Bicycle Maintenance

Course Design

2000-2001

Course Information

Organization:	Eastern Arizona College
Division:	Industrial Technology Education
Course Number:	TEC114
Title:	Bicycle Maintenance
Credits:	1
Developed by:	John Lake
Lecture/Lab Ratio:	0 Lecture/2 Lab
Transfer Status:	Non-transferable to ASU, UofA, and NAU
Extended Registration Class:	No
CIP Code:	21.0101
Assessment Mode:	PP Test 10Q/20Pts
Semester Taught:	On Request
Gen. Ed. Area:	None
Separate Lab:	No
Awareness Course:	No
Intensive Writing Course:	No
Prerequisites:	1. Minimum age of 16
Educational Value:	For students who wish to gain a better understanding of bicycle maintenance to enhance trail rides.
Goals:	1. Learn to repair, maintain, and adjust road and mountain bikes.
Description:	The objective of this course is to teach students to repair and maintain bicycles.
Textbooks:	Bob Henderson. *The Haynes Bicycle Book.* Haynes Publishing Group, 1995.
Supplies:	Mountain bike Repair Kit

Competencies and Performance Standards

1. Perform routine bike maintenance.

***Domain**--Cognitive* ***Level**--Application* ***Importance**--Essential* ***Difficulty**--Medium*

Criteria--Performance will be satisfactory when:	**Conditions--**Competence will be demonstrated:	**Learning Objectives:**
• learner will complete pre-ride inspection. • learner will complete post-ride cleaning and lubrication.	• successful completion of skills test.	a. Acquire the necessary knowledge and skills to perform routine bike maintenance.

2. Troubleshoot bicycle component failures.

***Domain**--Cognitive* ***Level**--Application* ***Importance**--Essential* ***Difficulty**--Medium*

Criteria--Performance will be satisfactory when:	**Conditions--**Competence will be demonstrated:	**Learning Objectives:**
• learner can troubleshoot general riding problems. • learner can troubleshoot system or component failures.	• successful completion of skills test.	a. Resolve system or component group problems.

3. Assemble and disassemble bike parts.

***Domain**--Affective* ***Level**--Responding* ***Importance**--Essential* ***Difficulty**--High*

Criteria--Performance will be satisfactory when:	**Conditions--**Competence will be demonstrated:	**Learning Objectives:**
• learner can assemble and dissemble wheels, tires, and hubs. • learner can assemble and dissemble crankset and pedals.	• successful completion of skills test.	a. Assemble and dissemble bike components.

4. Demonstrate the proper way to repair, replace, and adjust every part of the modern bicycle.

***Domain**--Psychomotor* ***Level**--* ***Importance**--Essential* ***Difficulty**--High*

Criteria--Performance will be satisfactory when:	**Conditions--**Competence will be demonstrated:	**Learning Objectives:**
• learner can replace cables, shifters, and derailluers. • learner can replace chain and sprockets. • learner can replace crankset, pedals, and brakes. • learner can replace steering components. • learner replace wheels, tires, and hubs.	• successful completion of skills test.	a. Acquire the neccessary knowledge and skill to repair, replace, and adjust every part of the modern bicycle.

5. Adjust bike to fit rider's body.		
***Domain**--Affective* ***Level**--Responding* ***Importance**--Essential* ***Difficulty**--Medium*		
Criteria--Performance will be satisfactory when: • learner will learn how to choose a frame size appropriate for their body. • learner will learn how to adjust seat position to minimize body stress. • learner will learn how to adjust handlebar position and brakes. • learner will learn to adjust pedals to minimize body stress.	**Conditions--**Competence will be demonstrated: • successful completion of skills test.	**Learning Objectives:** a. Adjust a bike to fit the rider's individual body type.

Types of Instruction

Classroom Presentation
Simulated or Actual Work Experience

Grading Policy

Evaluation Methods:

Pre Tests = 0%
Tests = 40%
Weekly Quiz = 20%
Attendance = 20%
Post Test = 20%

Type and Number of Quizzes: A pre-test assessment and a post test evaluation are required.

Evaluation is determined on class participation as well as other exams given based on topics covered. This must include a post test. Students who do no take the post test will have their grade dropped by one letter grade.

Grading Scale:

Grade	Requirement
P	70% - 100%
F	Below 70%

Learning Plans

Learning Plan 1-- Learning Plan 1

Overview: The learner will perform the proper steps for routine bike maintenance.

Competency: **1. Perform routine bike maintenance.**

Learning Activities:

_____**1.** PERFORM routine maintenance on a road or mountain bike.

_____**2.** TAKE notes on cleaning and lubrication.

_____**3.** FOLLOW directions to complete a pre and post ride inspection.

Performance Assessment Activities:

_____**1.** Demonstrate routine bike maintenance procedures.

_____**2.** Participate in class discussions.

Learning Plan 2-- Learning Plan 2

Overview: The learner will troubleshoot bicycle component failures.

Competency: **2. Troubleshoot bicycle component failures.**

Learning Activities:

_____**1.** FOLLOW directions to troubleshoot general riding problems.

_____**2.** FOLLOW directions to troubleshoot system or component failures.

Performance Assessment Activities:

_____**1.** Demonstrate how to fix a loose hub bearing.

_____**2.** Demonstrate how to tighten valve stem cores.

Learning Plan 3-- Learning Plan 3

Overview: Learner can assemble wheels, tires, and hubs and dissemble the crankset and pedals.

Competency: **3. Assemble and disassemble bike parts.**

Learning Activities:

_____**1.** CHANGE a tire.

_____**2.** REPLACE a chain.

_____**3.** LUBRICATE a hub.

_____**4.** DISASSEMBLE crankset and pedals.

Performance Assessment Activities:

_____**1.** Demonstrate assembling and disassembling various bike components.

_____**2.** Participate in class discussions.

Learning Plan 4-- Learning Plan 4

Overview: Learner can demonstrate the proper way to repair, replace, and adjust every part of the modern bicycle.

Competency: **4. Demonstrate the proper way to repair, replace, and adjust every part of the modern bicycle.**

Learning Activities:

_____**1.** Repair a worn brake.

_____**2.** Replace a worn cable.

Performance Assessment Activities:

_____**1.** Demonstrate how to repair or replace worn parts.

_____**2.** Participate in class discussions.

Learning Plan 5-- Learning Plan 5

Overview: The learner can adjust a bike to their body type.

Competency: **5. Adjust bike to fit rider's body.**

Learning Activities:

_____**1.** ADJUST seat position to minimize body stress.

_____**2.** ADJUST handlebar and brakes to rider's size.

_____**3.** ADJUST pedals to minimize body stress.

Performance Assessment Activities:

_____**1.** Demonstrate how to adjust bike to minimize body stress.

_____**2.** Participate in class discussions.