

Northwest Arkansas Community College

(Workforce Division)

Discipline Code

BIKE

Course Number

1043

Course Title

Ball Bearing Systems

Catalog Description

This course covers assemblies that use bearings as a means of rotation. Students will learn to diagnose, adjust, and repair all major bearing systems on a bicycle.

Prerequisites

None. Enrolled in all BIKE 1000 level courses. BIKE 1003, 1013, 1023, 1033, 1043 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:

- Apply skills and outside resources to identify, select, and install headset cups and bearings.
- Choose correct bottom bracket types based on measurements and database of standards.

- Rebuild hub bearing systems applying critical observations on conditions and functions of components.
- Press and remove bearings and bearing carriers in various configurations.
- Competently mount and dismount common pedal systems.

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.

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 develop information literacy.

Standard Practices

Topics

- Headsets and Cartridge Bearings
- Wheel Hubs and Loose Ball/Caged Bearings
- Bottom Brackets and Industry Standards
- Pedals
- Bearing Presses and Pullers

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

- Students will score 80% 'Satisfactory' or higher on rubric concerning physical demonstration of headset installations.
- Students will score 80% 'Satisfactory' or higher correctly identify 75% or more of example bottom brackets and standards on an exam.
- Students will score 80% 'Satisfactory' or higher on rubric concerning physical demonstration of wheel hub overhauls.