

Northwest Arkansas Community College
(Workforce Division)

Discipline Code

BIKE

Course Number

2033

Course Title

Electric Bicycles

Catalog Description

This course covers electrically assisted bicycles and their additional specific components. Students will become familiar with electric bicycle technologies including the current designs. Students will have hands on experiences in riding and repairing specific components, while drawing on already gained knowledge in all aspects of bicycle repair.

Prerequisites

Successful completion of all BIKE 1000 level courses with a 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 contact hours; 45 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 federally defined e-bike classes.
- Describe different e-bike motor and battery configurations and their differentiation.
- Use factory diagnostic tools to update, configure, and diagnose e-bike issues.
- Assemble, configure and deliver a ready-to-ride Electric Bicycle.

General Education Outcomes Supported

- Students develop higher order thinking skills..
- Students develop effective oral communication skills.
- 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

- History and usage of electric bicycles.
- Electric bicycle defined classes.
- Motor and Battery types and configurations.
- Basic electrical circuit knowledge
- Special safety concerns when working with electric bicycles
- Troubleshooting special electric bicycle issues.

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 electric bike classes.
- 80% of students will score 'Satisfactory' or higher on a rubric scoring essays on motor/battery configurations.
- 80% of students will score 'Satisfactory' or higher on rubric concerning physical demonstration of computer/bike interfaces.
- 80% of students will score 'Satisfactory' or higher on rubric concerning physical demonstration of electric bike processes.

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