

2013 International Intercollegiate Mining Games
Colorado School of Mines
Golden, Colorado, USA



Official Rules and Regulations

35th Annual Intercollegiate Mining Games

Official Rules

Team Competition

Each team shall consist of a minimum of 5 competitors, with the option of having a 6th “alternate” competitor. Teams may interchange competitors within their team as they please. Each competitor may only be a member of one team.

Five competitors will be required for the following events:

- Swede Saw
- Track Stand
- Single Jack (Hand Steeling)
- Mucking
- Gold Panning

Two competitors will be required for the following events:

- Jackleg Drilling
- Surveying

Individual Competition:

On Sunday, March 17th individual competitions in each event will be held. No one will be permitted to compete in individual events prior to or after March 17th. This competition is open to all competitors as well as the general public. Registration for the individual competition will be open at 7 a.m. on the morning of the event. An informal awards presentation will be held at the conclusion of the competition. Please read the rules for the individual competition, as some events have significant deviations from the team style. Please note that survey will not be offered as an individual event, and track stand will be replaced by spike-driving.

Equipment:

Teams may bring any equipment that they wish to use for any event in the competition, with the exception of the Jackleg event. Equipment must be made available for use by other teams during the competition.

Outside equipment must be checked in with a games official no later than mid-day on practice day, Thursday March 14th. Any equipment not checked in will not be permitted for use in the competition.

All equipment that is checked in will be inspected for compliance with the rules before it is made available for use. If a piece of equipment is deemed to be in violation of the rules, the owner will be notified. A special note on steels: if an official feels that a steel is unsafe to use because of “mushrooming” of the head the owner will be notified and given the option of letting an official dress the head, or the owner may dress the head under the supervision of an official. Once equipment is checked in, it will not be allowed to leave the competition field. At the end of each day, officials will store equipment for safety from tampering and theft.

Anyone caught tampering with or stealing equipment of another team will be immediately disqualified from the competition, and the legal implications will be left to the discretion of the owner of the equipment.

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In the event a piece of equipment fails, the owner of the equipment will be notified and given the chance to repair the equipment. Once repairs are made, the equipment will be re-inspected to ensure compliance with the rules.

All equipment will be made available for pick up at the conclusion of the Men's Event on Saturday, March 16th.

*Please note ALL equipment is brought at your own risk, and the Colorado School of Mines International Mining Committee does not take responsibility for items damaged during the course of the competition.

Safety Equipment:

All competitors are to comply with the safety regulations including any safety related directions given by a Games official. They are in place to protect everyone involved. Everybody must follow the safety regulations on the practice and competition days. Repeated failure to follow safety related directions from a competition official may result in disqualification from an event or from the competition entirely. Competitors are expected to provide their own personal protection equipment.

Steel toed shoes are required for all events and will be checked randomly throughout the day. Other PPE required includes hard hats, safety glasses, and gloves.

Scoring System:

The teams will be divided into Men's, Women's, Co-Ed and Alumni/ Company.

Co-Ed teams should consist of at least two of each sex. Five person events shall be completed by at least two of each sex; two person events shall be completed by at least one member of each sex.

Points will be awarded to each team for each event completed. If a team is disqualified they will receive the maximum number of points for that event.

Points will be awarded in terms of the team's position within their division. The first place team for each event will receive only one point, the second place team will receive 2 points, and so forth. Should an event position be tied, a one on one event tie-breaker will be arranged. Points will then be summed and the team with the lowest score will be declared the overall winner for that division.

Should two teams have the same final score, a tie breaker will be applied. The tie breaker will consist of a random draw of 5 event (gold pan, track stand, hand steel, swede saw, or mucking) and the teams will compete for the win. A coin toss will determine which team competes first, unless a team volunteers and the other team agrees.

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Team Event Rules:

Swede Saw:

The following PPE will be required in this event:

- Hard Hat
- Steel Toed Boots
- Safety Glasses

Five members from each team will participate in this event. Using two 36" bow saws, competitors will alternate cutting through a 6"X6" timber. The cumulative time will be used for scoring. The team with the fastest time wins.

Each team will be given a 28" section of wood which will be divided into seven 4" sections. Two sections may be discarded at the discretion of the team. Sections may be discarded due to poor quality, knots, or any other reason the team decides on. The discarded sections will be denoted by an 'X' through that section. One extra bow saw will be available should one of the other two break. Teams will have the option to replace one blade before the timing starts. Should a blade break during the competition, the clock will continue to run whilst the saws are swapped, however the competitor may continue with the same cut.

Time will start once the first competitor's blade comes in contact with the timber. When one competitor finishes sawing through the timber, the next competitor may commence. There may only be one saw in contact with the block of wood at a time. Time will end when the 5th competitor saws through the timber.

Penalties will be given if competitors deviate from a straight cut over 1-1/2 inches. Additionally, if a competitor breaks out of his or her 4 inch section into another competitor's, he or she will be advised by the judge to re-start. If ample sections are available (e.g. the discarded blocks have not yet been cut away), a competitor will be allowed to cut into the next section. Should this happen a second time, the team will be disqualified. Penalties will also be given for competitors using a saw to hit a piece of wood off the section.

Penalties:

- 2 "breakout," events – disqualification
- Breaking section of wood by hitting – 1 minute
- Deviation of cut by over 1 1/2" – 30 seconds

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Mucking

The following PPE is required in this event:

- Hard Hat
- Safety Glasses
- Steel Toed Boots

Five members from each team will compete in this event, three of which will be muckers and two will be screeders.

The team will be given 10 minutes to prepare the muck pile before time is started. After this period, the muck pile may not be touched by any member of the team until the time is started.

The event begins by tramping the empty cart down 75' of track and back to the muck pile. Up to 3 team members may push the cart at the beginning. Muckers may start filling the cart once it is returned to the start. Only two muckers will be allowed to shovel material at any one time with the third mucker alternating at determined intervals. The two screeders level the muck in the cart and may only touch muck that has first been moved by a shovel.

When the cart is deemed full, the judge will give the indication that the cart has been filled. The full cart is then trammed down the length of the track and back again. All five competitors may help tram the cart the second time. Time will stop when the full car touches the backstop at the end of the track nearest the muck pile. The fastest overall time wins.

On Running the Cart: The cart must start touching the backstop at the muck pile end and must touch the backstop on the far end before returning. Competitors must not cross the tracks in front of a moving cart. Failure to comply will result in disqualification of the team for that event. Teams must make an effort to slow the cart before changing directions or stopping. Hitting a stop too hard will result in a penalty, and discretion will be left to the judges. Derailing of the cart will result in disqualification from the event.

Note: Women's teams will fill the cart to a designated line roughly 2/3 the volume of a full cart. Men and co-ed teams will fill the cart to the brim.

Penalties:

- Person in between rail in front of moving car - disqualification
- Three team members mucking - disqualification
- Derailing of car – disqualification
- Hitting stop too hard – 20 seconds

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Gold Panning

The following PPE will be required in this event:

- Hard Hat
- Safety Glasses

Five members of each team are required for this event. Each competitor will be given a gold pan with approximately 1 lb. of material containing 5 flattened lead BBs. When a competitor has found all five BBs and placed them in the judge's hand, he or she will call "time". The cumulative time for all five competitors will be added together with the lowest team time declared winner.

All competitors will start with his or her pan on the lip of the gold pan trough. Once the judge signals, timing will start and the competitor will be allowed to pan for the BBs. The competitor is responsible for placing each BB in the judge's hand. Each BB that is lost in the panning process or in the process of getting the BB from the pan into the judges hand will result in a 5 minute penalty. Competitors may help one another "spot" BBs. A competitor may not touch another competitor's pan or material. A five minute penalty will result in failure to comply.

Penalties:

- Lost BB – 5 minutes
- Contact with another pan or competitor's material – 5 minutes

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Surveying

The following PPE will be required for the surveying event:

- Hard Hat
- Steel Toed Shoes
- Safety Glasses

Two members of each team will compete in the surveying event. A theodolite of TBA specifications will be used. No EDM's or Total Stations will be permitted. The hosting team will provide all equipment, except calculators. Teams may bring their own calculators and materials (i.e. clipboards and pens). Calculation sheets and non-programmable calculators may be used.

Judges will inspect survey equipment prior to each use and again at the end. The surveyors are responsible for damages to the equipment while in their possession.

Each team will be given their equipment and coordinates of an initial "A" station (N, E, Z) and a back azimuth. The competitors will then have to transfer the coordinates through an intermediate "B" station to a final "C" station. Each team will be given 1 hour in which to take measurements and 15 minutes to complete calculations.

Equipment will be boxed up and secured at the beginning of the event. Judges will record a starting time at which the team will begin. Time will be stopped when the crew has completed its survey and all equipment is boxed and returned to the judge. The judge will check equipment. If not properly stowed, the judge will indicate a problem and time will resume until the problems are corrected. The judge will not specifically identify the problem; it will be the team's responsibility to find and correct the issue.

Each team will use the following to complete this task:

- 1 Theodolite (specifications TBA)
- 1 Tripod
- 1 Chain
- 1 Rod
- 1 Plum Bobs

Teams will be ranked by their error according to the total error of closure between their calculated coordinates for their "C" station and the actual "C" station coordinates as determined by the judges. The judge will have the right to disqualify any team who is being reckless with equipment or causing damage. Any team intentionally interfering with equipment or survey stations will be also be disqualified. Judges may also disqualify a team for not making an honest attempt at the event. Should two teams obtain the same error, the time to complete measurements and calculations will be taken into consideration to determine the rankings.

Penalties

- Recklessness with equipment – Disqualification
- No attempt made to complete survey – Disqualification
- Overtime for measurements – Disqualification
- Every 5 minutes overtime for calculations - +3' to error

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Track Stand

The following PPE will be required for the track stand event:

- Hard Hat
- Safety Glasses
- Steel Toed Boots.

Four members from each team will compete in the track stand event while the fifth member will act as a foreman for the team. The foreman can only give instructions, point out problems, and help keep the team running smoothly. The foreman is not allowed to touch any tools or materials.

The teams must install 2 X 20' lengths of 35 lb./yd rail on five 6"X6"X3' ties at a 2' gauge. The rails must be connected to an existing piece of rail by means of four joint bars and eight bolts. Bolts must be tightened to a minimum of 35 ft-lb.

The rail must be held in place on the ties by 4 spikes per tie (1 on each side of each rail). 21 spikes will be given to each team; one spike will be a spare in case of breakage or loss. Spikes will be 1/2" X 4". The track must be kept to a 2' gauge along its length with a provided track gauge, which will be made available to the teams for use during the event.

Teams will be timed for both the construction and tear down of the track. Prior to timing, teams will be given 10 minutes beforehand to level and prepare the ground where the track will be constructed. The teams will then stand behind a designated line with all of their materials and equipment. A judge will indicated time starting and the team will then be able to bring all material and tools past the line and construct the rail. Once the track has been constructed, all members and tools are to move behind the line again, and the foreman will be required to call "time" before the judge stops the clock.

The teams track will then be inspected for quality and any penalties recorded.

If any team member travels under or over a piece of moving rail during the event, they will be disqualified.

Teams will then be timed in the same way on the dismantlement of the rail section. Teams will not be allowed to elevate the section of rail in order to hit the ties loose; doing so will result in disqualification. All materials including tools should be removed behind the line prior to the foreman calling "time" for the dismantle. Any items left on the field will incur time penalties.

Times for construction and tear down of the rail will be added, along with any incurred penalties. The team with the fastest total time wins.

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Penalties:

- Travelling under/over rail – disqualification
- Elevating constructed track – disqualification
- Any item left in front of the line – 10 seconds per item
- Spike not driven into tie – 10 seconds per occurrence. (1 popsicle stick thickness between rail and spike head)
- Bolts not tight enough (35 ft-lb) – 15 seconds per occurrence
- Not using spike in correct position, - 30 seconds per occurrence
- Hanging ties – 20 seconds per tie (2 popsicle stick's thickness between base of rail and top of tie)
- Incorrect gauge – 40 seconds
- Spike left in tie after disassembly – 20 seconds per occurrence

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Jackleg Drilling

The Following PPE is required for the Jackleg Drilling Event:

- Hard Hat
- Safety Glasses
- Double Hearing Protection
- Steel Toed Boots

Two members from each team are required for this event; one driller and one assistant.

The driller will have 3 minutes to drill as far as possible into a high square and a low square painted onto a concrete block. Each square will be 4"X4" and will be allocated to teams at random. The teams will drill into the blocks using MWS83F Drill, using a 4ft steel with a cross bit. The clock will not stop for a stuck steel. The driller and assistant may swap between drilling of squares.

Before time is started the driller and assistant will be allotted 5 minutes to set up the drill and determine the placement of the airleg. Before the 5 minutes is up the drill must be behind the designated line with the steel out of the chuck.

If the driller is male the assistant may not touch the drill or the steel during the event, the assistant may only help by moving hoses, the assistant is not allowed to help remove the steel by pulling on the hoses.

If the driller is female, the assistant may help by nipping (assist in collaring the hole).

For the Co-Ed division each team must have one male driller and one female driller.

While drilling, it is mandatory that the driller has one foot on the ground and does not straddle the airleg. Failure to do so will result in the air being turned off.

In the event of breaking out of the sides of the block, drilling into another hole, or drilling outside of the designated square, teams will be penalized.

The team that drills the deepest after penalties have been deducted will be the winner. Holes will be measured to the 16th of an inch.

Penalties:

- Air being shut off more than once, - Disqualification
- Straddling the air leg – Air turned off
- Male driller aided by assistant – longest hole deducted from length, 2nd time disqualification
- Drilling out of designated square – 12" deducted from length.
- Drilling out of side of block – Hole Not Counted
- Drilling into another hole – Hole Not Counted

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Single Jack (Hand Steeling)

The following PPE will be required for the Single Jack event,

- Safety glasses
- Steel Toed Boots
- Hard Hat

Five members from each team are required to compete in this event. Each member will be given 2 minutes to drill as deep as possible into a 6"X6" square painted on a concrete block.

The hosting team will provide a set of steels and hammers for the event. A set of drill steels must consist of; a starting steel, seven inches in length ($\pm \frac{1}{2}$ inch) including the length of the handle and a finishing steel capable of drilling six inches in depth. Both steels in a set must have the appropriate chisel width to create a $\frac{7}{8}$ inch diameter hole within a ± 16 th tolerance. The drilling medium will consist of concrete blocks constructed using aggregate no larger than $\frac{1}{2}$ inch diameter.

Water may be used to flush the holes while drilling. After the last member has finished, the team will have one minute to flush out the holes and remove chips. Plugs will be provided to prevent chips from entering completed holes.

Male competitors will be required to use a 4 lb. hammer while female competitors may use either 3 lb. or 4 lb. hammer.

Should a team drill into another hole, that hole's length will not be counted in measuring total length, and a new hole will be required to be started. Time will not be restarted.

All competitors will be required to hold the steel while it is being struck with the hammer. The judge will indicate when the steel is not properly held. On the third offense (as a team) the team will be disqualified. Should a team member strike the side of the steel, the next member will be required to take over drilling and the team will lose the remaining amount of time that driller had remaining.

All holes will be measured from the surface of the concrete block to the base of the hole to the 32nd of an inch. The deepest total length wins.

Penalties:

- 3rd time steel not held when struck – team disqualification
- Striking side of steel - disqualification for team member

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Individual Event Rules

The individual event rules will be the same as the team event rules with the following exceptions:

Swede Saw

Individuals will begin from behind a designated line once time start the individual will run up to the timber, cut their section, and return behind the line. Once the individual is behind the line time will stop.

Mucking

Individuals will not be required to tram the cart neither empty nor full. The individual may pick two screeders of his or her choice.

Jackleg Drilling

The driller may pick an assistant of his or her choice to help with hoses. Women may have a nipper. The driller will have 3 minutes to drill into one square.

Single Jack

The individual will have 5 minutes to drill as deep as possible.

Spike Driving

Individuals will begin behind a designated line once time starts the individual will set and drive 2 spikes, one spike on each side of a section of rail. Time will stop when the competitor is back across the line. The judge will inspect the spikes the same as in the track stand event. The fastest time with penalties wins.

Gold Pan

The individual rules for this event are the same as in the team event.