

Prepared by the Department of Natural Sciences and Life Fitness  
Date of Departmental Approval: February 5, 2007  
Date Approved by Curriculum and Programs: November 14, 2007

Effective: Fall 2007

**1. Course Number: HOR105**

**Course Title: Equipment Maintenance and Operation**

**2. Description:** Introduction and training in the repair, maintenance and safe operation of golf course and landscaping equipment. Maintenance and trouble-shooting procedures of small and large gasoline and diesel engines and basic welding will be emphasized. Students will learn the techniques of mowing a golf green and will be instructed in the operation of a frontend loader tractor. Methods and maintenance of irrigation systems will also be included.

**3. Student Learning Outcomes: (instructional objectives; intellectual skills):**

Upon successful completion of this course, students are able to do the following:

- Identify the basic components of small engines.
- Identify the types and operating procedures for a variety of mowers.
- List the required maintenance procedures of a variety of mowers
- Demonstrate daily maintenance of two and four cycle engines.
- Demonstrate the safe and proper use of the gas powered string trimmer.
- Define irrigation terms.
- Compare and contrast irrigation systems.
- Install and maintain sprinkler heads.
- Safely operate and maintain chainsaws.
- Sharpen and replace mower blades.
- Explain the basic principles of welding.
- Demonstrate the daily maintenance of diesel engines.
- Troubleshoot, repair and maintain core aerator and verticut machines.
- Troubleshoot and repair commonly used small engine equipment.
- Calibrate and operate spray equipment

**4. Credits:** Three credits

**5. Satisfies General Education Requirement:** No

**6. Prerequisite:** None

**7. Semester(s) Offered:** Varies

**8. Suggested General Guidelines for Evaluation:** Grades will be based on quizzes, an exam, final exam and several graded practical hands on demonstrations.

**9. General Topical Outline (Optional):**

Small Engine Service

1. Principles of Small Engine Operation
2. Theory of Four and Two Stroke Engine Operation
3. Troubleshooting and Repair
4. Storage

Large Gasoline and Diesel Engine Service

1. Theory of Gasoline Engine Operation
2. Service and Maintenance of Gasoline Engines and Related Equipment.
3. Theory of Diesel Engine Operation.
4. Service and Maintenance of Diesel Engines
5. Hydraulics

## Welding

1. Tool and Equipment Safety Operation
2. Metal Identification
3. Oxy-Acetylene Cutting
4. Arc Welding

## Equipment Operation and Maintenance

1. Greens mower safety and operation
2. Tractor Safety and Operation
3. Sprayer Safety, Calibration and Operation
4. Riding Mower Safety and Operation
5. Front End Loader Safety and Operation
6. Chainsaw Safety and Operation
7. Equipment Maintenance

## Irrigation

1. Drip and Sprinkler Irrigation Principles
2. Irrigation System Design
3. Irrigation Installation
4. Maintenance and Troubleshooting