# 11/8/2020

# brcc keystone logo

Baton Rouge Community College

*Academic Affairs Master Syllabus*

Date Approved: 3 September 2020

Term and Year of Implementation: Spring 2021

**Course Title:** Millwright Level 1

**BRCC Course Rubric:** MILL 1119

**Previous Course Rubric**: MILL 1113 and MILL 1123

**Lecture Hours per week-Lab Hours per week-Credit Hours**: 3-12-9

**Per semester: Lecture Hours-Lab Hours-Instructional Contact Hours**: 45-180-225

**Louisiana Common Course Number:**

**CIP Code:** 47.0303

**Course Description:** Covers the National Center for Construction Education and Research (NCCER) Millwright Level 1 Modules 1 – 6. Successful completion of this course requires passing the NCCER Level 1 Modules 1 – 6 Exams with a 70% or higher. This course requires lab and exam fees.

**Prerequisites:**  CORE 1003

**Co-requisites:** None

**Suggested Enrollment Cap:** 20

**Learning Outcomes.** *Upon successful completion of this course, the students will be able to:*

1. Explain the responsibilities of a millwright and the importance of safety in the trade.

2. Demonstrate the proper use of tools commonly used by millwrights.

3. Install fasteners and anchors properly.

4. Demonstrate the setup, ignition, adjustment, and shutdown of oxyfuel equipment.

5. Use oxyfuel equipment to cut a shape from thick steel, to perform washing, and to perform a pressure drop test.

**Assessment Measures.** Assessment of all learning outcomes will be measured using the following methods:

1. Practical demonstrations and skills performances

2. Quizzes and tests

3. NCCER Millwright Level 1 Modules 1 – 6 Exams

**Information to be included on the Instructor’s Course Syllabi:**

* ***Disability Statement*:** Baton Rouge Community College seeks to meet the needs of its students in many ways. See the Office of Disability Services to receive suggestions for disability statements that should be included in each syllabus.
* ***Grading:*** The College grading policy should be included in the course syllabus. Any special practices should also go here. This should include the instructor’s and/or the department’s policy for make-up work. For example in a speech course, “Speeches not given on due date will receive no grade higher than a sixty” or “Make-up work will not be accepted after the last day of class”.
* ***Attendance Policy*:** Include the overall attendance policy of the college. Instructors may want to add additional information in individual syllabi to meet the needs of their courses.
* ***General Policies*:** Instructors’ policy on the use of things such as beepers and cell phones and/or hand held programmable calculators should be covered in this section.
* ***Cheating and Plagiarism*:** This must be included in all syllabi and should include the penalties for incidents in a given class. Students should have a clear idea of what constitutes cheating in a given course.
* ***Safety Concerns:*** In some courses, this may be a major issue. For example, “No student will be allowed in the lab without safety glasses”. General statements such as, “Items that may be harmful to one’s self or others should not be brought to class”.
* ***Library/ Learning Resources:*** Since the development of the total person is part of our mission, assignments in the library and/or the Learning Resources Center should be included to assist students in enhancing skills and in using resources. Students should be encouraged to use the library for reading enjoyment as part of lifelong learning.

**Expanded Course Outline:**

I. Orientation to the Trade

A. Orientation to the Trade

a. History of the Millwright Trade

b. Coordinating with the Construction Industry

c. Millwright Career Paths

d. Responsibility of the Employee

B. Professional Relations and Tools

a. Human Relations

b. Employer and Employee Safety Obligations

c. Tools

II. Millwright Hand Tools

A. Safety, Maintenance, Wrenches, and Other Tools

a. Hand Tools Safety

b. Use and Care of Tools

c. Wrenches

d. Taper Gauges

B. Cutting and Other Tools

a. Pipe and Tubing Cutters

b. Honing Stones

c. Putty Knives/Scrapers

d. Drift Pins

e. Mallets

f. Diagonal Cutters

g. Tin Snips

h. Tips and Dies

i. Thread Gauges

j. Scribers

C. Equipment Disassembly and Other Tools

a. Tension Meters

b. Sheave Gauges

c. Cylinder Hones

d. Gear Puller

e. Packing Pullers

f. Reamers

g. Inspection Mirrors

h. Retaining Ring Pliers

D. Extractors and Other Tools

a. Spiral Screw Extractors

b. Tap Extractors

c. Feeler Gauges

d. Alignment Bars

e. Sleeve Bars

III. Fasteners and Anchors

A. Threaded Fasteners

a. Thread Standards

b. Bolt and Screw Types

c. Nuts

d. Washers

e. Installing Threaded Fasteners

B. Non-Threaded Fasteners

a. Retainer Fasteners

b. Keys

c. Pin Fasteners

d. Blind/Pop Rivets

C. Anchors and Other Fastening Mechanisms

a. Eye Bolts and Inserts

b. Mechanical Anchors

c. Epoxy Anchoring Systems

IV. Basic Layout

A. Layout Tools

a. Introduction to Layout

b. Identification of Layout Tools

B. Laying Out Base Lines

a. Arc Method

b. 3-4-5 Method

C. Scribing Straight Lines and Perpendicular Lines

a. Scribing Straight Lines

b. Scribing Perpendicular Lines to a Base Line Using a Square

c. Scribing Perpendicular Lines to an Edge Using a Combination Square

D. Scribing Angled Lines and Circles Using Squares, Protractors, and Dividers

a. Scribing Angled Lines Using a Combination Square

b. Scribing Angled Lines Using a Protractor

c. Scribing Circles and Arcs Using a Divider

E. Scribing Circles and Perpendicular Lines Using Trammel Points and Dividers

a. Scribing Circles and Arcs Using Trammel Points

b. Scribing Perpendicular Lines From Base Lines Using a Divider

c. Scribing Perpendicular Lines From a Reference Point Using a Divider

F. Bisecting Angles, Dividing Lines, and Dividing Circles Using Dividers

a. Bisecting Angles Using a Divider

b. Dividing Lines Into Equal Parts Using a Divider

c. Dividing Circles Into Equal Parts Using a Divider

G. Locating Equipment

a. Laying Out Equipment Locations

V. Gaskets and O-Rings

A. Gaskets and Gasket Materials

a. Types of Gaskets

b. Gasket Materials

B. Fabricating Gaskets

a. Laying Out a Gasket

b. Tracing a Gasket

c. Machine Gaskets

C. Installing Gaskets and O-Rings

a. Installing Gaskets

b. O-Rings

VI. Oxyfuel Cutting

A. Safety and Oxyfuel Cutting Equipment

a. Oxyfuel Cutting Safety

b. Oxyfuel Cutting Equipment

1. Cylinders, Regulators, and Hoses

2. Cutting Torch, Tips, and Tip Equipment

3. Friction Lighters

4. Cylinder Cart

5. Soapstone Markers

6. Specialized Equipment

B. Setting Up Oxyfuel Equipment

a. Cylinders

b. Hoses and Regulators

c. Torches and Tips

d. Purging and Testing

C. Torch Operations

a. Controlling the Oxyfuel Torch Flame

b. Shutting Down Oxyfuel Equipment

c. Disassembling Oxyfuel Equipment

d. Changing Empty Cylinders

D. Performing Cutting Operations

a. Performing Cutting Procedures

b. Portable Oxyfuel Cutting Machine Operation