



IMC New Members Training 2015

Introduction

Welcome new members of the IMC, to this Year's Training Syllabus. First off, please don't be intimidated by such a long list. It is my belief that, as a climber I never should stop learning and only through embracing continued development do we get to be a better more rounded Mountaineer. This maybe your first step, but I assure you that after a full "event packed" year; most of this will make complete sense to you.

The syllabus primary purpose is as a check list for you to use with the IMC Mentors you will be climbing with on the many Training evenings and days we have scheduled. When you have demonstrated that you have understood an element of the syllabus, get the peer to sign it off. It's not a problem having a second peer also sign off, but having a record, should help in not always revisiting the same elements again and again.

Requirements and Equipment for Beginner's Sessions:

Must be paid-up Associate members of the Club

Must be healthy and free from any disability that would affect ability to climb safely

The main outlay in joining the club is the equipment which is about equal to the cost of a professional intro course.

Must have the following (minimum) equipment:

- Climbing Helmet [No helmet, No climbing - Cycling Helmets are not permitted]
- Harness
- 2 Large HMS screw-gate Karabiners (One for Belay device, One for attaching Belay or Prusik)
- Belay device (ATC type or similar, not figure of eight)
- Rock-climbing shoes – Entry / Moderate Level, they should be tight but not hurt [much]
- Gear extractor / Nut key
- Medium size Sling (Dyneema 11mm x 120 cm long when doubled and flattened)
- Prusik loop (6mm – 1.5m cord tied with Double Fishermans Knot)



Thanks to  for their support with additional discount (15%) for our new members for April and May. Present your IMC Membership Card.

IMC Introductory Program Training Dates

- Thursday 2nd April 8.00pm – Teachers Club, Introductory presentation for new members
- Thursday Evening 9th April 6.30pm Onwards, Awesome Walls , Belay Skills , Locking off, Knots, Anchors with bolts , Fundamentals of Movement, Warmups
- Sunday 12th April 10.00am – Introductory Day Dalkey Quarry
- Thursday Evening#1 16th April 5.00pm onward Bullock Harbour ,Placement of Natural Anchors, Building Belays
- Thursday Evening#2 23th April 5.00pm onward – Introductory Evening, Dalkey Quarry
- Thursday Evening#3 30th April 5.00pm onward – Introductory Evening Dalkey Quarry
- Thursday Evening#4 7th May 5.00pm onward – Introductory Evening Dalkey Quarry
- Thursday Evening#5 14th May 5.00pm onward – Introductory Evening Dalkey Quarry
- Saturday-Sunday 16th-17May Bearnagh Slabs , MultiPitch Introduction - Meelmore Lodge nights15/16th
- Saturday-Sunday 13th -14th June – Glendalough Weekend – IMC Hut Glendassan, MultiPitch Improvement

Syllabus

Understand the Importance of Warming up and Cooling Down

- Aerobic low-intensity – 5mins – Increases the temp of the muscles, guards against injury and makes the body receptive to exercise
- Loosen up all joints with dynamic stretching. Pay attention to shoulders, neck, ankles, wrists and fingers
- Start your session with Easy Climbing
- At the end of your climbing session make time to Cool Down – Stretching gently avoids potential tightness and stiffness and aids recovery for the next time
- Video Warming up for Climbing https://www.youtube.com/watch?v=XbuE_ZkTizI

The Importance of Warming up and Cooling Down has been explained/demonstated and understood

[Date: / / 2015] [Mentor:]

[Date: / / 2015] [Mentor: _____]

Access and Environment

Ireland possesses a rich natural heritage in its mountains and cliffs. Protecting the outdoors for the current and future generations should be of deep importance to all.

- MI Good Practice Guide
<http://www.mountaineering.ie/accessandenvironment/GoodPracticeGuide/default.aspx>
- Leave No Trace
<http://www.mountaineering.ie/accessandenvironment/LeaveNoTrace/default.aspx>
- MI Participation Statement: “Hill walking, climbing and rambling are activities that can be dangerous and may result in personal injury or death. Participants should be aware of and accept these risks and be responsible for their own actions and involvement.”

The access and conservation issues and participation statement has been explained/understood

[Date: / / 2015] [Mentor:]

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Navigation

- Reading the map
 - Setting the map
 - Contour Interpretation
 - Taking a Grid reference
- Compass skills
 - Grid and Magnetic Bearing
 - Taking a Bearing from the map (Map to Compass)
 - Putting a Bearing onto the map (Compass to Map, to find your position)
 - Walking on a bearing, calculating distance (timing, pacing)
- Videos
 - Taking and Using Bearings <https://www.youtube.com/watch?v=wwnt9oZvy3o>
 - Distance, Timing and Pacing https://www.youtube.com/watch?v=FB31B_Hi2HE
 - Map Setting <https://www.youtube.com/watch?v=JAzxID-igb8>
 - Self Location <https://www.youtube.com/watch?v=YIOeu1BOScs>
 - Mountain Features <https://www.youtube.com/watch?v=YiUL3eJ0FO4>

The ability to navigate using a Map and Compass has been explained/understood

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Interpreting Guidebooks

- Understanding British Grading System
 - Adjectival Grade: Overall Difficulty of the climb taking into account all factors which lend difficulty to a pitch including technical difficulty, sustaindness, protection quality, rock quality, exposure and other less tangible aspects - for a climber leading the route on sight in traditional style.
 - Technical Grade: Climbing difficulty of the hardest move or short sequence of moves on the route, without regard to the danger of the move or the stamina required
- Understanding Route Descriptions and Topos
 - Gary's Glossary of physical features that define a route <http://goo.gl/R9UJVH>
- Source of Access Information
 - Access Restrictions
 - How to get the Crag
 - And How to get down (descent) after finishing the climb (often over looked)

The use of Guidebooks and Grading Systems has been explained/understood

[Date: / / 2015] [Mentor: _____]

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Equipment

- Harness, understand the function of the belay loop (recommend separate belay loop rather than climbing wall style) , gear loops, good sizing (flat hand should just be able to pass between the waist loop) where its is positioned on the body (belly button), adjustable leg loops very useful in winter, ziplock buckles also useful feature.
 - Video: <https://www.youtube.com/watch?v=H22lihlTZzg>
- Ropes
 - Identify and understand the use of static vs dynamic ropes, single vs half vs twin ropes.



- Understand Kernmantel Construction (twisted braids of nylon yarn, allows the rope to stretch) gives ropes elasticity and minimized the impact force on a falling climber.

UIAA impact force test requires dynamic rope to be designed to limit the maximum dynamic load due to a falling weight of 80 kg to 12 kN when dropped 4.8 meters onto a 2.8 meter section of rope.
- Understand the care of rope and lifespan
- Understand how to coil rope and carry
- Slings , made from two materials and their properties
 - Thicker, cheaper, heavier traditional slings made from strong Nylon webbing. As thicker they offer a greater safety margin should the sling be dragged over a sharp edge. Very limited stretch.
 - Thinner, lighter slings made from Dyneema, a mix of Polyethylene and Nylon. Weight for weight stronger than steel. less susceptible to UV degradation than Nylon. Doesn't stretch (has no dynamic properties). Much lower melting point 110C compared to Nylon 225C makes it susceptible to melting from rope friction.
 - Sizes of slings can be confusing. Sold as metric sizes where the length is measured when they are doubled and flat, but many still refer to the circumference size in feet. Three common sizes;
 - Short sling (60cm, 4ft) are useful for extenders, (show how to clip two Karabiners)
 - Long sling (120cm,8ft) useful for spikes& threads , equalizing two anchors and long extenders, usually carried doubled across the chest with locking Karabiner
 - Extra Long sling (240cm,16ft) useful for very large blocks, and equalising two anchors far apart or three anchors. (show how to carry 2xdoubled and twisted onto Krab)
- Karabiners (or Carabiners (US Spelling) or Krabs)
 - Two main Types; Snaplinks (for quick draws) and Locking (inc auto-locking)

- Two main Shapes; D-T ype (strongest shape which automatically aligns the rope along the backbar), and HMS (Pear shape), used for Belay, and for Clove and Italian Hitch connections(HMS is the strongest shape for a wide load)
- Loading strengths for the three possible loads; along the back-bar (major axis), cross-loaded (minor axis) and open-gate are stamped onto each Krab
- Belay devices, though there are three main types we only include
 - Standard-Passive (ATC/Stich-plate) style, works by putting a bend in the rope that creates enough friction to hold a fall.
 - Usually one side provides more friction for belaying, less friction for abseil.
 - Lighter than auto-locking types (gri-gri) and can be used with one or two ropes.
- Quick draws
 - Two snaplinks connected by a tape-sling ,sizes 10-30cm
 - Has a fixed bottom crab (prevents rotation)
 - Used in minimizing drag, preventing protection from being lifted/pulled out, used to attach wires, bolted sport routes and extend hexes and friends.
- Wires :
 - Wedges of metal attached to a wired loop, (recommend 2 sets 1-10 common Wild-Country ,DMM walnuts)
 - Be aware of the Small Cam action, 3 points of contact , deep seating, very small (micro/pea knuts) 2Kn strength , useful for certain climbs need to be grouped , the very large useful in places like FairHead.
- Hexes , Usually start where your largest Wires finish. Large Camming action, three ways to place for different size. Useful for horizontal Cracks. Personal preference is to carry Friends, but nothing beats a well placed Hex.
- Tri-cams: Work by rotation and tighten. Size3 useful in Dalkey Bore holes
- Cams (Often called Friends after the original devices), spring loaded, expensive but essential equipment. Black Diamond Camelots, Wild Country Friends, DMM Dragons all very popular and all recommended, stocked in Ireland
Suggestion would do buy in sets (1,2,3), (0.5,1.5,2.5), share with climbing partner . Particular sizes found most useful by certain climbers (Size 1, my favourite, but Friend Size 3 CAM very useful in Dalkey boreholes).
Note: Whilst manufacturers have aligned on colours/sizes for nuts, they have not for cams. This can be a little confusing when people talk in Friend sizes to a DMM owner 😊
- Nut Key, Used to remove stuck wires, demonstrate good removal technique rather than just pulling on all wires
- Prusik loop. 6mm accessory cord , used primarily as an auto block for protecting abseil.

The use and suitability of climbing equipment has been explained/understood

How to coil a rope has been

How to don my harness and complete checks on myself and my climbing partners has been demonstrated

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Recommended Equipment Rack for climbing

It is not expected that new members purchase a full rack of climbing equipment from day one. It is most common to start by sharing the equipment when climbing, and people who have been climbing a long time often have more equipment than they need or can carry.

A typical rack for climbing depends on the type and length of the climb. This is the typical rack I would climb with (others people may prefer Rockcentrics).

- Two sets of wires (1-11)
- Six friends (0.5,1,1.5,2,2.5,3)
- 10 Quickdraws (mixed lengths)
- 2 short 60cm slings equipped with 4 Krabs, used as longer extenders
- 2 medium 120cm slings with 2 locking Krabs
- 1 large 240cm sling for the Belay with locking Krab
- 2 HMS Krabs
- Belay Device
- Nut Key
- Prusik loop

Movement Skills

- Footwork: Edging , Smearing, Hooking, Jamming
- Handholds: Crimps vs Open hand, Palming, Finger Locks, Hand and Fist Jams
- Body Position
 - Understand how we transfer our weight over our centre of gravity (Belly Button) to make progress in an upward (or sideways) direction
 - Friction Slabs , body away from the rock, allows weight to be on the feet
 - Vertical Rock, keep body close to the rock.
 - Overhanging Rock, Turn sideways , using the outside edge of foot (twist knee in) allows a longer reach and keeps the body close to the rock.
 - Hang with straight arms, particularly when clipping gear. Let your skeleton do the work
 - Climb with a level of dynamic movement. Drop your body and then push from the “hips” rather than just static reach
 - Place feet “softly” onto the footholds. Use the toes rather than all of the foot.
 - Old adage, climb with your feet pushing you up the rock, hands are for balance.
- Video: Climbing Technique <https://www.youtube.com/watch?v=EudegwgU3cA>

Demonstration and coaching on basic climbing movement has been received

[Date: / / 2015] [Mentor: _____]

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Gear Placement Fundamentals

- Check the Rock Quality around the gear is most important
 - Avoid loose flakes or blocks, check for movement or hollow sounds
 - Look for Fractures
 - You Want Solid and Clean rock

- Slings
 - Rock Spikes, Trees, Belay spikes
 - Threaded , chock-stones
 - Be conscious of Angles (ideal 60 degrees or less)
 - Be conscious that they are static, always connected to climber through a rope
 - don't larksfoot, use of overhand knot & clovehitch
 - Bringing two/three anchors together using slings does and don'ts
- Wires
 - Placed into either vertical or Horizontal Crack
 - Ideal placement is where the crack is wide at top and tapers in towards bottom, with the rear of the crack being a little wider than the outside edge.
 - Look for two points of contact on the concave (small side), the more rock to metal contact the better
 - Can be placed sideways in tapering cracks and provide a further wire size (ie no7 wire becomes a size8), but not as stable
 - When placed in horizontal cracks place the convex (large side) down most to take advantage of the slight cam action.
 - When placing, keep wire on crab, allows you select the correct size (comes with practice) and seat the wire by tugging on the other wires in the direction of fall. When tugging be thoughtful to the second who has to remove it, unless you are scare-pumped.
 - Two wires placed in horizontal crack in opposition , using an extender to join them together to a single connection point
 - In desperation, wires they can be stacked, convex to concave faces to create a larger wire.
- Hexes (RockCentrics)
 - Hexes twist when loaded creating a camming effect (becoming larger)
 - The cam is greatest when the smaller edge (convex on modern hexes) is placed downmost.eg in horizontal cracks
 - They have two sizes for camming and a third large size for a tapering crack.
- Camming Devices
 - Understanding of good placement is in the mid range of cam, to tight they might jam, to wide they may fail to grip the rock (larger Cams seem to me to be more grippy at wide range)
 - Orientation of the Stem of the Cam is in line with the direction of fall (Down and slightly out).
 - All four lobes of the Cam should be touching rock at a similar angle.
 - Retrieval, don't just pull (pull trigger and push stem as in a hypodermic syringe) .
 - Work better on certain rocks Granite,Gritstone,Dolerite. Don't trust on Limestone, rock provides less friction and has been shown to fail even when well seated.
 - Can work well in parallel and even slight flared cracks. Avoid placing in cracks that get wider at the back as they can "walk" backwards making retrieval difficult.
 - Flexible stem allows horizontal placement in cracks and pockets and Dalkey Boreholes.
 - Some Modern Cams have Lugs to allow use as passive device.

- Placement and removal of passive and active (cams) devices has been demonstrated/understood
Selecting good anchors for belays and runners for lead placement has been demonstrated/understood
- [Date: / / 2015] [Mentor: _____]
- [Date: / / 2015] [Mentor: _____]

- Re-Threaded Figure of Eight, with Stopper Knot
 - Used for tying on to the end of the rope
 - The rope loop (often called the tie-in loop) should be fist sized
 - The Stopper knot should be close to the figure 8
 - Dress the knot (tighten and make it look nice)
 - Video Tying in – Figure of 8 <https://www.youtube.com/watch?v=mwPhouNbIfU>
- Figure of Eight on the bight
 - Used to create a loop , for connecting to a crab
 - Used to connect the rope to the tie-in loop
- Double Figure of Eight on the bight
 - Similar to above but provides two loops, useful for rigging bottom ropes.
- Clove Hitch
 - Connects a rope or sling to a crab
- Italian Hitch
 - Used for belaying with a HMS crab (when you drop belay device)
 - Used for direct belay
 - Tied of Italian Hitch used to tie-off a stuck climber (releasable)
- Double Fisherman's Knot
 - Used to tie two ropes together. Used to create Prusik loop
- Overhand to join two ropes
 - Effective as long as the knot is pulled tight and has tails at least 60cm
 - Slightly less prone to jamming in crack when retrieving abseil rope (im told)
- Overhand knot on the bight
 - Replaces the Alpine Butterfly (which is a shame)
 - Useful for rigging fixed ropes , and for tying in the middle of the rope
- French Prusik

- Used as an autobloc, primarily used in protecting abseil , and in emergency systems such as escaping the system or assisted hoist. Video https://www.youtube.com/watch?v=u0YxU5C_KrQ
- Klemheist
 - Variation of the French Prusik, difference can't be released when loaded, one direction, useful for ascending rope, can be tied with a sling if no prusik loop is available. Start from bottom and work up the rope

How to tie the rope into my harness has been demonstrated

Ability to tie a Clove Hitch to connect to an anchor

Ability by one method to tie two ropes together has been demonstrated

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Climbing Calls and their meanings

- Lead Climber: Safe! (Arrived at the top of the climb , and have attached to Anchors)
Second Belay: Off Belay! (taken the rope out of the Belay device)
- Lead Belay: Taking In! (Belayer Pulling up the slack rope)
Second Climber: Thats Me! (Climber acknowledges he is tight on the rope)
Lead Belay: Climb when ready! (The Belayer has you on Belay)
Second Climber: Climbing!
Lead Belay: OK! (Belayer acknowledges, only now is it safe to climb).
- Climber: Take In ! (Please Pull in the Rope)
Climber: Slack! (Please let out a small amount of Rope)
Climber: Take! (About to Fall off, please don't drop me)
Climber: Below!! (I just pulled off a rock or dropped some gear, mind your head)
Climber: Rope Below! ...(wait 3 seconds) Below! (Throwing a rope down)

Demonstrate knowledge of Climbing calls

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Building the Belay and the act of Belaying

- Video: How to Belay <https://www.youtube.com/watch?v=i5kTsLaw0Vk>
- Direct Belay 100% of the load is on the anchors, commonly a "secure" rock,tree,bolt with HMS crab and Italian Hitch
- Indirect Belay, commonly a waist belay, with your body providing the friction and most of the load. Used quickly to give confidence on topping out. Quite hard to hold any but the shortest of falls (keep slack out of rope).
- Semi-Direct
 - Typical rock climbing belay , used with a harness and sound anchors
 - Small amount of load only, passed onto Climber, rest passed onto anchors through rope
 - HMS karabiner with Belay device connected to tie-in Rope loop

- Building the Belay
 - Anchors in reach , connect using a Clove Hitch on a Locking Crab
 - Anchors out of reach , loop rope back to Climber; attach to HMS crab connected to tie-in loop via clove Hitch (2 max per HMS crab or 1 for D-Type) or Figure8 on the bight through the tie-in loop
 - ABC – Anchors ,Belay & Climber all in line (in both the horizontal and the vertical plane). Forces transferred directly onto the Anchors
 - 3 Anchor essentials
 - Anchors Independent. One failed anchor should not affect any other.
 - Anchors ideal angle 60degrees or less. (60=58%,90=71%,120=100%)
 - Anchors equally loaded, equals rope in tension to all anchors.
 - Stance when belaying a lead climber from below, close to the rock, to prevent the anchors being pulled, just out of the fall line of the climber.
 - Stance when belaying a second from above, position so you can visually see the climber.
 - The dead rope comes out of the bottom of the belay device when belaying a lead climber or bottom roping; invert the belay so the dead rope comes out the top when belaying a second from the top of the climb
 - Bring the ropes from the anchors together to one side of the body, usually the right side if you are right handed and prefer belaying with the dead rope in the right hand. Allows the load to transfer to the anchors.
 - Make sure the break arm is free to allow backward move to lock of the belay
 - How to Tie off the Belay
 - Video: <http://www.ukclimbing.com/articles/page.php?id=3295>
- Using a Rigging Rope
 - Building a typical bottom rope , 2 anchor system, Minimum equipment (safety chain)
 - Bringing in a third anchor with overhand knot (or bringing two ropes together with figure of eight knot and HMS crab and clove hitch).
 - Creating a Personal abseil (2 points with overhand knot) for repeated descents
 - Rigging for Group abseil with Double Figure of Eight on the bight, tied of Italian Hitch

Ability to build a belay with a rigging rope for bottom roping with 2 and 3 anchors equalised has been demonstrated

Ability to build a belay with climbing rope for a top rope (lead climbing) with anchors in and out of reach

Ability to belay a climber in bottom and top roping environment

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Abseiling

- Using a belay device and French Prusik as an autobloc, crab clipped to leg loop
- Using an Italian hitch (when you have dropped your belay device)
- Backing up an abseil from the bottom for a nervous climber by pulling the rope tight
- Retrievable Abseil
 - In situ anchor has to be trusted (Maillon connected to a bolt chain or “tat”)
 - Backing up the first (usually the heaviest) abseiler with unloaded independent anchors if there is doubt on the safety of the anchor

- Importance of clipping both ropes
- Identify which rope to pull from the bottom (while at the top)
- First person down does a test pull of a foot of rope (check that it will pull)

Ability to abseil safely with a French Prusik and a belay device

Ability to abseil safely with a French Prusik and an Italian Hitch

[Date: / / 2015] [Mentor: _____]

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Multi-Pitch Climbing (Belaying processes)

- **Leading Through**, common practice where two people alternate the lead climbing
- First person climbs to belay, connects to anchors.
- Is aware of the direction of the next pitch and takes a stance capable of belaying this
- Is aware of where the second will stand on arrival, connect a spare crab to either the central point or to the anchors, for the second to be made safe and receive the gear.
- Often take a stance which is facing the rock, hanging gently off the anchors is the best position that orientates you for the belay on the next pitch
- Pull in the slack rope (taking in), lap the rope across the ropes that go to the anchors in decreasingly sized loops or lap onto a ledge or behind a rock spike
- When the second arrives, takes his rope(s) and clove hitch him to the spare crab(s)
- Lock of the belay plate with a slippery hitch and half hitch
- Provide the lead gear to the second. Clip this onto an accessible rope
- Second may provide a spare jacket to the belayer
- Consult the guidebook for information on the next pitch and understand the next belay
- The belayer may need to Re-orientate the belay device to make sure rope is running through correctly and able to brake a fall
- Once back on belay, the new leader unclips from the anchors and starts to climb
- It's of utmost importance that the new leader gets a piece of protection (first runner) in early to avoid falling past the belay and the associated load transferred to both climber and belayer. It is preferable for the new leader to clip a high runner that forms part of the belay if no runners are obvious. This can be unclipped by the belayer once the new leader has placed several more secure runners if it creates rope drag.
- **Leading On**, where just one person leads all the pitches, be conscious of where your second will need to stand to belay you and equip the belay with spare crabs accordingly
- Often creating a central attachment point with a large sling and two Crabs is the most efficient mechanism rather than build a belay using the Rope.
- Run the ropes through so that the rope to the leader become is on the top of the pile

Have participated as a (second) climber on a Multipitch climb in a Leading On scenario

[Date: / / 2015] [Mentor: _____]

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Problem Solving

These are problem solving scenarios from the SPA and MPA courses, and not expected to be mastered in the limited time of the IMC New Members Training

- ## Dalkey Recommended Climbs for IMC Training (blanks for additions)

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