

COURSE NUMBER 55-0503-1
4/5/2005
3 HOURS
ROPES AND BASIC RIGGING

COURSE TITLE

ROPES & BASIC RIGGING

TIME: 3 HOURS

MATERIALS: COMPLIMENT OF RESCUE EQUIPMENT IN INVENTORY
OF ATHENS CLARKE COUNTY ROPE RESCUE TEAM.
100' ARIEL PLATFORM
ESSENTIALS MANUAL

METHOD OF INSTRUCTION: LECTURE AND ILLUSTRATION

LEVEL OF INSTRUCTION: APPLICATION

REQUISITE KNOWLEDGE: STUDENTS SHOULD BE ABLE TO TIE BASIC
KNOTS USED IN FIRE GROUND OPERATIONS AS FOUND IN IFSTA
ESSENTIALS THIRD EDITION CHAPTER 4

REFERENCES: IFSTA ESSENTIALS 4TH EDITION
IFSTA ESSENTIALS 3RD EDITION

EVAULATION: PREFORMANCE SKILL CHECK OFF

*COURSE OUTLINE AND LESSON
PLAN DEVELOPED FOR TRAINING OF
ATHENS CLARKE COUNTY FIRE DEPT.
T. CALVIN BROWN
State Approved Lesson Plan# 55-0503-1*

Course Objectives

- 1. Given the proper rope and rescue rigging, students shall be able to construct a system to lower one rescuer and retrieve one victim and rescuer safely**
- 2. Given the proper rope, students shall be able to tie approved knot to raise and lower a selected tool for use on the fire ground.**
- 3. Students shall be able to identify safe load limits for ropes and rescue rigging equipment in use by Athens Clarke County Fire Department.**

Introduction:

Explain importance of staying familiar with rescue rope and rigging systems, how easy it can be to injure someone by careless rigging and lack of attention to safety guidelines.

Encourage class to tell of any experiences good or bad to reinforce attention to good habits of safety.

(10 minutes)

Rope Characteristics:

Static: Little stretch – used for rescue

Dynamic: Stretches – mostly used for sport and working load

Rope Materials:

Natural: Manila, cotton, sisal – not used in fire service, prone to breakage and rot

Synthetic Fibers: Man made continuous fiber. Excellent resistance to elements and abbraision

(5 minutes)

Life Safety and Utility Rope

Life Safety: Used for rescuers and victims only. Must conform to NFPA Standard. Must be continuous filament fibers.

Utility: Used for tool hoisting and in securing non life safety operations. No standard on utility rope.

(Show example)

Static Kern Mantle: Rope used by Athens Clarke County, outer core protects load bearing inner core.

Safe Working Load: $\frac{1}{2}$ static kern mantle 600 lbs.

Tensile Strength $\frac{1}{2}$ 900 lbs.

(Show example)

- Nylon:** One of best materials for ropes.
- Resists:** Abraision, most chemicals, one of strongest ropes about 3 x tensil strength of manila
- Does not tie easily
- Polyproplene:** Light weight, floats good for water rescue
Degrades easily when exposed to sunlight.
- Does not tie easily
- Polyethylene:** Simiular to polyproplene
- Polyester:** High strength, low stretch
Resistant to water a most chemicals and sunlight
- Kevlar:** High tensil strength and heat resistance.
Low abraision resistance
Low shock absorbing

(Show examples in book)
(15 minutes)

Rope Hardware minimum breaking strength

O Rings = 9000 #

Steel Rescue Rack = 10,000 #

Rigging Plate = 11,000 #

Steel Ring = 30,000 #

8 mm Cord = 3100 #

Pulley = 7000 #

(Show Example)

(5 minutes)

**Fire Service Knots:
Easily tied and untied**

Elements of a knot

Bight

200P

Round Turn

(Show)

Bowline: Form a non constricting knot that won't slip

(Show)

Should not be used on synthetic rope for life safety

Clove Hitch: Tied around objects such as poles or tools

(Show)

Half Hitch: Follow up knot, used for stabilization

(Show)

(20 minutes)

Figure of Eight Family:

Best used as life safety knots in synthetic ropes

Double Figure Eight

Figure eight on a bight

(Show and Demonstrate)

Becket or sheet bend

Ties 2 ropes together

(Show)

Over hand safety: Follow up after any knot to ensure rope will not slip

Constructing a raise, lower system and safety belay

This portion of the course will be completed outside on an elevated structure with proper anchoring to facilitate the proper function of a working rescue system.

Construct a "2" Rig

(Show and demonstrate)

(1 hour)

Construct safety Belay

(30 minutes)

Construct Ladder Rig

(1 hour)

Evaluation of students

Each student will be given a rescue rope and a utility rope, students will be in full turnout gear with gloves. The student will choose proper rope, tie any approved fire service knot and hoist a pic axe and an uncharged 1 ½ hoseline up one story

(30 minutes)