

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



COURSE OUTLINE

Course Title: EQUIPMENT OPERATION & MAINTENANCE

Code No.: NRT112 Semester: I

Programs: PARKS & OUTDOOR RECREATION AND
FISH & WILDLIFE TECHNICIAN

Author: John Clement

Date: August 2000 Previous Outline Date: June 99

Approved: _____
Dean, Natural Resources Date
Programs

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

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For additional information, please contact Joe Fruchter, 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 and repair 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 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

ALL OF THE FOLLOWING ACTIVITIES ARE CONSIDERED COURSE OUTCOMES THAT MUST BE PERFORMED PROPERLY AND SAFELY AT THE FIRST YEAR SHAW DAM FIELD CAMP IN ORDER TO MEET THE SHAW DAM FIELD CAMP REQUIREMENTS. FAILURE TO DO SO MAY RESULT IN THE STUDENT HAVING TO REPEAT SOME OR ALL OF THE SHAW DAM FIELD CAMP. DUE TO THE POTENTIALLY HAZARDOUS NATURE OF EQUIPMENT OPERATION AND MAINTENANCE, HORSEPLAY AND / OR NOT FOLLOWING CAMP RULES WILL RESULT IN IMMEDIATE DISMISSAL FROM CAMP. STUDENTS WHO ARE DISMISSED FROM CAMP MAY HAVE TO REPEAT THE ALL OR SOME OF THE FIELD CAMP NEXT YEAR. THE GRADE FOR THE SHAW DAM FIELD CAMP IS WORTH 30% OF THE FINAL GRADE FOR THE EQUIPMENT OPERATION AND MAINTENANCE COURSE. (SEE METHOD OF EVALUATION)

- 1) Tent Setup.**
- 2) Cooking , Heating and Lighting with Naphtha and Propane**
- 3) Chopping**
- 4) Chainsawing**
- 5) Swede Sawing**
- 6) Pump Set up**
- 7) Coupling**
- 8) Intakes**
- 9) Backpack Pumps**
- 10) Hose Rolling**
- 11) Hose Packing**
- 12) Hose Retrievals (Melon Rolling)**
- 13) Site and /or Road Repair using Handtools**
- 14) Fire starting**
- 15) Field Privies**
- 16) Vehicle Circle checks with trailer hookups.**
- 17) Safe Bush Skills**

III. COURSE TOPICS

1. Safely use, maintain and repair 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

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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:

Test 1	20%
Field Camp	30%
Lab Assignments	30%
Final Test on Entire course	<u>20%</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%	3.75
B	70 – 79%	3.00
C	60 – 69%	2.00
R (Repeat)	59% 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.	

Supplemental Exam Eligibility: Students who receive a final mark between 55 and 59 percent, may be eligible for a supplemental exam or supplemental assignment.

V. 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

VI. REQUIRED REFERENCE MATERIAL: Small Gas Engines. Alfred Roth ISBN 1-56637-379-4

VII. 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 instructor and/or the Special Needs office. Visit Room E1204 or call Extension 493, 717, or 491 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.

Students with medical conditions will provide, at all times, the appropriate medication.

Advanced Standing

Students who have completed an equivalent post-secondary course should bring relevant documents to the Co-ordinator, Natural Resources Programs.

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.

Retention of Course Outlines

It is the responsibility of the student to retain all course outlines for possible future use in gaining advanced standing at other post-secondary institutions.

VIII. PRIOR LEARNING ASSESSMENT:

Students who wish to apply for advanced credit in the course should consult the professor. Credit for prior learning will be given upon successful completion of a challenge exam or portfolio.

IX. DIRECT CREDIT TRANSFERS:

Students who wish to apply for direct credit transfer (advanced standing) should obtain a direct credit transfer form from the Dean's secretary. Students will be required to provide a transcript and course outline related to the course in question.