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Record of Revisions

Rule	Effective Date	Page(s)	Revised Rule or Summary of Change
I D 1 (a)	16 June 2016	7	<i>Each contestant must be currently enrolled at the institution the team represents.</i>
I E 5	16 June 2016	9	<i>The Message Drop Event may be entered by a maximum of five (5) dropmasters from each team. An individual may compete in the Message Drop event no more than two (2) times, and may only compete as a Dropmaster one (1) time.</i>
1 M	16 June 2016	19-23	Replaced entire scoring section. No change to existing practice, just clerical edits.
II B 6 (i)	16 June 2016	29	<i>In the event that sufficient time is available for three landings, the best flying technique and lowest total distance, in feet, for the best two landings shall determine the winner.</i>

I. General Rules

A. Fitness for Competition Policy

1. Each contestant must be fit for competing in any event they are entered in. Fitness must include a personal a personal assessment of his/her physical condition pertinent to the event to be entered including, but not limited to:
 - a) Influence or impairment from alcohol, narcotic, or any over the counter medications.
 - b) Personal health related to illness such as colds, headaches, broken bones, pulled muscles, etc...
 - c) Adequately alert, physiologically, and psychologically rested to safely compete.
 - d) Any other condition that may adversely affect safety. (IM SAFE checklist, AIM recommendations, etc...)
2. No contestant may compete if they cannot successfully complete the personal assessment.
3. Additionally, no coach, advisor, or teammate may allow a team member to compete if that individual knows of any deficiency in the fitness of that contestant pertinent to the event to be completed.
4. Each coach or advisor must be satisfied that each of his/her contestants entered in a flight event as pilot in command are able to operate in a safe and professional manner at the SAFECON. This should be accomplished through flying with or closely observing each team member that is participating in a flight event during team preparations prior to the SAFECON competition start time.
5. Failure to comply with this policy may subject the individual or team to the disciplinary action listed in the current NIFA rules.

B. Airplane Eligibility

1. Aircraft type certificated as Airplane-Single Engine Land only.
2. No more than four (4) place.
3. Maximum horsepower-250 bhp.
4. May not be equipped with an after-market STOL modification.
5. In order to be eligible for the “Traditional” category in the Navigation event, the aircraft must meet requirements 1 through 4 above as well as containing no area navigation capabilities. This includes, but is not limited to, GPS, LORAN, Single (or multiple) point R-NAV units, or any other area navigation equipment. This prohibition applies to both installed and portable devices.

C. *Team Eligibility*

1. Each team must be associated with a regionally accredited institution of higher education.
2. Each team must be a member in good standing with the NIFA. This means the school/club dues are paid for the current competition year.
3. Only one team may represent any one campus.
4. Each team must be accompanied by a faculty advisor or other advisor recognized by their institution as the official representative for their team. Advisors are to register with the host school upon arrival.

D. Contestant Eligibility

1. Each contestant must be currently enrolled at the institution the team represents.
 - a) An exception is given for flight education students who have been delayed completing their degree flight requirements for financial, medical or other valid reasons. If a student is enrolled in a flight course that requires a FAA certificate or rating for course completion, as the last course required completing requirements to receive a degree in flight education, the period of eligibility can be extended. This eligibility would extend for a period not to exceed six months from the time that all other academic ground course requirements for the degree have been met.
2. Each contestant may compete in no more than four (4) regional and four (4) national SAFECONS.
3. Each contestant shall be able to show proof of items 1 and 2. If the SAFECON is held after the normal semester, the contestant is considered eligible as if the SAFECON were held during the normal semester.
4. Contestants acting as pilot-in-command in flying events must possess at least a Private Pilot certificate with appropriate category and class ratings and meet current FAA medical certificate requirements.
5. Contestants who hold or have ever held an Airline Transport Pilot certificate or have accumulated more than 1500 total flight hours are not eligible to compete.
6. Contestants who possess a Flight Instructor Certificate may compete in a maximum of two regional and two national SAFECONS once they obtain their CFI. However, contestants may not exceed the overall limit of competing in four (4) regional and four (4) national SAFECONS.
7. Contestants who hold or have ever held a Mechanic/Technician certificate are not eligible to compete in the Preflight Event.
8. A contestant must have attended the Safety and General Contestant briefings in order to be eligible to compete in any event. In the case of special circumstances, an alternate

briefing may be authorized by the Chief Judge or his/her designee

E. Registration and Event Entry Limitations

1. Contestants must register with the host school upon arrival.
2. A contestant may compete in each event only once.
3. All team entries that are to be made by mail must be submitted prior to the deadline set by the Executive Committee or host school. All Entries must be made on the forms provided by the host school. Copies of those forms will be acceptable.
4. Landing events may be entered by a maximum of five (5) contestants from each team. The minimum number of aircraft used by each team will be set by the executive committee in the case of a national SAFECON and the chief judge in the case of a regional SAFECON.
5. The Message Drop Event may be entered by a maximum of five (5) dropmasters from each team. An individual may compete in the Message Drop event no more than two (2) times, and may only compete as a Dropmaster one (1) time.
6. The Navigation Event may be entered by a maximum of three (3) contestants from each school. One aircraft can be used in no more than two (2) heats in the Navigation Event.
7. Ground events may be entered by a maximum of five (5) contestants from each team.
8. The IFR Simulated Flight Event may be entered by a maximum of two (2) contestants from each team.
9. The schedule of events and the actual number of contestants allowed to compete in any event shall be determined by the Executive Committee in the case of a National SAFECON or the host school in the case of a Regional SAFECON.

F. Traffic Control

1. Information pertaining to radio communications and local operating procedures and policies will be sent to each team at least two (2) weeks prior to the start of the SAFECON.
2. All pilots are expected to comply with local operating procedures and policies as soon as they arrive at the host airport. No contestant may begin any flight practice until they have received information regarding the local operating procedures and policies.
3. During the SAFECON each participant shall comply with all traffic flows, engine shutdown lines, safety areas, and other instructions given by the Staging Officer and/or Safety Officer.

G. *Practice Flights and Aircraft Check-outs*

1. The host school shall establish designated landing practice days and periods. Outlying airports shall also be designated. Practice periods shall be coordinated through the Executive Committee or host school. If no schedule has been established when a team arrives, then all practice must be conducted in Day-VFR conditions while in compliance with local operating procedures and policies.
2. All flight activity except for competition flights shall cease at the close of established practice period, or sunset if no established practice period has been set, the day of the General Contestant Briefing. After the cessation of practice, no contestant shall fly any flight for any reason without the consent of the Chief Judge.
3. No practice in a ground trainer, simulator, or other flight simulation device is authorized after the close of the established practice period or receipt of the pattern, whichever is first.

H. Safety Precautions

1. After initial arrival at SAFECON by a contestant, no flight by that contestant as a pilot or a passenger is authorized after sunset without the consent of the Chief Judge. Any flight that is authorized after sunset and conducted outside the traffic pattern must be on a flight plan filed with flight service.
2. No flight activity is permitted during competition when the steady wind condition exceeds 25 knots or the gust factor exceeds 10 knots.
3. No flight activity is permitted during competition when the crosswind component exceeds 15 knots or 10 knots during the landing events.
4. The ceiling for the traffic pattern must meet the Federal Aviation Regulations for VFR in the airspace of conduct. Traffic pattern visibility must be at least three (3) statute miles.
5. For the Navigation Event, the ceiling must be at least 500 feet above the highest altitude required for the route to be flown and the minimum visibility must be at least five (5) statute miles.
6. For any event that involves flight into IFR conditions, the ceiling must be at least 1500 feet and the surface visibility at least 3 statute miles.
7. Formation flights (intentional flight with less than 500 feet separation) are not authorized from the time of leaving home airport until returning to home airport.
8. All taxiing must be at a slow and reasonable speed.
9. No passengers may be carried during any flight during the SAFECON. All flights during the landing event must be solo. Only pilots and dropmasters may be in the airplane during the Message Drop Event. Only pilots and observers (or judges) may be in the airplane during the Navigation Event.
10. Contestants not involved in the staging process are to remain clear of the staging area.
11. In addition to the applicable FARs, the consumption or use of, or being under the influence of, alcoholic beverages, illegal drugs or

substances, or illegal narcotics in any quantity by contestants is prohibited from the time of departure from the team's home airport until the time they return. In any case, the use or consumption of alcohol by the contestants of any competing school (including the host school) is prohibited from a period beginning 24 hours prior to the General Contestant Briefing until 24 hours after the conclusion of the last activity as indicated on the official schedule of events as published or as amended by the team advisors.

12. All contestants are expected to comply with the Federal Aviation Regulations at all times. Contestants will be under special safety scrutiny during the entire time they are at the site of the SAFECON.

I. Communications with Contestants

1. All portable communications devices (e.g. mobile phones, pagers, pdas, etc.) shall be turned off during any competition event.
2. During flight competition, no communications (other than Air Traffic Control or for safety of flight) is to take place between a person in the airplane and anyone on the ground or airborne outside the aircraft unless authorized by the Chief Judge.
3. During ground competition, no communications is to take place between any contestant in a ground event and anyone other than a judge.
4. During the Navigation Event there shall be no communication between those who have completed their flight and those who are waiting to start.
5. Any communication between team members for the purpose of coordinating team members or for logistical reason shall be on frequencies approved for that type of use.

J. *Disciplinary Action*

1. Teams and contestants at national and regional SAFECONS are subject to disciplinary action by the NIFA Council for, but not limited to, the following:
 - a) NIFA rule violations
 - b) FAR violations
 - c) civil law violations
 - d) causing physical or verbal harm to others
 - e) conduct unbecoming or embarrassing to others.
2. The Chief Judge shall make a ruling on any disciplinary action regarding alleged violations of I.J(a) or (b) by contestants or teams. The contestant or team may appeal this ruling to the NIFA Council. A two-thirds (2/3) majority of those Council members hearing the appeal must agree on the outcome of the appeal.
3. A majority of the NIFA Council members present at the national SAFECON, chaired by the NIFA Council Chair or the Executive Director should the Council Chair not be present, shall hear any case regarding alleged violations of I.J (c) (d) or (e) by a contestant or team. A two-thirds (2/3) majority of those Council members present at the hearing must agree on any disciplinary action.
4. Cases of violations may be initiated by a judge, NIFA executive, or NIFA Council member. Any contestant, advisor, coach, or judge who observes a violation should report it to the Chief Judge, Executive Director, or NIFA Council Chair.
5. The party(s) accused of a violation shall have the opportunity to speak in their defense. The team's advisor shall also have the opportunity to speak in the defense of the accused.
6. Regional SAFECON-The regional council member or chief judge (should the regional council member not be present) shall formulate a body to act as a "regional NIFA council" for the purpose of disciplinary action for this section.
7. Disciplinary action may include, but is not limited to;

- a) elimination of the contestant(s) or team from a particular event.
- b) elimination of the contestant(s) or team from the entire SAFECON.
- c) suspension from NIFA competition for a designated period.

K. Exceptions

1. The Chief Judge may make verbal exceptions to the extent necessary for the safe conduct of events.
2. Any exception that will involve scoring or safety item shall be made in conjunction with a majority of team advisors present.
3. The NIFA Council/"Regional NIFA Council" can make an exception to any rule by a two-thirds (2/3) majority vote of those Council members voting. These exceptions must be given to the affected teams in writing as soon as practical.

L. Judges

1. The Chief Judge for the National SAFECON will be approved by the NIFA Council, and other judges will be approved by the Executive Committee. Regional SAFECON judges will be approved by the Regional Organization or the NIFA Judges Committee.
2. Judges will be aided by Starters, Timers, Measurers and other necessary helpers during the SAFECON.
3. The judges will meet in closed session following each event. They will examine the safety observers' comments and determine the first ten places for each event. Their decision will be final. Winners will be announced at the Awards Banquet. Measurements and times of individual contestants may be released by the judge.
4. No advisor from any competing school or any other person connected with a competing team shall be with the judges during judging, unless invited by the Chief Judge.
5. The Chief Judge shall submit each contestant's score and, if possible, place standing in each event to the team advisor within 24 hours after the conclusion of the last event.

M. Scoring

1. Each event will be scored and described under the individual event
 - a) The flying events will be scored as follows:

	Power-Off Landings, Short-Field Landings, Navigation	Message Drop, IFR Events, and CRM/LOFT
1 st place	40 points	20 points
2 nd place	38 points	19 points
3 rd place	36 points	18 points
4 th place	34 points	17 points
5 th place	32 points	16 points
6 th place	30 points	15 points
7 th place	28 points	14 points
8 th place	26 points	13 points
9 th place	24 points	12 points
10 th place	22 points	11 points
11 th place	20 points	10 points
12 th place	18 points	9 points
13 th place	16 points	8 points
14 th place	14 points	7 points
15 th place	12 points	6 points
16 th place	10 points	5 points
17 th place	8 points	4 points
18 th place	6 points	3 points
19 th place	4 points	2 points
20 th place	2 points	1 point

- b) The ground events will be scored as follows:

1 st place	20 points	11 th place	10 points
2 nd place	19 points	12 th place	9 points
3 rd place	18 points	13 th place	8 points
4 th place	17 points	14 th place	7 points
5 th place	16 points	15 th place	6 points
6 th place	15 points	16 th place	5 points
7 th place	14 points	17 th place	4 points
8 th place	13 points	18 th place	3 points
9 th place	12 points	19 th place	2 points
10 th place	11 points	20 th place	1 point

2. If a tie exists the judges shall make up tie breaking problems and/or hold a run-off contest. If a run-off contest is not practical, the tie will exist and each contestant will be awarded points as determined by the following formula:

(Points per table above for place + points for subsequent places up to the total number of tied contestants for that given place) / number of tied contestants for that given place.

Additionally, if a tie occurs the next awarded place will be calculated as:

(Place of tied contestants + number of tied contestants for that given place)

3. Individual Cumulative Event Awards
 - a) The “Top Pilot” of the SAFECON shall be the contestant who holds at least a private pilot’s license and a current medical, and who earns the largest total number of points in the following events:
 - (1) Power Off Landing Event
 - (2) Short Field Approach and Landing Event
 - (3) Navigation Event
 - (4) Ground Trainer Event
 - (5) Preflight Event
 - (6) SCAN
 - b) However, to be designated “Top Pilot,” a contestant must place fifth or higher in one of the three following flying events (if flying events are held):
 - (1) Power Off Landing Event
 - (2) Short Field Approach and Landing Event
 - (3) Navigation Event

- c) In the event of a tie, the following events will be considered one at a time and the following order to determine the top pilot.
 - (1) Computer Accuracy
 - (2) Aircraft Recognition
 - (3) Message Drop

- d) In the event of a contest shortened due to weather or some other unforeseen circumstances, at least one full round of the Power-Off Landing Event, Short-Field Landing Event, OR Navigation Event must be completed in order to award the “Top Pilot” award. In the event of this occurrence, any physical or monetary awards associated with the “Top Pilot” award will go to the contestant who accumulates the most points as outlined in letter (e) below.

- e) The Top Scoring Contestant will be awarded to the individual contestant who accumulates the largest total number of points in the SAFECON.

- f) For the purpose of this section the following rules apply to awarding individual points for multi-contestant events:
 - (1) Navigation – Points earned in the Navigation Event will be applied to the PILOT’s cumulative total for Top Pilot and Top Scoring Contestant.

 - (2) CRM/LOFT – Points earned in the CRM/LOFT Event will be split evenly amongst the two contestants and applied to their respective cumulative total for Top Pilot and Top Scoring Contestant.

 - (3) Message Drop – Points earned in the Message Drop Event will be applied to the DROPMASTER’s cumulative total for Top Pilot and Top Scoring Contestant.

4. Team Awards

- a) The SAFECON Flying Events Champion shall be the team who earns the largest number of points in the Flying Events.

- b) The SAFECON Ground Events Champion shall be the team who earns the largest number of points in the Ground Events.
- c) The SAFECON Judges Trophy shall be awarded to the team that earns the largest number of points as determined by the following rules:
- d) Each contestant (other than those disqualified) will earn points for their respective rank.
- e) The points awarded to each contestant will be determined by the following formula:

(Number of Contestants in Event + 1) – contestant rank

- f) Points in the case of a tie will be awarded using the following:

(Points per formula in (b) above for place + points for subsequent places up to the total number of tied contestants for that given place) / number of tied contestants for that given place.

- g) Additionally, if a tie occurs the next awarded place will be calculated as:

(Place of tied contestants + number of tied contestants for that given place)

- h) The points described in this paragraph apply to the Judges Trophy ONLY. All other Team and Individual Awards are based on the points described in the tables contained in I. M. 1.
 - i) The SAFECON Champion (National Champion in the case of a National SAFECON) shall be the team who earns the largest number of points in the overall SAFECON.
5. In case weather or time forces the closing of any event, a completed event shall consist of each registered team flying one contestant in that particular event. Should weather or time force the closing of any event part way through a round, the scores from the completed rounds ONLY shall be computed for determining team standings. Individual standings, however, may be based on scores earned in an incomplete round.

6. Announcements of the results at the awards banquet are final.

II. Flying Event Rules

A. *Power Off Landings*

1. Each contestant will make three landings, provided sufficient time is available. This will be determined by the Chief Judge prior to starting the event; otherwise, only two landings will be made.
2. Each airplane will make a normal take-off and climb at least 400 feet AGL before turning crosswind. The first turn should be delayed until proper spacing between airplanes can be obtained in the pattern. The second and third take-offs, if safety permits, will be from touch and go.
3. A rectangular pattern shall be flown with the downwind leg parallel to the active runway and as close as practical. Power shall be reduced to idle opposite the spot of intended landing, at an altitude not less than 800 feet AGL. From this point on, a rectangular pattern shall be flown at normal gliding speed for the airplane in use. The engine may be "cleared" in a normal manner once, while on base leg. At completion of the final turn, the contestant must be at an altitude of not less than 200 feet AGL.
4. Proper spacing in the pattern shall be maintained by each contestant. If proper spacing cannot be maintained, the overtaking airplane shall make a go-around and the contestant shall be disqualified unless the judges rule that the failure to maintain spacing was beyond the contestant's control (such as a non-contestant aircraft improperly entering the pattern or the previous contestant, flying an unusually elongated traffic pattern). No 360 degree turns or "S" turns shall be permitted on any leg of the pattern unless directed by ATC. Approved methods of attaining proper spacing are:
 - a) extension of the take-off leg, or
 - b) reduced speed on the downwind leg.
5. Flaps may be used in a normal manner on an airplane so equipped. They may be extended until the aircraft is 100 feet AGL on final approach and not retracted until after landing.

6. Scoring

- a) All aircraft shall be judged on the basis of a constant angle of approach, that is, one in which no rapid or radical change in attitude of the aircraft is made.
- b) A target line will be marked on the runway, a safe distance from the approach end. A white foul line will be placed 100 feet short of the target line and another white foul line 200 feet beyond the target line.
- c) All landings within the white foul lines will be scored at their actual distance in feet from the target line where both main landing gear touch down and remain firmly on the ground, except for a crosswind landing which shall be scored where the upwind wheel first touches down and remains firmly on the ground. The downwind wheel need NOT remain firmly on the ground and will NOT be scored.
- d) Touching short of the first white foul line or landing beyond the second white foul line shall result in a penalty of 400 points for that landing. The actual distance shall not be measured.
- e) If an airplane bounces short of the target line and touches down and stays at a point closer to the target line, the measurement will be made to the point of touchdown farthest from the target line.
- f) Tail wheel equipped airplanes must touchdown in a three-point attitude. Tricycle gear airplanes must touchdown in a normal attitude, on the main wheels. Improper traffic pattern, approach, flare or touchdown shall result in a penalty. The exact amount shall be determined by the judges.
- g) Use of high power settings on final approach and touchdown in extremely tail-low attitudes shall result in disqualification. Touchdown shall be scored where the main gear remains firmly on the ground.
- h) In the event that sufficient time is available for three landings, the best flying technique and lowest total distance, in feet, for the best two landings shall determine the winner.

- i) Addition of power after reduction to idle opposite the landing point (other than a clearing burst on base leg) shall result in a penalty of 200 points. Failure to add power when obviously necessary to execute a safe landing will result in disqualification.
 - j) The following maneuvers may result in disqualification or a penalty of up to 400 points:
 - (1) The use of slips other than necessary for crosswind correction.
 - (2) Irregular pattern, "S" turns, fishtailing, etc.
 - (3) Excessively slow, fast, or long approach.
 - (4) Go-around due to poor planning or spacing by the contestant.
 - (5) Completion of final turn below 200 feet AGL.
 - (6) Floating in excess of five (5) seconds from point at which the airplane is no longer in a descending flight path on final approach until touch down.
 - (7) Any action deemed by the judges to be careless or reckless, including excessive "jamming" of the airplane onto the ground or allowing the airplane to become dangerously low while on base leg or final approach.
 - (8) A disqualification should be given to an airplane that starts an excessively wide pattern that forces other airplanes to follow; causing the pattern to become elongated from abeam the point of touchdown to final.
 - (9) A following airplane that closes to a potentially unsafe interval with the preceding airplane and does not properly go around.
7. The landing event will not be conducted when the crosswind component exceeds 10 knots.

B. Short Field Approach and Landing

1. Each contestant will make three landings, provided sufficient time is available. This will be determined by the judges prior to the start of the event, otherwise only two landings will be made.
2. Each airplane will make a normal takeoff and climb at least 400 feet AGL before turning crosswind. The first turn should be delayed until proper spacing between airplanes can be obtained in the pattern. The second and third takeoffs, if safety permits, will be from touch and go.
3. A rectangular pattern shall be flown with the downwind leg parallel to the active runway and as close as practical. Power must be reduced opposite the spot of intended landing, at an altitude of not less than 800 feet AGL. From this point on, performance will be judged on the basis of an approach without having to reapply power to correct for obvious errors, planning a proper approach path, and the ability to attain and hold proper approach speeds in accordance with accepted short field technique. The contestant shall fly a rectangular pattern with the final turn completed at an altitude of not less than 200 feet AGL. Extremely elongated patterns and excessively long, low final approaches shall result in disqualification.
4. Proper spacing in the pattern shall be maintained by each contestant. If proper spacing cannot be maintained, the overtaking airplane shall make a go-around and the contestant shall be disqualified unless the judges rule that failure to maintain spacing was beyond the contestant's control (such as non-contestant aircraft improperly entering the pattern or the previous contestant flying an unusually elongated pattern.) No 360 degree turns or "S" turns shall be permitted on any leg of the pattern unless directed by ATC. Approved methods of attaining proper spacing are:
 - a) extension of the take-off leg, or
 - b) reduced speed on the downwind leg
5. Maximum flaps will be used, consistent with existing wind conditions, on an airplane so equipped. They may be extended until the airplane is 100 feet AGL on final approach and not retracted until after landing.

6. Scoring

- a) All aircraft shall be judged on the basis of a constant angle of approach, that is, one in which no rapid or radical change in attitude of the aircraft is made.
- b) A target line will be marked on the runway, a safe distance from the approach end. A white foul line will be placed 100 feet short of the target line and another white foul line 200 feet beyond the target line.
- c) All landings within the white lines will be scored at their actual distance in feet from the target line where both main landing gear touch down and remain firmly on the ground, except for a crosswind landing which shall be scored where the upwind wheel first touches down and remains firmly on the ground. The downwind wheel need NOT remain firmly on the ground and will NOT be scored.
- d) Touching short of the first white foul line or landing beyond the second white foul line shall result in a penalty of 400 points for that landing. The actual distance shall not be measured.
- e) If an airplane bounces short of the target line and touches down and stays at a point closer to the target line, the measurement will be made to the point of touchdown farthest from the target line. Likewise, if an airplane touches down beyond the target line and bounces, the measurement shall be made to the final point of touchdown farthest from the target line.
- f) Tail wheel equipped airplanes must touch down in a three-point attitude. Tricycle gear airplanes must touch down in a full stall attitude at minimum control airspeed.. Improper traffic pattern, approach, flare, and touchdown shall result in a penalty. The exact amount shall be determined by the judges.
- g) Use of high power settings on final approach and touchdown in extremely tail-low attitudes shall result in disqualification. Touchdown shall be scored where the main gear remains firmly on the ground.

- h) In the event that sufficient time is available for three landings, the best flying technique and lowest total distance, in feet, for the best two landings shall determine the winner.
- i) Addition of power after reduction opposite the landing point shall result in a penalty of 200 points. Failure to add power when obviously necessary to execute a safe landing will result in disqualification.
- j) The following maneuvers may result in disqualification or a penalty of up to 400 points:
 - (1) The use of slips other than necessary for crosswind correction.
 - (2) Irregular pattern, "S" turns, fishtailing, etc.
 - (3) Excessively slow, fast, or long approach.
 - (4) Go-around due to poor planning or spacing by the contestant.
 - (5) Completion of final turn below 200 feet AGL.
 - (6) Floating in excess of five (5) seconds from point at which the airplane is no longer in a descending flight path on final approach until touch down.
 - (7) Any action deemed by the judges to be careless or reckless, including excessive "jamming" of the airplane onto the ground or allowing the airplane to become dangerously low while on base leg or final approach.
 - (8) A disqualification should be given to an airplane that starts an excessively wide pattern that forces other airplanes to follow; causing the pattern to become elongated from abeam the point of touchdown to final.
 - (9) A following airplane that closes to a potentially unsafe interval with the preceding airplane and does not properly go around.
- k) The landing event will not be conducted when the crosswind component exceeds 10 knots.

C. *Navigation*

1. The Navigation event may consist of two categories: Traditional and Unlimited. Should both categories be contested at a SAFECON, scoring metrics shall be identical for both.
2. In order to be eligible to compete in the Traditional category, an aircraft must meet the requirements of General Rule I. B. (5). Should the aircraft not meet those requirements, the aircraft and contestant will be moved into the Unlimited category. Intent to compete in the Traditional or Unlimited category must be declared by the deadline specified by the Chief Judge. A list showing entrants in each category shall be maintained and posted by the Chief Judge on the NIFA website.
3. A choice of true airspeeds may be offered by the Chief Judge prior to the event e.g. 85 knots, 95 knots, 100 knots, 120 knots. This is to ensure proper spacing is maintained along the routes. The contestant must plan the flight using his selected choice of true airspeed offered by the Chief Judge. This choice must be made by the deadline specified by the Chief Judge and may not be changed once the heat sheet is published.
4. This event shall consist of a cross-country flight over a multiple leg course between 70 nautical miles and 120 nautical miles in length. The 70-120 nautical mile distance requirement shall be calculated from the start point of the course to the final checkpoint. The same routes shall be used for both the Traditional and Unlimited categories.
 - a) In the event multiple routes are used, all routes shall share the same characteristics such as overall length (no more than 10% variance), number of legs, general length of legs, specified distances from checkpoints, and any other pertinent metrics.
5. A team member or safety observer must accompany the navigation contestant. These individuals must meet the following requirements:
 - a) Contestants and team members must be registered members of the same team. If a team cannot meet this requirement, the Chief Judge may appoint a safety observer.

- b) Contestants and team members must meet the eligibility requirements of rule I.D.
 - c) No contestant or team member may fly more than one navigation route.
6. The altitude for the flight may be assigned by the Navigation Judge. Current Federal Aviation Regulations must be observed at all times.
 7. The aircraft will be flown in a clean cruise configuration.
 8. The airplane must pass directly over each checkpoint in straight and level flight on a track consistent with a direct course from the previous checkpoint or point of departure. The turn to the next leg should be started, immediately after passing the checkpoint and in the direction prescribed by the navigation briefing.
 9. Airplanes must be fueled prior to the beginning of the navigation event, preferably the night before the competition.
 10. Each contestant must submit a flight plan prior to takeoff including, but not limited to, the estimated time enroute for each leg, the estimated total time enroute from the start point of the course to the last checkpoint, and the estimated fuel consumption from engine start until engine shutdown. The Navigation Judge shall determine the planning time. This flight plan shall be submitted on the approved NIFA Navigation Event Flight Planning Form within the allotted time.
 - a) In the Traditional category, the flight planning must be completed using only a current NOAA sectional chart. Multiple charts may be taped or stapled together, but it is the contestant's responsibility to prove chart currency. Flight computers and calculators may also be used in planning. The use of any automated flight planning software is prohibited.
 - b) In the Unlimited category, the flight planning may be completed using any equipment that meets FAA standards for primary use in flight planning and enroute VFR navigation. The contestant may be required to prove aeronautical data currency on the device to be used. The student is responsible for ensuring any electronic equipment to be used in flight planning and enroute has adequate

electrical charge to complete the event. NIFA will not be responsible or obligated to provide outlets, battery packs, or other sources of electricity at any point in the Navigation event.

11. Scoring

- a) The Traditional and Unlimited categories will be scored and ranked independently of each other.
- b) Fuel penalty points will be assigned based on the accuracy of the estimation of fuel consumption for the entire flight. (engine start to engine shutdown)
- c) Penalty points will be assigned based on the difference in seconds for the following:
 - (1) Estimated vs. actual total elapsed time from the start point of the course to the time over the last checkpoint.
 - (2) Estimated vs. actual time enroute for each leg of the course.
- d) Scoring parameters may include penalty points for the following metrics:
 - (1) Accurate identification of symbols, geographic references, pictures, or other markers on the ground at each checkpoint or at intermediate point(s) along the route. Penalty points will be assessed for failure to identify, or incorrectly identifying, the symbol, geographic reference, picture, or other marker. The symbol must be accurately marked on the paperwork provided in planning.
 - (2) Failure to fly within a specified distance of a checkpoint on an appropriate heading. This distance shall be published and may vary for each checkpoint. This distance shall not exceed the radius of a cone centered over the checkpoint projecting vertically with a 2 degree angle off a vertical line centered over the checkpoint.
 - (3) Deviation from average groundspeed on each leg (not calculated within 2 nautical miles of a checkpoint)

- (4) Deviation from altitude on each leg (not calculated if the leg involves a change in altitude)
 - (5) Course cross-track deviation on each leg (not calculated within 2 nautical miles of a checkpoint)
 - (6) Excessive bank angles
 - (7) Failure to complete section A of the NIFA Navigation Event Planning Form
- e) Lowest total score will determine the winner in each category

12. The following will result in disqualification:

- a) Altitude deviation of more than 500 feet, except in the interest of flight safety
- b) Circling and heading deviations in excess of 60 degrees, except as needed to initially establish track on each leg or in the interest of flight safety
- c) Deviation from estimated flight time on any leg by plus or minus 5 minutes
- d) Operating in an unsafe or hazardous manner, including exceeding a 45 degree bank angle
- e) Operating in other than a clean configuration. This includes slow flight or flight at minimum controllable airspeed
- f) Tampering with GPS recording devices placed in aircraft by judges
- g) The use of a cell phone or texting device, except in case of an emergency
- h) Incorrect plotting of checkpoint on sectional chart or electronic means by more than 2 nautical miles
- i) Failure to plan at the chosen true airspeed
- j) Incorrect plotting of course (backwards)
- k) Incomplete chart or incomplete filling out of section B of the NIFA Navigation Event Planning Form
- l) Use of fuel dipsticks when refueling for scoring purposes

- m) Unauthorized communication with other team members or contestants
- n) Use of any area navigation equipment, automated or electronic flight planning systems, or the like when competing in the Traditional category

D. Message Drop

1. If possible one drop run should be made using two message drop containers. These containers must comply with the attached specifications. Two targets may be utilized; one located near the approach end of the runway and the other near the departure end. No mechanical or electronic devices may be used for dropping the containers or for calibrating the time of release.
2. Each airplane shall make a normal take-off and climb at least 400 feet before making the first turn. After the run, the same climb out procedure and pattern shall be used. After landing, each airplane must clear the runway as soon as it is safe to do so. Pilots must refrain from making excessively long downwind legs, thus delaying the competition.
3. A rectangular pattern shall be flown at the recommended traffic pattern altitude for that airport. Power shall be reduced on the downwind leg and the turn onto final approach shall be completed above 300 feet AGL. At no time during the drop run shall the altitude be less than 200 feet above the level of the airport. The drop run shall be made generally into the wind at normal cruising speed. Flaps and landing gear (if applicable) must be fully retracted.
4. Proper spacing in the pattern shall be maintained by each aircraft. If proper spacing cannot be maintained, the overtaking airplane shall make a go-around. No "S" turns or 360 degree turns will be permitted on the downwind leg. Approved methods of obtaining proper spacing are:
 - a) extension of the take-off leg, or
 - b) slow flight on the downwind leg.
5. Scoring
 - a) The drop run over each target shall be counted whether the container is dropped or not.
 - b) The total distance from the drop container to the target will be measured in feet. The lowest total distance for the two containers will determine the winner.

- c) The following maneuvers will result in disqualification:
 - (1) Failure to drop two containers on drop run.
 - (2) Low or high airspeed or unusual attitude on drop run.
 - (3) Altitude less than 200 feet AGL during the drop run.
 - (4) Irregular pattern, “S” turns, slow flight, or diving during a run.
 - (5) Any action deemed by the judges to be careless or reckless
- d) The following items will result in penalty shown.
 - (1) Streamer fails to deploy or separates from the message container prior to contact with the ground. (300 points)
- e) The message drop container must conform to the specifications listed and/or shown in this book.

E. IFR Precision Flight

1. Each team may enter one contestant in the IFR Precision Flight Event. Contestants must be instrument rated and must meet the IFR recency of experience requirements as specified in Part 61 of the FAR's.
2. The Chief Judge will approve conduct of this event based on prevailing conditions.
3. Contestants shall fly an IFR check flight in VMC (Visual Meteorological Conditions) under simulated instrument conditions, maintaining visual contact with the ground at all times, and be evaluated on the basis of the precision with which the instrument pattern is flown. This check flight will not exceed two hours duration and may cover any of the following segments:
 - a) A ground phase, including an IFR clearance test.
 - b) A flight phase, including:
 - (1) An instrument departure.
 - (2) A demonstration of basic, IFR maneuvers—the execution of climbs, descents, and turns; changes in airspeed and airplane configuration; recovery from unusual attitudes; and use of the clock.
 - (3) A holding pattern at either a NAVAID or at an intersection.
 - (4) A non-precision approach—with procedure turn; inbound/outbound tracking of a VOR radial; and descent to MDA.
 - (5) A missed approach.
4. Contestants may be required to demonstrate some of these maneuvers with partial panel. The event judge shall specify which radio aids and reference instruments may be used during any segment of the check flight.
5. Contestant Aircraft: Each contestant may use his/her own aircraft or one provided by the event sponsor. In either case, the aircraft must:

- a) Be a 4-place airplane so that a safety observer can ride along.
 - b) Meet all FAA requirements for operation in instrument conditions.
 - c) Have at least one VOR receiver.
 - d) Meet any minimum performance requirements imposed by the event judge to insure air safety.
 - e) Have dual controls and be configured so that the check pilot can monitor and evaluate the flight and navigation instruments. In no event shall a contestant be allowed to use an autopilot, a slaved ADF, a pictorial navigation indicator, an RMI, or and RNAV during the contest. Any questions about equipment will be resolved by the Chief Judge before the flight.
6. Each contestant shall furnish an IFR hood that effectively restricts outside visual reference for the pilot and does not unduly restrict visibility for the check pilot. The event judge shall have final authority to determine hood suitability.
 7. All contestants shall fly the same instrument navigation pattern. Contestants may have up to two hours to review the flight plan prior to their scheduled departure. Contestants are expected to furnish any logs, knee boards, approach plate holders, or other aids they may want to use during the check flight.
 8. Each contestant will be evaluated on the basis of following specified procedures and on how accurately airspeed, altitude, heading, course, and time are maintained as appropriate for each segment of the check flight. Deviations will result in the assessment of penalty points or in disqualification. The minimum acceptable precision expected of contestants is that required to pass an instrument check ride (see the FAA Instrument Practical Test Standards).
 9. Scoring: (Scoring for each phase of the contest shall be as follows)
 - a) The ground phase:
 - (1) IFR CLEARANCE: Up to 200 points maximum penalty based on the percentage error for incorrectly reading

back an IFR clearance—i.e., 3 elements missed out of a 10 element clearance message, 30 percent error = 60 points penalty, and an additional penalty (50 points) each time the clearance is repeated at the request of the contestant.

b) The air phase: The following deviations shall result in a 20 point penalty for each occurrence exceeding 5 seconds duration during the check flight:

- (1) Failure to maintain heading (when appropriate) within + 10 degrees (20 points per 10 degrees).
- (2) Deviations of greater than +100 feet from assigned or published altitude (20 points per 100 feet).
- (3) Failure to execute turns at standard rate within a tolerance of + 5 seconds for each 90 degrees of turn.
- (4) Failure to level off from a climb or descent within + 100 feet of assigned altitude (20 points per 100 feet).
- (5) Failure to maintain specified airspeed in climb, descent, or an approach (20 points per knot).
- (6) Failure to begin or end legs on time (20 points per 10 seconds).

All of the above penalty values double after passing the station outbound on approach.

The following deviations shall result in a 50 point penalty for each occurrence exceeding 30 seconds during the check flight.

- (1) Failure to capture on track (except during approach) a prescribed radial of a VOR within + 5 degrees of a prescribed bearing.
- (2) Failure to make any required position reports during the check flight. This includes position reports required by FAR's as well as those required by the judge. Required reporting points will be reviewed in the briefing.
- (3) Failure to operate avionics equipment properly

A 100 point penalty will be assessed for the following deviations:

- (1) Any action deemed irregular by the check pilot but not necessarily so hazardous or unsafe as to be disqualifying. This would include such things as turns in an incorrect direction and flying of incorrect headings for a protracted length of time. The Judge's decision to apply this penalty will be strongly influenced by the length of time required for the contestant to discover his or her error.

The following actions shall result in disqualification:

- (1) Significant deviation from, or failure to execute, any portion of the assigned IFR flight pattern or ATC clearance (for example, incorrect frequency or OBS selection not caught within 30 seconds).
 - (2) Exceeding any clearance limit.
 - (3) Operating more than 100 feet below any published MEA, MSA, or approach segment altitude as appropriate to the leg being flown.
 - (4) Going below minimum descent altitude (MDA), or failing to execute a missed approach at the defined missed approach point (MA-P).
 - (5) Reckless, hazardous, or unsafe flying, including loss of positive airplane control or any other maneuver that causes the airplane to enter an unusual attitude.
10. The contestant accumulating the least points from the combined score of the ground and air phases of the IFR Precision Flight Event shall be declared the winner.

F. IFR Simulated Flight

1. The purpose of this event is to test contestants in a simulated, dynamic IFR flight environment while performing to the standard procedures required by the Aeronautical Information Manual (AIM) and Air Traffic Control (ATC).
2. This event will be conducted in an IFR configured simulator with an automatic computer program capable of accepting scoring parameters appropriate to a given flight.
3. All contestants for a meet will fly the same flight with the same scoring parameters.
4. Each contestant must hold an Instrument Rating.
5. Each flight may include any or all of the following: departure climbs, descents, and turns; VOR and NDB tracking; radar vectors; a non-precision approach; a precision approach; a missed approach; a landing; and all communications required to conduct an IFR flight.
6. Scoring guidelines:
 - a) Automated scoring will be based on the accepted tolerances of the Practical Test Standard (PTS) for an instrument flight check. Penalty points will accrue based on the following (actual points will be based on the flight and equipment limitations):
 - (1) 50% or less deviation - no penalty points
 - (2) 51% to 100% deviation - minor point penalty
 - (3) Greater than 100% deviation - major point penalty
 - b) Significant departure from flight plan such as wrong turns, violating protected airspace, more than 500 ft. altitude error, descent below MDA or DA will incur a gross penalty.
 - c) Discretionary penalties will be awarded by the event judge for items such as, but not limited to, the following:
 - (1) Failure to make a required position report.
 - (2) Failure to make a requested radio report.

- (3) Failure to identify a navigation aid prior to use.
 - (4) Additional penalties based on flight scenario.
 - d) Rough and abusive mishandling of the equipment will result in disqualification and termination of the flight.
7. Actual scoring parameters and penalties for a contest will be provided by the event sponsor with the team's contestant packages.
 8. The flight pattern for a contest will be given to the teams at the general contestant briefing.
 9. Contestant recourse to equipment malfunction will be determined by the chief judge and the event judge.
 10. A contestant may terminate a flight at any time and accept disqualification.

G. CRM/LOFT (Crew Resource Management/Line Oriented Flight Training)

1. The purpose of this event is to test the contestant's problem solving ability in a team environment. They will be tested during a "real time" simulated flight.
2. All contestants must hold an instrument rating. A multi-engine rating is preferred.
3. Each competing school may enter one team of two pilots.
4. The event will be flown in an IFR capable simulator with two crew positions. Dual controls are preferred, but not required.
5. All contestants will fly the same line oriented flight training (LOFT) scenario during the during of the SAFECON. Differences may occur if the contestants alter the intended path of the LOFT through their decisions. All resultant paths must be identical. For example, all teams who make decision A will get result B.
6. Each LOFT scenario will be scripted from the crew's first contact with the other crewmembers to the final landing, or other resolution point. The LOFT will be designed with contingencies for any deviations the contestants make from the proposed plan. Once started, the LOFT will be in "real time." Some cruise segments may be shortened for the sake of time. The contestants will be notified of any such deviation both before the LOFT scenario starts and again while the deviation is being made.
7. The LOFT scenario will be planned with an even and realistic mix of simple problems (i.e. one navigational radio failing) and complex situations (i.e. one of three landing gear not extending). Specific simulator or aircraft knowledge will not be tested. The event is designed to test the contestant's ability to work together to solve problems, not to diagnose complex aircraft systems problems.
8. The judge(s) will act as all outside parties (air traffic control, company maintenance, passengers or flight attendant, etc.). The contestants must address these third parties the way they

would in a real aircraft. For example, they must tune in the correct radio frequency to talk to air traffic control.

9. Scoring

- a) Points will be deducted based on the severity of the error. For example, an altitude deviation will be a larger penalty than not setting the correct transponder code.
 - b) The penalty points will be totaled. The absolute value of the contestant's score will determine the ranking of the teams. The lowest score wins.
 - c) Contestants may terminate a flight at any time and accept disqualification.
 - d) Rough and abusive handling of the equipment will result in disqualification and termination of the flight.
 - e) Actual scoring parameters and penalties for a contest will be determined by the event judge(s) with the consent of the chief judge.
10. Simulator malfunctions will be appropriately handled by the event judge(s). The event judge(s) and the chief judge will determine contestant recourse to equipment malfunction.
11. The route of flight and other pertinent information will be given to the contestants prior to the actual flight.

III. Ground Event Rules

A. Computer Accuracy

1. Each contestant will solve problems involving the use of a manually operated –flight computer. (A list of approved manual flight computers can be found in the NIFA Judges Manual and on the NIFA web site.)
2. The examination shall consist of multiple choice, true-false, or fill-in type problems.
3. Only unaltered, approved manually operated flight computers will be used.
4. Scoring:
 - a) Contestants may solve the problems in any numerical sequence.
 - b) Answers will be equally weighted. Complex problems should be broken down into several simpler problems.
 - c) Final score shall be based on the total number of correct answers.
 - d) If a tie exists, the tie will be broken by the contestant with the shortest completion time.
 - e) If a tie still exists the judge shall make up several tie-breaking problems and hold a run-off contest.
5. This will be a timed event.

B. Ground Trainer

1. The pattern to be flown in competition shall be distributed to all team captains on the evening prior to competition. A copy of the pattern furnished by the judge will be the only copy allowed in the trainer during competition. The contestants, at their own discretion, will be allowed to add individual markings or notations to the copy provided by the judge for use in the trainer during competition.
2. Scoring
 - a) A computerized scoring system may be developed by the event sponsor, or
 - b) Scoring will be based on a total of 600 points. Points will be deducted as follows:
 - (1) One point for each second of error in excess of three (3) seconds per leg. If the contestant does not deviate by more than 3 seconds, no points will be deducted. Therefore, an error of 7 seconds results in a deduction of 7 points while an error of 3 seconds causes no deduction.
 - (2) One point for each 10 feet of total altitude error on each leg if the contestant deviates from his/her assigned altitude by more than 30 feet. If the contestant does not deviate by more than 30 feet, no points will be deducted. Therefore, an error of 100 feet results in a deduction of 10 points while an error of 30 feet causes no deduction.
 - (3) Errors in airspeed in excess of three (3) miles per hour will be scored on the basis of one point deducted for each mile per hour of total error. If the contestant does not deviate by more than 3 miles per hour, no points will be deducted. Therefore, an error of 8 miles per hour results in a deduction of 8 points while an error of 3 miles per hour causes no deduction.
 - (4) Errors in heading in excess of three (3) degrees will be scored on the basis of one point deducted for each degree of total error. If the contestant does not deviate by more than 3 degrees, no points will be deducted.

Therefore, an error of 9 degrees results in a deduction of 9 points while an error of 3 degrees causes no deduction.

- (5) Failure to turn in the proper direction will result in a 50 point penalty.
 - (6) Poor bank control will result in a 15 point penalty.
 - (7) Points will be deducted for poor coordination on the basis of 25 points for each ball width of the ball beyond the cage.
3. Stalling or deviating from the assigned altitude by more than 500 feet will result in disqualification.
 4. Rough handling - causing any control to hit limit stops - will result in disqualification.
 5. In the event of a tie, the judge shall designate a pattern to be flown in a run-off contest.

C. Aircraft Preflight Inspection

1. A light, single engine general aviation airplane shall be “bugged” with at least 30 discrepancies. These discrepancies must be of such a nature that it is reasonable to expect them to be detected by a competent private pilot during the course of a normal preflight inspection. The discrepancy list will be reviewed by both the preflight judge and chief judge prior to the start of the event.
2. If two airplanes are used, they must be identical.
3. The airplane must be hidden from view of spectators and other contestants.
4. Contestants from the same team must immediately follow one another in the contest.
5. Contestants shall be given not more than 15 minutes to perform the inspection.
6. Scoring:
 - a) Each contestant will earn one point for each discrepancy detected from the discrepancy list.
 - b) An additional point can be awarded for each existing discrepancy discovered by the contestant that is not listed on the judge’s discrepancy list. One point will be subtracted for each call made that is not an existing discrepancy. The preflight judge will, before the scores are officially submitted, review with the chief judge all such point adjustments for calls made on discrepancies not on the original list.
 - c) Preflight technique will be scored in categories of Method and Thoroughness as poor, average, or excellent in the points range of 1-5, (5 being the most points in each category with a maximum of 10 points possible). [Example: “Did not drain fuel”, “Did not check fuel quantity”, “Failed to follow logical inspection sequence”, etc.] Running, rough handling of the control surfaces, or erratic and abnormal patterns of flow shall result in a loss of points from the total 10 technique points available.

- d) In the event of a tie, the contestant taking the least amount of time to complete the inspection shall be declared the winner.
- e) Each contestant immediately after completing their individual preflight inspection shall have an additional two (2) minutes to express comments and/or concerns to the preflight judge.
- f) High score wins.

D. Aircraft Recognition

1. This contest shall consist of not less than thirty images of aircraft.
2. Each image shall be shown for approximately three seconds. An additional 15 seconds will be allowed for selecting the manufacturer, number designation, and official name on the answer sheet. Thirty seconds will be allowed if the answers must be hand written.
3. This contest should be held at one time. If it is held more than once, all contestants from a particular team must participate during the same testing session.
4. Scoring:
 - a) One point will be awarded for each correct manufacturer, number designation, and official name noted. Some aircraft have no number designation or official name.
 - b) In the event of tie scores, the contestant with the highest number of correct answers on the write-in section of the test, shall be given the higher fractional score. If a tie remains after comparing the write-in section scores, the judge has the option to (on a sudden death scoring basis):
 - (1) either re-score only the write-in answer portion of the test, or
 - (2) show additional slides to each contestant (individually) until each tie is broken.
 - c) Janes, All the World's Aircraft shall be used as final authority for identifying aircraft.

E. SCAN (Simulated Comprehensive Aircraft Navigation)

1. Each contestant will be given identical packets which will include:
 - a) A list of approximately forty (40) questions all of which are concerning one particular hypothetical flight from a given point of departure to one or more points of destination, and return to point of departure. These questions are multiple choice, true-false, or fill-in and are divided into two parts, which are:
 - (1) Preflight planning, which should include questions concerning: FARs, weight and balance, fuel consumption, route planning, weather, and all information required for filing flight plans.
 - (2) En route - which should include questions related to chart interpretation, FARs, weather, fuel consumption, air speed, ground speed, and other items of concern which could be encountered on an actual flight.
 - b) Navigational charts to cover route of flight. (Note: a section, to cover flight, may be cut from a chart and copied to reduce the expense of supplying a chart to each contestant.)
 - c) Information, or copies of graphic displays, should be supplied to provide information concerning terminal control areas, etc., which would be encountered on a proposed flight.
 - d) Necessary information about the aircraft to be used for the flight which could include:
 - (1) weight and balance information
 - (2) operational data of aircraft
 - (3) other information from Owners Manual which would be needed.
 - e) Data page - This should include all information a pilot would need to solve problems given in the questions such as route information, conditions of flight, airplane performance, and flight altitudes.

- f) Answer sheet - There should be space for: contestants name, contestants school, date, time of completion, spaces for each question's answer with four (4) choices.
2. Equipment which should be brought by the contestants are: non-programmable flight computer, plotter, pen, and pencil. Basic four mathematical function (addition, subtractions, multiplication, and division) non-programmable calculators will also be allowed. Electronic devices capable of storing and retrieving user inputted or commercially prepared text will not be allowed.
3. Scoring:
- a) Answers should be equally weighted.
 - b) Final score shall be based on the total number of correct answers.
 - c) If a tie exists, the tie will be broken by the contestant with the shortest completion time.
 - d) This will be a timed event.

F. Electronic Flight Computer

1. Each contestant will be given identical packets which will include:
 - a) A preflight planner
 - b) Problem exercises for competition
 - c) Three sheets of scratch paper.
2. Equipment which should be brought by the contestants are:
 - a) Pen or pencil
 - b) Any computer/calculator with volatile memory consistent with FAA regulations (Advisory Circular 60-11A). ALL MEMORY STORAGE MUST BE CLEARED PRIOR TO THE START OF THE EVENT.
3. Scoring:
 - a) Final score will be based on the total number of correct answers.
 - b) In the event of a tie, the tie will be broken based on which contestant took the shortest completion time.
4. This is a timed event.

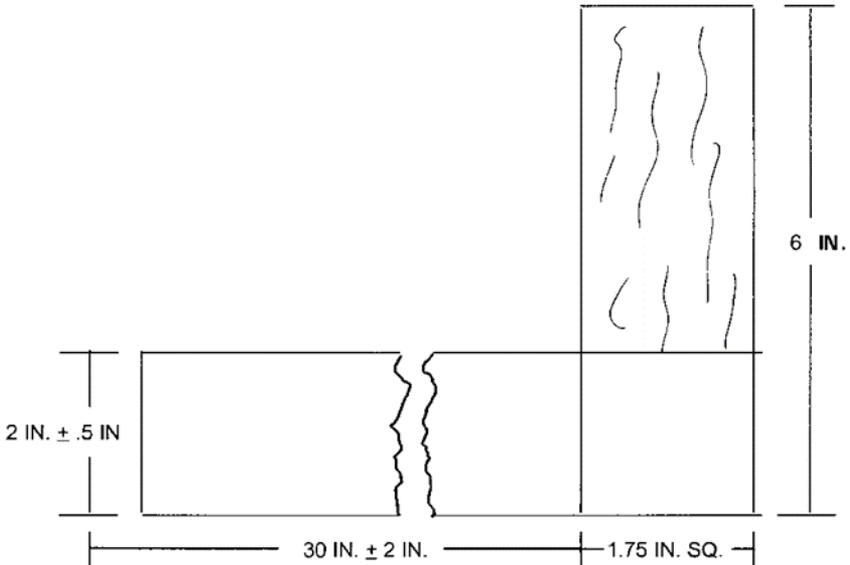
Message Drop Container Specifications

CONTAINER BODY

- * 6" X 1.75" X 1.75"
- * May be constructed of any material
- * Must be able to contain a 3x5 card or similar score sheet.
- * Must be able to seal or close message compartment. Compartment must be able to be readily opened after being dropped. If a cork or other plug is used, it need not be aerodynamically shaped.
- * All dimensions $\pm .125"$, unless noted otherwise.
- * Overall weight, with streamer attached and 3x5 card and plug inserted, may not exceed 2.5 oz.
- * May be finished in colors.

STREAMER

- * 30" ($\pm 2"$) X 2" ($\pm .5"$), NOT including that part of the ribbon used to attach to the body.
- * Dacron or similar material.
- * Edge may be pinked, cut on bias, or Sealed to prevent fraying.
- * Attachment may vary.



Event Penalty Tables

The penalty values listed in the following tables are found in various NIFA documents. They have been listed here in order to provide a single source reference for coaches, contestants, and judges

Aircraft Preflight Inspection

PENALTY ASSESSMENT	
<p>An additional point can be awarded for each existing discrepancy discovered by the contestant that is not listed on the judge's discrepancy list. One point will be subtracted for each call made that is not an existing discrepancy. The preflight judge will, before the scores are officially submitted, review with the chief judge all such point adjustments for calls made on discrepancies not on the original list.</p>	variable
<p>Each contestant will earn one point for each discrepancy detected from the discrepancy list.</p>	variable
<p>Preflight technique will be scored in categories of Method and Thoroughness as poor, average, or excellent in the points range of 1-5, (5 being the most points in each category with a maximum of 10 points possible). [Example: "Did not drain fuel", "Did not check fuel quantity", "Failed to follow logical inspection sequence", etc.] Running, rough handling of the control surfaces, or erratic and abnormal patterns of flow shall result in a loss of points from the total 10 technique points available</p>	10
DISQUALIFICATIONS	

Aircraft Recognition

PENALTY ASSESSMENT	
One point will be awarded for each correct manufacturer, number designation, and official name noted. Some aircraft have no number designation or official name	1
DISQUALIFICATIONS	

Computer Accuracy

PENALTY ASSESSMENT	
Answers will be equally weighted	
DISQUALIFICATIONS	

CRM/LOFT (Crew Resource Management/Line Oriented Flight Training)

PENALTY ASSESSMENT	
Points will be deducted on the severity of the error	variable
DISQUALIFICATIONS	
Request by contestant to terminate flight	DQ
Rough and abusive mishandling of the equipment	DQ

Electronic Flight Computer

PENALTY ASSESSMENT	
Final score will be based on the total number of correct answers	1
DISQUALIFICATIONS	

Ground Trainer

PENALTY ASSESSMENT	
Errors in airspeed in excess of three (3) miles per hour will be scored on the basis of one point deducted for each mile per hour of total error. If the contestant does not deviate by more than 3 miles per hour, no points will be deducted. Therefore, an error of 8 miles per hour results in a deduction of 8 points while an error of 3 miles per hour causes no deduction.	1 / mph
Errors in heading in excess of three (3) degrees will be scored on the basis of one point deducted for each degree of total error. If the contestant does not deviate by more than 3 degrees, no points will be deducted. Therefore, an error of 9 degrees results in a deduction of 9 points while an error of 3 degrees causes no deduction.	1 / deg
Failure to turn in the proper direction	50
One point for each 10 feet of total altitude error on each leg if the contestant deviates from his/her assigned altitude by more than 30 feet. If the contestant does not deviate by more than 30 feet, no points will be deducted. Therefore, an error of 100 feet results in a deduction of 10 points while an error of 30 feet causes no deduction.	1 / 10'
One point for each second of error in excess of three (3) seconds per leg. If the contestant does not deviate by more than 3 seconds, no points will be deducted. Therefore, an error of 7 seconds results in a deduction of 7 points while an error of 3 seconds causes no deduction.	1 / sec
Points will be deducted for poor coordination on the basis of 25 points for each ball width of the ball beyond the cage	25 / ball deviation
Poor bank control	15

DISQUALIFICATIONS	
Rough handling - causing any control to hit limit stops	DQ
Stalling or deviating from the assigned altitude by more than 500 feet	DQ

IFR Precision Flight

GROUND PHASE	
Up to 200 points maximum penalty based on the percentage error for incorrectly reading back an IFR clearance—i.e., 3 elements missed out of a 10 element clearance message, 30 percent error = 60 points penalty, and an additional penalty (50 points) each time the clearance is repeated at the request of the contestant.	Up to 200
AIR PHASE	
Deviations of greater than ± 100 feet from assigned or published altitude (20 points per 100 feet) for more than 5 seconds	20
Failure to begin or end legs on time (20 points per 10 seconds) for more than 5 seconds All of the above penalty values <u>double</u> after passing the station outbound on approach	20
Failure to capture on track (except during approach) a prescribed radial of a VOR within ± 5 degrees of a prescribed bearing	50
Failure to execute turns at standard rate within a tolerance of ± 5 seconds for each 90 degrees of turn for more than 5 seconds	20
Failure to maintain heading (when appropriate) within ± 10 degrees (20 points per 10 degrees) for more than 5 seconds	20
Failure to maintain specified airspeed in climb, descent, or an approach (20 points per knot) for more than 5 seconds	20
Failure to make any required position reports during the check flight. This includes position reports required by FAR's as well as those required by the judge. Required reporting points will be reviewed in the briefing	50

Failure to operate avionics equipment properly	50
DISQUALIFICATIONS	
Exceeding any clearance limit	DQ
Going below minimum descent altitude (MDA), or failing to execute a missed approach at the defined missed approach point (MAP).	DQ
Operating more than 100 feet below any published MEA, MSA, or approach segment altitude as appropriate to the leg being flown.	DQ
Reckless, hazardous, or unsafe flying, including loss of positive airplane control or any other maneuver that causes the airplane to enter an unusual attitude.	DQ
Significant deviation from, or failure to execute, any portion of the assigned IFR flight pattern or ATC clearance (for example, incorrect frequency or OBS selection not caught within 30 seconds).	DQ

IFR Simulated Flight

PENALTY ASSESSMENT	
50% or less deviation from tolerances	none
51% to 100% deviation from tolerances	Minor
Additional penalties based on flight scenario	variable
Failure to identify a navigation aid prior to use	variable
Failure to make a requested radio report	variable
Failure to make a required position report	variable
Greater than 100% deviation from tolerances	Major
Significant departure from flight plan such as wrong turns, violating protected airspace, more than 500 ft. altitude error, descent below MDA or DA	Gross
DISQUALIFICATIONS	
Request by contestant to terminate flight	DQ
Rough and abusive mishandling of the equipment	DQ

Message Drop

PENALTY ASSESSMENT	
Streamer fails to deploy or separates from the message container prior to contact with the ground	300
DISQUALIFICATIONS	
Altitude less than 200 feet AGL during the drop run	DQ
Any action deemed by the judges to be careless or reckless	DQ
Failure to meet container / streamer specifications as listed in the rule book	DQ
Failure to drop two containers on drop run	DQ
Irregular pattern, "S" turns, slow flight, or diving during a run	DQ
Low or high airspeed or unusual attitude on drop run	DQ

Navigation

*Error = (estimated fuel – actual fuel)/estimated fuel

PENALTY ASSESSMENT	
Failure to completely fill out section A of “Contestant Planning Form” as instructed by the judging staff, wither verbally or in writing	200
Deviation from altitude along each leg	Inactive
Deviation from average groundspeed along each leg	variable
Deviation from course along each leg	Inactive
Estimated vs actual time enroute to each checkpoint	1 / sec
Estimated vs actual elapsed time from take-off to time over last checkpoint	1 / sec
Excessive bank angles	Inactive
Failure to identify a symbol or geographic reference at checkpoints	20
Failure to fly directly over the checkpoint on appropriate heading. Between .76 nm and 5nm inclusive, off course. In the event that a value other than a radius of .75nm is used, that new specified distance plus .01 will be used in place of .76nm.	100 to 600 on a linear scale
Failure to identify a symbol or geographic reference between checkpoints	10
Incorrectly identify a symbol or geographic reference at or between checkpoints	200
Overestimate fuel used by more than 10 percent *	Penalty = 250 x (exp(error) – 1)
Under estimate fuel	Penalty = 500 x (exp(error) – 1)

DISQUALIFICATIONS	
Altitude deviation of more than 500 feet except in the interest of flight safety.	DQ
Circling and heading deviations in excess of 60 degrees except as necessary to initially establish track on each leg and in the interest of flight safety.	DQ
Exceeding estimated flight time on any leg by more than 5 minutes.	DQ
Failure to plan at the chosen true airspeed	DQ
Incomplete chart or incomplete filling out of section B of "Contestant Planning Form" within the allotted time	DQ
Operating during cruise in other than a clean configuration. This includes slow flight or flight at minimum controllable airspeed.	DQ
Operating the aircraft in an unsafe or hazardous manner, including exceeding a 45 degree bank angle	DQ
Tampering with GPS recording devices placed on the aircraft by judges.	DQ
The use of a cell phone or texting device in the aircraft except in the case of an emergency.	DQ
Incorrect plotting of course	DQ
Plotting checkpoint on sectional more than 2nm from actual location.	DQ
Use of a fuel dipsticks when refueling for scoring purposes	DQ
Unauthorized communications with other team members or contestants	DQ

Power Off and Short Field Approach & Landings

LANDING ROLL	
Centerline deviation	25
TAKEOFF ROLL	
Improper flap setting	25
Poor crosswind technique	50
Poor spacing	50
Unnecessary delay	25
ROTATION AND LIFTOFF	
Erratic takeoff	25
CLIMBOUT	
Erratic pitch changes	25
Poor tracking	25
TURN TO CROSSWIND	
Erratic & uncoordinated flight	25
Excessive bank	25
Low turn to crosswind	400
Poor spacing (too close)	50
CROSSWIND	
Fishtailing	400
Irregular pattern	25
"S" turns	400
TURN TO DOWNWIND	
Constant turn to downwind	25

Erratic pitch changes	25
Excessive bank	25
Late turn to downwind	100
DOWNWIND	
Poor tracking	25
Wide downwind	200
POWER REDUCTION	
Addition of power after reduction	200
Erratic pitch changes	25
Fishtailing	400
Late	100
“S” turns	400
TURN TO BASE LEG	
Erratic pitch changes	25
Excessive bank	25
Skidding turn	25
BASE LEG	
Addition of power	200
Constant turn to final	25
Fishtailing	400
Irregular pattern	25
Late	400
“S” turns	400
FINAL TURN	
Diving for the line	400

Over / under shooting	50
Rapid / radical change in altitude	200
Skidding turn	25
FINAL APPROACH TO 100' AGL	
Excessive Interval	50
Addition of power	200
Drift off centerline	25
Fishtailing	400
Insufficient flaps (short field ONLY)	100
Retraction of flaps	200
"S" turns	400
FINAL APPROACH BELOW 100' AGL	
Diving for the line	400
TOUCHDOWN	
Adding flaps below 100' AGL	400
Addition of power	200
Ballooning	50
Bouncing	100
Dragging	200
Erratic pitch changes	400
Excessive float	200
Go-around (own fault)	300
Improper crosswind technique	200
Power left on at touchdown	200
Landing off runway centerline	100

Jamming / hard landing	400
Landing in a crab	100
Not full stall landing (short field ONLY)	200
Three point touchdown	400
DISQUALIFICATIONS	
Aircraft too close to edge of runway on takeoff	DQ
Completion of turn below 200' AGL	DQ
Critical spacing	DQ
Dangerously low airspeed	DQ
Descent to a dangerously low altitude before adding power	DQ
Excessively hard landing	DQ
Excessively slow, fast, or long approach	DQ
Excessively wide pattern	DQ
Full flap takeoff	DQ
Hitting tail skid or tie down ring on landing	DQ
Nose wheel landing first	DQ
Other	DQ
Retracting flaps below 100' AGL	DQ
Slips to lose altitude	DQ
Turning too soon	DQ
Unauthorized 360o turn	DQ
Unsafe, careless, or hazardous operation	DQ
Unsafe interval without go around	DQ
Wheel barrowing or porpoising	DQ

SCAN (Simulated Comprehensive Aircraft Navigation)

PENALTY ASSESSMENT	
Answers should be equally weighted	1
DISQUALIFICATIONS	