In year one, students will continue to develop machine techniques as they construct various projects including cabinets, tables, and finish carpentry construction applications. During year two, students continue to develop machine techniques as they construct individual projects which will be developed by the student and teacher together. During both years, students will be exposed to home building concepts and techniques including: framing, flooring, trim, roofing, and other aspects of residential types of building projects. Work-based learning experiences will be provided during both years to allow students to gain understanding of the various opportunities for future employment in a carpentry career. In addition, students will learn teamwork, budgeting, purchasing, and estimating to prepare for careers in contracting. This experience has direct links to the local union apprenticeship programs, DMACC and other training programs after graduating from high school.

## STA Plumbing & Mechanical Systems HS (STA2433/2443) @ Central Campus

The Plumbing & Mechanical Systems (HVAC) program is currently a one-year program that provides students with hands-on skills, knowledge, and attitude needed to begin their career in the Plumbing & Mechanical Systems industries. Students will explore the many career options available in today's plumbing & mechanical systems professions. Students will learn about safety; the tools of the trade; skilled trades math; how to read drawings; various piping materials and connection methods, using fittings; plumbing fixtures; Drain, waste, and vent systems; water distribution systems; HVAC fundamentals; furnaces; air conditioning equipment; and thermostats. Integrated into the course is a Skilled Trades Technical Math Course. The Plumbing and Technical Math Course earns students high school and DMACC Credits.

## Electrical Construction is a 2-year program @ Central Campus

PREREQUISITE: Technical Education course recommended | Offered: Yearlong | 1.0 credit/semester

Year 1 = Electrical Construction HS (STA371/372)

Year 2 = Electrical Construction II HS (STA471/472)

The electrical program is a multi-year program that provides students with hands-on skills, knowledge, and attitude needed to begin their career in the electrical industry. Students will explore, and identify how to safely work around, electricity. Students will spend time building and understanding electrical circuits, practice with and learn the safe and proper use of working with common electrical tools and electrical materials, practice bending; cutting; and threading electrical conduit, use full scale construction drawings to become proficient in reading blueprints, install a residential electrical service, electrical panel, and common residential electrical devices.

Throughout the program, students will be given the opportunity to tour, work with, and apply for local electrical apprenticeships and local industry leaders. Students will spend time working on their math and measurement skills needed for passage through an

electrical apprenticeship. Students will demonstrate employability skills; practicing needed communication skills, expected workplace skills, and collaborative team skills.

Successful completion of the electrical program will result in receiving certification of Interim Credentialing and can provide advanced placement into the Des Moines Electrical Apprenticeship.

### **Welding is a 2-year program at Central Campus**

Prerequisite: None | Offered: Yearlong

#### **Year 1 = \*Welding (STA375/3752/3753/3763) and Welding HS (STA3762)**

STA375 offers DMACC WEL 228, Welding Safety/Health: SENSE1, 1 credit

STA3753 offers DMACC WEL 274, SMAW I: SENSE1, 3 credits

STA3763 offers DMACC WEL 244, GMAW Sh Cir Transfer: SENSE1, 2 credits

#### **Year 2 = \*Welding II (STA475/4754/4755/4764)**

STA475 offers DMACC WEL 233, Print Read/Sym Inter: SENSE1, 3 credits

STA3754 offers DMACC WEL 275, SMAW II: SENSE1, 3 credits

STA4755 offers DMACC WEL 245, GMAW Spray Transfer: SENSE1, 2 credits

STA4764 offers DMACC WEL 251, GTAW Carbon Steel: SENSE1, 2 credits

Welding provides opportunities for students to gain skills in blueprint reading, design, layout, and fabrication of specific projects large and small. Throughout the program, students develop skills in different welds such as oxy-acetylene, shield metal arc, MIG, and plasma arc cutting. Students also receive instruction on key construction welding techniques to include pipe welding, and TIG welding with a variety of steels and steel alloys. Welding students have the opportunity to meet and work with employers in the second year of the welding program. This program has a registered apprenticeship with John Deere where students get paid, earn credit and credentials, and could gain employment at John Deere.

## Education and Leadership

### Career Opportunities Education HS (TAC275) @ Central Campus

PREREQUISITE: NONE | Offered: Fall or Spring | .5 credit

Career Opportunities in Education is for freshman and sophomores who are interested in working with youth and are considering a career in education. Students will learn employability skills, explore a variety of career opportunities, learn legal requirements for education, history of education, and educational systems. Students will enjoy guest speakers who work with youth in differing roles, develop their own career goals, and create resumes to help them pursue those goals.

### Dream to Teach is a 2-year program at Central Campus

#### Year 1 = Dream to Teach I HS (TAC251/2522)

#### Year 2 = \*Dream to Teach II (TAC351/352) and Dream to Teach II HS (TAC3513/3522) @ Central Campus

TAC351 offers DMACC EDU 210, Foundations of Education, 3 credits

TAC352 offers DMACC EDU 218, Initial Field Experience, 2 credits

Dream to Teach I is an introduction to the field of education/teaching and is offered to ninth through twelfth grade students. The course introduces students to a variety of careers in education through a curriculum that integrates academic and workplace skills. Students will be exposed to guest speakers from different backgrounds and educational roles. Students will also learn about the foundations of education, educational theories/theorists, and pedagogy through a social justice lens.

Dream to Teach II is offered to eleventh and twelfth grade students who have either taken Dream to Teach Year One or who have participated in their school's Dream to Teach club. The course will examine education from a historical, philosophical, and sociological perspective. Challenges and issues in education today will be discussed in the context of school organization, politics, funding, and curriculum through a social justice lens. First semester will help prepare students for their upcoming student teaching internships by reviewing topics such as professionalism, mandatory reporting, cultural responsiveness, etc. Second semester, students will acquire extensive field experience through student teaching internships, observation, and field trips. Students will work to develop leadership skills toward becoming agents of change in their schools and communities. This class provides a strong foundation and transition to teacher education programs post high school.

### ROTC Marines (MIS169/170/171/172) @ Central Campus

The primary purpose of the MCJROTC Program is Leadership Education. It prepares high school students for responsible leadership roles while making them aware of their rights, responsibilities, and privileges as American citizens. In order to be a good leader, one must first learn to be a good follower. As a cadet gains experience and knowledge, he or she will be given active, hands-on leadership responsibilities within the JROTC Program. The Marine Corps JROTC Leadership Education Program emphasizes the development of self-discipline, leadership, honor, integrity, and the value of community service. Citizenship training is emphasized throughout the program and reinforced by using current events and activities occurring in the Polk County area, the state of Iowa, our nation and the entire world. In addition, students are acquainted with basic military skills and Marine Corps traditions. Satisfactory completion of the program can lead to preferential consideration for a service academy appointment, advanced placement credit in the Senior ROTC program or advanced rank in the Armed Forces.

### Criminal Justice (CJT461/462) @ Central Campus

Offered: Fall or Spring

CJT461 offers DMACC CRJ 100, Intro to Criminal Justice, 3 credits

CJT462 offers DMACC CRJ 141, Criminal Investigation, 3 credits

The Criminal Justice program gives students the opportunity to explore careers in police work, criminal law, crime scene investigation, and other related vocations. Faculty works closely with the Des Moines Police Department and Polk County Sheriff's Office to provide authentic experience in a vibrant law enforcement community. Students participate in mock crime scene scenarios and job shadowing professionals.

## Environmental & Agri-Sciences

### **\*Marine Biology/AqSci (AQS445/446) and Marine Biology/AqSci Lab (AQS4452/4462) @ Central Campus**

Prerequisite: None

AQS445 offers DMACC BIO 225, Marine Biology I, 4 credits

AQS446 offers DMACC BIO 227, Marine Biology II, 4 credits

The Marine Biology program puts students face to face with hundreds of marine organisms found around the world. Students won't just learn about the ocean from books, they also take care of over 100 "tiny oceans" during the year and personally interact with sharks, jellyfish, corals, nautilus, and hundreds of fish in a new facility modeled after university laboratories and public aquariums. Students are also given the opportunity to conduct their own research projects, participate in science fairs, practice field work by kayaking, dissect different organisms, and more. What makes this program so unique is that it is a student-run laboratory and aquarium which gives each student the opportunity to literally get their hands wet in everything that goes on, but to also leave a legacy for other students by coming up with new ideas for aquariums and different marine organisms to have in the program.

An optional Field Studies course occurs in March where the students are able to put their skills to the test, earn college credit, and have a lot of fun! For 1-2 weeks, students become "Marine Biologists" and participate in several activities to gain an understanding of life as a marine biologist. Previous trips have gone to California, Texas, and Florida. Most expenses for this trip are the responsibility of the student. At least one fundraiser is made available to students to help offset the cost. Marine Biology is an elective credit course and does not satisfy high school science credit requirements.

### **\*Aquarium Science (AQS465/466) and Aquarium Science Lab HS (AQS4652/4662) @ Central Campus**

Prerequisite: None

AQS465 offers DMACC AGS 222, Aquaculture/Aquarium Sci I, 3 credits

AQS466 offers DMACC AGS 249, Aquaculture/Aquarium Sci II, 3 credits

In Aquarium Science, students experience aquatic animal husbandry and aquaculture in a facility modeled after a professional public aquarium laboratory. They learn to replicate environmental conditions in the lab similar to those on a coral reef by studying the effects of lighting, water quality, and nutrition on the saltwater organisms in their care. Hands-on activities in the laboratory include breeding saltwater clownfish, propagating live corals and anemones on the coral farm, breeding jellyfish, and live food culture. This program prepares students for careers in Marine Biology, Environmental Science, commercial aquaculture (fish hatcheries), public aquariums, aquarium maintenance, pet industries and most environmental fields. Students in Aquarium Science are eligible to participate in an optional marine field ecology trip in the spring semester for DMACC credit. Aquarium Science is an elective credit course and does not satisfy high school science credit requirements.

### **Animal Science (SCI239/2403) and \*Animal Science (SCI240/2402) @ Central Campus, 201 County Line Rd**

#### **Plant Science HS (SCI2412/2421)**

#### **Adv Plant Science HS (SCI335/336)**

Agri-Science year I

Plant Science was formerly titled Horticulture

SCI240 offers DMACC AGS 114, Survey of the Animal Industry, 2 credits

At our Agriculture Science Academy at 201 County Line Road on the southside of Des Moines (south of Blank Park Zoo), students learn about animals and plants through hands-on activities and exciting projects. The nation's largest secondary school student-run greenhouse and livestock facility allow them to gain practical experience in fields including agricultural business, environmental science, horticulture, landscaping, and veterinary careers. Students are enrolled as members of FFA, the national youth leadership organization, which enhances communication and leadership skills while attending the academy.

**\*Entrepreneurship in Ag (SCI346) and Entrepreneurship in Agriculture HS (SCI347/3483) @ Central Campus, 201 County Line Rd**

Prerequisites: SCI239/2403 Recommended

Agri-Science year 3 option

SCI346 offers DMACC AGB 331, Entrepreneurship in Agriculture, 3 credits

The Entrepreneurship in Agriculture course covers learning targets to help students understand agricultural businesses, and how they could start their own business. Some of the topics covered in class include marketing, communications, economics, finance, and human resources. The Central Market, our own on-site grocery store, and the Campus Greenhouse plant sale will both be real-world businesses that this class helps manage. Students will also learn about various careers within the agricultural industry.

**Floral/Greenhouse Production HS (SCI355/356) @ Central Campus, 201 County Line Rd**

Prerequisites: SCI239/2403 Recommended

Agri-Science year 2 option

The focus of the Floral and Greenhouse Production class at Central campus is to explore the world of flowers, floral arrangements, greenhouse management and maintenance. Students participating in this class will build on their knowledge of the horticulture industry in specific ways. The time spent in class is split between planning and designing floral arrangements and learning and demonstrating how to successfully run our greenhouses. This class is full of hands-on learning opportunities to engage students in exciting ways. Upon completion of this course, students will have the skills necessary to arrange flowers and efficiently work in the greenhouse.

**Animal Science/Vet Careers HS (SCI443/444) @ Central Campus, 201 County Line Rd**

Prerequisites: SCI239/2403 Recommended

Agri-Science year 2 option

Veterinary Science and Careers covers the skills necessary to being successful in an animal science career. All animal science careers are explored. The class includes the origins of common medical terms used in the veterinary field. The class will center on diseases of large and companion animals, including discussion of causes, transmission, prevention and control. Students will work with all animals and be involved in their care. Upon completion of this program, a student will feel comfortable with the nomenclature and skills necessary to work in the animal science industry.

**\*Global Animal Science (SCI511) and Global Animal Science HS (SCI5113/5125) @ Central Campus, 201 County Line Rd**

Prerequisites: SCI239/2403 Recommended

Agri-Science year 3 option

SCI511 offers DMACC AGC 420, Agricultural Issues, 3 credits

The major focus of Global Animal Science will be biotechnology, current issues in the agriculture industry, preparing for the agriscience fair, and the World Food Prize. Students participating in this class will receive a broad view of current agriculture around the world and the advancement of technology in the industry. There are many hands-on laboratory learning experiences. Some of the labs include electrophoresis, DNA extraction, and pGLO experiments. Upon completion of this course, students will feel confident going into careers in the agriculture industry.

## Family and Consumer Sciences/Human Services

### **Culinary Arts is a 3-year program at Central Campus**

Prerequisites: Nutrition & Food Prep I/2 recommended

### **Year 1 = \*Culinary Arts (CUL365/3652/366/3663) and Culinary Arts HS (CUL3653)**

CUL365 offers DMACC HCM 100, Sanitation & Safety, 2 credits

CUL366 offers DMACC HCM 143, Food Preparation I, 3 credits

CUL3663 offers DMACC HCM 144, Food Preparation I Lab, 3 credits

### **Year 2 = \*Culinary Arts II (CUL465/4652/4653/466/4662/4663)**

CUL465 offers DMACC HCM 110, Baking (lab), 2 credits

CUL4652 offers DMACC HCM 320, Intro to Hospitality Industry, 2 credits

CUL466 offers DMACC HCM 152, Food Preparation II, 2 credits

CUL4663 offers DMACC HCM 153, Food Preparation II Lab, 2 credits

### **Year 3 = \*Culinary Arts III (CUL469/4692/4694/4695/472)**

CUL469 offers DMACC HCM 231, Nutrition, 2 credits

CUL4694 offers DMACC HCM 240, Menu Planning & Design, 2 credits

CUL472 offers DMACC HCM 510, Work Experience, 3 credits

Culinary Arts students explore opportunities for employment in the hospitality and food service industry through the operation of the student-run Central Campus Café. Students receive their ProStart certification from the National Restaurant Association and compete in local and national competitions. Students plan and prepare food, use institutional equipment, set up the dining room, and serve customers on designated Central Campus Café days. Students also have the chance to visit area restaurants and other hospitality businesses.

### **Hospitality & Tourism I HS (CUL383) @ Central Campus**

PREREQUISITE: NONE

Students will learn about the world of hospitality, lodging operations, food and beverage operations, event management, travel and tourism, and hospitality business and leadership skills. Through real-life examples and hands-on projects, students will develop necessary skills for a competitive advantage when pursuing a career in the hospitality and tourism industry.

### **Hospitality & Tourism II HS (CUL393) @ Central Campus**

PREREQUISITE: NONE

This course gives students a deeper dive into the inner workings of the hospitality and tourism industry. Students will learn how to plan and manage large and small events, concerts, and festivals; day-to-day hotel operations including: guest relations, operations, and hotel finance; and food and beverage service. At the completion of this course, students will have the skills and knowledge necessary to begin their career in the hospitality and tourism industry.

### **Anatomy & Physiology for Health Science (I semester) @ Central Campus**

PREREQUISITE: NONE

If you've thought about a career in health care, this course is for you! Students will learn the structure and function of the human body from the cellular level to organ systems. This course is designed for students wanting to pursue a career in the health care field, including those who wish to enroll in the CNA and/or EMT programs at Central Campus.

### **Medical Terminology (I semester) @ Central Campus**

PREREQUISITE: NONE

Offers DMACC HSC 300, Med Term for Health Sciences, 2 credits

This course will teach students the skills needed to communicate effectively in the health care setting. The course involves the breakdown and reconstruction of word parts and their definitions. This course will help students who want to enroll in the CNA and/or EMT programs at Central Campus and those who wish to pursue a health care career after high school.

## **Intro to Health Science (1 semester) @ Central Campus**

PREREQUISITE: NONE

This course is your passport into the health sciences world. All health care careers are possible with the learning and experience students will obtain in this entry-level course. Students will explore ethical issues and professional competencies and will learn about a wide range of health care careers.

## **\*Intro to Garment Construction (FDM227) at Central Campus**

PREREQUISITE: NONE | Offered: Fall or Spring | .5 credit

FDM227 offers DMACC APP 255, Intro to Garment Construction, 3 credits

This course is intended for the student with very little or no sewing experience who would like to learn the basics of sewing. The course includes construction of two or more simple garments and/or projects. This course is intended to be a feeder class to the Fashion Design class. Sophomores are encouraged.

## **Fashion Design & Merchandising is a 2-year program at Central Campus**

Prerequisites: Sewing Technology or Fashion recommended.

### **Year 1 = \*Fashion Design & Merchandising (FDM327/328) & Fashion Design & Merch HS (FDM3273/3283)**

FDM327 offers DMACC APP 109, Creative Design Foundations, 3 credits

FDM328 offers DMACC APP 209, Textile Science, 3 credits

### **Year 2 = \*Fashion Design & Merchandising II (FDM427) & Fashion Design & Merch II HS (FDM4273/428)**

FDM427 offers DMACC APP 261, Fashion Industry Analysis, 3 credits

Within the creative discipline of Fashion Design, students discover fascinating fundamentals of the fashion industry and learn about all of the exciting behind-the-scene details that make every show and every display perfect. Study famous and up-and-coming designers, explore historical and current trends, and learn the importance of alterations and proper fit. In this program, students build upon their sewing skills, create fashion drawings, and analyze the designs of others. The program enhances entrepreneurial skills and techniques to successfully market their designs in the fashion industry. The culminating event for this program is a spring fashion show that is created and produced by the fashion students and other cooperating Central Campus programs.

## **Health Sciences**

### **Career Opportunities in Health HS (COH311) @ Central Campus**

Prerequisite: Current immunizations as required.

Career Opportunities in Health introduces students to a variety of health careers through a curriculum that integrates academic and workplace skills. Rotations at UnityPoint Health-Des Moines hospital and clinic locations, as well as other private clinics throughout the metro, provide observation experiences that allow students to explore careers of their interest, learn about medicine and work towards an understanding of the big picture of healthcare while developing personal skills.

### **\*Emergency Medical Tech Internship (CNA387) @ Central Campus**

PREREQUISITE: Criminal/abuse background check; Immunization form as required by clinical site; influenza vaccine – October through April. Must pass with a C or higher to continue. See DMACC website for more information.

CNA387 offers DMACC EMS 214, Emergency Medical Technician, 6 credits

The Emergency Medical Technician certificate is designed to provide an introductory learning experience for persons interested in the field of pre-hospital emergency medicine. This course includes practical and computer-based testing in the classroom, as well as clinical and field experience in area hospitals and with local EMS agencies. National Registry certification testing will be available upon successful course completion in both the cognitive and hands-on psychomotor skills areas. Area fire departments and EMS agencies, as well as some hospital emergency departments, urgent care clinics and industrial settings utilize EMTs.

### **\*Basic Nurse Aide (CNA391/392) and Basic Nurse Aide HS (CNA3913/3922) @ Central Campus**

### **\*Adv Nurse Aide (CNA393/394/3942/3943) and Adv Nurse Aide HS (CNA3933/3944)**

Prerequisites: Criminal/abuse background check; Immunization form as required by clinical site; influenza vaccine – October through April. Must pass with a C or higher to continue. See DMACC website for more information.

CNA391 offers DMACC HSC 172, Nurse Aide, 3 credits

CNA392 offers DMACC HSC 172, Nurse Aide, 3 credits

CNA393 offers DMACC HSC 172, Nurse Aide, 3 credits

CNA394 offers DMACC HSC 182, Advanced Nurse Aide, 3 credits

CNA3942 offers DMACC HSC 101, Emergency Care, 1 credit

These programs give students the opportunity to learn the necessary skills and training to work in various health care settings. They experience classroom and laboratory instruction along with supervised clinical experience in local long-term care (nursing home) and hospital settings. The advanced program also provides students the opportunity to obtain health care provider BLS certification.

Nurse Aide certification is required for admission to most Iowa nursing schools. Either of these courses prepares students for the nurse aide certification. This course includes classroom and laboratory instruction at Central Campus and supervised clinical experience at various health care settings. In addition to the content of the 75-hour Nurse Aide class, the 150-hour Advanced Nurse Aide class covers skills and knowledge utilized by nurse aides in skilled-care units and in hospital areas. Content in the 150-hour course is presented at a faster pace than in the 75-hour Nurse Aide class.

## **Transportation**

### **Intro to Automotive (CAR228) @ Central Campus**

PREREQUISITE: NONE | Offered: Fall or Spring | .5 credit

This course covers basic physical and mechanical principals related to the transportation field, including ownership, maintenance, and related careers. Through instruction, demonstrations, hands-on and problem-solving activities, students gain knowledge of skills involved in the operation and servicing of internal combustion engine systems, and the body and structural systems of various vehicles, including their parts and accessories. They also learn to apply safety as related to the vehicle, hand and power tools, test equipment, and materials common to this course. Students gain additional knowledge and skills in the cranking and charging systems, fuel systems, power transmission devices, body and chassis systems, steering components, and accessory systems. Instruction will emphasize technologies related to modern vehicles with an introduction to electronic and computer-controlled systems.

### **Automotive Collision is a 2-year program at Central Campus**

Prerequisite: Intro to Automotive recommended | Offered: Fall

### **Year 1 = Automotive Collision HS (CAR3133/3144)**

### **Year 2 = Automotive Collision II HS (CAR4133/4142)**

Auto Collision Repair provides students with experience through repairs on late model, damaged automobiles. Quality workmanship, shop safety, good work habits, cooperation, dependability, and responsibility are stressed. Students become familiar with and work with the latest hand and power tools and equipment unique to this trade. The course is designed to prepare students to operate at the same level of workmanship that is found in local auto body shops. Refinishing products have been updated to the current state of the art waterborne paints that are found in many of the area dealership collision shops.



### **\*Automotive Technology I (CAR3177/3178) @ Central Campus**

Prerequisites: Intro to Auto CAR228 or other TEC course or interest in career | Offered: Fall and Spring

CAR3177 offers DMACC AUT 111, Intro to Auto Tech I, 6 credits

CAR3178 offers DMACC AUT 112, Intro to Auto Tech II, 6 credits

### **\*Automotive Technology II (CAR417/418) and Automotive Technology II HS (CAR4172/4182)**

CAR417 offers DMACC AUT404, Auto Suspension and Steering, 4 credits

CAR418 offers DMACC AUT704, Auto Heating & AC, 4 credits

In the Automotive Technology program students complete competencies and gain skills in working with automotive engines, brakes, steering and suspension, electricity/electronics, HVAC, engine performance, and transmissions. The program is also affiliated with most of the major automotive manufacturers including Ford, General Motors, Toyota, Honda and Chrysler through AYES (Automotive Youth Educations Systems).

Students are engaged academically in the classroom learning basic automotive knowledge and skills. Students are then exposed to real world activities in the automotive lab learning how to safely diagnose, disassemble, assemble and repair all aspects of the modern automobile. Students are introduced to automotive apprentice training programs through dealership tours and job shadowing. The AYES program allows successful students the opportunity to get a head start on their career with early entrance into dealerships and repair facilities through internships and co-op agreements. Students also have the opportunity to certify in four automotive areas.

## **Work Based Learning**

### **\*Career Exploration A (MIS241) @ Central Campus**

MIS241 offers DMACC WBL100, Career Exploration, 1 credit

The Dream 2 Teach II and Civil Architecture and Engineering programs offer a WBL component. Please read the description listed above under the program title for additional information on specific WBL experiences in these areas.

### **\*Employability Skills (MIS347) @ Central Campus**

MIS347 offers DMACC WBL110, Employability Skills, 2 credits

The Broadcasting and Film III offer a WBL component. Please read the description listed above under the Broadcasting and Film program for additional information on specific WBL experiences in this area.

### **\*Job Shadowing (MIS349) @ Central Campus**

MIS349 offers DMACC WBL150, Job Shadowing, 1 credit

The Dream 2 Teach II, Vet Careers, Com Photography II, Broadcasting and Film III, and Career Opportunities in Health programs offer a WBL component. Please read the descriptions listed above under the program titles for additional information on specific WBL experiences in these areas.

## Aviation Technology Academy @ Central Campus

Prerequisites: Technical education courses recommended along with strong career interest in Aviation and/or Aerospace.

The Aviation Technology Academy is comprised of two tracks; Aviation Maintenance and Private Pilot Ground School. Upon successful completion of Introduction to Aviation and Aerospace students may enroll in either track, or both.

The Aviation Maintenance program is located at 201 County Line Road on the southside of Des Moines and is designed to train students for careers in various areas of the rapidly growing Aviation Industry. Students have opportunities to become adept in aircraft Airframe & Powerplant (A&P) mechanics. The Aviation Technology Academy is the only high school FAA Certified Part 147 in the entire Midwest. Students earn both high school credit graduation and FAA certified training toward an Airframe Mechanic Certificate.

The Private Pilot Ground School classes are located Central Campus, 1800 Grand Ave, and is designed to prepare students for the FAA Private Pilot Knowledge Test and/or FAA Commercial Remote Pilot (Drone) Certificate. The Central Campus aircraft/drone pilot program is one of only 300 educational institutions using the AOPA (Aircraft Owners and Pilots Association) Foundation You Can Fly High School Aviation STEM Curriculum which earned the prestigious STEM.org Accredited Educational Program Trustmark. The curriculum, along with several Redbird Flight Simulators, allow students' passions to take flight.

### Introduction to Aviation (AVI225/226) @ Central Campus, 1800 Grand Ave

Prerequisites: NONE | Grades: 9-10-11-12 | Offered: Yearlong Course | .5 Credit/Semester

Introduction to Aviation's core curriculum provides the foundation for any aerospace and/or aviation career. It is designed to give students a clear understanding of career opportunities in aviation and aerospace and the critical issues affecting the aviation system. It serves as a prerequisite for either the Aviation Maintenance Technician or Private Pilot Ground School programs.

Introduction to Aviation will provide the foundation for advanced exploration in the areas of flying, aerospace engineering, and unmanned aircraft systems. Students will learn about engineering practices, problem-solving, and the innovations and technological developments that have made today's aviation and aerospace industries possible.

Students will look at the problem-solving practices and innovative leaps that transformed space exploration from the unimaginable to the common in a single generation. Students will also gain historical perspective, starting from the earliest flying machines and leading to the wide variety of modern aircraft and the integral role they play in making today's world work.

Students will also begin to drill down into the various sectors of aviation and the elements that make up the aviation and aerospace ecosystem. They will discover how advances in aviation created a need for regulation and will learn about the promulgation of civil aviation oversight.

Students will explore modern innovations and develop their own innovative ideas to address real-world challenges facing the aviation industry. They will be exposed to a variety of career options in aviation and aerospace and take an in-depth look at the opportunities available. This course will allow students to begin to define their individual interests, whether it be Aviation Maintenance Technician and/or Private Pilot Ground School programs.

### Aviation Maintenance I (AVI235/236) @ Central Campus, 201 County Line Rd

Prerequisite: Introduction to Aviation | Grades: 10-11-12 | Offered: Yearlong Course

Certificated Aviation Maintenance Technicians (AMT) work in highly-technical specialty occupations involved in keeping aircraft operating safely. AMTs hold highly-transferable skills that can be used in a broad-range of industries in, and out of, the aviation sector. An AMT is certificated by the Federal Aviation Administration (FAA) based on personal knowledge gained through training and experience, which is demonstrated via successful completion of written, oral, and practical tests.

The AMT program is the only high-school FAA certified aviation maintenance program in Iowa. The program uses a modern lab, classroom, and six aircraft to provide students with the knowledge & skills to possibly earn an FAA Airframe and/or Powerplant (A&P) Certificate.

The AMT program consists of up to three years of intense half-day daily study. Beginning with General during year 1, students explore certification, FAA regulations, human factors, technical areas applicable to both Airframe and Powerplant studies, and skills needed to be an entry-level aviation professional.

### **Aviation Maintenance II (AVI335/336) @ Central Campus, 201 County Line Rd**

Prerequisite: Aviation Maintenance I | Grades: 11-12 | Offered: Yearlong Course

The General curriculum continues during year two in which students expand on the previous year's knowledge and skills and focus on technical areas applicable to both an Airframe and/or Powerplant Certificate.

### **Aviation Airframe I (AVI341/342) @ Central Campus, 201 County Line Rd**

Prerequisite: Aviation Maintenance II | Grade: 12 | Offered: Yearlong Course

The first year of Airframe consists of airplane and helicopter structures. Students use a modern lab, classroom, and six aircraft to learn hands-on skills such as aluminum construction, composite construction, electricity, and flight controls.

### **Aviation Airframe II (AVI441/442) @ Central Campus, 201 County Line Rd**

Prerequisite: Aviation Airframe I | Grade: 12 | Offered: Yearlong Course

The second year of Airframe consists of airplane and helicopter systems. Students use a modern lab, classroom, and six aircraft to learn hands-on pertaining to aircraft hydraulic systems, navigation systems, nondestructive testing, painting, and pneumatic systems.

### **Aviation Powerplant I (AVI352/353) @ Central Campus, 201 County Line Rd**

Prerequisite: Aviation Maintenance II | Grade: 12 | Offered: Yearlong Course

The first year of Powerplant is a study of theory, inspection, and repair of airplane and helicopter reciprocating and turbine engines and propellers.

### **Aviation Powerplant II (AVI452/453) @ Central Campus, 201 County Line Rd**

Prerequisite: Aviation Powerplant I | Grade: 12 | Offered: Yearlong Course

The second year of Powerplant is a study of theory, inspection, and repair of airplane and helicopter reciprocating and turbine induction, ignition, exhaust, starting, and electrical systems including engine inspection and troubleshooting.

### **Pilot Ground School I (FLT441/442) @ Central Campus, 1800 Grand Ave**

Prerequisite: Introduction to Aviation | Grades: 10-11-12 | Offered: Yearlong Course

In the Pilot Ground School I Course students will take a closer look at aircraft operation. Students will begin with an exploration of the types of aircraft in use today before going on to learn how aircraft are made and how they fly. Students will understand how aircraft are categorized, be able to identify their parts, and learn about aircraft construction techniques and materials. They will gain an in-depth understanding of the forces of flight—lift, weight, thrust, and drag—including how to make key calculations. They will then touch on aircraft design, looking at stability, aircraft controls, and maneuvering flight. The course will also focus on career skills related to these topics. Students will take an in-depth look at the systems that make aircraft work as well as the instrumentation powered by those systems. Beginning with aircraft powerplants and fuel systems, students will learn about the different options available and how they affect aircraft design and performance. They will go on to explore other key aircraft systems, including electrical, pitot-static, and vacuum systems. Throughout, they will learn about the flight instruments associated with each system and how to identify and troubleshoot common problems. This course also covers airplane flight manuals, the pilot's operating handbook, and required aircraft documents. Students will learn about the factors that affect aircraft performance and how to determine critical operating data for aircraft.

### **Pilot Ground School II (FLT451/452) @ Central Campus, 1800 Grand Ave**

(Prerequisite: Pilot Ground School I)

Pilot Ground School II is foundational for any pilot career and will prepare students to take the Private Pilot Knowledge Test. Topics include pre-flight procedures, airspace, radio communications, aviation phraseology, regulations, airport operations, aviation safety, weather, cockpit management, and emergency procedures. Students will learn pilot and aircraft qualifications, cross-country flight planning, weight and balance, performance and limitations, human factors, chart use, night operations, navigation systems, and aeronautical decision making. Students will be provided with the opportunity to participate in multiple practice examinations. At the

end of this course, students may have the opportunity to be signed off to take the Federal Aviation Administration's Private Pilot written exam.