

SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY
SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

COURSE TITLE: FOREST PROTECTION _____

CODE NO.: FOR103-4 SEMESTER: ONE _____

PROGRAM: FORESTRY TECHNICIAN _____

AUTHOR: STAN FISCHER _____

DATE: NOVEMBER 1996 PREVIOUS OUTLINE DATED: DEC. 1991 _____

APPROVED: DEAN _____ DATE _____

FOREST PROTECTION

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COURSE NAME

COURSE NUMBER

TOTAL CREDIT HOURS: 64

PREREQUISITE(S): None

I. PHILOSOPHY/GOALS:

This course introduces first year Forestry students to the basic fire fighter level training (Ministry of Natural Resources S100 level) so students can function as a fire crew member with MNR. Additional practical work around aircraft may be advisable.

II. STUDENT PERFORMANCE OBJECTIVES:

Upon successful completion of this course the student will:

1. Understand basic fire behaviour.
2. Be able to use and maintain handtools and pumping equipment.
3. Be able to work safely around aircraft.
4. Be familiar with camp equipment.

III. TOPICS TO BE COVERED:

1. Safety around Chain Saw Operation
2. Cooking, Lighting and Heating Devices
3. Power Pumps
4. Working With Hoses
5. Handtools
6. Back Pack Pump
7. Water Application
8. Assisting Fire Line Construction
9. Hand Held Radio Operation
10. Mop Up
11. Fireline Patrol
12. Hand Held Burnout Operation
13. Personal Safety On The Fireline
14. Aircraft Safety
15. Helicopter Safety
16. Fire Behaviour
17. Fire weather Index
18. Simulated fire problems

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III. TOPICS TO BE COVERED: (cont'd)

TENTATIVE SCHEDULE

<u>WEEK</u>	<u>TOPIC</u>
1	Introduction of fire behaviour and handtools
2	Fire Pumps
3	Fire line hose and accessories
4	Fire camps set up and equipment
5 & 6	Special schedule including fire camp
7	Test #1 - Chainsaw Maintenance
8	Communications, Fire Weather Index
9	Mop up and Patrol
10	Fix wing aircraft
11	Helicopters - Test #2
12	Assisting in fire line construction (bulldozers)
13	Simulated Fire Problems, personal safety
14	Simulated Fire Problems, burn out
15	Guest Lecture - Test #3

IV Learning Activities

After approximately four weeks of regular lectures and labs in school each class spends two and one half days in a fire camp setting practising with pumps, hose handling, and hand tools. Following this two week special schedule (4 classes) students return to College and the more theoretical sections of 103-4.

Unit 1 Safety Around Chain Saw Operations

A student will:

- a) become familiar with chain saw parts,
- b) service the chain saw,
- c) suit up in safety gear,
- d) make up and down bucking cuts until operation is smooth and
- e) retrieve chain saw.

This experience gets students over fear of chain saws and many go on to a chain saw safety training course.

After fire camp students participate in a saw cleanup and filing lab.

Unit 2 Setup Use and Retrieval of Fire Camp Equipment

After lecture and demonstration each tent crew (five students) will:

- a) setup a prospector tent with floor and fly,
- b) use naptha cooking, lighting and heating equipment for one day/night and propane for second day/night and
- c) retrieve camp equipment for next group.

Unit 3 Power Pumps

After lecture and demonstrations each student individually, in pairs, or in groups of three will:

- a) inspect pump unit,
- b) check tool box contents,
- c) separate and replace pump head and engine,
- d) do a basic single pump setup,

- e) demonstrate/observe multi pump setups and site specific setups ie. shallow source, dam a creek, or no foot valve or intake hose,
- f) trouble shoot no spark, no fuel to plug, flooded, lack of prime or air lock, and
- g) pump and accessory retrieval.

Unit 4 Hose Laying, Handling and Retrieval

Following lecture and demonstration each student will:

- a) roll hose for Part I and Part II,
- b) pack hose Part I and Part II,
- c) lay and handles hose (dry) as a member of a four person crew,
- d) demonstrate/observe hose handling (pressurized) for first pass, return pass and second forward pass and
- e) demonstrate/observe hose handling on finger lays, wet hose lays, and emergency repair.

Unit 5 Hand Tools

Following lecture and demonstration each student will:

- a) purchase a pulp axe, personalizes it and maintains the axe to a given standard,
- b) check (College) hand tool condition, selects a hand tool for a given job,
- c) construct/observe construction of:
 - i) surface fuel break
 - ii) simple trench
 - iii) trench and spread
 - iv) throw sail, and
- d) retrieve hand tools.

Unit 6 Back Pack Pump

Following lecture and demonstration each student will:

- a) find back pack parts,
- b) relates parts to troubleshooting,
- c) practice water application and

- d) applies water on a simulated fire edge (hinged targets) to a given standard.

Unit 7 Nozzle Operation and Water Application

Following instruction demonstration each student will:

- a) establish communication,
- b) handle nozzle safely,
- c) strangle properly,
- d) release carefully on signal,
- e) understand cycle of water effectiveness and
- f) take/observe pressure tests using three tip sizes and using multi pump setups.

These seven units complete the Hands Dirty - Fire Camp component of the course.

Unit 8 Assisting Fire Line Construction with Bulldozers

Using lecture and audio visual aids the student will:

- a) know steps in line construction,
- b) understand importance of communication,
- c) be aware of precautions working around bulldozers and
- b) have a basic understanding of bulldozer limitations.

Unit 9 Hand Held Radio Operation

Trough lecture demonstration the student will:

- a) learn location and function of radio parts,
- b) understand importance of antenna orientation and types,
- c) outline general operating rules of thumb and
- d) compose a written radio conversation for a given situation.

Unit 10 Mop Up

Using Lecture and slide presentation as a reference the student will:

- a) state and explain mop up for a given set of fire conditions ie. Fire Weather Index (FWI), fuel, soil, and topography and
- b) be able to describe hazards and safety precautions to be taken during mop up.

Unit 11 Patrol

Using manual, lecture and slide presentation as reference the student will:

- a) identify key components of patrol,
- b) choose possible escape areas for a given set of fire conditions and a map, and
- c) recognize the hazards of the job.

Unit 12 Hand Held Burnout Operation

Using lecture and lab manual as reference the student will be able to:

- a) list ignition devices,
- b) draw ignition patterns,
- c) state drip torch use steps and
- d) outline safety procedures.

Unit 13 Personal Safety on the Fire Line

Using lecture and manual as reference a student will be able to:

- a) state conditions that affect fire fighter performance,
- b) list ever-present hazards on fire,
- c) locate fire safe areas on a map,
- d) recognize weather changes and
- e) identify safety procedures when trapped or overrun.

Unit 14 Fixed Wing Aircraft

Using lecture, slide presentation and lab manual the student will be able to:

- a) label the parts of an aircraft that pose a safety hazard (both single and twin engine),
- b) recall docking procedures for float equipped aircraft.

- c) sketch locations and state procedures relating to bombing operations and
- d) state emergency procedures for fix wing aircraft situations

Unit 15 Helicopter Use

Using lecture, slide presentation and lab manual the student will be able to:

- a) recognize danger areas of aircraft,
- b) state procedure for entry, exit and depart,
- c) explain steps for loading and
- d) recall action to take if caught in a drop zone.

Unit 16 Fire Behaviour

Using lecture, lab manual, extensive audio visual material, and the Ministry of Natural Resources self study programmed manual Analysis of Fire Behaviour the student will be able to recognize and describe in general terms:

- i) types of fires
- ii) fire intensity
- iii) fuel factors
- iv) topographic factors
- v) effects of weather
- vi) parts of a fire

Unit 17 Fire Problems

Students practice:

- a) matching personnel and equipment to a given set of field conditions,
- b) select sites on a map for camps, pump sites and helipads,
- c) pick an access route to a fire on a map,
- d) list appropriate equipment for a given fire situation,
- e) select initial attack location on a map for a given set of factors topography, weather, fuel type, FWI and resource list (manpower and equipment),
- f) do FWI calculations and

g) using previously studied equipment specifications. do

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Tentative Schedule - Fall 1996

Week of	Lecture	Lab
Aug. 26	Introduction	Hand tools
Sept. 2	Power Pumps	Power Pumps
" 9	Hose	Hose
" 16	a) Water Application b) Camp Equipment	Standards & Retrieval, F.W.I.
" 23	FIELD CAMP - SPECIAL SCHEDULE FOR 2 WEEKS	
" 30	" " " "	" " " "
Oct. 7	TEST	CHAINSAW MAINTENANCE, F.W.I.
" 14	Radios	Camps
" 21	Mop Up & Patrol	Fix Wing
" 28	Behaviour	Choppers
Nov. 4	Assist on Fire Line	Equipment Lists & F.W.I. TEST
" 11	Fire Analysis	Fire Problems
" 18	Burn Out	Fire Problems
" 25	Safety	Fire Problems
Dec. 2	New Dev. (Guest)	FINAL TEST ON WHOLE COURSE
" 9	Clinic	Lab incompletes, Melons, Chopping

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Evaluation - 1996

	%
Fire Camp	30

PLEASE NOTE - YOU MUST PASS FIRE CAMP TO CONTINUE IN
FOR103 - FIRE PROTECTION

Test - Week of Oct. 7th	20
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Quiz - Week of Nov. 4th	10
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Test - Week of Dec. 2nd	30
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Attendance	<u>10</u>
	100

Participation/Attendance

start with 10
miss lab -1
late lab -1
late lect. -3

Participation in field work up to +3

A+ = 90+
A = 80 - 89
B = 70 - 79
C = 60 - 69
R = Less than 60

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VI. REQUIRED STUDENT RESOURCES:

FOR103 Forest Protection Study Guide
FWI Tables
2 1/4 pound by 28" axe

VII. SPECIAL NOTES:

Students with special needs (e.g. physical limitations, visual impairments, hearing impairments, learning disabilities) are encouraged to discuss required accommodations confidentially with the instructor.

Your instructor reserves the right to modify the course as he/she deems necessary to meet the needs of students.