

## **Aeronautics**

Aviation  
Principles of Aeronautical Science  
Careers In Aviation  
Introduction to Space Flight  
Private Pilot Operations

## **Architecture**

CAD (Drafting)  
3D CAD  
Architectural CAD

## **Automotive**

Small Engines/Power  
Auto Maintenance  
Automotive Technology  
Air Cooled Engine Technology &  
Repair

## **Engineering**

Engineering and Invention 1  
3D CAD  
Engineering and Invention 2

## **Furniture Making**

Introduction to Furniture Making  
Furniture & Cabinet Making I & II

## **General Electives**

Technology Concepts  
Home Maintenance and Repair  
Industrial & Related Occupations I & II

## **TCD Connections**

Pre-Architectural/Pre-Engineering  
Landscape & Design  
Construction Trades  
Auto Body Repair & Refinishing  
Automotive Technology

# ***Applied Technology***

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## Applied Arts Division Philosophy

The Applied Arts Division mission is to develop students that are life-long learners through their engagement in the integration and application of multiple curricular areas. The Division offers diverse learning opportunities for all students and prepares students through its 3 departments to make life decisions in education, career, family, leisure, and life skills.

## Applied Technology Department Philosophy

The Applied Technology Department empowers the student to understand, utilize, and apply comprehensive technology skills that exist in higher education and the workplace. The department assists the student in the development of teamwork, analytical, and problem solving skills. The development of leadership abilities is present throughout the curriculum. The department fosters creativity, independence, self-reliance, and self-sufficiency through comprehensive, progressive programming.

Programs	South Campus	North Campus
Communications	Technology Concepts CAD (Drafting) Architectural CAD	CAD (Drafting) 3D CAD Architectural CAD
Construction	Introduction to Furniture Making Furniture & Cabinet Making I, II	Home Maintenance & Repair Introduction to Furniture Making Furniture & Cabinet Making I, II
Manufacturing	CAD (Drafting) Engineering & Invention 1	CAD (Drafting) Engineering & Invention 1, 2 3D CAD
Transportation	Small Engines/Power Principles of Aeronautical Science Careers In Aviation Introduction to Space Flight	Auto Maintenance Automotive Technology Introduction to Space Flight Private Pilot Operations
Career Development		Industrial & Related Occupations I, II

### Suggested Course Sequencing (Please read descriptions for content and prerequisites)

<b>Aeronautics</b>	Careers In Aviation - Principles of Aeronautical Science - Introduction to Space Flight Private Pilot Operations
<b>Architecture</b>	CAD (Drafting) - 3D CAD - Architectural CAD
<b>Automotive</b>	Small Engines/Power - Auto Maintenance - Automotive Technology - Air Cooled Engine Technology
<b>Engineering</b>	Engineering and Invention 1 - 3D CAD - Engineering and Invention 2
<b>Furniture Making</b>	Introduction to Furniture Making - Furniture & Cabinet Making I & II
<b>General Electives</b>	Technology Concepts - Home Maintenance and Repair - Industrial & Related Occupations I & II
<b>TCD Connections</b>	Pre-Architectural/Pre-Engineering - Landscape & Design - Construction Trades Auto Body Repair & Refinishing - Automotive Technology

# Applied Technology Department Standards

*The Applied Technology Department has established standards based on resources gathered from national and state professional organizations in the fields of technology, technology education, engineering, science and math, and career development. There are nine general standards as indicated below. Each general standard is supported by specific student learning standards that are available upon request. Specific course standards have been developed to support the general standards and these are distributed to students at the beginning of each semester, or annual course.*

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## **Students within Applied Technology will be able to....**

1. select/use appropriate technological instruments/tools and formulas to solve problems, interpret results, and communicate findings.
2. accept opportunities to develop expertise, experience, and emotional intelligence for transferable employability skills in relation to individual, career, and community roles and responsibilities.
3. develop skills, strategies, expertise, experience, and emotional intelligence for career exploration and transferability skills in relation to the career clusters of technology, transportation, communication, and manufacturing.
4. analyze the internal and external factors that influence individual, work teams, and commercial enterprises.
5. develop and apply strategies to manage conflict and stress in individual and team situations.
6. recognize and be able to demonstrate effective verbal and non-verbal communication skills.
7. evaluate decisions in relation to available resources and options.
8. demonstrate leadership skills and abilities reflecting democratic ideals at school, in the workplace, and in the community.
9. promote optimal growth, development, and learning of self, family, community, and others as a life-long activity.



# ARCHITECTURE

## CAD (Drafting)

Credit: 1/2 (cr/nc)	Level: III or IV
Grade Offered: 9, 10	Fall 75536
	Spring 75537
11, 12	Fall 75531
	Spring 75532

Prerequisite: None

Drafting is a valuable part of our global society. It is sometimes referred to as the “universal language.” Drawings and blueprints are used to develop new ideas and convert those ideas into actual products. This is a beginning course that prepares students with skills for becoming a drafts person, engineer, architect, designer, or any of the numerous professions which use this type of knowledge. Computer Aided Design (CAD) will be used exclusively in this class.

## 3D CAD

Credit: 1/2 (cr/nc)	Level: III or IV
Grade offered: 11, 12	Fall 76531
	Spring 76532

Prerequisite: CAD (Drafting)

This course will develop visual awareness and cover the basic principles of 3D design utilizing the CAD (Computer Aided Drafting) system. Concepts to be covered are balance, symmetry, repetition, order, variety, uniformity and proportion. Motif and color will be introduced using design elements such as point, line, plane and volume. A sequence of related abstract design problems employing various materials, forming processes, and structural elements will provide the framework for learning these basic principles.

## Architectural Drafting (CAD)

Credit: 1 (cr/nc)	Level: III & IV
Grade Offered: 10	Annual 74215
11, 12	Annual 74210

Prerequisite: CAD (Drafting)

This course provides a study of light frame construction techniques and the production of residential construction drawings using a CAD (Computer Aided Drafting) system. The introduction of basic design in this course is intended to hone the students insights and understandings concerning the architectural design of buildings. Understanding of the relationship between the drawings to the presentation of the prototype will be emphasized. The course covers common residential construction materials, components, and systems as related to wood frame structures. Students will produce a professional set of presentation and construction drawings of a residential structure. Specifications, codes,

cost estimates, and architectural office practices are put into application.

After the design drawing is complete the student will create a scaled building as a prototype to present to the customer.

## CAD EGR 120 ERAU EGR 120 (3 cr)

Credit: 1/2	Level: IV
Grade Offered: 10	Fall 75556
	Spring 75557
11, 12	Fall 75551
	Spring 75552

Prerequisite: Principles of Aeronautical Science

Drafting is a valuable part of our global society. It is sometimes referred to as the “universal language.” Drawings and blueprints are used to develop new ideas and convert those ideas into actual products. This is a beginning course that prepares students with skills for becoming a drafts person, engineer, architect, designer, or any of the numerous professions which use this type of knowledge. Computer Aided Design (CAD) will be used exclusively in this class.

This course will include hand drawing and sketching techniques used in developing technical drawings.

This course will earn 3 hours college credit.

# AUTOMOTIVE

## Small Engines/Power

Credit: 1/2 (cr/nc)	Level: III or IV
Grade Offered: 9, 10	Fall 76226
	Spring 76227

Prerequisite: None

In this course, students work on small engines and experiment with other sources of energy in the classroom. Students will learn how to maintain, troubleshoot, and repair four-cycle air-cooled engines. Students will learn mechanical, electrical, fuel, lubrication, cooling, and power systems. Students will gain hands-on experience while disassembling a 5 1/2 hp, 4 cycle engine. Students will reassemble the engines and test them for efficient operation.

## Auto Maintenance

Credit: 1/2 (cr/nc)	Level: III
Grade Offered: 11, 12	Fall 75911
	Spring 75912

Prerequisite: None

This course is designed to introduce students to the basic operation and maintenance of the modern auto

mobile. Students will study basic auto maintenance and safety procedures used in auto servicing activities. The major instructional method will be through instructor presentations, reading, laboratory assignments, and the actual servicing of automobiles. This course is **not** recommended for students who have had Automotive Technology.

## Automotive Technology

Credit: 1 (cr/nc)                      Level: III or IV  
 Grade Offered: 11, 12                Annual 75310  
 Prerequisite: None

Students study theory as well as the operation of the modern automobile engine. In addition, starting and charging, ignition, fuel systems, emissions, drive lines and transmissions, steering and suspension, and brakes will be covered. The course includes tests, assignments, and lecture-demonstrations as well as hands-on applications.

## Air Cooled Engine Technology

Credit: 1/2                                Level: III  
 Grade Offered: 11, 12                Fall 76331  
 Prerequisite: Small Engines/Power   Spring 76332

Students will spend time on fuels and carburetion. Fuels, emission and carburetor theory are discussed in depth. The advanced course is to have student further their knowledge of electronics, fuel systems for small engines. The students would be working on a small tractor, snowmobile. Students will be able to take the certification test for small engine repair mechanics.

# ENGINEERING

## Engineering and Invention 1

Credit: 1/2 (cr/nc)                      Level: III or IV  
 Grade Offered: 9, 10                Fall 75546  
    Spring 75547  
    11,12                Fall 75541  
    Spring 75542

Prerequisite: None

This course is a study of the basic engineering principles of mechanics and strength of materials relating to the design, investigation, and behavior of structural elements and systems of buildings. CAD (Computer Aided Drafting) is the main program used. Students will study structure theory as it relates to engineering. Students will learn structural members and how they relate to a design. The basic theory of forces, section modules, moment of inertia, shear, compression, tension, modules of elasticity, deflection, bending mo-

ments, and forces in static structures are also included.

## Engineering and Invention 2 ERAU Engineering 101 (3 cr)

Credit: 1/2 (cr/nc) (dc)                      Level: IV  
 Grade Offered: 11, 12                      Fall 76411  
    Spring 76412

Prerequisite: Algebra I (Accel) or higher, or concurrent enrollment in Algebra I (Accel) or higher  
 Engineering and Invention 1, Principles of Aeronautical Science or Division Chair approval

Use your mind and imagination to explore the worlds of engineering and invention. From bridge construction to life under water, this course will enhance your understanding of the concepts of brainstorming, design, engineering, load bearing and much more. Explore career fields such as environmental engineering, civil engineering, aerospace engineering, and others.

Have you ever wanted to design and engineer a toy? Perhaps a car? Such is the life of the inventor/engineer. Hands on activities are used to demonstrate many of the concepts in this course. Computer software demonstrates concepts that cannot be duplicated in the classroom. Strong problem solving skills and research are required in this class.

# FURNITURE MAKING

## Introduction to Furniture Making

Credit: 1/2 (cr/nc)                      Level: III or IV  
 Grade Offered: 9, 10                      Fall 75716  
    Spring 75717  
    11, 12                Fall 75711  
    Spring 75712

Prerequisite: None

This course has been designed to introduce the student to the safe operation of industrial machinery, power tools, and hand tools by making a custom piece of furniture. This course gives the student a basic understanding of how to use each of these items in order to make furniture. It will begin with an in-depth study of the machinery and power tools used in this industry with a major influence of how they work, and most importantly, how to use them in a safe and productive manner to produce furniture. Each student will then have an opportunity to custom-make a beginning level piece of furniture that he/she will bring home at the end of the semester. **Students will be responsible for lumber and hardware fees of \$63.00.**



# Have you ever considered a career in?

## Drafting Careers

Architect  
Building trades  
C.A.D. Operator

Drafts person  
Engineer  
Sales of manufactured products

## Courses

Architectural Drafting (CAD)  
CAD (Drafting)  
Engineering & Invention 1 & 2  
Technology Concepts

## Building Trades Careers

Carpenter  
Electrician  
Heating & air conditioning installer

Painter  
Plasterer/drywaller  
Plumber

## Courses

Furniture/Cabinet Making I & II  
Introduction to Furniture Making  
Home Maintenance and Repair

## Metalworking Careers

Computerized machine operator  
Machinist  
Mechanical & industrial engineer

Metal fabrication  
Sales of any manufactured product  
Tool and die maker

## Courses

Technology Concepts

## Transportation Careers

Aerospace electronics  
Auto mechanic  
Aviation electronics  
Aviation mechanic  
Brake specialist  
Commercial pilot  
Diagnostic technician  
Electrical specialist  
Engineers/technicians  
Front end specialist

Parts specialist  
Parts and service manager  
Sales  
Service manager  
Service station attendant  
Service writer  
Shop supervisor  
Small engine mechanic  
Transmission specialist  
Tune-up specialist

## Courses

Advanced Flight Training  
Auto Maintenance  
Automotive Technology  
Aviation  
Flight Training  
Small Engines/Power  
Technology Concepts

## Woodworking Careers

Building Construction  
Cabinetmaker  
Carpenter  
Form builder  
Millwright

Model maker  
Sales  
Sample body-maker  
Wood pattern-maker

## Courses

Furniture/Cabinet Making I & II  
Introduction to Furniture Making  
Home Maintenance and Repair  
Technology Concepts

# Applied Technology Classes

## Freshman Courses

### Annual

75845 Furniture / Cabinetmaking I

### Fall Only

75156 Aviation

75536 CAD (Drafting)

75546 Eng & Invention 1 CAD

75716 Intro. Furniture Making

76226 Small Engines /Power

74726 Technology Concepts Eng

### Spring Only

73127 Careers in Aviation

75537 CAD (Drafting)

75547 Eng & Invention 1 CAD

75717 Intro. Furniture Making

76227 Small Engines /Power

74727 Technology Concepts

## Sophomore Courses

### Annual

74215 Architectural Drafting

75845 Furniture / Cabinetmaking I

75855 Furniture / Cabinetmaking II

### Fall Only

75156 Aviation

75156 Principles of Aeronautical Science AS120

75536 CAD Drafting

75556 CAD EGR 120

75546 Eng & Invention 1

75716 Intro. Furniture Making

76226 Small Engines /Power

74726 Technology Concepts

### Spring Only

75157 Principles of Aeronautical Science AS120

73127 Careers in Aviation

75537 CAD Drafting

75557 CAD EGR 120

75547 Eng & Invention 1

75717 Intro. Furniture Making

76227 Small Engines /Power

74727 Technology Concepts

## Junior and Senior Courses

### Annual

73350 Private Pilot Operations

74210 Architectural CAD

75310 Auto Technology

75820 Furniture / Cabinetmaking I

75850 Furniture / Cabinetmaking II

74310 Industrial & Related Occupations I

74320 Industrial & Related Occupations II

74410 Work Exp IRO 1

74420 Work Exp IRO 2

### Fall Only

75156 Principles of Aeronautical Science AS120

73221 Intro Space & Flight SP110

75911 Auto Maintenance

75531 CAD Drafting

75541 Eng & Invention 1

76531 3-D CAD

75551 CAD EGR 120

76411 Engineering & Invention 2 EGR101

75711 Intro. Furniture Making

75221 Home Maintenance and Repair

76331 Air Cooled Engine Tech Repair

### Spring Only

75157 Principles of Aeronautical Science AS120

73222 Intro Space & Flight SP110

75912 Auto Maintenance

75532 CAD Drafting

75552 CAD EGR 120

75542 Eng & Invention 1

76532 3-D CAD

76412 Engineering & Invention 2

75712 Intro. Furniture Making

75222 Home Maintenance and Repair

76332 Air Cooled Engine Tech Repair