Crystal Clear
Avalanche & Mountain Education

ISIA 'Card-Level' 6-day 2020 Advanced Avalanche and Mountain Safety Course

Designed to meet cert. standards for NZSIA NEW ZEALAND SNOWSPORTS INSTRUCTORS ALLIANCE ISIA

Graduate Profile:

Graduates are Snowsport Instructors whom have the ability to lead groups off-piste independently*.

> * Lead ski tours, in the mountains, on non-glacial, (ATES classified 'Simple'), terrain not involving the use of ice axe, crampons, rope or overnight stays.

Learning Outcomes:

1) Instructors can trip plan by evaluating the following mountain risks and concerns:

- weather (recent history, present and forecast)
- avalanche (snowpack and avalanche history, present danger and forecasted danger)
- group (medical history, fitness, backcountry experience, risk acceptance level, goals, etc.)
- terrain (gradient, features and surface conditions and relate to the forecasted avalanche danger)

2) Instructors can apply trip planning considerations to actual terrain and manage group to minimize risk by:

- continually monitoring weather, snowpack and avalanche conditions and considering group dynamics that may be affecting decision making, (by applying situational awareness and employing an adequate margin of safety).
- correct use of touring and safety equipment, maps and orienteering tools (compass, inclinometer, GPS, etc…)
- identify avalanche terrain and move group to minimize risk of avalanches and other mountain hazards (i.e. sliding fall, exposure, etc)

3) Ability to manage a back-country accident / emergency

- management of self, group and initiate outside rescue services
- organise rescue team (transceiver and visual search, spot probe, probe line and heli evac considerations)
- first aid priorities
- prepare an emergency shelter (site resources are considered - people, gear, safe location and snow conditions/depth and used efficiently. Different construction techniques are introduced, practiced and critiqued. Safety considerations discussed. (Range: trench, snow mound, igloo, cave. shovel inside, ventilation, GPS marking)
- self-arresting a sliding fall in and out of touring equipment.

Assessment consists of:

- **Searching for 2 transceivers**, in 50m x 50m area (ISIA card standard 25m x 25m), buried 100cm deep, below a 50cm x 50cm target, starting out of range, search, probe and place shovel where digging would commence within 6 minutes (assembling probe and shovel from inside pack and wearing transceiver inside jacket)

- **Correctly identifying trip planning considerations** (in regard to people, the environment and equipment). This is a short written quiz that comprises 2 points of the total 25 pts assessed along with terrain id/group travel below.

- **Correctly identifying avalanche terrain, applying danger rating and managing group through terrain to minimize avalanche risk.** The terrain assessments, along with the trip planning are marked out of a total of 25 points. This assessment must be passed at a 70% level – 17.5 points. A minimum of 2 assignments (one uphill and one downhill) per candidate will be averaged together to get the overall mark.

- **Demonstrating both Personal Skiing/Riding Performance Off-Piste and Personal Fitness.**

  Marking: A maximum of 5 marks may be given for both Personal Performance Off-Piste and Personal fitness per field day using the following guidelines for marking:

  5: very good, everything is correct
  4: good, not quite perfect, minor flaws
  3: adequate, skills need improvement, knowledge is incomplete, but deficiencies have no serious consequences
  2: inadequate, serious deficiencies
  1: poor, serious mistakes, incorrect techniques or observations
  0: very poor, has no skill or knowledge at all.

  The final mark is determined by adding and weighing the marks of at least 2 individual field days in both Off-piste Performance and Fitness categories.

  Passing Criteria: A minimum average score of 3 in required to pass **in each** of these two topics.

  Personal Performance
  Perform in various snow conditions (heavy snow, powder & ice)
  Rounded flowing short, medium and long radius turns
  Maintain effective posture and balance throughout

Personal Fitness
Ski/Board in a variety of off-piste conditions for a full day
Have enough reserves to go uphill in deep snow to attend to the client needs or retrace descent route

Note: Border line overall performance may be 'averaged up' if student is able to accept and implement instructor feedback and a positive progression of skill level is demonstrated thereafter*. The decisions of the instructor(s) in regard to scoring are final.

Prerequisites:

To attend the 6 day ***Card-Level Course, it is required that candidates have:**

- **Attended the 4 day ***Stamp–Level*** Course prior or its equivalent,** (such as the NZMSC 4 day Backcountry Avalanche Course) and

- **Satisfactory evidence** of 2 (minimum) additional logged touring days.** Evidence must be submitted to the course director via email before a course completion certificate may be issued.

** Satisfactory evidence can be a completed intentions form that outlines pre-trip travel considerations (including but not limited to: weather and avalanche conditions, terrain to be travelled, group experience, medical concerns, goals and presence of certain red flags that may affect decision making, field observations, return time and emergency contact information.)

**Note*: To meet ISIA 'Card' backcountry travel day requirements, candidates must complete a minimum of 12 days. 'Card' participants should also be familiar with the below 'Stamp' learning outcomes (see below).

All courses are open to members and non-members of the NZSIA.

Note the no qualification pre-requisite is required to attend the 4-day *Stamp–Level* Course, however candidates must be capable of travelling in-control and comfortably, (regarding personal fitness, clothing and nutrition), in challenging terrain and snow conditions.

Certificate Award:

For ISIA *Card-Level* Courses, a 'Certificate of Attendance/Trip Planning/Leading a Group & Transceiver Competency' will be issued by the provider. Participants must attend the entire course to receive attendance credit.

Avalanche Awareness 4-day Stamp-Level Learning Outcomes:

1. Identify of the nature of avalanches and avalanche terrain

1.1 Types of avalanche problems and how they act are described. (e.g. Dry loose, wet loose, storm snow, wet slab, wind slab, persistent slab, deep persistent slab, cornice. motion, initiation, propagation, triggers and destructive size).

1.2 Avalanche paths are identified (Start zones, track, run-out etc). Avalanche terrain is identified using knowledge of factors contributing to avalanches, (Aspect, angle, altitude, anchoring, appearance, etc)

2. Demonstrate safe travel techniques in avalanche terrain

2.1 Pre trip and en-route decisions based on avalanche danger rating forecasts, weather implications, group goals/limitations and terrain, which reduce exposure to avalanche risk are identified, (Avalanche.net.nz, interpretation of danger rating forecast, group factors, map interpretation, terrain selection, etc.). **This is one of two assessed parts of the course – done as a written quiz on last day.**

2.2 Decisions relating to the management of a small group in avalanche terrain are consistent with safe travel. Strategies to minimize adverse effects of human factors during decision making are identified (group consensus, situational awareness, margin of safety, long term goals, turn-around times, etc.)

2.3 Personal actions demonstrated contribute to personal safety at all times (clothing and equipment are considered, safety protocols for conditions are followed, use of - collapsible probe, portable shovel, transceiver, Avalung, ABS airbag, etc).

2.4 Location is known and route identified in good and poor visibility. Range: visible features, map, compass (creating and following bearings), altimeter (and barometer), inclinometer, GPS)

3. Identify factors which affect avalanche occurrence and sources of further information.

3.1 The basic content and relative importance of class I, II and III information is described.

3.2 NZMSC Danger Rating evaluation and forecast terminology are described.

3.3 The effects of mountain weather on the snowpack are described and related to the nature/danger of the avalanche problem(s) present.

3.4 Sources of Danger Rating information are identified, (weather/forecast and danger rating info. from regional forecasts, websites, ski patrol, other informed users, etc.).

4. Gain basic knowledge of snowpack structure.

4.1 The key features of snowpack structure are described. (Weak/strong snow characteristics are described and identified.)

4.2 A variety of strength/stability tests are demonstrated. (Range: test profile, compression test, burp test, ski pole test, hand shear, SAFE slope cut, ECT, DT, PST, shovel shear, etc.)

4.3 Surface changes and the development of seasonal snowpack is described (elevation, aspect to wind and radiation, storm cycles, temperature).

5. Demonstrate avalanche transceiver proficiency

5.1 Transceiver search skills (locate 1 transceiver buried 60cm deep below 50cm x 50cm target within 4 minutes (50x50m site). This is one of two assessed parts of the course – done in the field, typically on day 3 or 4.

6. Demonstrate self party rescue

6.1 Techniques are described for improving personal survival in an avalanche accident and/or incident (angling away from danger area, discarding equipment, airspace in front of face, hand raised above surface, keeping calm etc).

6.2 Search strategies and techniques are demonstrated for rescuing others involved in a simulated accident and/or incident (visual search, transceiver search, probing, digging, planning, dog handler site considerations, etc).

6.3 Describe procedures for calling out SAR

6.4 The importance of witness statements and procedures is identified.

7. Demonstrate emergency snow shelter construction techniques

7.1 Site location and resources are considered as to available people, gear, safety and snow conditions and used efficiently.

7.2 Different construction techniques are introduced, practiced and critiqued. Snow depth and type considerations/limitations and safety considerations discussed. (Range: Trench, snow mound, igloo, cave. Shovel inside, ventilation, GPS marking)