

## SYLLABUS

<b>LAST REVIEW</b>	Spring 2021
<b>COURSE TITLE</b>	Basic Household Appliance Repair and Maintenance
<b>COURSE NUMBER</b>	BEMT 0221
<b>DIVISION</b>	Career and Technical Education
<b>DEPARTMENT</b>	BEMT
<b>CIP CODE</b>	46.0401
<b>CREDIT HOURS</b>	3
<b>CONTACT HOURS/WEEK</b>	Class: 1          Lab: 4
<b>PREREQUISITES</b>	None
<b>COREQUISITES</b>	None

### **COURSE DESCRIPTION**

This is a basic course that will require the student to complete basic repairs and perform standard maintenance on basic household appliances. Students will diagnose and service gas and electric hot water tanks, clothes dryers, clothes washers, dishwashers, refrigerators, and garbage disposals.

### **PROGRAM ALIGNMENT**

This course is part of a program aligned through the Kansas Board of Regents and Technical Education Authority. For more information, please visit:

[https://kansasregents.org/workforce\\_development/program-alignment](https://kansasregents.org/workforce_development/program-alignment)

### **PROGRAM LEARNING OUTCOMES**

Students will demonstrate an adherence to safety standards and proficiency in the installation or repair of residential electrical, plumbing, HVAC, exterior building materials, roofing, irrigation systems, landscape/hardscape, concrete placement and finish, masonry install and repair.

### **TEXTBOOKS**

<http://kckccbookstore.com/>

### **METHOD OF INSTRUCTION**

A variety of instructional methods may be used depending on content area. These include but are not limited to lecture, multimedia, cooperative/collaborative learning, labs and demonstrations, projects and presentations, speeches, debates, panels, conferencing, performances, and learning experiences outside the classroom. Methodology will be selected to best meet student needs.

## **COURSE OUTLINE**

- I. Gas and Electric Hot Water Heaters/Tanks
  - A. Gas hot water tanks
    - i. Check area and piping for leaks, shut off gas and repair if necessary
    - ii. Check flu exhaust for proper connections and sealing, repair if necessary
    - iii. Inspect and diagnose if thermal expansion tank is installed or necessary
    - iv. Inspect and diagnose thermocouple operation
    - v. Inspect and diagnose thermostat operation
    - vi. Inspect and check operation of "A" ball valve
    - vii. Inspect or install of gas line sediment trap
    - viii. Inspect or install of dielectric unions at water inlet and discharge ports
    - ix. Inspect or replace the temperature and pressure relief valve
    - x. Inspect and ensure the tank is elevated and level
    - xi. Inspect and or install TPRV discharge line is installed and to code compliance
    - xii. Replace anode rod every 4 years
    - xiii. Clean burner area, brush off any hard water deposits, and clean tank exterior
    - xiv. Flush and rinse the tank annually
    - xv. Clean and clear any debris on air exhaust intake
    - xvi. Inspect or install cold water shut off valve within normal reach from floor.
    - xvii. Install thermal expansion tank if needed
  - B. Electric hot water tanks
    - i. Check all and piping for water leaks, and turn off the power if necessary
    - ii. Inspect that all wire gauges and breakers are to proper calculations
    - iii. Inspect all conduit and disconnects are properly installed and operational
    - iv. Inspect and diagnose if thermal expansion tank is installed or necessary
    - v. Inspect or install dielectric unions at water inlet and discharge ports
    - vi. Inspect or install rigid pipe 18" from top of tank
    - vii. Inspect or install cold water shut off valve within normal reach from floor
    - viii. Inspect or replace the temperature and pressure relief valve
    - ix. Check the tank for elevation and level
    - x. Inspect or install TPRV discharge line is installed and to code compliance
    - xi. Replace anode rod every 4 years

- xii. Flush and rinse the tank annually
  - xiii. Drain tank, and fully inspect bottom and top heating elements and thermostats
  - xiv. Inspect thermostat and heating element wiring and connections
  - xv. Install bottom and top heating elements and thermostats
  - xvi. Clean tank external, brush off any hard water or rust spots, wipe tank clean
  - xvii. Turn water on and fill tank, turn power on and check full operation
- II. Clothes washing machine
- A. Shut off power, unplug cord, and Inspect water line connections
  - B. Remove and clean water inlet screens
  - C. Clean and or clear laundry standpipe and trap. Inspect P-trap and standpipe
  - D. Understand and acknowledge laundry standpipe and trap location and sizing
  - E. Remove and inspect receptacle and appliance cord. Insure there is a ground prong
  - F. Remove and clean washing machine agitator
- III. Clothes dryer maintenance
- A. Shut off power, unplug cord, and remove back panel.
  - B. Inspect, test, or replace heating element.
  - C. Inspect and clear entire lint system including trap, fan, belt, and pully.
  - D. Inspect dryer receptacle and cord.
  - E. Inspect wire gauge and breaker amperage for proper calculations and sizing.
  - F. Install back panel, plug appliance cord to receptacle, and turn power on.
- III. Dishwasher maintenance
- A. Inspect water line, shut off valve, and water inlet valve.
  - B. Inspect drain line, door switch, drain pump.
  - C. Inspect and Clear drain manifold on dishwasher.
  - D. Inspect receptacle and replace if necessary.
  - E. Inspect appliance cord and ground prong, replace if necessary.
- IV. Refrigerator maintenance
- A. Inspect water line and shut off valve
  - B. Inspect receptacle and replace if necessary
  - C. Tests defrost timer, heater element, and defrost thermostat
  - D. Inspect door seals
- V. Garbage disposal cleaning and Maintenance
- A. Inspect receptacle and replace if necessary
  - B. Inspect switch operation, mount seal, drain seal, discharge seal
  - C. Inspect appliance cord, cutting heads, and lube cutting assembly

### **COURSE LEARNING OUTCOMES**

Upon successful completion of this course, the student will:

- A. Perform basic repair and maintenance on a gas or electric hot water heater/tank.
- B. Perform basic repair and maintenance on clothes washing machine.
- C. Perform basic repair and maintenance on a clothes dryer.
- D. Perform basic repair and maintenance on a dishwasher.
- E. Perform basic repair and maintenance on a refrigerator.
- F. Perform technical repair and maintenance on a garbage disposal.

### **ASSESSMENT OF COURSE LEARNING OUTCOMES AND COMPETENCIES**

Student progress is evaluated through both formative and summative assessment methods. Specific details may be found in the instructor's course information document.

### **COLLEGE POLICIES AND PROCEDURES**

*Student Handbook*

<https://www.kckcc.edu/files/docs/student-resources/student-handbook-and-code-of-conduct.pdf>

*College Catalog*

<https://www.kckcc.edu/academics/catalog/index.html>

*College Policies and Statements*

<https://www.kckcc.edu/about/policies-statements/index.html>

*Accessibility and Accommodations*

<https://www.kckcc.edu/academics/resources/student-accessibility-support-services/index.html>.