

# AGRICULTURE, FOOD & NATURAL RESOURCES

## A GUIDE TO PURSUING YOUR CAREER PATH


### AGRICULTURAL MECHANICS/ ELECTRICAL SYSTEMS >>>


Workers in the Agricultural Mechanics and Electrical Systems pathway install, connect, test, and maintain electrical systems for a variety of purposes including climate control, security, and communications. They also install and maintain the electronic controls for machines in business and industry.


Electricians work with blueprints when they install electrical systems in buildings and other structures. Blueprints indicate the locations of circuits, outlets, load centers, panel boards, and other equipment.

Electricians must follow the National Electric Code and comply with state and local building codes when they work. Some electricians receive formal training in professional/ technical schools and two-year colleges, where they learn the basics of electrical wiring. Electricians also learn and develop their skills on the job, receiving training from more experienced electricians. Licensing examinations are required in most states. Competition for workers is keen because of the scarcity of qualified people to fill electrician positions.

### HIGH SCHOOL PATHWAY CLASSES >>>

 **BASIC AGRICULTURAL SCIENCE** introduces the major areas of scientific agricultural production and research; presents problem solving lessons and introductory skills and knowledge in agricultural science and agri-related technologies. Classroom and laboratory activities are supplemented through supervised agricultural experiences and leadership programs and activities.

 **AG MECHANICS TECHNOLOGY I** is designed to provide students with introductory level experiences in selected major areas of agricultural mechanics technology which may include wood working, agricultural structures, electrical wiring, electric arc welding, oxy/fuel cutting and welding processes, and power equipment operation and maintenance. Learning activities include information, skill development and problem solving. Classroom and laboratory activities are supplemented through FFA supervised agricultural experiences, leadership programs and activities.

 **AG ELECTRICITY & ELECTRIC CONTROLS** is designed to provide students with introductory level experiences in selected major areas of agricultural mechanics technology associated with the design and installation of electric motor and non-motor load electrical circuits designed for use in agricultural structures, and agricultural industry applications. Topics covered include electrical terms and theory, branch and feeder circuit design and installation, service entrance equipment selection and installation, electric motors and motor controllers, switching devices including thermostats, proximity sensors, float switches, clock timers, relays, and similar devices. Learning activities include information, skill development and problem solving. Classroom and laboratory activities are supplemented through supervised agricultural experiences and leadership programs and activities.



### CAPSTONE: WBL INTERNSHIP >>>

**WBL (WORK-BASED LEARNING)** connects skilled, knowledgeable and driven students to local businesses every year. Students who participate in the AG, Food and Natural Resources program and have been selected to participate in WBL will leave school early to work with our fantastic business partners. Benefits to students include a chance to put skills learned in the classroom to use in an authentic setting, getting a competitive advantage on their career and networking with industry leading professionals all while still in high school. [www.hallcowbl.org](http://www.hallcowbl.org)



### CAREER TECH STUDENT ORGANIZATIONS >>>

**FFA:** Today, the National FFA Organization remains committed to the individual student, providing a path to achievement in premier leadership, personal growth and career success through agricultural education.

FFA continues to help the next generation rise up to meet those challenges by helping its members to develop their own unique talents and explore their interests in a broad range of agricultural career pathways. So today, we are still the Future Farmers of America. But, we are the Future Biologists, Future Chemists, Future Veterinarians, Future Engineers and Future Entrepreneurs of America, too.



### POTENTIAL CAREERS >>>

- Agricultural Engineer
- Electrical Engineering Tech
- Electrical Drafters
- Power Plant Operators
- Construction and Building Inspectors
- Home Appliance Repairers
- Electrical Power Line Installers and Repairers
- AG Science Teachers
- AG Equipment Operators
- Electric Motor, Power Tool, & Related Repairers
- Mechanics

# AGRICULTURAL MECHANICS/ELECTRICAL SYSTEMS

## CAREER PATHWAY - PLAN OF STUDY

### GRADUATION REQUIREMENTS

#### ENGLISH/LANGUAGE ARTS

4 Units *Must Include:*

9th Grade Literature & American Literature

#### SOCIAL STUDIES

3 Units *Must Include:*

World History, US History, Government & Economics

#### MATHEMATICS

4 Units *Must Include:*

GSE Algebra I, GSE Geometry & GSE Algebra II

+

one additional GSE/AP/IB/DE Math course

OR

GSE Accelerated Algebra I/Analytic Geometry A,

GSE Accelerated Geometry B/Algebra II, GSE Precalculus

+

one additional GSE/AP/IB/DE Math course

#### SCIENCE

4 Units *Must Include:*

Physical Science or Physics; Biology;

Chemistry, Earth Systems, Environmental Science or AP/IB course

+

one additional Science course

#### HEALTH & PERSONAL FITNESS

1 Unit *Must Include:*

1/2 unit of each

#### CAREER, TECHNICAL & AGRICULTURE EDUCATION (CTAE)

3 Units *Must include:*

Basic AG Science, Agricultural Mechanics Technology 1,  
Agricultural Metals Fabrication

#### ELECTIVES

4 Units

\*Students planning to attend most post-secondary institutions must take 2 units of the same modern language.

#### TOTAL UNITS REQUIRED

23 Units

### PERSONAL APTITUDES

#### ACTIVITIES THAT DESCRIBE WHAT I LIKE TO DO:

- Learn how things grow and stay alive.
- Make the best use of the Earth's natural resources.
- Hunt and or fish.
- Protect the environment.
- Be outdoors in all weather.
- Operate & maintain equipment & machinery.



#### PERSONAL QUALITIES THAT DESCRIBE ME:

- Self-reliant
- Nature lover
- Physically active
- Planner
- Creative problem solver

#### WANT MORE INFORMATION ON YOU?

YouScience is the science of YOU – how your mind is wired, what makes you tick, the skills and knowledge that set you apart. You have talent and there's a path that's right for you – we can help you find it.



Login to Infinite Campus and locate the SLDS Portal link on the left. Once logged in, click on "My Career Plan" then choose "Go to YouScience".

#### WHAT YOU LEARN IN SCHOOL MATTERS

You're learning skills and knowledge that can make you a qualified candidate for in-demand careers. Industry-recognized certifications, available to all pathway students, are great signals to employers that you have the skills they're looking for. Certifications help validate what you know, so other people know, that you know it.

#### QUESTIONS?

Contact your CTAE teacher, WBL Coordinator or School Counselor

### PATHWAY TO FUTURE CAREER OPTIONS

#### HIGH SCHOOL

##### Pathway Courses

Basic AG Science  
Agricultural Mechanics Technology 1  
Agricultural Electricity & Electric Controls

##### Capstone

WBL Internship  
Dual Enrollment

#### POST-SECONDARY

##### Technical College

Certificate  
Diploma Program  
Degree Program

##### 4 Year College/University

Bachelor Degree  
Masters Degree  
Graduate Studies