

**Resources for the 2018 Iowa FFA Agricultural Mechanics CDE**  
**Iowa State University**  
**AG 450 Farm**  
**June 7, 2018**

NOTE: This list is not exclusive to any other resources that you might find. An attempt was made to find as many resources and references as possible, especially those that are web-based. It is highly recommended that your team review the resources and information provided below.

**1) Electrical Systems: Electrical Wiring**

**Skill:**

Students will be expected to complete one of the switch diagrams posted on the Iowa FFA Agricultural Mechanics CDE webpage.

**Problem-solving:**

The problem-solving activities will be pulled from the following resources:

Hancock, J. P., Edgar, D. W., Pate, M. L., Dyer, L. A., & Hoover, W. B. (2017). *Agricultural mechanics and technology systems*. Tinley Park, IL: The Goodheart-Willcox Company, Inc.

Herren, R. V. (2015). *Agricultural mechanics: Fundamentals and applications* (7th ed.). Stamford, CT: Cengage Learning.

Koel, L., Mazur, G. A., Moniz, B. J., & Radcliff, R. B. (2013). *Agricultural technical systems and mechanics*. Orland Park, IL: American Technical Publishers.

**2) Environmental and Natural Resource Systems: Land Measurement**

**Skill:**

Students will be expected to use measurement tools and methods to lay out an area for a building.

**Problem-solving:**

The problem-solving activities will focus on land measurement (including surveying) and will be pulled from the following resources:

Hancock, J. P., Edgar, D. W., Pate, M. L., Dyer, L. A., & Hoover, W. B. (2017). *Agricultural mechanics and technology systems*. Tinley Park, IL: The Goodheart-Willcox Company, Inc.

Herren, R. V. (2015). *Agricultural mechanics: Fundamentals and applications* (7th ed.). Stamford, CT: Cengage Learning.

Koel, L., Mazur, G. A., Moniz, B. J., & Radcliff, R. B. (2013). *Agricultural technical systems and mechanics*. Orland Park, IL: American Technical Publishers.

### **3) Structural Systems: Carpentry**

#### **Skill:**

Students will be expected to use measuring tools and cordless power tools. For reference, the following website may be helpful:

<http://www.doityourself.com/scat/handtools>

#### **Problem-solving:**

The problem-solving activities will be pulled from the following resource:

Hancock, J. P., Edgar, D. W., Pate, M. L., Dyer, L. A., & Hoover, W. B. (2017). *Agricultural mechanics and technology systems*. Tinley Park, IL: The Goodheart-Willcox Company, Inc.

Herren, R. V. (2015). *Agricultural mechanics: Fundamentals and applications* (7th ed.). Stamford, CT: Cengage Learning.

Koel, L., Mazur, G. A., Moniz, B. J., & Radcliff, R. B. (2013). *Agricultural technical systems and mechanics*. Orland Park, IL: American Technical Publishers.

### **4) Machinery and Equipment Systems: Tractor Systems**

#### **Skill:**

Students will be expected to identify and resolve mechanical issue(s) within a tractor.

#### **Problem-solving:**

The problem-solving activities will be pulled from the following resources:

Hancock, J. P., Edgar, D. W., Pate, M. L., Dyer, L. A., & Hoover, W. B. (2017). *Agricultural mechanics and technology systems*. Tinley Park, IL: The Goodheart-Willcox Company, Inc.

Herren, R. V. (2015). *Agricultural mechanics: Fundamentals and applications* (7th ed.). Stamford, CT: Cengage Learning.

Koel, L., Mazur, G. A., Moniz, B. J., & Radcliff, R. B. (2013). *Agricultural technical systems and mechanics*. Orland Park, IL: American Technical Publishers.

## **5) Metals and Welding: Gas Metal Arc Welding / MIG Welding**

### **Skill:**

Students will be expected to lay out and perform a series of butt, lap, or tee joints in the flat, vertical, or horizontal position using .030, .035, or .045 wire.

### **Problem-solving:**

The problem-solving activities will be pulled from the following resources:

Gosse, J. (2010). *Welding skills* (4<sup>th</sup> ed.). Orland Park, IL: American Technical Publishers.

Hancock, J. P., Edgar, D. W., Pate, M. L., Dyer, L. A., & Hoover, W. B. (2017). *Agricultural mechanics and technology systems*. Tinley Park, IL: The Goodheart-Willcox Company, Inc.

Herren, R. V. (2015). *Agricultural mechanics: Fundamentals and applications* (7th ed.). Stamford, CT: Cengage Learning.

Jeffus, L. (2008). *Welding principles and applications* (6<sup>th</sup> ed.). Clifton Park, NY: Thomson Delmar Learning.

Koel, L., Mazur, G. A., Moniz, B. J., & Radcliff, R. B. (2013). *Agricultural technical systems and mechanics*. Orland Park, IL: American Technical Publishers.

*NOTE: Instructors can order free desk copies of ALL of the textbooks listed as resources, with the exception of the "Wiring Handbook for Rural Facilities".*