

SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY  
SAULT STE MARIE, ON



COURSE OUTLINE

Course Title: EQUIPMENT OPERATION & MAINTENANCE

Code No.: NRT112                      Semester: 2

Programs: PARKS & OUTDOOR RECREATION AND  
FISH & WILDLIFE TECHNICIAN

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Date: Jan 2004 Previous Outline Date: Feb 2003

Approved: \_\_\_\_\_  
Dean, Natural Resources                      Date  
Programs

Total Credits:                      Prerequisite(s):  
Length of Course:                      Total Credit Hours:

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written permission of The Sault College of Applied Arts & Technology is prohibited.*  
*For additional information, please contact Colin Kirkwood, Dean, Natural Resources Programs,  
(705) 759-2554, Ext. 688.*

**I. COURSE DESCRIPTION:**

This course introduces students to the 2 and 4 stroke gasoline engines, operating principles, minor troubleshooting, emergency repairs and routine maintenance. Safe operation of motorized field equipment such as ATV's, snowmobiles, chain saws, brush saws, outboard motors, water pumps, and generators will be practiced. Safe use, maintenance and repair of camping equipment such as tents, sleeping bags, propane and naphtha cooking, heating and lighting equipment as well as safe use, maintenance, repair and sharpening of hand tools including axes, knives, shovels, sandviks, saws, and Pulaskis will be covered. Tow vehicle and trailer circle checks as well as load securing and trailer backing will be carried out. This course will also introduce students to the operation and maintenance of video and 35mm cameras and other A/V equipment.

**II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:**

Upon successful completion of this course, the student will demonstrate the ability to:

1. Safely use, maintain, sharpen and repair various hand tools and camping equipment.

Potential Elements of the Performance:

- sharpen cutting edges safely
- maintain handles of various hand tools
- retrieve (clean, troubleshoot and repair) camping tools including axes, shovels, sandviks, Pulaski, folding saws, knives, cooking equipment tents, tarps, and utensils.

2. Troubleshoot, maintain and operate various small engine power tools and equipment.

Potential Elements of the Performance:

- accurately prepare fuel mixtures
- demonstrate safe storage of fuels and lubricants
- prepare equipment for operation including routine maintenance, minor repairs and sharpening
- observe and/or operate water pumps, portable generators, brush saws, chain saws

3. Operate, maintain and transport various types of watercraft.

Potential Elements of the Performance:

- prepare watercraft for operation including routine maintenance and minor repairs
- load and unload watercraft from trailers and other vehicles and demonstrate proper launching procedures including backing trailers
- demonstrate and/or describe the safe use of kayaks, canoes, outboard motor boats
- demonstrate proper tie-down procedures
- check, troubleshoot and repair trailer electrical systems
- perform circle checks of tow vehicle and trailer
- demonstrate proper care and maintenance of various vehicles and recreational vehicle batteries

4. Operate and maintain various types of audio/video equipment

Potential Elements of the Performance:

- demonstrate proper techniques in the operation and maintenance of video and 35mm cameras
- operate, troubleshoot and maintain A/V equipment including slide projectors, overhead projectors, VCR's

5. Use and maintain other field equipment

Potential Elements of the Performance:

- demonstrate proper operation of depth sounders, downriggers, binoculars, field scopes
- demonstrate proper use of hand-held radios and an understanding of phonetic codes

6. Troubleshoot, maintain and operate other off-road equipment including snowmobiles, ATV's

Potential Elements of the Performance:

- prepare equipment for operation with routine maintenance and minor repairs
- demonstrate safe operation of equipment

7. Use power tools for the maintenance and repair of picnic tables, docks, signs, boardwalks and other structures.

Potential Elements of the Performance:

- demonstrate the safe operation of portable power tools
- assess hazards, needs and determine type of repair required
- complete repairs safely using appropriate hand and power tools
- select and apply appropriate coatings and preservatives

8. Set up, operate, and maintain outdoor toilets, and water supply systems.

Potential Elements of the Performance:

- construct and maintain outdoor toilets
- perform start-up and shut-down procedures for water supply systems
- troubleshoot water pump operations
- maintain water supply equipment to ensure potability of supply

9. Troubleshoot, maintain and operate turf maintenance and horticultural equipment.

Potential Elements of the Performance:

- prepare equipment for operation and seasonal storage including lawnmowers, chippers, rototillers, grass trimmers

10. Use, maintain and repair various nets and live traps for the purpose of fish and wildlife surveys and/or the relocation of nuisance animals.

Potential Elements of the Performance:

- demonstrate proper techniques for setting nets and live traps
- observe proper fish and animal handling/transporting techniques
- perform minor maintenance and repairs on equipment

**DUE TO THE POTENTIALLY HAZARDOUS NATURE OF EQUIPMENT OPERATION AND MAINTENANCE, HORSEPLAY AND / OR NOT FOLLOWING DIRECTIONS AND RULES FOR SAFE CONDUCT WILL RESULT IN IMMEDIATE DISMISSAL FROM THE COURSE. STUDENTS WHO ARE DISMISSED FROM THE COURSE MAY HAVE TO REPEAT THE ALL OR SOME OF THE COURSE .**

### III. COURSE TOPICS

1. Safely use, maintain, repair, and sharpen various hand tools.
2. Troubleshoot, maintain and operate various small engines power tools.
3. Operate, maintain and transport various types of watercraft.
4. Operate and maintain various types of audio/video equipment.
5. Use and maintain camping equipment.
6. Troubleshoot, maintain and operate and other off-road equipment including snowmobiles, ATV's.
7. Use power tools for the maintenance and repair of picnic tables, docks, signs, boardwalks and other structures
8. Set up, operate, troubleshoot and maintain vault toilets, comfort stations and water supply systems.
9. Troubleshoot, maintain and operate turf maintenance and horticultural equipment.
10. Use, maintain and repair various nets and live traps for the purpose of fish and wildlife surveys and/or the relocation of nuisance animals.

### IV. METHOD OF EVALUATION:

Readings /Video Quizzes	40%
Small Engine quiz	10%
Axes	10%
Chainsaw/Brush saw Ex	10%
Chopping	10%
ATV / Snomobile	10%
Final Test on Entire course	<u>10%</u>
	100%

The following semester grades will be assigned to students in post secondary courses:

<u>Grade</u>	<u>Definition</u>	<u>Grade Point Equivalent</u>
A+	90 – 100%	4.00
A	80 – 89%	4.00
B	70 – 79%	3.00
C	60 – 69%	2.00
D	50-59%	1.00

F (Fail)	49% or below	0.00
CR (Credit)	Credit for diploma requirements has been awarded.	
S	Satisfactory achievement in field placement or non-graded subject areas.	
X	A temporary grade – limited to situations with extenuating circumstances giving a student additional time to complete the requirements for a course (see Policies & Procedures Manual – Deferred Grades and Make-up).	
NR	Grade not reported to Registrar’s office. This is used to facilitate transcript preparation when, for extenuating circumstances, it has been impossible for the faculty member to report grades.	

- V. **REQUIRED REFERENCE MATERIAL: Small Gas Engines. Alfred Roth ISBN 1-59070-183-6**
- VI. **SPECIAL NOTES:**

Special Needs:

If you are a student with special needs (e.g. physical limitations, visual impairments, hearing impairments, or learning disabilities), you are encouraged to discuss required accommodations with your professor and/or the Special Needs office. Visit Room E1101 or call Extension 493 so that support services can be arranged for you.

Retention of Course Outlines:

It is the responsibility of the student to retain all course outlines for possible future use in acquiring advanced standing at other postsecondary institutions.

Plagiarism:

Students should refer to the definition of “academic dishonesty” in *Student Rights and Responsibilities*. Students who engage in “academic dishonesty” will receive an automatic failure for that submission and/or such other penalty, up to and including expulsion from the course/program, as may be decided by the professor/dean. In order to protect students from inadvertent plagiarism, to protect the copyright of the material referenced, and to credit the author of the material, it is the policy of the department to employ a documentation format for referencing source material.

Course Outline Amendments:

The professor reserves the right to change the information contained in this course outline depending on the needs of the learner and the availability of resources.

Substitute course information is available in the Registrar's office.

**EQUIPMENT REQUIRED:**

Hard hat, safety-toed boots, clipboard, pencils, axe, safety glasses,  
appropriate clothing (lab coat for indoors, rainwear and warm clothes for  
outdoors).

Good quality axe 2-2.5 lb head wooden handle. Axe File.

Folding Knife