# 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 3 Part 1

**BRCC Course Rubric:** MILL 1316

**Previous Course Rubric**: MILL 1313 and MILL 1323

**Lecture Hours per week-Lab Hours per week-Credit Hours**: 2-8-6

**Per semester: Lecture Hours-Lab Hours-Instructional Contact Hours**: 30-120-150

**Louisiana Common Course Number:**

**CIP Code:** 47.0303

**Course Description:** Covers the National Center for Construction Education and Research (NCCER) Millwright Level 3 Modules 1 – 7. Successful completion of this course requires passing the NCCER Level 3 Modules 1 – 7 Exams with a 70% or higher. This course requires an exam fee.

**Prerequisites:**  MILL 1226

**Co-requisites:** None

**Suggested Enrollment Cap:** 20

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

1. Use table of equivalents and unit conversion tables to convert from one unit to another.

2. Calculate weights of objects and unknown parts of triangles using trigonometry.

3. Explain the different types of packing and packing materials and how to remove and install packing.

4. Explain the types of seals and seal materials, types of bearings, and types of couplings and mounting systems.

5. Demonstrate the removal, inspection, and installation of mechanical and other types of seals.

**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 3 Modules 1 – 7 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. Advanced Trade Math

A. Tables of Equivalents

B. Unit Conversion Tables

C. Trigonometry

a. Basic Trigonometry

b. Pythagorean Theorem

c. Trigonometric Functions

d. Triangle Calculation

e. Determining the Angles when Side Lengths are Known

f. Interpolation

g. Law of Sines

D. Calculating the Weight of an Object

II. Precision Measuring Tools

A. Levels

B. Calipers

C. Micrometers

D. Dial Indicators

E. Universal Bevel Protractors

F. Gauge Blocks

G. Speed Measurement Tools

H. Pyrometers

III. Installing Packing

A. Packing Configurations

B. Packing Materials

C. Removing Packing

D. Installing Packing

I. Installing Seals

A. Types of Seals

B. Seal Materials

C. Removing and Installing Seals

IV. Installing Mechanical Seals

A. Basic Design

B. Mechanical Seal Classifications

a. Classifying Mechanical Seals by Arrangement

b. Classifying Mechanical Seals by Design

C. Replacing Mechanical Seals

a. Removing Mechanical Seals

b. Inspecting Mechanical Seals

c. Installing Mechanical Seals

V. Removing and Installing Bearings

A. Removing Bearings

a. Removing Bearings

b. Removal Methods

B. Troubleshooting Antifriction Bearings

a. Troubleshooting Antifriction Bearings

b. Types of Failures

C. Installing Bearings

a. Installing Tapered Roller Bearings

b. Installing Thrust Bearings

c. Installing Spherical Roller Bearings

VI. Couplings

A. Rigid Couplings

a. Flanged Couplings

b. Sleeve Couplings

c. Clamp Couplings

B. Flexible Couplings

a. Mechanical Flexible Couplings

b. Material Flexible Couplings

C. Soft-Start Couplings

a. Soft-Start Couplings

b. Fluid Couplings

c. Shot Couplings

d. Clutch-Style Couplings

D. Installing Couplings

a. Installing Couplings

b. General Coupling Installation Procedures

c. Split Coupling Installation

d. Interference-Fit Installation

e. Setting the Coupling Gap

f. Grid Coupling Installation

g. Installing Hydraulic Couplings

E. Removing Couplings

a. Removing Couplings

b. General Coupling Removal Procedures

c. Mechanical Pullers

d. Hydraulic Removal Method