AEROSIM
Bringing Virtual into Reality

AIAT2024
AEROSIM INTER-SCHOOL AVIATION TOURNAMENT 2024

Information Pack
&
Stage 2 Guideline Handbook

AERO GROUP

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Aerosim Inter-School Aviation Tournament 2024

1. Overview

Aerosim Inter-School Aviation Tournament 2024 “AIAT2024” invites all enthusiastic Hong Kong students to explore their interests in the aviation industry and gain practical insights. This event has far-reaching implications, including the preparation for careers in the professional aviation sector, engaging in realistic flight simulation competitions, and exposure to diverse aviation career opportunities.

Organized by Aerosim (HK) Limited “the Organizer", in collaboration with our valued strategic partners, AIAT2024 is dedicated to shaping a new generation of aviation experts capable of meeting the rigorous demands of airport operations and piloting. This tournament goes beyond mere flight simulation; it challenges students to actively participate in critical thinking, problem-solving, and effective communication, equipping them with a wide range of skills crucial for their future development.

2. Objectives

- Encourage Aviation Enthusiasm: Cultivating a passion for the aviation industry and related fields among students.
- Realistic Simulation: Providing a platform for realistic flight simulation competitions, allowing participants to experience and learn about aviation in a hands-on manner.
- Career Exposure: Offering insights into potential aviation careers and pathways for students who may be considering a future in the aviation industry.
- Skill Development: Enhancing students’ critical thinking, problem-solving, communication, and teamwork skills, which are valuable not only in aviation but in various careers.
- Inter-School Collaboration: Facilitating collaboration and healthy competition among different schools and students.
- Innovation: Encouraging innovative thinking and problem-solving within the aviation context.
- Networking: Providing an opportunity for students to connect to each other and also with industry professionals, professors and experts.
- Holistic Development: Contributing to students’ holistic development by promoting a well-rounded education that goes beyond traditional classroom learning.

Remark: The finalization of activities and the official dates will be posted and updated on the following link: https://aerosim.com.hk/aiat2024/

3. Eligibility

- Each participating team is required to comprise **3 to 5** students, and it is advisable for a teacher-in-charge to lead the team.
- Schools are allowed to be represented by multiple teams, fostering a competitive spirit.
- Students who took part in AIAT2023 are welcome to join AIAT2024, with each group permitted to include a maximum of 2 AIAT2023 participants.
- Participants should not possess more than 10 hours of flight training and/or, flying operation experience.
- Prior to registration, parental consent and/or school approval are mandatory for student participants who are under 18 years old (as of 31st Dec 2023).
- Individual applications are accepted, group assignments will be automatically generated by the Organizer.

4. Registration

- Application period is between 20th Sep 2023 and 31st Dec 2023;
- Applications submitted before 23:59 on 1st Dec 2023 can enjoy early bird discount;
- Application is only available on https://aerosim.com.hk/aiat2024/
- Entire application must be completed in full prior to the deadline;
- Application can only be completed by a school staff representative or another individual team representative;
- Successful applications should receive a confirmation email from the organizer;
- All students signed up for the tournament will be provided with access code for the online training accounts (Both Moodle platform by Aerosim and Jeppesen by Boeing learning platform – Part-61 course);
- Access code of the Moodle account will be sent during the third week of January 2024 from the organizer. The access code for the Jeppesen learning platform – Aviation Ground Theory "AGT" Part-61 course will be sent from Jeppesen Academy.

5. Application Fee

Application Fee *(Per Participant)*	**HKD 2,400** *(*Early bird discount HKD 2,200)*
Each team member will receive the following training and support during the tournament:	
1. **Jeppesen's Part 61 Subscription** *(One Year Subscription)*	• Each student will receive **<u>12-month</u> Subscription of Jeppesen's Aviation Ground Theory "AGT" (FAA Part 61) Course** • Jeppesen *(A Boeing Company)* certificates will be issued upon achieving **100%** at the end of course exam
2. **Aviation - STEM Virtual Classroom** *(Total 12 hours)*	• Online video tutorial will be provided to each student • Face-to-face training on the covered topics • The tutorial will be instructed by pilots • Covers the knowledge that will be tested during the tournament. Each student will be granted access to Moodle to revise the tutorial anytime • The online video tutorial will cover the topics as listed below: ◦ Aerodynamics Principles; ◦ Aircraft Systems; ◦ Meteorology for Pilots; and ◦ Applying Human Factors Principles
3. **Aviation Workshop Face-to-Face Training** *(Total ~ 8 hours)*	• The workshop contains: - **"Take-off" Ceremony** - AIAT 2024 Introduction Program - Basic Ground Theory Tutorial Lesson - **Workshop at UST** - Aerodynamic & Aircraft Design - **Future Pilots Assemble** - Flight Simulation Training • Sessions will be held during the tournament, and each student who attends **THREE** workshops will receive a certificate of attendance.
<u>An extra 2-hour flight training workshop</u> will be provided to the participants who are qualified for the final stage.	

Application Fee

Optional Add-Ons	HKD 10,000

4. **Aviation Youth Mentorship Program**	• Each team is eligible to join the Aviation Youth Mentorship Program
	• The program aims to help students enhance their understanding of the knowledge covered during the tournament
	• The program will be conducted between **Jan 2024 and May 2024**
	• The application fee for the program is HKD 10,000 for each team (3-5 team members)
	• The program includes a 8-hour training with:
	  ○ A 4-hour flight simulator training
	  ▪ 4-hours of Console 40 flight simulator training
	  ○ A 4-hour Basic Aviation Knowledge Training
	  ▪ Each team will receive training through Face-to-Face learning mode
	• Optional add-on mentorship program - 10hrs ForeFlight EFB training program. $3,200 / person
	• For any parties interested in joining this program, please kindly register your intention via the tournament registration form or contact our staff

6. Tournament Timeline and Format

1.	**Online Registration** *(20th Sep 2023 to 31st Dec 2023)*	Participating teams will receive a confirmation email from the organizer after registration and screening.
2.	**Take-Off Ceremony** *(3rd Feb 2024)* **Workshop at UST** *(Mid or late Feb 2024)*	Participating teams will attend a training session that consists of an introduction to the tournament, a familiarization session on how to use the Part'61 online platform, ground theory training, and a team-building activity. Participating teams will attend a training session about the aircraft design and aerodynamics.
5.	**Stage 1: Aviation General Knowledge Test** *(6thApril - 13thApril 2024)*	The individual assessment will be conducted in a written test of 60 multiple-choice questions. **//Only ONE attempt is allowed//** Qualification for the Final will be measured by combining the score from Stage 1 (25%) and Stage 2 (75%). Individuals in the Top 50 combined score will be qualified for the Final Stage. The finalists' results will be announced at the end of April.
3.	**Stage 2A: Glider STEAM Design Project Submission** *(On or before 13thApril 2024)*	The assessment will be conducted as a group project. Teams must hand in the assessment to qualify for the next stage. This accounts for 40% of the total score for the Stage 2 qualification.
4.	**Stage 2B: Glider Launch Challenge** *(20thApril 2024)*	The challenge will be conducted in groups, which involves the Time Aloft Challenge (35%) and Farthest Distance (25%). Each group will have three attempts. This accounts for 60% of the total score for the Stage 2 qualification.
6.	**Future Pilots Assemble** *(18thMay or 19thMay 2024)*	All participating teams will have the opportunity to experience flight simulation and receive career insights from pilots.
7.	**Final Stage: 50 Finalist Flight Sim Training:** *(4th - 5th & 11th - 12th May 2024)* **Final Stage: Flight Simulation Challenge** *(25thMay - 26thMay & 1stJune - 2ndJune 2024)*	The challenge will be conducted individually. The finalists will be assessed in performing flying challenges using flight simulators and the ability to perform Walk-Around Checklist Procedure. **Individuals with Top 50 combined scores will be qualified for the Final Stage.**
8.	**Part's 61 Cut off** *(30thJune 2024)*	/
9.	**Finale & Awards Ceremony** *(Jul 2024)*	Students will be invited to showcase their Glider STEAM Model before the award presentation ceremony. Winners will be invited on stage to receive awards and certificates and may conduct a sharing session with the audience.

**The organizer (Aerosim (HK) Ltd.) has the sole discretion to determine any dates and times in relation to this tournament.*

7. Tournament & Training Particular

- Fundamental Aviation training will be provided to each participant by the organizer;
- Each participant will be granted access to the online virtual STEM classroom (Moodle) and Jeppesen's online learning portal (Jeppesen Learning Center);
- The fundamental aviation training consists of Aviation Theory Tutorials, Aviation STEAM Workshops and Flight Simulation Training*;
- The online aviation theory tutorials will be instructed by pilots, and conducted in stages. Participants may revise the content of each tutorial via Moodle;
- Participants will need to schedule themselves through the booking system to attend the Aviation STEAM Workshop. The workshop will be conducted in face-to-face format;
- Participants may study the Jeppesen Part 61 curriculum via Jeppesen Learning Center;
- Training materials (notes and online tutorials) will be uploaded to Moodle for students to access;
- No refund or make-up class will be allowed if the participant is absent from class;
- Participants may consider joining the Aviation Youth Mentorship Program for additional training after the commencement of the tournament. **NO** make-up class will be provided for mentorship classes after the scheduled time if the participant is absent from class;
- All participants who meet the requirement will have the opportunity to receive participation certificates and the Jeppesen Aviation Ground Theory certificates;
- The organizer reserves the right to arrange the support session/training at designated time slots and arrange support sessions/training with other participants in the format of a workshop.

8. Tournament Stage

//Stage 1 - Aviation General Knowledge Test *(Individual)*//

The test covers specific topics from Jeppesen's Part 61 curriculum. The topics are: ○ *Aerodynamics Principles;* ○ *Aircraft Systems;* ○ *Meteorology for Pilots; and* ○ *Applying Human Factors Principles*
• The written test will be provided by the Organiser;
• This exam will <u>not</u> be conducted in an open-book manner;
• Cheating of any form will <u>not</u> be tolerated;
• Failure to attend the written test will be deemed as <u>disqualification;</u>
• Disqualified students will <u>not</u> be able to take further part in this tournament.

//Stage 2A - Glider STEAM Design Project *(Group Project)*//

Present / Introduce the design and details of the glider and explain the rationale behind the design based on knowledge from different aviation topics.	
Language	We accept both Chinese / English as presenting language *(Same marking scheme will be applied)*
Length	• Video Presentation: **Min:** 5 minutes; **Max:** 10 minutes • PowerPoint Presentation: **No more than** 10 slides
Content	• Glider design *(Prototype is required)* • Design concepts • Expected performance of the glider • Use of aviation topics ○ *e.g. Aerodynamic Principles, Aircraft Structure, Human Factors, Meteorology, etc.* • Problems encountered and Solutions * *Details please refer to AIAT2024 Stage 2 Guidelines*

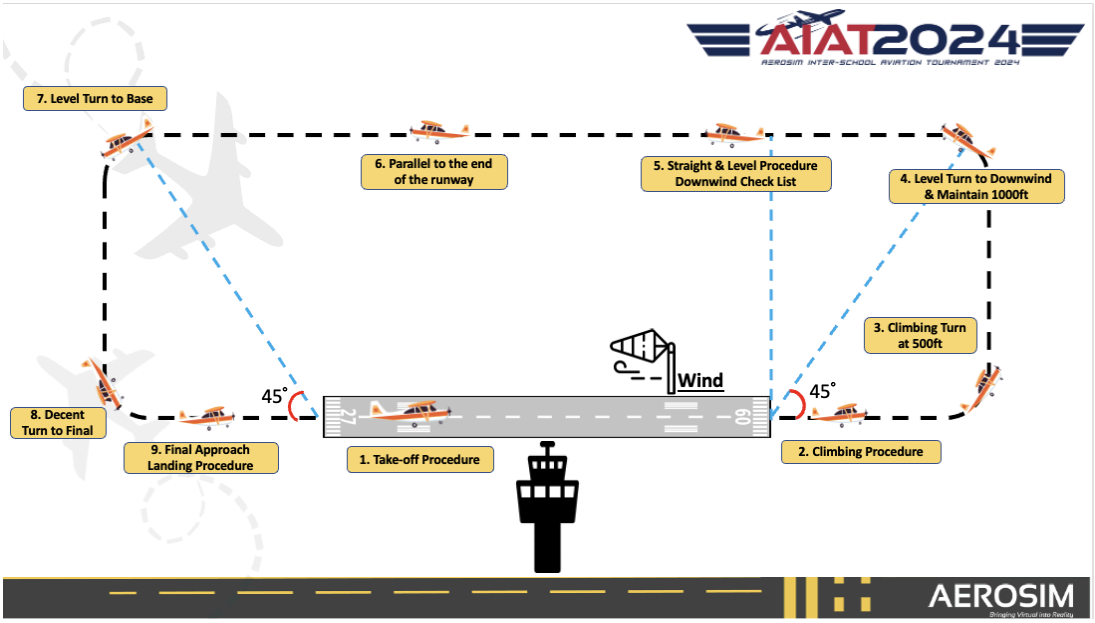
//Stage 2B - Glider Launcher Challenge *(Group Project)*//

Make use of your creativity, and build your glider model with reference to the glider structure and aerodynamics principles.	
Challenge	• Maximum Time Aloft (MTA) • Furthest Distance Flown
Materials	* Details *please refer to AIAT2024 Stage 2 Guidelines*
Gilder Launch Method	* Details *please refer to AIAT2024 Stage 2 Guidelines*
Rules and Regulations	* Details *please refer to AIAT2024 Stage 2 Guidelines*
• All parts of the glider must be fabricated by the teams	
• Kits or off-the-shelf models or parts, i.e. servo motor and receiver are not allowed	
• All team members are encouraged to proactively take part in the group project and to exercise strong sportsmanship	

**Remarks: All gliders will be displayed in the Finale Glider Model Showcase. Please keep your glider for competing in the Most Creative Glider in the finale.*

//Final Stage - Flight Simulation Challenge *(Individual)*//

- **Console 40 Flight Simulator Challenge**
- **Flight Check Assessment**
  - Task: Students are required to accomplish the fundamental flying skills including straight and level and turn etc.



Tasks	Basic Requirements
Walk-Around Check	Students will use the AR Apps to perform walk-around check
Take-off & Climb	Students will perform take-off and climb procedures to a specific altitude with the desired aircraft configuration and airspeed.
Climbing Turn	Upon reaching the required altitude, students will control the plane accordingly to carry out a climbing turn.
Level Turn & Straight & Level	Students will need to perform straight & level flight at a specific altitude after executing a level turn with the Bank angles of (15°/30°).
Level Turn	Students will need to perform turning with certain bank angles (15°/30°) while maintaining level flight.
Descend & Decent Turn	Students will perform the correct power off and power on descend procedure within the speed limit, and carry out a decent turn.
Approach & Landing	Students will demonstrate approach and landing procedures with the desired aircraft configuration.

9. Hardware in use

- **Console-40** ***(Aerosim Flight Training Device)***

Console-40

- The flight simulation tests will be conducted with Console-40 only
- All flying must be done using manual flying. Autopilot is NOT permitted

10. Enquiries

Aerosim Inter-School Aviation Tournament 2024

Aerosim (HK) Limited

Tel: +852 5320 2988 / +852 5320 2028

Website: https://aerosim.com.hk/aiat2024/

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End of Information Pack

AEROSIM
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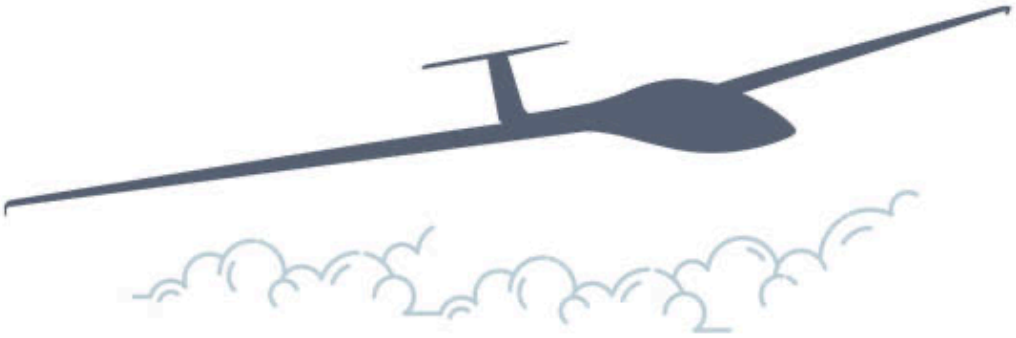

Stage 2 Guideline Handbook

STEAM Design Project Guidelines

(Glider Design Presentation & Glider Launch Challenge)

2024 Academic Year

AERO GROUP

1. Qualification Criteria

1.1 Overall Scoring

The table shows the calculation of scores for getting into the Final Stage *(Flight Simulation Challenge)*.

Scoring	Total Weightage
(Stage 1) ◦ **Aviation General Knowledge Test**	**25%**
(Stage 2A) • **Glider Design Presentation:** ◦ Video Presentation **(25% of Stage 2)** ◦ Glider Design **(15% Stage 2)** **(Stage 2B)** • **Glider Launch Challenge** ◦ Time Aloft **(35% Stage 2)** ◦ Distance **(25% Stage 2)**	**75%**
Stage1 + Stage 2A & 2B	Total 100%

2. Championship Award for Different Stages

Best Part's 61 Fulfillment Award

This is awarded to the student who has the highest fulfillment percentage in Boeing Part's 61.

Best Video Award (Champion, 1st Runner up, 2nd Runner up)

This is awarded to the team that best exhibits creativity, fluency, confidence and flair in the presentation of their team's work.

Best Design Award (Champion, 1st Runner up, 2nd Runner up)

This is awarded to the team that shows the most innovative, creative, original and aesthetically designed in their unpowered glider.

Best Performance Award (Champion, 1st Runner up, 2nd Runner up)

- **Overall Performance**
- **Furthest Distance travel**
- **Best Time Aloft**

For the team that attains the highest score in the glider launch challenge, ONLY ONE (1) out of two attempts will be counted as the highest score.

In the event there is more than one team having the same highest score, an average of the two attempts will be taken, highest average wins.

Best STEAM Project Award

This is awarded to the team with the best average of video, highest score, and best design.

3. Stage 2 General Rules & Regulations

Each team is required to design and build **ONE (1) set of wings and horizontal stabilizers** to fit into an unpowered glider based on the following guidelines:

1. The fuselage and vertical stabilizer of the glider will be provided and fixed. Students are required to design and build their own wings and horizontal stabilizers. Any kits or off-the-shelf models or parts, i.e. servo motor, receiver, transmitter are not allowed;

2. The gliders should be non-powered. Additional power systems, i.e. power, motor, rack/tooth gears, and balloons are not allowed;

3. Students can make changes in their fuselage, however, students have their responsibility to make sure their glider designs are fit to the launcher and launch successfully.

4. Your glider should not contain sharp edges or hard surfaces that may endanger persons on the ground if the glider becomes uncontrollable;

5. Students can use ANY materials for the design of wing and horizontal stabilizer. Explore using different materials are welcome, such as and not limited to 3D printing materials / fiber-reinforced materials etc.;

6. Balloons, airships, flying saucers, or dart designs are not allowed;

7. A prototype of the wings and horizontal stabilizers should be designed and shown to the organizers during the presentation stage in the video;

8. Teams cannot re-use the design of the DEMO designs. Points will be deducted or, in the worst case, disqualified if any team is caught reusing past planes;

9. Students must use the launcher under the supervision of an adult or teacher.

10. For violations of the rules, no points will be awarded. The organizer reserves the right to make amendments to the flying challenge competition.

4. Tournament Stages

4.1 Stage 2A: Glider Design Presentation

Glider design presentation and PowerPoint - Present/introduce the design and details of the wings and horizontal stabilizers, including the materials used, length of wing span, the weight of the glider, the flight distance, and time aloft duration. Then, explain the rationale behind the design by using your own knowledge from different aviation topics. Design and launch your prototype of the wings and horizontal stabilizers in the presentation.

- **Language**
  - Choose either **ONE** option: Chinese/English (The score will NOT be affected if Chinese is used)
- **Length**
  - Video presentation: the entire video should not be longer than 10 minutes.
  - PowerPoint slides: the whole presentation should contain no more than 10 slides.
- Suggested Content (details refer to **Question List in Text 1, Appendix A)**
- **Submission Deadline: 13 April, 2024**

4.2 Stage 2B: Glider Launch Challenge

Glider Launch Challenge - Make use of your creativity and build your own wings and horizontal stabilizers with reference to the aircraft structure and aerodynamics principles.

- **Challenges**
  - Distance challenge: Furthest distance flown
  - Time Aloft Challenge: Longest time Traveling
- **Size**
  - **Size of the glider is not limited**

    //Student have their responsibility to make sure their glider design are fit for the launcher to launch successfully.//
- **Materials**
  - Students can use ANY materials, EXCEPT materials containing sharp edges or hard surfaces that may endanger persons on ground
  - Details: refer to the **Event Rundown of the Glider Launch Challenge**

- **Remarks**
  - During your test flights, the airplane will crash frequently. Make it sturdy and/or easily repairable. The robustness of the glider will be a critical evaluation criterion.

  - The balance of the aircraft is very important. Small shifts in weight can have a great impact on flight stability and performance. You may use any materials such as blue tack, cardboard to help trim your aircraft.

  //Student have their responsibility to make sure their glider design are fit for the launcher to launch successfully.//

  - In every aspect, please make sure that you are safe. Make sure your test flights do not endanger anyone, for example cutting off fingers, burning skin, starting fires etc.

  - You are suggested to use safety goggles when using the glider launcher.

5. Event Rundown of Glider Launch Challenge

Date: 20/4/2024

Venue: UST Venue

Each team contains 3 - 5 representatives.

5.1 General Rules

- From Stage 2A, students will design and demonstrate a prototype of the wings and horizontal stabilizers based on (**3. General Rules & Regulations).** In Stage 2B, students may modify the prototype and build a maximum of TWO (2) sets of wings and horizontal stabilizers for the glider launch challenge within the limits mentioned in (**3. General Rules & Regulations);**
- Each group is advised to prepare spare sets of wings and horizontal stabilizers with the SAME design, size and use of materials for the competition in case of damages done during the competition. Aerosim will only provide ONE fuselage, students need to buy other materials if they need to build another glider. The fuselage must be identical to the one Aerosim provided **(Additional gliders can be purchased through Aerosim at HKD $50 including shipping)**;
- In each round, participants can choose one set of wings and horizontal stabilizers to compete, if the wings and horizontal stabilizers are broken, they may use the spare set to replace them;
- Students are required to use the same glider as shown in their presentation in Glider Launch Challenge. Gliders qualifying for the main challenge event will be allowed minor modifications subject to the approval of the organizers;
- For safety measures, teams will be rostered in small groups to perform the pre-flight check, launching and repairing of gliders;
- The organizer reserves the right to amend the rules and regulations. In the event of changes, all teams will be informed at least TWO (2) weeks before the start of the competition.

6. Scoring Format and Launching Procedures

6.1 Launcher

- Students can use the glider launcher to test the glider in specific locations during the assigned time slot. *(The location and time slot will be announced at a later time.)*

**Note: Students must follow the proper safety procedures and staff instructions during glider launches. Failure to do so may result in consequences for which the students are responsible.*

- Schools have the option to purchase a glider launcher with tripod for **$3800**.
- It is mandatory for participants to pay for the materials and maintenance fees if any part of the launcher was damaged or broken. The organizer holds the right to inspect the condition of the Glider Launcher.

**Note: If the student fails to follow the instructions or safety procedures, resulting in damage to the glider launcher, Aerosim reserves the right to seek compensation.*

- All teams will use the launcher provided by the conference for the Glider Launch Challenge.
- Students have to adjust the **Angle** and **Height** of the glider launcher by themself during the competition.

6.2 Glider

- The competition is done by achieving the farthest distance and stays aloft for the longest time launched by the glider launcher, with the change of airflow to make the glider glide, and by adjusting the design and details of the wings, horizontal stabilizer and the fuselage.

**Note: Students have their responsibility to make sure their glider design is fit for the launcher to launch successfully.*

6.3 Glider Launch Challenge

- Each team gets to fly their glider for 3 rounds. The team with the longest distance flown and the longest time aloft will be declared the winner. The final result of the competition is based on these two factors, and the team with the highest overall marks in evaluation will be declared the winner;
- Each team will have **3 minutes** of preparation & free practice time available prior to their glider launch in the launch site;
- Each team will have **1 minute** (countdown starts when students set foot into the launch site) to launch their glider in **each round** of glider launch challenge. After having the first round of the flight challenge, students have to participate in the second round within the time specified by the organizers. No delay or change of order is allowed;

6.4 Scoring Method

- The flight field is fan-shaped, and the length is a fixed line. The length of the launching area is 5 meters and the width is 3 meters. The total flight length is 20 meters. The width of the field in Area 10 is 15 meters;
- The landing zone is divided into 10 areas, **as shown in Figure 1, Appendix B;**
- Competitors must launch their glider from within the "launch site", and try to fly into the Green zone during the competition;
- The scoring method is calculated from the start point. The first contact of the glider with the landing zone will be determined as the landing spot (assuming the glider remains intact);
- The exact distance from the launching line to the landing point of the aircraft will be marked, and the score will be given according to the scoring zone.

**Note: In case the glider breaks into pieces or drops any loose parts during the flight, the nearest landing spot will be taken to be the glider part contact point instead.*

- A team member will accompany the referees in determining the landing spot of the glider after the launch and retrieve the glider. The final score is based on the referee's judgment;
- A team member will accompany the official timer of the event;
- Teams will be awarded the score allocated to the scoring zone where the glider's landing spot is determined;
- For flying performance in distance challenge, if the point where the aircraft touches the ground is within the green zone, marks will be calculated according to the **Scoring Format;** if the the point where the aircraft touches the ground is in the yellow zone, marks will be deducted; but if the the aircraft touches the DQ zone, it will count as disqualification **(Details of the Scoring Format refer to Table 2, Appendix B);**
- For the time aloft, the longer the glider stays in air, the higher mark they will receive **(Details of the Scoring Format refer to Appendix B);**
- Teams should follow the **Safety Procedures (Details of the Safety Procedures refer to Appendix B)** when launching the glider, otherwise, marks will be deducted;
- Violations of the rules will result in ZERO marks. The organizer reserves the right to make amendments to the flying challenge competition;
- Sequences of the glider launches will be conducted at random and announced at least 1 week before the Glider Launch Challenge.

Appendix A. Stage 2A

Stage 2A Glider Design Presentation Guidelines

Trial Flight Video

1. The trial flight video should be included in the video presentation.
2. The glider in the video should meet the requirements listed in General Rules & Regulations (For Stage 2A Presentation and Stage 2B Flying Challenge).
3. In the trial flight video, the performance of the glider should be shown, with or without the launcher are both acceptable.
4. Record the moment of launching the glider and the landing of the glider. The video must be continuously recorded from the launching until the first point of contact with the floor.
5. The video should be taken from an angle which best captures the flight path.
6. The trial flight video should **NOT** be edited to improve the quality or performance of the glider.

Question List (Reference only)

Answer the following questions in your video presentation.

1. What is the design concept of the glider?
    - You may share your thinking process/any test that has been done in the design process
2. Why did you choose this material for the wing and horizontal stabilizers?
3. How do you integrate aviation knowledge into the design of the wings and horizontal stabilizer?
    - You may explain the wingspan size, low wing/high wing, etc., and the integration of aviation knowledge such as aerodynamics, and aircraft structure
4. What is the expected performance/predicted range of the aircraft?
5. In the process of designing and building the glider, are there any challenges? How do you tackle them?
6. How do you adjust the height and angle of the launcher to make the best glide performance?

Submission Procedures

1. The video should be submitted by the team leader.
2. The video should be created as an **"unlisted"** video and uploaded to YouTube. Use the following format to name the uploaded video
   " **[Team Number] - [Team Name] - [AIAT 2024]**";
3. All teams must submit the video link via Moodle **before** the assigned deadline;
4. All presentation materials **must include** the allocated group number and respective school name;
5. All team members are encouraged to proactively participate in the group project and exercise strong sportsmanship and accountability.
6. **Submission Date: 13 April. 2024**

Glider Design Marking Scheme (15%)

Criteria/ Item			Marks
Design Concept	Integration of Aerodynamics	Integration of Aerodynamics Robustness	/15
	Control & Stability	Accuracy Surface finishing Safety: No shape edges and corners, Moderate intensity, not easily broken	
Innovation & Creativity	Design of Wings and horizontal stabilizers	Uniqueness & Originality Flair and Appearance: Shape, Form, Color, Texture, Scale Use of materials Use of technology and skill	/15
	Functionality	Function Exterior: Shape, Form, Color, Texture, Scale Work attitude	
Comments			Total: /30

Video Presentation Marking Scheme (25%)

	Outstanding (80 or above)	Good (79-65)	Satisfactory (64-50)	Improvement Required (49 or below)
Build a Working Model	• Build a model that is exceptionally aligning with the criteria, constraints, and rationale of the problem. • The running version can be examined the usage of suitable tools, materials, and resources.	• Build a model that fits the criteria, constraints, and intents of the problem. • Working models can be tested with the appropriate tools, materials, and resources.	• Build a model that at least meets the criteria, constraints, and intents of the problem. • Working models can be tested with modified tools, materials, and resources.	• Build a model that is incompatible with the problem's criteria, restrictions, and goal. • Working models can't be tested with modified tools, materials, and resources; or can't test the finished working model.
Trial Flight Video	• Trial flight video is very clear and very well-supported by continuous recording from launching till landing which best captures the flight path.	• Trial flight video is clear and well-supported by continuous recording from launching till landing which captures the flight path.	• Trial flight video is reasonably clear and partially supported by continuous recording which captures parts of the flight path.	• Trial flight video is very unclear and supported by recording which cannot capture the flight path.
Presentation	• Demonstrates strong interest and enthusiasm about the topic and maintains interest throughout the presentation. • Significantly increases understanding of knowledge on the topic. Convinces audience and recognition of validity in ideas and conclusions.	• Demonstrates some interest and enthusiasm about the topic. • Raises understanding of knowledge on the topic.	• Demonstrates little interest and enthusiasm about the topic. • Raises understanding of knowledge on some points.	• Demonstrates no interest and enthusiasm about the topic. • Fails to raise understanding of knowledge on some points.
Total Score: _____				

Appendix B. Stage 2B

Will be announced by UST at a later time