

# SMC MOUNTAINEERING LEVEL TWO TRAINING COURSE SYLLABUS

## MTN 2.1: Snow Camping and Winter Mountaineering Level Two, Day One

Reference: Mountaineering: The Freedom of the Hills, 8<sup>th</sup> Edition

### ORIENTATION AND SAFETY

Welcome and Orientation

MTN 2 Online Training

- Prepare for MTN 2 Free Practice
- Prepare for any MTN 2 climb or expedition
- Any snow camping / winter mountaineering adventure

Safety Discussion - risk, decision making and teamwork

Actions In Case of Emergency

MTN 2 Learning Objectives

- Build on the foundation of MTN 1
- Add to existing core knowledge
- Learn technical skills for winter mountaineering
- Cultivate expedition behavior (p. 470)

### MOUNTAINEERING CLOTHING, EQUIPMENT AND GEAR SYSTEMS

Documents:

- SMC Clothing, Equipment and Gear List (p. 39)
- Lightweight vs. Traditional Mountaineering (p.32)

Systems Demo and Discussion

- Torso and Legs Clothing and Layering (p. 19-26)
- Feet and boots (p. 26-30)
- Head and hands system (p. 25, 36, 147-148)
- Sleep systems (p. 56-58)

Winter Climbing Equipment

- Winter mountaineering boots
- Winter size pack

- Snowshoes or skis
- Avalanche beacon, probe
- Snow shovel
- Sleds
- Wands

Important Winter "Extras"

- Space blanket / tarp / fly
- Extra gloves, socks
- Extra headgear (e.g. balaclava)
- Puffy / sleeping bag
- Radios
- Camp booties

### WINTER NAVIGATION AND ROUTE FINDING

Considerations for Winter Travel

- Lack of trails
- Hidden obstacles and hazards
- Timeframes

Interpreting the Map Practice

Orienting a Topographic Map Practice

- By inspection
- By compass

Handrails Discussion and Practice

Establishing a Known Point Practice

Using Bearings on an Unoriented Map

- Field to unoriented map
- Unoriented map to field

Establish Location Fix Using Known Points

Shooting and Following a Bearing in the Field Practice

Navigating Around an Obstacle Practice

### WINTER MOUNTAINEERING CORE SKILLS

Wilderness Travel (p. 111-120)

- Stages of a climb (p. 112-113, 89-92, 477-483)
- Hiking with the group (p. 115)

- Rest step (p. 113-114)
- Talus, scree, brush, streams (p. 118-120)
- Crossing streams

Winter Travel and Route Considerations

- Weather considerations
- Avoiding avalanche terrain
- Planning for energy conservation needs - staying warm, dry and fueled

Mountain Snowshoeing or AT Skiing

- Utility, advantages, disadvantages
- Techniques for the ascent
- Techniques for the descent
- Travel and traversing

Friction Knots

- Klemheist
- Prusik
- Autoblock

### SNOW CAMPING AND SHELTERS

Basecamp selection and set-up practice (p. 47-48)

Winter and Mountaineering Shelters

- Considerations – time, need, suitability
- Advantages and disadvantages

Tents Demonstration and Practice

- Tent selection – type, weight, shape
- Site selection and orientation
- Building platform and wind walls
- Using the vestibule and entrances

Hybrid Shelters Demonstration and Practice

- Floorless tent / tent fly demo
- Tarp options demo
- "Hasty" snow trench demo

Quinzhee Demonstration and Practice

- Site selection and parameters for construction
  - Mounding, rounding and pounding
  - Excavation techniques
  - Entrance, door and amenities
- Snow Cave Demonstration and Practice
- Find packed snow on leeward slope
  - Assess depth and stability
  - Dig low, then up and level
  - Mark top, plug entrance
- More Shelters, Demonstration and Practice
- Trench demonstration
  - Tree pit discussion
  - Igloo discussion
  - Bivouacs discussion
- “Hasty Shelter” Practice - 15 minutes to escape an impending storm with just what is in your pack
- Snow Kitchen Options and Set-Up
- Benches, table
  - Cooking shelves, cupboards
  - Storing water & cook gear
- Stoves

- Cooking / snow melt system (p. 58-62, 62-66, 71)
  - Types, fuel and amounts
  - Assembly
  - Priming and usage
- Cooking - only boil water, no clean up
- Finding and Procuring Water (p. 58-66)
- Procurement from winter streams
  - Harvesting snow options
- Snow Melt Techniques Demonstration and Practice
- Fuel conservation
  - Set-up, stirring, lid
  - Pouring
- Staying dry and warm
- Hot liquids
  - Changing out clothes
  - Sleeping bag drying - how, what
- Leave No Trace Ethic in Winter (p.15, 121-128)
- HEALTH, NUTRITION AND FITNESS**
- Fitness Training for Mountaineering (p.15,

- 73-82)
- Build a cardiovascular base
  - Train for endurance first, strength second, and power last
  - Strength-to-weight ratio is more important than absolute strength
- Nutrition for Mountaineering
- Carbohydrates (long-chain complex sugars) are the best source of long term energy - solid or liquid form
  - Fats are important for warmth and long-burning energy
  - Simple sugars have a place for quick energy
  - Focus on foods that agree with your body, even if not "optimal"
- Importance and Methods of Hydration
- Hydration is essential for warmth, metabolism, digestion, and energy.
  - Helps combat AMS and exhaustion
  - Flavored and/or readily available water promotes hydration

## MTN 2.2: Snow Camping and Winter Mountaineering Level Two, Day Two

### WINTER PEAK CLIMB

Teams will ascend a mountain route in winter conditions. It may involve snowshoeing or general mountaineering with or without crampons, and use of fixed lines, rappelling or downclimbing.

### WINTER MOUNTAINEERING CONCEPTS AND PRACTICE

Prep and packing for the Summit  
Scrambling Technique Demonstration and Practice

- Strive for efficiency
- Look and plan ahead
- Balance, position and precision

Safety Systems Spectrum Demonstration and Practice

- Scrambling / Solo

- Spotting
- Short belay
- Fixed lines
- Rappelling

### CLIMBING ON FIXED LINES SEQUENCE AND PRACTICE

1. Establish an anchor
2. Lead route on belay, potentially placing intermediate protection.
3. Create next anchor at the end of difficulties or near the end
4. Tighten and secure rope, tensioning it between both anchors
5. Climbers ascend or traverse rope using friction hitch or mechanical ascenders for safety, clipping past intermediate anchors

6. Last climber pulls first anchor and all intermediate protection as he is belayed to the second anchor

### DESCENT

Downclimbing practice, or rappelling

- Proper position and technique
- Personal safety clip in
- Proper set up and safety checks
- Using the third hand “brake”
- Commands

### BREAK CAMP AND RETURN

Considerations for the descent

More navigation and route finding practice  
Practice caravan technique