

Northwest Arkansas Community College
(Workforce Division)

Discipline Code

BIKE

Course Number

2013

Course Title

Bicycle Wheel Repair and Assembly

Catalog Description

This course covers the critical bicycle wheel system. Students will learn the theory and implementation of the wire spoke wheel. Evaluation, repair, and new wheel construction will be covered. Students will discuss the component selection process and demonstrate the assembly of wheels from scratch.

Prerequisites

Successful completion of all BIKE 1000 level courses with a grade of D or better. Enrolled in all BIKE 2000 level courses. BIKE 2013, 2023, 2033, 2043 advised as co-requisites.

Credit Hours

3 credit hours

Contact hours

45 lecture/ lab contact hours

Load hours

3 load hours

Semesters Offered

Fall, Spring & Summer

ACTS Equivalent

N/A

Grade Mode

A-F

Learning Outcomes

Students completing this course will:

- Describe static and dynamic forces in a wire spoked wheel.
- Demonstrate how to adjust spoke tension to repair wheels.
- Select and install new spokes into a complete, damaged wheel.
- Demonstrate ability to lace and tension a new wheel from parts.

General Education Outcomes Supported

- Students develop higher order thinking skills.
- Students can write clear, coherent, well-organized documents, substantially free of errors.
- Students develop effective oral communication skills.
- Students can achieve mathematical literacy.
- Students demonstrate information literacy.

BIEA (Bicycle Industry Employers' Association) Program Outcomes Supported

- Student will demonstrate ability to assemble and repair all types of bicycles currently in use.
- Apply foundational skills and knowledge to continuing professional development in response to changes in bicycle technology.
- Apply knowledge of systems and measures to find solutions to novel repair situations.
- Student is able to provide solutions that balance business, customer, and professional goals.
- Demonstrate ethical conduct in all job and personal cycling activities that maintains an image appropriate for the profession.

Standard Practices

Topics list

- Spoked Wheel Theory
- Wheel Truing and Repair
- Wheel Building

Learning activities

- Courses must, at a minimum, cover the core learning outcomes for each topic. Faculty may add to these outcomes but may not omit any of them.
- Laboratory exercises should average between 2-3 hours each week and include all applicable elements of the Barnett's Bicycle Industry Manual modules for the lesson and outcome for assessment.
- Lab safety and equipment orientation and enforcement of safety protocols is the responsibility of each faculty. A standard lab safety PowerPoint will be provided to faculty for training. Scoring 100% on a mandatory department-provided lab safety quiz is required before students may participate in lab.
- Since all general education outcomes are supported by specific course and program outcomes, all instructors should include learning activities that develop these outcomes in their courses and identify them in course syllabi. Instructors should describe how these activities will be evaluated in their course syllabi and/or reflected in their gradebooks.

Assessments

Written exams, quizzes, and class assignments; class participation; lab-based performance profiles and competency-based demonstration of mastery, and digital work including, but not limited to, group work, discussion, and projects done in virtual environment and/or college's LMS.

Grading guidelines

- 80% of students will score 'Satisfactory' or higher on a rubric scoring essays describing wheel theory.
- 80% of students will score 'Satisfactory' or higher on rubric concerning physical demonstration of wheel repair and straightening.
- 80% of students will score 'Satisfactory' or higher on rubric concerning calculation and replacement of spokes.
- 80% of students will score 'Satisfactory' or higher on rubric concerning physical demonstration of assembly and tensioning of a wheel.

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