

Resources for the 2019 Iowa FFA Agricultural Mechanics CDE
Iowa State University
AG 450 Farm
June 20, 2019

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 - Outlets

Skill:

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

Problem-solving:

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

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: Soil and Water Management

Skill:

Students will be expected to use surveying equipment to determine height, slope, and / or distances at a given work site.

Problem-solving:

The problem-solving activities will focus on soil and water management (including surveying) and will be pulled from the following resource(s):

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: Plumbing

Skill:

Students will be expected to use measuring tools, assorted hand and / or power tools, and glue and primer to cut and fit PVC pipe.

Problem-solving:

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

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: Small Engines

Skill:

Students will be expected to identify, remove, inspect, and / or service small gas engine parts. The students will also need to be able to read and locate information regarding engine codes, part numbers, and / or engine specifications within a small gas engine owner's or service manual. The manuals for the engine(s) that the students will be working on will be posted on the Iowa FFA Agricultural Mechanics CDE webpage.

Problem-solving:

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

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: Shielded Metal Arc Welding (SMAW) / Arc Welding

Skill:

Students will be expected to lay out and perform a butt joint, lap joint, and / or a tee joint in the flat, vertical, or horizontal position using an E6011, E6013, or E7018 welding electrode.

Problem-solving:

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

Gosse, J. (2010). *Welding skills* (4th 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* (6th 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”.