

AERO PAKISTAN 2027

RULEBOOK

VER. 1.1



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CHANGELOG

Rule	Reference Version	Change
A1.2	1.0	Modified
A1.3	1.0	Modified
A1.5	1.0	Added
A2.2	1.0	Modified
A2.5	1.0	Modified
A2.6	1.0	Modified
A2.8	1.0	Modified
A3.1	1.0	Modified
A3.7	1.0	Modified
A3.8	1.0	Removed
A3.10	1.0	Modified
C2.3	1.0	Modified
C2.6	1.0	Modified
C2.9	1.0	Modified
J3	1.0	Added
S1.1.5	1.0	Added
S1.2.6	1.0	Added
S1.2.7	1.0	Added
S1.4	1.0	Modified
S1.5	1.0	Modified
S2.2.2	1.0	Removed
S2.3.5	1.0	Added
S2.4.4	1.0	Modified
S2.5.1	1.0	Modified
S3.1	1.0	Modified
S3.3.2	1.0	Modified
S3.4	1.0	Modified
S4.1	1.0	Modified
S4.4	1.0	Removed
S4.5.6	1.0	Modified
S4.5.7	1.0	Modified
S4.6.11	1.0	Added

Rule	Reference Version	Change
S4.7	1.0	Modified
S5.3	1.0	Modified
S5.3.1	1.0	Removed
S5.3.2	1.0	Modified
S5.4	1.0	Modified
S6.2	1.0	Modified
S6.7	1.0	Modified
S6.8	1.0	Modified
S7.2.3	1.0	Modified
S7.6.4	1.0	Modified
S7.6.5	1.0	Removed
S7.7.2	1.0	Modified
S7.7.4	1.0	Modified
S7.7.5	1.0	Modified
S7.11	1.0	Modified
S8	1.0	Added
R1.3	1.0	Modified
R1.4	1.0	Modified
R1.5	1.0	Modified
R2.6	1.0	Modified
R2.7	1.0	Modified
R3.1	1.0	Modified
R3.2	1.0	Modified
R3.3	1.0	Modified
R4.1	1.0	Modified
R4.4	1.0	Modified
R4.7	1.0	Modified
R4.9	1.0	Modified
R4.10	1.0	Modified
R5.2	1.0	Modified
R5.5	1.0	Modified
R5.6	1.0	Modified
R5.7	1.0	Modified
R6.2.2	1.0	Modified

Rule	Reference Version	Change
R6.4	1.0	Modified
R6.6	1.0	Modified
R6.7.3	1.0	Modified
R6.8	1.0	Modified
R6.9	1.0	Removed
R7.2.2	1.0	Modified
R7.7	1.0	Modified
R8.1	1.0	Modified
R8.2	1.0	Modified
R8.4	1.0	Modified
R8.5	1.0	Modified

I INTRODUCTION

I1 What is Aero Pakistan?

Aero Pakistan is a student aerial systems engineering challenge, organized by NUVEX (Pvt.) Ltd. Students aged 15 to 19 take a glider from first sketch to final flight—designing, engineering, manufacturing and launching it.

Working as a flight crew, students must apply engineering principles, make evidence-based design decisions, manage technical and commercial responsibilities, and demonstrate ownership of their work throughout the competition.

I2 Competition Objective

The objective of Aero Pakistan is to challenge each team to design, manufacture, document and safely fly a compliant unpowered, uncontrolled glider capable of completing the prescribed flight mission.

The competition evaluates the complete development process, including engineering reasoning, analysis, design decisions, manufacturing quality, testing, documentation, communication, teamwork, and final flight performance.

I3 Competition Format

Aero Pakistan consists of Pre-Launch Day Submissions, Launch Day technical and commercial judging sessions, a mandatory Pre-Flight Clearance, and an official Flight Assessment.

I4 Scope of the Rulebook

This Rulebook defines the requirements governing eligibility, team participation, student ownership, submissions, judging, scoring, glider airworthiness, inspection, flight operations, safety, penalties and official authority.

I5 Rulebook Authority

This Rulebook, together with official written amendments and clarifications issued by NUVEX, is the governing regulatory document for Aero Pakistan. Authorized Competition Officials may interpret and apply its requirements to protect safety, fairness, technical integrity and orderly competition operations.

I6 Official Communications and Amendments

Official regulations, deadlines, amendments, bulletins and clarifications shall be published on the official Aero Pakistan website. Rule clarification requests shall be submitted by email in accordance with A1.2. The latest officially issued requirement shall take precedence over earlier versions.

I7 Responsibility for Compliance

Each team is responsible for ensuring that its glider, documents, presentations, and competition activities comply with all applicable requirements. Passing an earlier review or inspection does not prevent Competition Officials from identifying non-compliance at a later stage.

D DEFINITIONS AND ABBREVIATIONS

D1 Glossary of Terms

The terms in this section carry specific meanings within Aero Pakistan and shall be used when interpreting this Rulebook, assessment requirements, technical regulations and official decisions.

Term	Definition
Aerodynamic Centre	The point on an aircraft where the aerodynamic forces effectively act, regardless of how the wing is angled into the airflow.
Centre of Gravity (CoG)	The single point at which the entire weight of the glider acts, as if all the mass were concentrated there.
Aerofoil	The cross-sectional shape of a wing when viewed from the side. It is typically curved on top and flatter on the bottom, which causes air to generate lift as it flows over the surface.
Angle of Attack	The angle between the wing's chord line and the direction of the oncoming airflow.
Lift Coefficient (CL)	A dimensionless number that describes how much lift a wing generates at a given angle of attack and airspeed.
Drag Coefficient (CD)	A dimensionless number that describes how much aerodynamic drag a wing produces at a given angle of attack.
Leading Edge	The forward-most edge of a wing or stabilizer — the part that meets the oncoming airflow first.
Trailing Edge	The rearward-most edge of a wing or stabilizer — where the airflow from the upper and lower surfaces rejoins.
Chord	The straight-line distance from the leading edge to the trailing edge of a wing at any given point along the span.
Span	The total width of the glider measured from one wing tip to the other.
Aspect Ratio	A measure of the geometry of the wing, calculated by dividing the square of the wingspan by the total wing area.
Dihedral Angle	The angle formed when an aircraft's wings are tilted upward from the horizontal.
Standard Launch Hook	The standardized interface installed at the prescribed position on the underside of the fuselage to connect the glider to the official launcher shuttle. Its geometry, dimensions, mounting arrangement and placement are defined by Aero Pakistan.

Payload Bay Cavity	The prescribed cavity manufactured within the fuselage to receive, position and structurally support the Standard Payload Enclosure.
Standard Payload Enclosure	The standardized 3D-printed enclosure manufactured by the team from the official design files supplied by the Organizing Committee and installed within the Payload Bay Cavity for receiving and retaining the Official Payload.
Standard Payload Enclosure Cover	The removable cover used to close the Standard Payload Enclosure and retain the Official Payload. It is secured using prescribed screws and threaded inserts.
Official Payload	The standard 100 g mass supplied by the Organizing Committee and installed inside the Standard Payload Enclosure before the official Flight Assessment.
Longitudinal Reference Plane	An imaginary flat plane running lengthwise through the exact center of the glider from nose to tail, perpendicular to the ground. It is the reference line used for all symmetry checks during Pre-Flight Clearance.
Shuttle	The moving carriage on the official Aero Pakistan motorized launcher that accelerates the glider down the launch rail. The glider is attached to the shuttle via the Standard Launch Hook and releases automatically at the end of the rail.
Spar	A structural beam running through the length of a wing or connecting the tail assembly to the fuselage. It is the primary load-carrying element of the wing, resisting the bending forces generated by lift during flight.
Stabilizer Coupling	A standard ring-shaped component, 3D printed by the team from the official design file supplied by the Organizing Committee, that connects the stabilizers to the tail spar. Teams must design their stabilizer attachment around this coupling.
UIUC Airfoil Coordinates Database	A publicly available library of airfoil profiles maintained by the University of Illinois at Urbana-Champaign. It provides coordinate data used to define an airfoil shape in CAD.
XFLR	An aerodynamic analysis tool used to calculate the lift, drag and stall behavior of an airfoil at a given Reynolds number. Teams may use it to generate polar data supporting their airfoil selection, as required by the Airworthiness Regulations.
STEP File	A universal 3D CAD file format that can be opened by almost any CAD software, regardless of which program created it. It preserves the full 3D geometry of the model without being tied to one specific software.
Hangar	The team's dedicated operational space at the competition venue on Launch Day. It serves as the team's working and preparation area.
Team Patch	A custom emblem that represents the team's identity and program.

XFOIL	A publicly available aerodynamic analysis program used to calculate the lift, drag and stall behavior of an aerofoil. XFLR5 is built on it.
Flight crew member	A registered student member of an Aero Pakistan team.
Design Specification Sheet (DSS)	A mandatory Excel workbook, submitted before Launch Day, in which a team declares the key design parameters of its glider for review by the Organizing Committee
Competition Officials	Judges, Inspection Officials and other persons authorized by the Organizing Committee to administer, inspect, judge or officiate at Aero Pakistan.
Inspection Officials	Competition Officials authorized to conduct Pre-Flight Clearance and other technical inspections.
Project Element	Any document, presentation, video, file or other item that a team must submit or present for assessment, as listed in Section A3.
Competition Handbook	The season-specific document issued separately by the Organizing Committee, containing dates, venue arrangements, deadlines, reporting times, judging schedules, Hangar allocations and Launch Day procedures.
Launch Day	The official Aero Pakistan event day, 30 January 2027, on which the technical and commercial judging sessions, Pre-Flight Clearance and the Flight Assessment take place. Timings and procedures are specified in the Competition Handbook.

D2 Abbreviations

Abbreviation	Meaning
AP	Aero Pakistan
AR	Airworthiness Regulations
BPP	Business Plan Presentation
CoG	Centre of Gravity
EDB	Engineering Design Board
EDR	Engineering Design Report
PFC	Pre-Flight Clearance
BPPV	Business Plan Presentation Video
CAD	Computer-Aided Design
CD	Drag Coefficient
CL	Lift Coefficient
STEP	Standard for the Exchange of Product Data
UIUC	University of Illinois Urbana-Champaign
DSS	Design Specification Sheet

A ADMINISTRATIVE REGULATIONS

The Administrative Regulations define the documents, communication channels, eligibility, team participation, Project Elements, submission procedures, and operational responsibilities for all registered teams.

Season-specific details, including competition dates, venue arrangements, deadlines, reporting times, judging schedules, Hangar allocations and Launch Day procedures, shall be issued separately in the Competition Handbook.

A1 Official Competition Documents and Communication

This section establishes the documents and communication channels through which Aero Pakistan regulations, instructions and official clarifications shall be issued.

A1.1 Aero Pakistan Website

The Aero Pakistan website shall serve as the official Competition Management System for:

- Competition learning and resources;
- Official updates and announcements;
- Team information;
- Published Rule Clarifications;
- submission deadlines; and
- Project Element submissions

Teams are responsible for regularly monitoring the Aero Pakistan website.

A1.2 Rule Clarifications

Questions concerning the interpretation of this Rulebook must be submitted by email to info@nuvex.com.pk.

The subject line of the email shall be: AP - Rules - <Rule Number> - <Team Number>

Each clarification request shall identify the relevant regulation number and clearly explain the point requiring clarification.

A clarification affecting general interpretation, safety or competitive fairness may be published for all registered teams.

A1.3 Design Compliance

The Organizing Committee may clarify the meaning of a regulation but shall not provide pre-event approval of a complete glider design.

Teams remain responsible for independently interpreting and complying with the Airworthiness Regulations.

A lack of objection, response, or comment from the Organizing Committee shall not be treated as confirmation that a design is compliant.

Final technical compliance shall be determined during Pre-Flight Clearance. Feedback provided on the Design Specification Sheet under S8 is advisory only and does not constitute approval of the glider design.

A1.4 Amendments and Rulebook Revisions

The Organizing Committee may amend or revise this Rulebook where necessary to:

- Clarify the interpretation of a regulation
- Correct an error or omission
- Protect participant safety
- Preserve competitive fairness
- Address material, technical, or operational requirements.

Where any amendment is made, a revised version of the Rulebook shall be issued. All changes shall be identified in the revision notice provided at the beginning of the updated version.

The latest officially issued version of the Rulebook shall supersede all previous versions. Any official Rule Clarification or technical bulletin issued between Rulebook revisions shall carry the same authority as this Rulebook until incorporated into a subsequent version.

Informal advice, private messages, verbal discussions, or unofficial communications shall not override any official written regulation, Rule Clarification, technical bulletin, or published Rulebook revision.

A1.5 Launch Day Communication and Complaints

On Launch Day, the Organizing Committee shall designate:

- one official complaint desk, which shall be the only point of contact for participant complaints; and
- one official announcement channel, which shall be the only source of official announcements and decisions.

An announcement or decision communicated through any other person or channel shall not be considered official. The location, operating hours and procedure for each shall be stated in the Competition Handbook.

A2 Registration, Eligibility and Team Participation

This section defines the eligibility, registration, and participation requirements applicable to all competing teams and student members.

A2.1 Registration

Only teams whose registration has been confirmed by the Aero Pakistan Organizing Committee shall be eligible to participate.

Each registered team shall receive an official Team Number. The Team Number must be used on all required submissions, glider identification markings, and official competition materials.

A2.2 Participant Eligibility

All competing students must be between 15 and 19 years of age on launch day.

A student must be registered as a competing member of only one Aero Pakistan team during the same competition season.

A registered flight crew is expected to be actively engaged in the competition on Launch Day and hence cannot take part in any other NUVEX programs occurring on Launch Day.

A2.3 Team Composition

Each team shall consist of a minimum of four and a maximum of six registered members.

Only registered members may:

- Represent the team during official judging sessions;
- Answer questions on behalf of the team;
- Deliver an assessed presentation or pitch;
- Handle the glider during assessed competition activities; and
- Participate in official Hangar activities.

A2.4 Team Captain

Each team must designate one registered member as Team Captain.

The Team Captain shall serve as the primary contact between the team and the Organizing Committee and shall coordinate the team's participation in official competition activities.

A2.5 Team Name

Each team must select a suitable team name. The name must not:

- Refer to or be affiliated with any religious or political entity;
- Infringe upon or closely resemble any registered trademark or other protected intellectual property; or
- Contain offensive, discriminatory, unethical or otherwise inappropriate language.

The Organizing Committee reserves the right to reject any team name and require the team to submit an alternative.

A2.6 Roster Changes

Changes to the registered team roster may only be made on or before the roster deadline. Any roster change requested after the stated deadline shall require written approval from the Organizing Committee.

The Roster Change deadline is December 10, 2026.

An unregistered or unapproved individual shall not replace or represent a registered flight crew during an assessed competition activity.

A2.7 Attendance and Readiness — Penalties

Teams must attend all assigned judging, inspection, and competition activities at the times stated in the official schedule.

Teams must report with the required members, files, documents, presentations, and physical Project Elements ready for assessment.

A delay caused by missing files, unavailable flight crews, equipment problems or incomplete preparation shall not extend the team's allocated session time.

A team that fails to attend an assigned activity shall receive zero points for the relevant event unless an alternative arrangement is expressly approved by the Competition Officials.

Any delay caused by the Organizing Committee, official competition equipment, or any unforeseen circumstances shall not result in a penalty to the affected team.

A2.8 Official Aero Pakistan Logo (5-Point Penalty)

The completed glider shall display the official Aero Pakistan logo at any clearly visible location on the glider.

The logo shall not be distorted, recolored, cropped, covered, or otherwise modified.

The official logo files and sizing shall be uploaded to the Aero Pakistan website.

Failure to comply with this requirement shall result in a 5-point deduction from the Flight Assessment score.

A3 Project Elements and Submission Regulations

This section establishes the common submission, formatting and delivery requirements applicable to all Aero Pakistan Project Elements. Content requirements, judging procedures and evaluation criteria specific to each Project Element are stated in the applicable Event Regulations.

A3.1 Mandatory Project Elements

Each registered team must complete the following Project Elements:

Project Element	Submission Stage
Engineering Design Report	Pre-Launch Day
Final Glider STEP File	Pre-Launch Day
Team Enterprise Portfolio	Pre-Launch Day
Business Plan Presentation Video	Pre-Launch Day
Business Plan Presentation	Launch Day
Completed Glider	Launch Day
Design Specification Sheet	Pre-Launch Day

The Organizing Committee may require additional declarations, forms or supporting files where stated in this Rulebook, the Competition Handbook, or an official amendment. The submitted STEP File must represent the final glider configuration intended for Pre-Flight Clearance and the official Flight Assessment.

A3.2 Official Submission Channel

All digital Project Elements must be submitted through the Aero Pakistan website. A Project Element shall only be considered submitted once it has been successfully received through the official platform. The timestamp recorded by the official platform shall determine whether the Project Element was submitted before the applicable deadline. Files submitted through email, WhatsApp, personal cloud-storage links or any other unofficial channel shall not be considered unless specifically requested by the Organizing Committee.

A3.3 Submission Responsibility

Teams are responsible for ensuring that every submitted file is:

- Complete, accessible and correctly named
- Submitted in the required format
- Free from corruption
- Not password-protected
- The correct final version as intended for judging.

Technical difficulties experienced by a team, including internet failure, device failure, upload delay or file-conversion problems, shall not automatically justify an extension.

Teams are responsible for allowing sufficient time to upload and verify their submissions before the applicable deadline.

A3.4 Submission Finality

Project Elements shall be evaluated in the form in which they were received.

A team shall not replace, amend or supplement a Project Element after the applicable deadline unless expressly permitted by the Organizing Committee.

A file may be replaced without penalty before the submission deadline.

Where a file is replaced after the deadline, the replacement shall be treated as a late submission.

A3.5 External and Additional Material

Teams may provide supplementary information through external websites, QR codes, cloud-storage folders, linked documents, social media accounts, or other online resources.

Where such materials are provided, they shall serve only as supporting information and shall not replace any required content of the official Project Element submission. All external resources must be clearly identified and accessible through links contained within the submission.

Judges may review supplementary materials at their discretion; however, the official Project Element submission shall remain the primary basis for evaluation. Teams are responsible for ensuring that all information required for judging is included within the submitted Project Element or presented during the assigned judging session.

A3.6 Digital and Printed Versions (5-Point Penalty)

Where printed copies are required, the printed copies must match the digitally submitted version.

The digitally submitted version shall remain as the official version for judging.

Any additional, revised or altered content appearing only in a printed version shall not be considered.

A material difference between the printed and digitally submitted versions shall result in a five-point deduction from the score of the relevant Project Element.

A3.7 Late Submission (5-Points Penalty per commenced 24 Hours)

A digital Project Element submitted after its prescribed deadline shall receive a five-point deduction from the relevant Project Element score for each commenced 24-hour period that it is late.

The maximum late submission penalty for one Project Element shall be 50 points.

A Project Element shall not be accepted after the final submission closure date published through the Aero Pakistan website or the Competition Handbook.

Failure to submit a scored Project Element before final submission closure shall result in zero points for the relevant judging category.

Failure to submit the Final Glider STEP File may prevent the team from completing Pre-Flight Clearance until the required file has been received and verified.

Failure to submit the Design Specification Sheet shall have the consequence stated in S8.5.

A Project Element that carries no score, including the Design Specification Sheet, shall be penalized under this rule by deducting the penalty from the team's total score.

A3.8 Missing Printed Copies (5-Point Penalty)

Where two printed copies of a Project Element are required, failure to provide the required copies on Launch Day shall result in a five-point deduction from the score of the relevant Project Element.

Printed copies provided after the official document handover period may be treated as missing.

A3.9 Incorrect File Naming (3-Point Penalty)

A three-point deduction shall apply where a Project Element is not submitted using the required file-naming convention.

Minor differences in capitalization shall not receive a penalty where the Team Number, Team Name, and Project Element remain clearly identifiable.

A3.10 Application of Submission Penalties

Submission penalties shall be deducted from the score of the Project Element to which the failure relates.

A single submission failure shall not receive duplicate penalties under overlapping regulations.

Teams may receive a cumulative negative score after penalties are applied.

C COMPETITION CODE

The Competition Code establishes the standards governing student ownership, external assistance, originality, artificial intelligence, evidence, integrity, conduct, fair competition, penalties, and the authority of Competition Officials.

C1 Student Ownership and External Assistance

This section establishes the boundary between permitted guidance and work that must be completed directly by the registered student team.

C1.1 Student-Led Work

All assessed Aero Pakistan work must be developed, completed, understood and defended by the registered student team.

Student ownership applies to:

- glider concepts and engineering decisions;
- CAD models and engineering drawings;
- aerodynamic and structural analysis;
- calculations, simulations and technical conclusions;
- manufacturing files and processes;
- testing and performance data;
- reports and portfolios;
- branding and visual communication;
- business models and financial reasoning;
- presentation slides and scripts; and
- submitted videos and supporting material.

C1.2 Permitted Guidance

Teachers, parents, mentors, engineers and external professionals may provide:

- teaching and technical instruction;
- general guidance and feedback;
- demonstrations;
- safety supervision;
- access to equipment, software and facilities; and
- review of work already produced by the student team.

C1.3 Prohibited External Completion

External individuals must not complete final assessed work on behalf of the team.

This includes, but is not limited to:

- producing the final CAD model;
- completing the final engineering analysis;
- writing reports or portfolio content;
- designing the final branding or portfolio;
- developing the final business model or financial projections;
- preparing presentation scripts; or
- answering questions during judging sessions.

C1.4 External Manufacturing and Specialist Services

External manufacturing or specialist services may only be used where permitted by the Airworthiness Regulations.

Any material external assistance must be disclosed in the Project Element to which it relates.

The disclosure must identify:

- the person or organization providing the assistance;
- the nature of the assistance;
- the work completed externally; and
- the work completed by the student team.

C1.5 Verification of Student Involvement

The Judges and The Organizing Committee may direct questions to any registered flight crew to verify their involvement in and understanding of the submitted work.

A team's inability to demonstrate reasonable understanding of its work may result in reduced score or an integrity review.

The Organizing Committee may request working files, version histories, photographs, calculations, manufacturing records or other supporting evidence where student ownership is uncertain.

C2 Originality, Artificial Intelligence and Evidence Integrity

This section establishes the requirements governing original work, external sources, artificial intelligence assistance and the accurate presentation of technical and commercial evidence.

C2.1 Originality

All submitted and presented work must be original or appropriately acknowledged.

Plagiarism includes presenting another person's or team's work as the team's own, including:

- written content;
- technical explanations;
- calculations or analysis;
- CAD geometry;
- engineering drawings;
- computer code;
- simulation or testing data;
- photographs or illustrations;
- branding and visual identity;
- portfolio layouts;
- business models; or
- presentation material.

C2.2 External References

Teams may use published research, technical data, standard equations, aerofoil databases, software outputs, market reports and third-party visual material where relevant, provided that the source is appropriately acknowledged.

Use of an existing template does not remove the requirement for original content, analysis and visual development.

C2.3 Permitted Use of Artificial Intelligence

Artificial intelligence tools may be used without declaration for:

- spelling correction;
- basic grammar correction;
- basic document formatting; and generation of search terms.

Artificial intelligence tools may be used with declaration for:

- brainstorming and idea exploration;
- content structuring;
- language refinement beyond basic grammar;
- coding assistance;
- data-visualization assistance;
- visual concept development;
- comparison of design alternatives; and
- research support.

C2.4 Limits on Artificial Intelligence

Artificial intelligence must not replace the team's own:

- engineering reasoning and design decisions;
- calculations and validation;
- testing process;
- technical conclusions;
- commercial reasoning; or
- ability to explain and defend its work.

AI-generated information shall not be treated as verified technical or commercial evidence without independent checking by the team. Teams remain fully responsible for the accuracy, originality and technical validity of all AI-assisted work.

C2.5 Prohibited Artificial Intelligence Use

Artificial intelligence must not be used to fabricate:

- references or citations;
- calculations;
- test results;
- simulation outputs;
- market data;
- financial results;
- sponsor engagement;
- manufacturing evidence; or
- photographs or videos of work that did not occur.

Using artificial intelligence to generate an entire report, portfolio, presentation, engineering design or analysis without meaningful student development and understanding may result in zero points or disqualification from the relevant judging category.

C2.6 AI Use Declaration **(5-Point Penalty)**

Where artificial intelligence has materially contributed to a Project Element, the team must include an AI Use Declaration identifying:

- The artificial intelligence tool used;
- The purpose for which it was used;
- The Project Element in which the AI-assisted output appears;
- The work completed, developed or modified by the team; and
- The method used by the team to verify the output.

The AI Use Declaration shall be included as a clearly labelled page or section within the submitted Project Element. Where no artificial intelligence tool has materially contributed, the team shall state this in the same place

Basic spelling correction, basic grammar correction, basic document formatting and generation of search terms do not require declaration.

Failure to submit a required AI Use Declaration, or submission of a materially incomplete declaration, shall result in a five-point deduction from the score of the affected Project Element.

Deliberate concealment or misrepresentation of artificial intelligence use may be treated as an integrity violation under the Competition Code and may result in further disciplinary action.

C2.7 Accuracy of Claims

A design concept must not be represented as manufactured, tested or operational unless evidence supports that claim. Teams must state relevant inputs, assumptions, limitations and units associated with calculations and simulations.

Predicted performance, simulated performance and measured performance must be clearly distinguished.

C2.8 Verification

The Organizing Committee and Judges may request:

- native CAD files;
- version histories;
- calculation sheets;
- simulation files;
- test records;
- original photographs or videos;
- source references;
- market or financial working; and
- AI prompt or usage records where relevant.

An honest technical error, incorrect calculation or unsupported assumption shall normally be addressed through the applicable judging scorecard. Information shall be treated as misconduct where it has been deliberately fabricated, altered, concealed or misrepresented.

C2.9 Project Integrity Declaration (10-Point Penalty)

Each team must submit a Project Integrity Declaration confirming:

- that its assessed work is substantially student-produced;
- that external assistance has been disclosed;
- that artificial intelligence use has been declared where required;
- that no data or evidence has been fabricated; and
- that all third-party material has been appropriately acknowledged.

The declaration must be signed or digitally confirmed by the Team Captain and all registered flight crews.

A team that fails to submit the Project Integrity Declaration shall receive a 10-point deduction from its total score.

C3 Fair Competition, Penalties and Official Authority

This section defines the standards of fair participation, the consequences available for violations and the authority responsible for administering the competition.

C3.1 Spirit of the Competition

Aero Pakistan is founded on fair competition, student ownership, engineering learning, genuine effort and mutual respect.

Teams are expected to compete within both the written regulations and the intended purpose of the competition.

C3.2 Fair Competition

Teams must not:

- interfere with another team's glider, equipment, documents or Hangar;
- tamper with official equipment, measurements, seals or records;
- obstruct another team's participation in an official activity;
- seek to influence judges outside the official judging process;
- obtain or distribute another team's confidential work without permission;
- deliberately conceal a known non-compliance; or
- misrepresent compliance with the Rulebook.

C3.3 Competition Conduct

All participants must follow reasonable instructions issued by Competition Officials.

Disrespectful, disruptive, threatening, dishonest or unsafe conduct may result in disciplinary action.

C3.4 Potential Consequences

Depending on the nature and severity of a violation, the Organizing Committee may apply:

- an official warning;
- a requirement to correct non-compliance;
- a fixed-point deduction;
- zero points for an affected scoring criterion;
- zero points for an affected Project Element;
- invalidation of a Flight Assessment attempt;
- removal from an official competition activity;
- disqualification from an individual judging category; or
- disqualification from the competition.

C3.5 Application of Penalties

Where a fixed penalty is stated in the Rulebook, that penalty shall be applied.

Where no fixed penalty is stated, Competition Officials shall determine an appropriate consequence based on:

- the severity of the violation;
- whether the violation was deliberate;
- whether it affected safety or competitive fairness;
- whether an advantage was gained; and
- whether the violation was repeated.

All consequences and/or penalties applied by the Organizing Committee and/or Officials shall be final.

C3.6 Serious Misconduct

Serious misconduct may include:

- deliberate cheating;
- plagiarism;
- fabricated or altered evidence;
- undisclosed external completion of student work;
- tampering with another team's property;
- tampering with official equipment or records;
- deliberate interference with another team; or
- repeated refusal to follow official instructions.

Serious misconduct may result in immediate disqualification from the affected judging category or from the competition.

C3.7 Official Authority

The Organizing Committee shall hold overall authority for competition administration and operations.

The Head Judge shall hold authority over judging, scoring and the application of judging regulations.

The Head of Technical Inspection shall hold authority over Pre-Flight Clearance, Airworthiness compliance and flight eligibility.

Competition Officials may take any reasonable action required to protect:

participant and spectator safety;

- competitive fairness;
- regulatory compliance;
- official equipment; and
- orderly competition operations.

J JUDGING AND SCORING

J1 Competition Categories

Aero Pakistan evaluates teams through the following technical, commercial and flight assessment categories.

Category	Description
Pre-Flight Clearance (PFC)	Mandatory technical inspection of the glider against all Airworthiness Regulations. No points are awarded, but failure bars the team from the Flight Assessment. Penalty points issued during Pre-Flight Clearance are deducted from the Flight Assessment score.
Engineering Design Board (EDB)	Live technical judging session assessing the team's glider design, CAD modelling, aerodynamic and structural analysis, manufacturing quality, and depth of engineering understanding.
Engineering Design Report (EDR)	Pre-submitted document judged independently by a dedicated review panel. Evaluates the team's complete engineering design and manufacturing journey.
Business Plan Presentation (BPP)	Live 8-minute pitch to a panel of judges acting as investors. Teams present as startup founders seeking investment for their glider technology at commercial scale. The top three teams advance to the Finalist Business Plan Presentation
Finalist Business Plan Presentation (Top 3 — On-Stage)	A 5-minute on-stage pitch delivered by each of the three Business Plan Presentation finalists before the audience and investor panel. This session determines the final ranking of the top three teams.
Team Enterprise Portfolio (TEP)	Pre-submitted document evaluated on the strength of the team's brand identity, visual communication, marketing strategy, audience engagement, sponsorship approach, project planning, and alignment between the brand and the prototype.
Business Plan Presentation Video (BPPV)	Pre-submitted 60-second video evaluated on the team's ability to clearly and persuasively communicate its business concept, target market, value proposition, commercial potential, and connection to the prototype.
Flight Assessment	The scored flight. The glider is launched from the official motorized launcher and scored on landing precision relative to the designated target.
Design Specification Sheet (DSS)	Pre-submitted Excel workbook declaring the key design parameters of the glider. Mandatory for Pre-Flight Clearance eligibility.

J2 Point Allocations

Category	Points
Engineering Design Board	200
Engineering Design Report (Pre-Launch Day Submission)	150
Business Plan Presentation (Launch Day) + Finalist Business Plan Presentation (Top 3)	150
Team Enterprise Portfolio (Pre-Launch Day Submission)	100
Business Plan Presentation Video (Pre-Launch Day Submission)	50
Flight Assessment (Launch Day)	300
TOTAL	950

Note: *The Design Specification Sheet carries no points. See section S8.*

J3 Overall Score and Ranking

- J3.1** A team's overall score shall be the sum of its scores listed in section J2, less any penalty points applied under this Rulebook.
- J3.2** The team with the highest overall score shall be ranked first. Where teams have equal overall scores, the tie shall be broken in the following order: higher Flight Assessment score; higher Engineering Design Board score; higher Engineering Design Report score.

S ASSESSMENT SECTIONS

Each assessment section defines its purpose, required preparation, assessment procedure, evidence requirements, scoring approach and the authority of Competition Officials.

S1 Pre-Flight Clearance

S1.1 Purpose of Pre-Flight Clearance

S1.1.1 Pre-Flight Clearance is the mandatory technical inspection conducted before a glider is permitted to participate in the Flight Assessment.

S1.1.2 The purpose of Pre-Flight Clearance is to verify that each glider is safe, compliant, structurally suitable, and eligible for launch under the official Flight Assessment conditions.

S1.1.3 A team shall not be permitted to participate in the Flight Assessment unless its glider has successfully received Pre-Flight Clearance.

S1.1.4 Any penalty points issued during Pre-Flight Clearance shall be deducted from the team's Flight Assessment score.

S1.1.5 Pre-Flight Clearance is a pass/fail inspection. No points are awarded for Pre-Flight Clearance.

S1.2 Pre-Flight Clearance Inspection

S1.2.1 During Pre-Flight Clearance, Inspection Officials shall inspect each glider for compliance with the Airworthiness Regulations stated in this Rulebook.

S1.2.2 The Pre-Flight Clearance inspection may include, but shall not be limited to, verification of the following:

- Overall dimensions, mass, and physical conformity of the glider.
- Fuselage construction, Payload Bay Cavity dimensions and position, Standard Payload Enclosure installation, and structural integrity.
- Main Wing Assembly, aerofoil profile, spar installation, and attachment security.
- Stabilizer construction, alignment, and attachment security.
- Centre of Gravity marking and other required technical markings.
- Team identification markings, including the Team Patch and Team Number.
- Standard Launch Hook geometry, position, mounting cavity, attachment security, and compatibility with the official shuttle.
- Compliance with all Critical Airworthiness Requirements.
- Consistency between the submitted engineering drawings and the physical glider.

S1.2.3 Inspection Officials may inspect any additional feature, component, construction detail, material, joint, attachment, marking, or modification considered relevant to the safe, compliant, and fair participation of the glider in the Flight Assessment.

- S1.2.4** Inspection Officials may request clarification from flight crews regarding the glider's construction, markings, Payload Bay Cavity, Standard Payload Enclosure, Standard Launch Hook, structural design, or compliance with the Airworthiness Regulations.
- S1.2.5** Inspection Officials may refuse clearance if a glider is considered unsafe, incomplete, structurally unreliable, non-compliant, or unsuitable for official launch.
- S1.2.6** A team may present its glider for Pre-Flight Clearance a maximum of three (3) times within the permitted inspection window. Each inspection, including each re-inspection after a non-compliance has been corrected, counts as one attempt. The first attempt carries no penalty. Each subsequent attempt shall result in a 10-point penalty, deducted in accordance with S1.1.4. A team that has not received Pre-Flight Clearance after three attempts shall not be eligible for the Flight Assessment. The inspection window shall be stated in the Competition Handbook.
- S1.2.7** A team shall be eligible for Pre-Flight Clearance only if it has submitted the Design Specification Sheet in accordance with section S8.

S1.3 Team Preparation

- S1.3.1** Teams are responsible for ensuring that their glider complies with all applicable Airworthiness Regulations before submission for Pre-Flight Clearance.
- S1.3.2** Teams must ensure that all required markings, identification labels, payload-system components, Standard Launch Hook, structural components, and technical features are complete and clearly visible before inspection.
- S1.3.3** Teams must present the glider in a condition ready for official inspection. A glider that is incomplete, damaged, unstable, or not ready for inspection may be refused clearance or delayed until it is made inspection-ready within the permitted inspection window.
- S1.3.4** Teams are responsible for bringing any required supporting material, including engineering drawings, technical documents, or evidence of compliance, where requested by the Inspection Officials.

S1.4 Non-Critical Non-Compliance and Penalties

- S1.4.1** Failure to comply with a non-critical Airworthiness Regulation shall result in the penalty stated for that regulation. Penalty points shall be deducted in accordance with S1.1.4.
- S1.4.2** Non-critical non-compliance may include issues that do not prevent safe launch but affect technical compliance, fairness, identification, measurement, or inspection quality.

S1.5 Critical Airworthiness Requirements

- S1.5.1** Failure to comply with any Critical Airworthiness Requirement shall result in refusal of Pre-Flight Clearance.
- S1.5.2** A glider that fails any Critical Airworthiness Requirement shall not be permitted to participate in the Flight Assessment unless the non-compliance is corrected and the glider is re-inspected within the permitted inspection window.

S1.5.3 If a critical issue cannot be corrected within the permitted inspection window, the team shall not receive Pre-Flight Clearance and shall not be eligible to complete an official Flight Assessment attempt.

S1.6 Official Authority

S1.6.1 Subject to section A1.5, the decision of the Inspection Officials regarding Pre-Flight Clearance, penalties, critical non-compliance, re-inspection, and flight eligibility shall be final.

S1.6.2 The Competition Officials reserve the right to prevent any glider from participating in the Flight Assessment if it is considered unsafe, non-compliant, or unsuitable for launch, even if the issue is identified after initial inspection.

S1.6.3 Teams must follow all instructions given by Inspection Officials and Competition Officials during the Pre-Flight Clearance process.

S2 Engineering Design Board

The Engineering Design Board is a mandatory technical review in which each team shall present, explain, and defend the engineering decisions behind its glider.

S2.1 Purpose of the Engineering Design Board

The purpose of the review is to assess the team's technical understanding of the complete flight system, including aerodynamic design, structural design, stability, manufacturing, design development, and expected flight performance.

S2.1.1 The Engineering Design Board shall be conducted as a technical discussion in which Judges assess not only the final glider design but also the reasoning, analysis, testing, trade-offs, and decision-making process followed during its development. Teams must clearly justify how their glider has been designed and manufactured to meet the Airworthiness Regulations, competition requirements, and intended flight objectives, and must support their responses to direct engineering questions with relevant evidence, calculations, drawings, analyses, design files, test results, or physical features of the glider, where applicable.

S2.2 Review Scope

During the Engineering Design Board, Judges may evaluate, but shall not be limited to, the following areas (refer to scorecard):

- Aerodynamic design choices, including aerofoil selection, wing geometry, aspect ratio, planform, tail configuration, and supporting analysis.
- Structural design choices, including spar arrangement, load-bearing components, joints, fuselage structure, tail structure, material selection, and construction method.
- Centre of Gravity location, static margin, and overall stability reasoning.
- CAD modelling, assembly design, component fit, and consistency between the digital model and the physical glider.
- Manufacturing approach, including fabrication method, tooling, cutting, machining, 3D printing, assembly process, bonding, finishing, and surface quality.

- Design development process, including design iterations, testing, failures, improvements, trade-off decisions, and final design selection.
- Consistency between the Engineering Design Report, CAD files, engineering drawings, analysis files, manufacturing files, and physical glider.
- Payload-system integration, including the Payload Bay Cavity, Standard Payload Enclosure, Standard Payload Enclosure Cover and prescribed screws, structural support, accessibility, and effect on balance and stability.
- Launch-system integration, including the Standard Launch Hook, attachment, shuttle compatibility, and expected behavior under official launch conditions.
- The ability of flight crews to explain and defend engineering decisions under direct technical questioning.

S2.2.1 Teams should be prepared to explain both successful and unsuccessful design choices. Evidence of iteration, improvement, and problem-solving may be considered positively during evaluation.

S2.2.2 A team may receive a reduced score if it presents a technically strong glider but is unable to explain the engineering reasoning behind its design decisions.

S2.3 Supporting Documentation and Evidence

S2.3.1 Teams shall bring two printed copies of the Engineering Design Report to the Engineering Design Board.

S2.3.2 Teams shall bring a laptop containing relevant support files, which may include, but shall not be limited to:

- CAD models and assembly files.
- Dimensioned engineering drawings.
- Aerodynamic analysis of files or calculations.
- Structural calculations or supporting evidence.
- Centre of Gravity and static margin calculations.
- Manufacturing files, templates, toolpaths, or 3D printing files, where applicable.
- Testing records, photographs, videos, or observations.
- Design iteration evidence and comparisons between earlier and final designs.

S2.3.3 Teams must ensure that all required documents and files are accessible during the review.

S2.3.4 Failure to provide relevant documentation, design files, calculations, drawings, or supporting evidence may affect the team's evaluation.

S2.3.5 Artificial intelligence used in preparing for the Engineering Design Board shall be declared in the AI Use Declaration included in the Engineering Design Report, in accordance with section C2.6.

S2.4 Physical Glider Requirement

- S2.4.1** Teams must bring their completed glider to the Engineering Design Board unless otherwise instructed by the Competition Officials.
- S2.4.2** The physical glider presented during the review must be consistent with the submitted Engineering Design Report, CAD model, engineering drawings, and supporting design files.
- S2.4.3** Judges may inspect the glider to verify design features, dimensions, structural details, payload-system integration, Standard Launch Hook installation, manufacturing quality, and consistency with submitted documentation.
- S2.4.4** Any mismatch between the physical glider and the submitted EDR or supporting documentation may result in a reduced score or further review by the Competition Officials.

S2.5 Attendance Requirements

- S2.5.1** A minimum of two Flight crews must attend the Engineering Design Board.
- S2.5.2** Judges may direct questions to any attending flight crew.
- S2.5.3** Teams should ensure that attending members collectively understand the aerodynamic design, structural design, stability approach, manufacturing process, design development, and documentation of the glider.
- S2.5.4** A team may receive a reduced score if only one member is able to answer technical questions while other attending members are unable to demonstrate meaningful understanding of the project.

S3 Engineering Design Report

The Engineering Design Report is a mandatory Pre-Launch Day submission document that presents the team's technical design, engineering analysis, manufacturing approach, and design development process.

S3.1 Purpose of the Engineering Design Report

The purpose of the Engineering Design Report is to allow judges to assess how the team designed, analyzed, manufactured, tested, and refined its glider in accordance with the Airworthiness Regulations and competition requirements.

S3.2 Report Content Requirements

- S3.2.1** The Engineering Design Report may include, but shall not be limited to, the following technical areas:
- Aerofoil selection, wing geometry, and aerodynamic design justification.
 - Aerodynamic analysis of the wing, fuselage, tail, and overall glider configuration.
 - Structural justification of the wing, spar arrangement, joints, fuselage, tail structure, and major load-bearing components.
 - Centre of Gravity calculation, static margin estimate, and stability reasoning.

- Payload-system integration, including the Payload Bay Cavity position, Standard Payload Enclosure installation, Standard Payload Enclosure Cover and prescribed screws, and the effect of the Official Payload on Centre of Gravity and stability.
- Launch-system analysis, including the Standard Launch Hook position, attachment, shuttle compatibility, and expected release behavior under the official launcher conditions.
- Predicted flight path, estimated glide performance, and estimated landing distance.
- Manufacturing process documentation, including fabrication methods, tooling, machining, cutting, 3D printing, assembly, bonding, sanding, finishing, or any other process used.
- Design development process, including iterations, testing, failures, trade-offs, refinements, and improvements made before the final design.
- Dimensioned engineering drawings, including clear identification of the Payload Bay Cavity, Standard Payload Enclosure, Standard Launch Hook, Main Wing Assembly, fuselage, Tail Assembly, spar arrangement, and other major components.
- Professional document quality, including structure, clarity, technical communication, correct use of figures, tables, units, calculations, diagrams, and references.

S3.2.2 Teams are expected to support their engineering decisions with clear reasoning, calculations, diagrams, sketches, test data, simulations, photographs, or other relevant evidence where applicable.

S3.2.3 The report should clearly distinguish between measured data, calculated estimates, simulation results, design assumptions, and team observations.

S3.2.4 Any design assumption used in the report must be reasonable, clearly stated, and relevant to the glider's expected performance or compliance with competition requirements.

S3.3 Engineering Drawings and Technical Evidence

S3.3.1 The Engineering Design Report must include sufficient technical information for judges to understand the final glider configuration and the reasoning behind its design.

S3.3.2 The report must include clear engineering drawings in isometric, side, front, and top views. Important dimensions, component locations, Payload Bay Cavity position, Standard Payload Enclosure position, Standard Launch Hook position, structural members, and reference datums must be identifiable.

S3.3.3 Photographs of the manufacturing process, testing process, or completed glider may be included where they support the technical explanation.

S3.3.4 Teams must ensure that all figures, tables, graphs, diagrams, and images are relevant, properly labelled, and explained in the report.

S3.4 Engineering Design Report Submission Requirements

Requirement	Specification
Submission method	One digital copy submitted through the official Aero Pakistan website
File format	A4 size PDF
Submission deadline	As stated on the official Aero Pakistan website
Maximum length	10 pages
Pages excluded from limit	Front cover, back cover and the AI Use Declaration page
Excess pages	Only the first 10 eligible pages shall be considered for evaluation
Minimum font size	11-point
Required file name	TeamNumber_TeamName_EDR.pdf
Printed copies	Two copies must be brought on Launch Day
Version consistency	Printed copies must match the digitally submitted version exactly
File responsibility	Teams must ensure the file is complete, accessible, correctly named, and not corrupted

S4 Business Plan Presentation

S4.1 Purpose and Scope

The Business Plan Presentation is designed to evaluate each team's ability to develop and present a hypothetical, but commercially credible business plan based on its Aero Pakistan glider prototype.

The proposed business model must originate from the team's glider and demonstrate how its design, aerodynamic characteristics, structure, materials, payload capability, flight behavior, manufacturing approach, or other engineered features enable a product, service, or any other commercial application.

The glider must therefore form a central and necessary part of the proposed value proposition, rather than serving only as inspiration or a visual representation of an otherwise unrelated business idea.

S4.1.1 Teams are not required to present an existing registered company, operational business, or already launched product. The presentation may propose a future venture or commercial application developed from the team's Aero Pakistan glider, provided that the concept is technically plausible and commercially reasonable.

S4.1.2 Teams may adapt, scale, modify, or further develop hypothetical potential of their competition glider for proposing a commercial use. This may include reasonable changes to dimensions,

materials, payload capacity, manufacturing methods, control systems, launch mechanisms, or other relevant features.

Any proposed development must, however, maintain a clear engineering relationship with the prototype presented at Aero Pakistan. Teams must identify:

- what has been retained from the competition prototype;
- what would need to be modified for commercial deployment; and
- How are those modifications technically and commercially justified.

S4.1.3 Judges shall be treated as potential investors or strategic stakeholders for the proposed business model.

S4.1.4 The Business Plan Presentation shall be evaluated on the following areas, among others:

- the strength of the connection between the glider and the proposed business, including the value its engineering characteristics create for the intended customer;
- the market opportunity and the team's understanding of its target customers;
- the clarity of the revenue models, cost assumptions and commercial sustainability;
- competitive positioning, branding, and the proposed approach to build customers;
- the technical feasibility of the proposed application and the practicality of its execution;
- scalability and future development;
- the clarity and professionalism of the pitch, and the team's ability to respond to investor questions.

A business model that is generic, unrealistic, and lacks supporting evidence, or a clear connection to the prototype may receive a reduced score.

S4.1.5 The technical quality, construction standard, and flight performance of the prototype shall be evaluated separately in the relevant technical and flight assessment events. However, teams must still demonstrate how the prototype, or a specific system or component of it, supports the proposed business model and creates value for its intended user or customer.

S4.2 Presentation Format

S4.2.1 Each team shall deliver its Business Plan Presentation during its assigned judging slot.

S4.2.2 The Business Plan Presentation shall be limited to a maximum of 8 minutes. The time limit shall be strictly observed. Judges may stop any pitch that exceeds the permitted time limit.

S4.2.3 The pitch shall not be interrupted by questions during the presentation time.

S4.2.4 Immediately after the pitch, each team shall complete a 5-minute question-and-answer session with the judges.

S4.2.5 A minimum of two flight crews must present the Business Plan Presentation.

S4.2.6 All flight crews involved in the pitch must be introduced to the judges at the beginning of the session.

S4.2.7 Teams may use presentation slides, visuals, prototypes, printed material, or other supporting material where appropriate

S4.3 Team Requirements

- S4.3.1** Teams are responsible for ensuring that their presentation file, supporting materials, and any required equipment are ready before the start of their assigned judging slot.
- S4.3.2** Teams must report to the assigned judging area on time and must be prepared to begin immediately when called by the Competition Officials.
- S4.3.3** Any delay caused by the team, including missing files, technical issues, unavailable presenters, or incomplete preparation, may reduce the available presentation time or result in penalties.
- S4.3.4** Teams that fail to present within their assigned judging slot may receive zero points for the Business Plan Presentation, unless otherwise permitted by the Competition Officials.
- S4.3.5** All claims, assumptions, and projections presented during the pitch must be reasonable, relevant, and clearly connected to the team's prototype and proposed business model.

S4.5 Scoring Structure

- S4.5.1** The Business Plan Presentation shall carry a maximum of 150 points.
- S4.5.2** All teams shall be eligible to receive a maximum of 140 points through the assigned judging-slot Business Plan Presentation.
- S4.5.3** The top three teams ranked highest after the assigned judging-slot Business Plan Presentation shall qualify for the Finalist Business Plan Presentation.
- S4.5.4** The Finalist Business Plan Presentation shall be conducted on stage and shall carry a maximum of 10 additional points.
- S4.5.5** Teams that do not qualify for the Finalist Business Plan Presentation shall retain their score out of the maximum 140 points available from the assigned judging-slot Business Plan Presentation.
- S4.5.6** The total Business Plan Presentation score of each finalist team, used for the overall competition score, shall be calculated by adding its assigned judging-slot Business Plan Presentation score and its Finalist Business Plan Presentation score.
- S4.5.7** The final ranking and winner of the Business Plan Presentation Event among the finalist teams shall be determined solely by the scores awarded in the Finalist Business Plan Presentation.

S4.6 Finalist Business Plan Presentation

- S4.6.1** The top three teams ranked highest in the assigned judging-slot Business Plan Presentation shall qualify for the Finalist Business Plan Presentation.
- S4.6.2** The purpose of the Finalist Business Plan Presentation is to allow the highest-ranked teams to further demonstrate the commercial strength, technical understanding, execution potential, and overall credibility of their proposed business model.

- S4.6.3** The Finalist Business Plan Presentation must show a clear and logical connection between the team's prototype, engineering specifications, target market, commercial strategy, and implementation plan.
- S4.6.4** Teams should demonstrate how the technical features, systems, components, or capabilities of their prototype support the proposed business model and create value for the intended customer, user, partner, or stakeholder.
- S4.6.5** Teams are expected to present their business case in a structured and professional manner. The presentation may include, but is not limited to, the problem being addressed, proposed solution, market opportunity, customer segment, revenue model, cost considerations, competitive advantage, prototype relevance, and execution strategy.
- S4.6.6** Each finalist team shall be allowed a maximum presentation time of 5 minutes. The time limit shall be strictly observed. Judges may stop any presentation that exceeds the permitted time.
- S4.6.7** Immediately following the presentation, each finalist team shall participate in a question-and-answer session with the judging panel.
- S4.6.8** During the question-and-answer session, judges may ask questions related to the team's business model, engineering decisions, market assumptions, financial reasoning, execution plan, prototype feasibility, commercial viability, and overall strategic direction.
- S4.6.9** The Finalist Business Plan Presentation shall form the final stage of assessment for the Business Plan Presentation Event.
- S4.6.10** The Finalist Business Plan Presentation shall be evaluated using a judging scorecard carrying a maximum of 100 points. The scores awarded out of 100 shall be used to determine the final ranking and winner of the Business Plan Presentation Event among the three finalist teams.
- For the purpose of calculating each finalist team's overall Business Plan Presentation score, 10% of the score obtained in the Finalist Business Plan Presentation (equivalent to a maximum of 10 points) shall be added to the team's score obtained during the assigned judging-slot Business Plan Presentation, resulting in a maximum combined score of 150 points
- S4.6.11** The final ranking and winner of the top 3 teams of the Business Plan Presentation Event shall be determined solely by the scores awarded in the Finalist Business Plan Presentation.

S4.7 Submission Requirement

The Business Plan Presentation must be available in the format and through the handover method stated in the Competition Handbook.

Teams must ensure that the correct final version is available and ready before the start of their assigned judging session.

Artificial intelligence used in preparing the Business Plan Presentation shall be declared in the AI Use Declaration included in the Team Enterprise Portfolio, in accordance with C2.6.

S5 Team Enterprise Portfolio

S5.1 Purpose

Each team must submit a Team Enterprise Portfolio for evaluation. The Team Enterprise Portfolio is intended to demonstrate the team's ability to develop, present, and manage the identity of the team and its prototype as a professional brand.

S5.2 Required Content

The Team Enterprise Portfolio must provide a clear overview of the team's branding, marketing, communication, sponsorship, and project presentation activities to represent their team and glider.

S5.3 Portfolio Content and Prototype Alignment

S5.3.1 The portfolio may include, but shall not be limited to, the following areas:

- Team identity, vision, and brand concept.
- Team roles, organizational structure, and brand-related responsibilities.
- Marketing strategy
- Sponsorship approach
- Budget planning, resource management, and brand-related costs.
- Project timeline, and execution planning.
- Reflection on brand development, challenges, decisions, improvements, and lessons learned during the project.

S5.3.2 The portfolio should provide evidence of how these elements were planned and applied. A portfolio that relies on generic branding, uses the team's identity inconsistently, or makes unsupported claims may receive a reduced score, even when it is visually strong.

S5.4 Team Enterprise Portfolio Specifications

Requirement	Specification
Digital submission	Submission method: One digital copy submitted through the official Aero Pakistan website. Submission deadline: As stated on the official Aero Pakistan website.
File format	A4 size PDF
Maximum length	10 pages
Pages excluded from limit	Cover page and table of contents
Excess pages	Only the first 10 eligible pages shall be considered for evaluation; any additional content shall be disregarded
Minimum font size	11-point
Readability	All text, diagrams, charts, tables, and supporting material must be clear, readable, and professionally presented
Required file name	TeamNumber_TeamName_TEP.pdf
Printed copies	Two printed copies must be brought on Launch Day
Version consistency	Printed copies must match the digitally submitted version exactly
File responsibility	Teams must ensure the file is complete, accessible, correctly named, and not corrupted

S6 Business Plan Presentation Video

- S6.1** Each team shall submit a Business Plan Presentation Video as a mandatory Pre-Launch Day Project Element supporting its Business Plan Presentation.
- S6.2** The video must present a concise version of the same business concept as the team's live Business Plan Presentation. The business concept and prototype alignment requirements under S4 apply equally to the video.
- S6.3** Teams may use a separate script and visuals suited to the video format. The submitted video shall also be played immediately before the team's live Business Plan Presentation.
- S6.4** The video should clearly communicate:
- The problem, need, or market opportunity identified by the team.
 - The product, service, or commercial solution being proposed.
 - The intended customer or target market.
 - The value offered by the proposed solution.
 - The commercial relevance of the team's prototype.

- S6.5** The maximum permitted duration of the video is 60 seconds. Any content presented after the first 60 seconds shall not be considered for evaluation.
- S6.6** Any flight crew member appearing as presenters in the video must be registered Flight crew members. The information presented in the video must remain consistent with the team's submitted documents and live Business Plan Presentation.
- S6.7** Teams are responsible for ensuring that the submitted video is complete, correctly named, accessible, and not corrupted. An incomplete, inaccessible, or corrupted file may be treated as not submitted. Late submissions are subject to A3.7.

S6.8 Business Plan Presentation Video Specifications

Requirement	Specification
Submission stage	Pre-Launch Day
Submission status	Mandatory
Maximum duration	60 seconds
Accepted formats	MP4, MOV, or MPG
Submission channel	Official Aero Pakistan website
Required file name	TeamNumber_TeamName_BPPV, followed by the file extension of the submitted format
Excess duration	Content after 60 seconds shall not be considered
Submission deadline	As stated on the official Aero Pakistan website
File responsibility	The file must be complete, accessible, correctly named, and not corrupted

S7 Flight Assessment

S7.1 Purpose of the Flight Assessment

- S7.1.1** The Flight Assessment is designed to evaluate the flight performance, stability, control, and landing precision of each team's glider.
- S7.1.2** The primary objective of the Flight Assessment is for the glider to land as close as possible to the designated target point on the measurement field.
- S7.1.3** The Flight Assessment shall test the effectiveness of the team's design, manufacturing quality, weight distribution, aerodynamic performance, and overall flight readiness under standardized launch conditions.

S7.2 Eligibility for Flight Assessment

- S7.2.1** A team shall not be permitted to attempt an official flight unless its glider has passed all required Pre-Flight Clearance checks.

S7.2.2 Any glider that fails Pre-Flight Clearance, or is deemed unsafe by the Competition Officials, shall not be allowed to participate in the Flight Assessment.

S7.2.3 Competition Officials may re-inspect any glider before the flight attempt if they believe that the glider has been modified, damaged, or altered after receiving Pre-Flight Clearance. A re-inspection initiated by Competition Officials under this rule shall not count as a Pre-Flight Clearance attempt under S1.2.6, unless non-compliance is found.

S7.3 Inspection Mark

A glider that successfully completes Pre-Flight Clearance shall receive an official inspection sticker (the clearance mark).

Teams shall not:

- remove the clearance mark;
- alter the clearance mark; or
- conceal any post-clearance modification.

S7.4 Flight Assessment Format

S7.4.1 Each team shall complete one official flight attempt during the Flight Assessment window, stated in the Competition Handbook.

S7.4.2 Each glider shall be launched using the official Aero Pakistan motorized launcher.

S7.4.3 The launcher shall be set to a fixed launch speed of 7 m/s, a fixed launch angle of 5 degrees, and a fixed launch height of 6.5 meters above ground level, unless otherwise specified by the Competition Officials.

S7.4.4 The designated target point shall be located at a horizontal distance of 20 meters from the launcher, unless otherwise specified by the Competition Officials.

S7.4.5 The flight order shall be determined by the order in which teams receive Pre-Flight Clearance, unless otherwise directed by the Competition Officials.

S7.4.6 Teams must be present and ready when called for their official flight attempt. Failure to report to the launch area when called may result in the team losing its flight attempt, at the discretion of the Competition Officials.

S7.5 Launch Procedure

S7.5.1 Only Competition Officials or authorized personnel appointed by the Organizing Committee may operate the official launcher.

S7.5.2 Teams must place their glider on the launcher only when instructed by the Competition Officials.

S7.5.3 Teams must not interfere with the launcher settings, launch mechanism, launch direction, or any official equipment.

S7.5.4 Once the glider has been positioned on the launcher and the launch area has been cleared, the Competition Officials shall initiate the official launch procedure.

S7.6 Landing Error Measurement

S7.6.1 The Flight Assessment score shall be based on the landing error of the glider relative to the designated target point.

S7.6.2 Landing error shall be measured as the distance between the designated target point and the point at which the glider first makes contact with the ground (the point of impact).

S7.6.3 The point of impact shall be determined by the Competition Officials, who may use video evidence. The measurement recorded by the Competition Officials shall be considered the official landing error for scoring purposes.

S7.6.4 Landing error shall be recorded in meters to two decimal places.

S7.7 Scoring Method

S7.7.1 The team with the lowest valid landing error shall receive the maximum Flight Assessment score of 300 points. The team with the highest valid landing error shall receive 50 points

S7.7.2 All other valid flights shall be scored by linear interpolation between 300 points and 50 points using the following formula:

$$\text{Score} = 50 + 250 \times (E_{\text{max}} - E_{\text{team}}) \div (E_{\text{max}} - E_{\text{min}})$$

Where;

- E_{team} is the team's landing error
- E_{min} is the lowest valid landing error
- E_{max} is the highest valid landing error among all valid flights.

S7.7.3 The final scoring formula shall be stated in the Scoring Appendix or official competition scoring sheet.

S7.7.4 A team whose flight is declared invalid shall receive zero points for the Flight Assessment, unless a re-flight is granted under the conditions stated in this section.

S7.7.5 In the event that two or more gliders achieve the same official landing error and Flight Assessment score, the glider with the lower lateral deviation shall be ranked higher. Lateral deviation is the perpendicular distance between the point of impact and the straight line from the launcher through the designated target point. Where lateral deviation is also equal, the teams shall be ranked equally.

S7.8 Valid Flight Definition

S7.8.1 A flight shall be considered valid if all of the following conditions are satisfied:

- The glider is released cleanly from the official launcher.
- The glider travels a horizontal distance of at least 3 meters from the launcher.
- The point of impact is within the designated measurement field
- The primary structure of the glider remains intact until the glider comes to rest.
- The flight can be fairly measured by the Competition Officials.

S7.8.2 Minor damage after landing may not automatically make a flight invalid, provided that the glider remains measurable and the damage does not prevent a fair assessment of landing error.

S7.8.3 A flight shall remain valid even if the glider does not reach the designated target point, provided that it satisfies all validity conditions.

S7.9 Invalid Flight Conditions

S7.9.1 A flight may be declared invalid if:

- The glider fails to release correctly from the launcher.
- It travels less than the minimum required distance of 3 meters.
- Its point of impact is outside the designated measurement field.
- The Official Payload leaves the Standard Payload Enclosure, or the Standard Payload Enclosure Cover opens, loosens, or separates.
- The Standard Launch Hook or any primary structural component separates from the glider.
- The glider suffers structural failure before coming to rest.
- Its point of impact cannot be determined fairly.
- The team interferes with the launch, measurement process, or official equipment.
- The glider differs from the configuration approved during Pre-Flight Clearance or contains an unauthorized component or modification.

S7.9.2 Minor cosmetic damage shall not invalidate a flight if the Official Payload remains inside the Standard Payload Enclosure, the Standard Payload Enclosure Cover and prescribed screws remain secured, all primary structural components remain attached, and the point of impact can be determined fairly.

S7.9.3 An invalid flight caused by team error, design failure, unsafe construction, interference, or non-compliance shall receive zero points.

S7.9.4 Competition Officials shall have final authority to determine flight validity.

S7.10 Re-Flight Conditions

S7.10.1 A re-flight may only be granted if the Competition Officials determine that the original flight was affected by an issue outside the team's control.

S7.10.2 A re-flight may be granted in cases including, but not limited to:

- Launcher malfunction.
- Official measurement error.
- Obstruction on the flight path or measurement field.
- Interference by an unauthorized person or object.
- Any other issue determined by the Competition Officials to have prevented a fair flight attempt.

S7.10.3 A re-flight shall not be granted for poor glider performance, design failure, unstable flight, structural weakness, incorrect team preparation, or any other issue considered to be within the team's control.

S7.10.4 The decision to grant or deny a re-flight shall rest solely with the Competition Officials.

S7.11 Post-Flight Inspection

Following the official flight, Competition Officials may inspect the glider to confirm that:

- The Official Payload remained inside the Standard Payload Enclosure.
- The Standard Payload Enclosure Cover remained closed, and all prescribed screws remained installed.
- The Standard Payload Enclosure and Standard Launch Hook remained securely attached in their approved positions.
- All major structural components remained attached.
- No prohibited component was released.
- The glider remained in the approved configuration.
- No unauthorized modification was made after clearance.
- The physical glider remained consistent with the approved design.
- A glider that fails the post-flight inspection may have its flight declared invalid under S7.9.

S7.12 Safety and Official Authority

S7.12.1 All teams must follow the instructions of the Competition Officials at all times during the Flight Assessment.

S7.12.2 Teams, spectators, and unauthorized personnel must remain outside the designated launch area, flight path, and measurement field unless instructed otherwise by the Competition Officials.

S7.12.3 Competition Officials may stop, delay, cancel, or repeat any flight attempt if they believe there is a safety concern or operational issue.

S7.12.4 Subject to A1.5 The decision of the Competition Officials regarding flight validity, landing measurement, re-flight approval, penalties, and final scoring shall be final.

S8 Design Specification Sheet

S8.1 The Design Specification Sheet (DSS) is a mandatory Pre-Launch Day Project Element in which each team declares the key design parameters of its glider.

S8.2 Teams shall complete the official DSS template, provided as a macro-enabled Excel (.xlsm) workbook, which can be downloaded using the link below:

[Download Template Here](#)

Additional official design files and reference documents, including the fuselage block STEP file and standard component files, are available for download in the Resources section of the Aero Pakistan website.

S8.3 Teams shall not alter the structure, labels or formulas of the template. The DSS shall be consistent with the team's other submitted Project Elements. An illustration of the template is provided in Appendix. Where the illustration differs from the official template, the official template shall prevail.

Requirement	Specification
Submission stage	Pre-Launch Day
Submission status	Mandatory
Submission deadline	20 November 2026
File format	Microsoft Excel Macro-Enabled Worksheet (.xlsm)
Submission method	One digital copy submitted through the official Aero Pakistan website
Required file name	TeamNumber_TeamName_DSS.xlsx
Printed copies	Not required
Scoring	No points are awarded for the DSS
Late submission	5-point penalty per commenced 24 hours (A3.7)

S8.4 The Organizing Committee shall review each DSS received by the submission deadline and provide feedback to the Team Captain. Each DSS shall be reviewed once. A DSS revised or replaced after its review shall not be reviewed again. Late submission is subject to A3.7. The feedback is advisory only. Teams remain responsible for complying with the Airworthiness Regulations, and final technical compliance shall be determined during Pre-Flight Clearance.

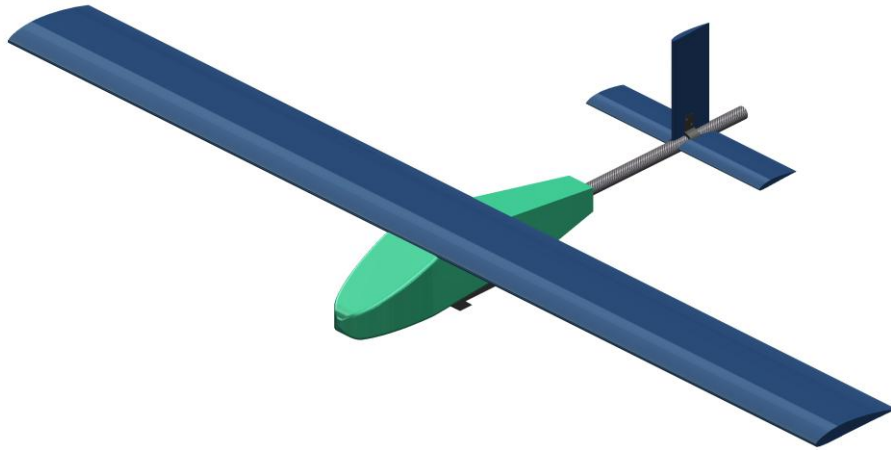
S8.5 A team that has not submitted a DSS in accordance with this section shall not be eligible for Pre-Flight Clearance and, consequently, shall not be eligible for the Flight Assessment.

S8.6 Inspection Officials may compare the glider presented for Pre-Flight Clearance with the submitted DSS. A material discrepancy shall be treated as a non-compliance under S1.4 or S1.5, as applicable.

R AIRWORTHINESS REGULATIONS

The Airworthiness Regulations establish the complete design, material, manufacturing, construction, configuration, inspection, and safety requirements governing every Aero Pakistan glider.

R1 The Aero Pakistan Glider



R1.1 Mission Definition

The Aero Pakistan glider is an unpowered, fixed-wing aircraft designed and manufactured in accordance with these Airworthiness Regulations.

The glider shall be designed to:

- Interface safely with the official Aero Pakistan motorized launcher.
- Carry and retain the Official Payload throughout launch, flight, and landing.
- Fly in a stable and predictable manner.
- Land as close as possible to the designated target located 20 meters downrange.

R1.2 Airworthiness Standard

The glider shall be:

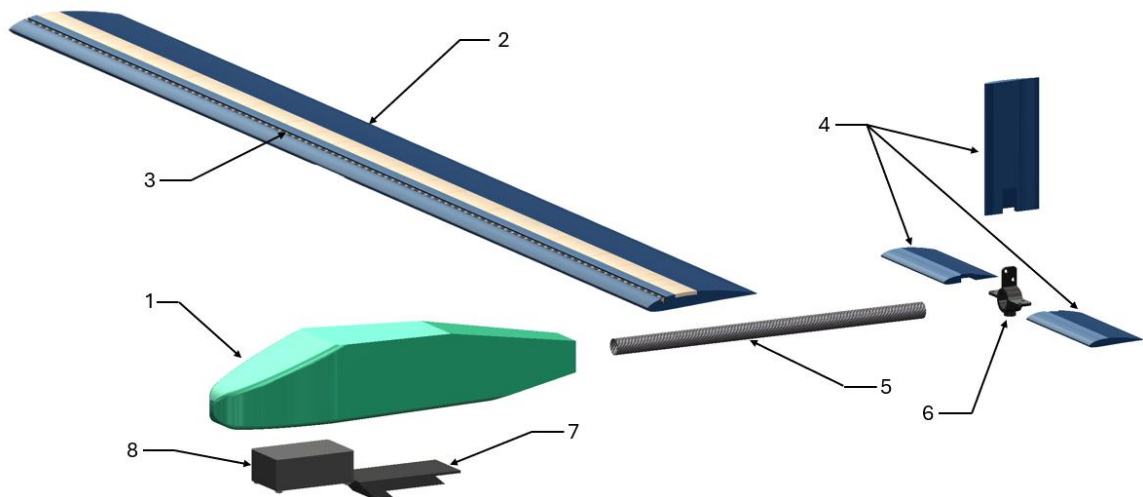
- Aerodynamically stable.
- Structurally sound.
- Manufactured from the permitted materials.
- Free from unsafe, loose, sharp, or unsecured components.
- Consistent with the team's submitted Engineering Design Report, CAD files, engineering drawings, and manufacturing documentation.
- Compatible with the official launcher and shuttle.
- Capable of carrying the Official Payload without structural failure, excessive movement, or release.
- The glider must successfully complete Pre-Flight Clearance before being permitted to fly.

R1.3 Permitted Components **(Critical)**

The glider may consist only of the following components:

No.	Permitted Component
1	Fuselage, including the Payload Bay Cavity
2	Main Wing Assembly
3	Carbon-fiber wing spar or spars
4	Tail stabilizer or stabilizers
5	Carbon-fiber tail spar
6	Stabilizer coupling
7	Standard Launch Hook
8	Standard Payload Enclosure, including the Enclosure Body, Enclosure Cover, and prescribed screws
9	Surface finishes and livery
10	Team patch, Aero Pakistan logo, and identification decals
11	Assembly adhesives used only to join permitted components

No additional, undefined, concealed, or unapproved component may be incorporated into the glider. Decorative parts that perform no structural or aerodynamic function are not permitted unless they are applied as surface finishes or decals.



R1.4 Fully Assembled Glider (Critical)

The Fully Assembled Glider is the complete flight-ready aircraft in its final competition configuration, excluding the Official Payload. The Fully Assembled Glider shall include:

- All structural components.
- All permanent adhesives.
- All coatings, films, paint, coverings, and surface finishes.
- All decals and identification markings.
- All permanent fittings.
- The Standard Payload Enclosure Body, Standard Payload Enclosure Cover, and all prescribed screws.

When weighed or inspected, the glider shall be:

- Placed on a flat surface.
- Resting under gravity alone.
- Free from packaging, external supports, transportation fixtures, or temporary attachments.

The total mass of the Fully Assembled Glider, excluding the Official Payload, shall not be less than 250 g.

R1.5 Flight Configuration

The glider presented for Pre-Flight Clearance shall be in the same configuration used for the official flight attempt.

After Pre-Flight Clearance, teams shall not:

- Add or remove components.
- Change the position of any component.
- Remove, replace, reposition, reshape, repair, or otherwise modify the Standard Launch Hook or its mounting arrangement.
- Remove, replace, reposition, modify, or alter the Standard Payload Enclosure, Enclosure Cover, prescribed screws, or enclosure installation arrangement.
- Apply additional adhesive, tape, paint, film, or covering.

Any authorized modification or repair shall require reinspection and may require the glider to repeat Pre-Flight Clearance.

Teams may adjust the position of the stabilizer assembly along the tail spar after Pre-Flight Clearance, provided that the glider continues to comply with all other Airworthiness Regulations, including R5 and R8. Competition Officials may re-inspect the glider after any such adjustment.

A breach of this rule shall result in the flight being declared invalid under section S7.9.1.

R2 General Airworthiness, Measurement, and Safety

R2.1 Units

Use the following units unless otherwise stated:

Quantity	Unit
Length	Millimeters
Mass	Grams
Angle	Degrees
Speed	Meters per second
Area	Square millimeters
Force	Newtons

R2.2 Measurement Conditions

All dimensions shall be measured on the completed physical glider. Measurements shall include:

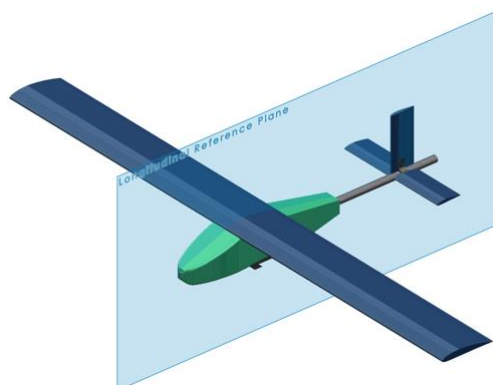
- Paint, Surface film, Coatings, Permanent adhesives, Decals, and All permanent fittings.

No additional manufacturing tolerance shall be added to a stated minimum or maximum limit. Teams are responsible for designing and manufacturing sufficient dimensional margin to remain compliant. The official measurement recorded by the Competition Officials shall be final.

R2.3 Fuselage Reference Datums

All longitudinal component positions shall be measured from the following reference datums:

- **Fuselage Nose Datum:** The vertical plane passing through the forward-most point of the completed fuselage. This datum shall represent longitudinal position $X=0$. Distances measured rearward from the Fuselage Nose Datum shall be stated as positive longitudinal dimensions.
- **Longitudinal Reference Plane:** The vertical center plane extending through the fuselage from nose to tail.



Fuselage Lower Datum: The reference baseline identified in the official fuselage dimensional drawing.

R2.4 Critical Airworthiness Requirements

A requirement identified as Critical must be satisfied before the glider may receive Pre-Flight Clearance.

- Failure of a Critical Airworthiness Requirement shall result in one or more of the following:
- Failure of Pre-Flight Clearance.
- Requirement to repair or modify the glider.
- Reinspection.
- Exclusion from the official flight attempt where compliance cannot be achieved.

R2.5 Penalty Requirements

A requirement identified as Penalty does not automatically prevent the glider from flying, provided the glider remains safe and otherwise airworthy.

Failure to comply shall result in the penalty points stated for that requirement.

R2.6 Safety Requirements (10-Points Penalty)

The glider shall be safe for Competition Officials, flight crews, spectators, and competition equipment to handle.

The glider shall not contain:

- Sharp exposed edges.
- Exposed carbon-fiber splinters.
- Unprotected pointed fasteners.
- Uncured adhesive or resin.
- Toxic, corrosive, explosive, or highly flammable material.
- Fragile projections that are likely to detach.
- Loose internal components.
- Any component likely to cause injury during handling, launch, flight, or landing.

Competition Officials may require sharp edges or exposed fibers to be covered or repaired before clearance.

R2.7 Identification Markings (3-Points Penalty)

The completed glider shall display:

- Team number
- Team patch
- A clearly identifiable and unobstructed access point for the Standard Payload Enclosure Cover and prescribed screws.
- An area suitable for an official inspection sticker or clearance mark.

Markings shall remain legible and securely attached throughout the competition.

R3 Fuselage

R3.1 Fuselage Construction (Critical)

The fuselage shall be manufactured exclusively from the official Aero Pakistan fuselage block using three-axis CNC milling. The official fuselage block is made of pink foam, measures 330 mm × 80 mm × 80 mm, and shall be supplied to each team by the Organizing Committee in the Competition Kit.

The fuselage shall:

- Incorporate the prescribed Payload Bay Cavity and provide the required minimum 6 mm of surrounding fuselage material.
- Provide a secure mounting interface for the Main Wing Assembly.
- Provide a secure interface for the wing spar system.
- Incorporate the official tail-spar socket.
- Incorporate and structurally support the Standard Payload Enclosure in the prescribed position and orientation.
- Provide the prescribed mounting surface and supporting structure for the Standard Launch Hook at the position and orientation specified in R7.
- Hand cutting, hot-wire cutting, molding, casting, additive manufacturing, or replacement of the official block with another fuselage material is prohibited.
- Minor manual finishing may be used only to remove machining residue, improve surface quality, or prepare surfaces for coating or bonding.

R3.2 Fuselage Longitudinal Layout

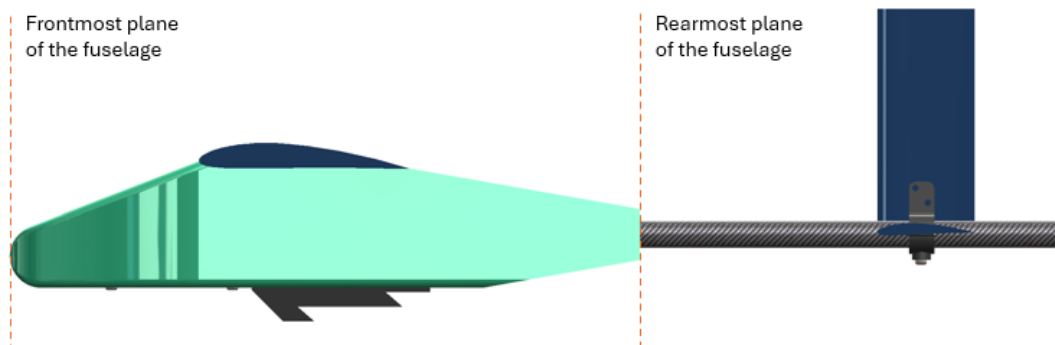
The completed fuselage shall comply with the longitudinal arrangement stated in Table R3-1 and shown in the official fuselage dimensional drawing.

Table R3-1 — Fuselage Longitudinal Layout

Parameter	Requirement	Measurement Basis	Penalty
Maximum overall fuselage length	280 mm maximum	Measured between the foremost and rearmost points of the completed fuselage	Critical
Payload Bay Cavity starting position	25 mm minimum to 65 mm maximum aft	Measured from the Fuselage Nose Datum to the forward face of the Payload Bay Cavity	8-Points Penalty
Payload Bay Cavity length	66 mm	Measured from the forward face to the rear face of the Payload Bay Cavity	Critical
Distance between the Payload Bay Cavity and Standard Launch Hook	6 mm minimum	Measured from the rear face of the Payload Bay Cavity to the forward-most point of the Standard Launch Hook	Critical
Standard Launch Hook overall length	85 mm	Measured from the forward-most to the rear-most point of the Standard Launch Hook	Critical

The Payload Bay Cavity shall be located within the fuselage. The Standard Launch Hook shall be bonded externally to the underside of the fuselage and shall form the lowest prescribed point of the glider.

The fuselage may taper outside the prescribed Payload Bay Cavity, Standard Launch Hook, Main Wing Assembly interface, and tail-spar interface regions, provided that all applicable Airworthiness Regulations remain satisfied.



R3.3 Surface Finish Quality (3-Points Penalty)

The external fuselage surface shall be consistently and professionally finished.

The fuselage shall be free from:

- Significant machining marks.
- Deep scratches or unintended cavities.
- Loose material.
- Uneven or excessively dripped paint.
- Peeling or damaged wrapping.
- Exposed adhesive residue.
- Surface defects that may affect airflow, handling, or safety.

Paint, coating, or wrapping material may be used, provided it is securely applied and does not cause dimensional non-compliance.

R3.4 Fuselage Material Integrity (Critical)

The primary fuselage structure shall consist solely of the official Aero Pakistan fuselage-block material.

Foreign structural materials, hidden reinforcements, undeclared inserts, or concealed masses shall not be embedded within the fuselage.

The following permitted items are excluded from this restriction:

- Wing spars passing through their designed mounting interface.
- Tail spar installed in the official socket.
- Standard Launch Hook installed in accordance with R7.
- Standard Payload Enclosure, including its Body, Cover, and prescribed screws.
- Assembly adhesive.
- External surface finishes.

R3.5 Fuselage Structural Integrity (10-Points Penalty)

The fuselage shall remain intact during handling, launch, flight, and landing.

The fuselage shall not contain:

- Major cracks and loose sections.
- Structural cavities not shown in the submitted design.
- Walls that are visibly crushed or excessively thin.
- Failed bonded joints.
- Damage, cracking, separation, crushing, or excessive material removal around the wing interface, tail-spar interface, Payload Bay Cavity, or Standard Launch Hook mounting interface.

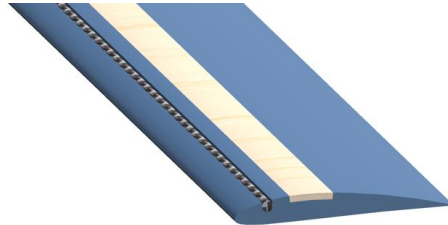
Competition Officials may reject a fuselage where damage or material removal creates a foreseeable structural risk.

R4 Main Wing Assembly

The Main Wing Assembly is the primary lift-generating structure of the glider.

It may consist of:

- One continuous wing; or
- Separate left and right wing panels permanently or securely joined through the fuselage and spar system.



R4.1 Wing Manufacturing Method (Critical)

The Main Wing Assembly shall be manufactured from the official Aero Pakistan wing material, identified as pink foam.

The official wing material shall be supplied by the Organizing Committee in the Competition Kit as a foam block, which teams shall cut to shape.

The permitted manufacturing methods are:

- Hot-wire cutting and CNC milling.
- The wing may consist of one or more sections permanently bonded together.

The following do not violate the wing-material requirement:

- Carbon-fiber wing spars.
- Permitted surface coverings.
- Assembly adhesives.

R4.2 Aerofoil Profile (Critical)

Each primary lift-generating wing section shall use an aerofoil profile selected from the UIUC Airfoil Coordinates Database. [Click here to access Airfoil Coordinates Database](#)

The selected aerofoil shall be:

- Identified by its recognized designation.
- Analyzed using XFOIL, XFLR5 polar analysis or an equivalent method.
- Justified through aerodynamic reasoning
- Documented in the Engineering Design Report.

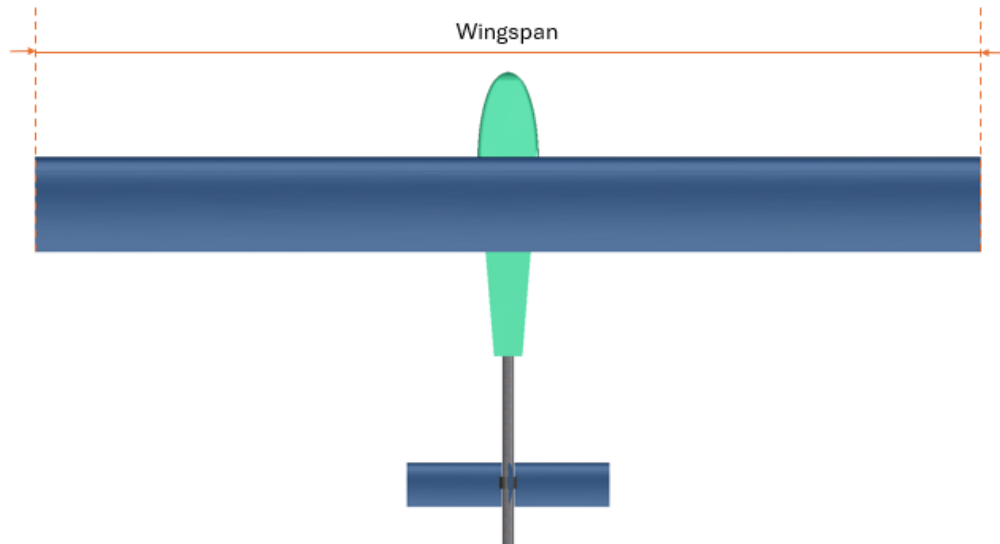
The maximum completed aerofoil thickness, including all surface coverings and coatings, shall not exceed 20 mm. Teams shall not intentionally distort, flatten, enlarge, or modify the selected aerofoil beyond reasonable manufacturing tolerance without documenting the modified geometry and analysis.



R4.3 Wingspan (Critical)

The total wingspan shall be measured between the outermost lateral points of the completed Main Wing Assembly.

Dimension	Requirement
Minimum total wingspan	600 mm
Maximum total wingspan	1,000 mm



R4.4 Aspect Ratio (Critical)

The Main Wing Assembly shall have a minimum aspect ratio of 5.

Aspect ratio shall be calculated as:

$$\text{Aspect Ratio} = \frac{\text{Total Wingspan}^2}{\text{Projected Wing Planform Area}}$$

The calculation shall use the completed wing geometry.

The team shall include the aspect-ratio calculation and supporting dimensions in the Engineering Design Report.

The projected wing planform area is the area of the complete Main Wing Assembly viewed from directly above, including the portion of the wing that passes over or through the fuselage.

R4.5 Wing Surface Covering (5-Points Penalty)

The complete external surface of the Main Wing Assembly shall be covered using paint or film.

The covering shall be:

- Smooth.
- Uniform.
- Securely attached.
- Free from major wrinkles, tears, bubbles, or peeling.
- Applied without materially changing the intended aerofoil geometry.

R4.6 Wing Symmetry (5-Points Penalty)

The left and right sides of the Main Wing Assembly shall be mirror-symmetric about the Longitudinal Reference Plane.

The following shall be identical on both sides:

- Planform geometry.
- Planform area.
- Sweep angle.
- Dihedral or anhedral angle.
- Twist distribution.
- Aerofoil profile.

An intentionally asymmetric wing is prohibited. Minor manufacturing variation may be accepted only where it does not materially affect safety, stability, or flight performance.

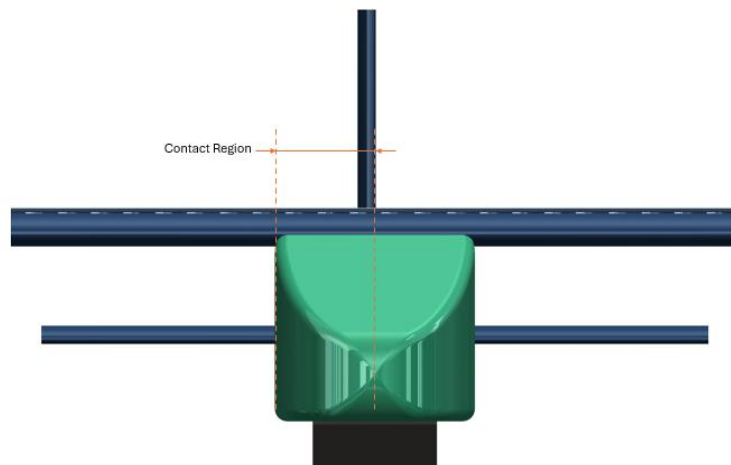
R4.7 Wing Attachment (Critical)

The Main Wing Assembly shall be securely attached to the fuselage through the wing spar system.

Each wing side shall maintain a minimum contact width of 20 mm with the fuselage.

The required contact may be achieved by:

- Mounting the wing on the fuselage surface.
- Installing the wing within a machined fuselage cavity.
- During inspection, the wing attachment shall not demonstrate:
 - Looseness.
 - Unintended rotation.
 - Vertical play.
 - Separation between bonded sections.
 - Cracking.
 - Movement under a gentle manual load.



R4.8 Wing Rigidity (Critical)

Each wing shall remain sufficiently rigid during launch and flight.

For the official rigidity test:

- The glider shall be supported at the fuselage or wing root.
- The unloaded wing-tip position shall be recorded.
- A mass of 250 g shall be suspended from the wing tip.
- The resulting vertical displacement shall be measured.
- The vertical deflection of each wing tip shall not exceed 20 mm.
- The left and right wings shall be tested separately.

The wing shall fail the test if any of the following occurs:

- Deflection exceeds the permitted limit.
- Cracking.
- Permanent deformation.
- Spar movement.
- Bond failure.
- Separation from the fuselage.

R4.9 Wing Identification in Engineering Drawings (3-Points Each Penalty)

The engineering drawings included in the Engineering Design Report shall identify:

- Total wingspan.
- Root chord.
- Tip chord.
- Sweep angle.
- Dihedral or anhedral angle.
- Twist angle or washout.
- Aerofoil designation.
- Maximum aerofoil thickness.
- Wing spar position.
- Wing spar dimensions.
- Wing-to-fuselage attachment.

Each missing item shall result in a 3-point penalty, deducted from the Engineering Design Report score, up to a maximum of 15 points.

R4.10 Allowable Wing Zone (10-Points Penalty)

The complete Main Wing Assembly shall remain inside the allowable wing zone.

Front View

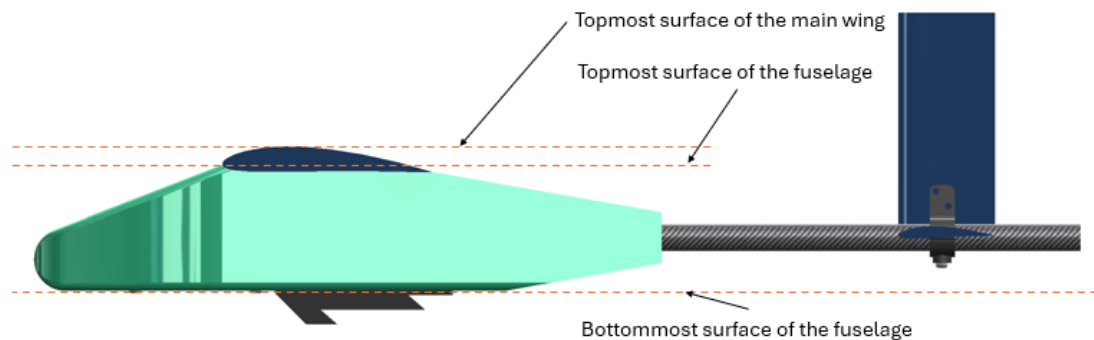
The Main Wing Assembly shall:

- Extend no lower than the lowest external surface of the fuselage.
- Extend no more than 25 mm above the highest external surface of the fuselage.
- The Standard Launch Hook is excluded from the fuselage surfaces referred to in this rule.

Top View

The complete Main Wing Assembly shall remain between the foremost and rearmost points of the fuselage.

No part of the wing may extend forward of the foremost fuselage point or rearward of the rearmost fuselage point when viewed from above.



R4.11 Wing Spar (Critical)

Each wing shall incorporate at least one continuous carbon-fiber spar extending from the wing root to the primary wing tip.

The spar shall:

- have any cross-sectional shape;
- where hollow, have a minimum internal cross-sectional dimension of 3 mm;
- be securely bonded within or to the wing;
- extend continuously throughout the primary wing panel without terminating within it; and
- remain secure against movement, rotation, loosening, or separation during inspection and structural testing.

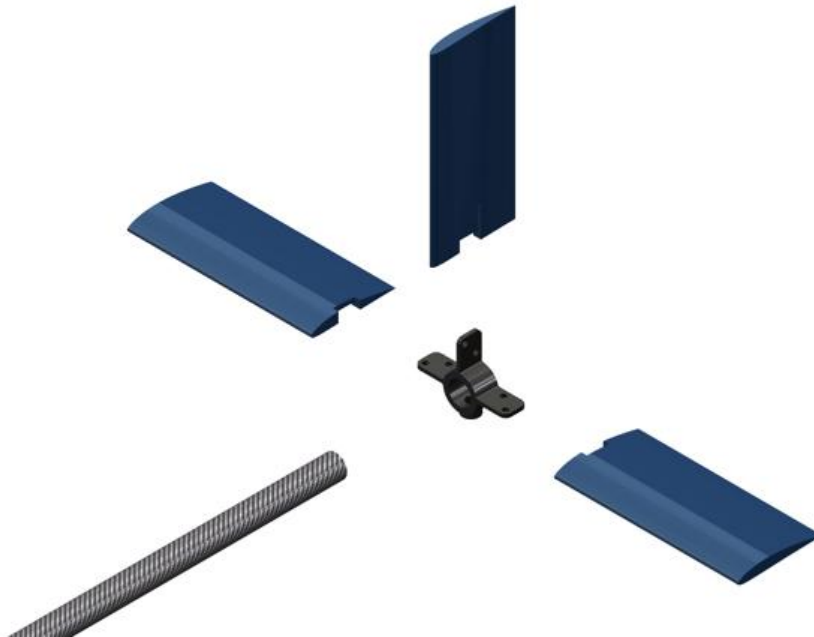
Where separate left and right wing panels are used, the spar system shall provide a continuous structural load path across the complete Main Wing Assembly.

R5 Tail Assembly

The Tail Assembly shall include:

- One tail spar.
- At least two stabilizers.
- One stabilizer coupling.

The Tail Assembly shall provide both longitudinal and directional stability.



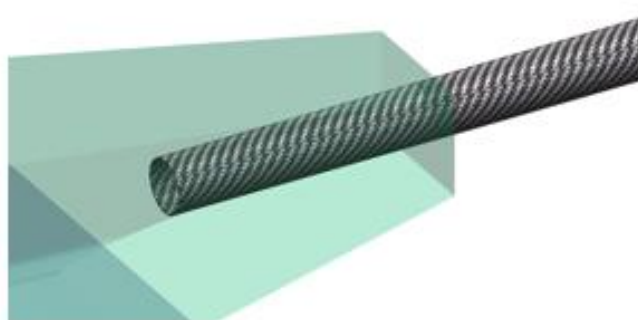
R5.1 Tail Spar (Critical)

The glider shall incorporate a circular carbon-fiber tail spar connecting the stabilizers to the fuselage.

The tail spar shall:

- Connect the fuselage to the stabilizer coupling.
- Pass through the stabilizer coupling.
- Remain straight, rigid, and securely installed.

The total tail-spar length shall include the portion inserted into the fuselage.



R5.2 Tail Spar Dimensions (Critical)

Dimension	Requirement
Minimum Total Length	200 mm
Maximum Total Length	250 mm
Outer Diameter	12 mm
Inner Diameter	10 mm

Any modification that changes the cross-section of the tail spar, including flattening or slotting, is prohibited. Paint or other coatings are permitted, except on the portion of the tail spar inserted into the fuselage socket and the portion passing through the stabilizer coupling. The outer diameter requirement applies to the tail spar before any paint or coating is applied

R5.3 Tail Spar Attachment (10-Points Penalty)

The tail spar shall be inserted into the socket in the official fuselage block and permanently secured using adhesive.

The installation shall satisfy the following requirements:

- Minimum insertion depth into the fuselage: 60 mm.
- Minimum fuselage wall thickness around the socket: 6 mm on all sides.
- No rotation within the fuselage socket.
- No visible looseness or longitudinal movement.
- No cracking around the socket.
- No excessive adhesive obstructing the coupling.

R5.4 Stabilizers (Critical)

The glider shall incorporate at least two stabilizers positioned towards the rear of the glider.

The stabilizers may use a conventional, V-tail, T-tail, cruciform, or another fixed configuration, provided the arrangement:

- Provides longitudinal stability.
- Provides directional stability.
- Remains fixed throughout the official flight.
- Connects to the tail spar through the stabilizer coupling.
- Is documented and justified in the Engineering Design Report.

All stabilizers shall remain rigid and shall not deform, rotate, detach, or break during launch, flight, or landing.

R5.5 Stabilizer Manufacturing Method (10-Points Penalty)

All stabilizers shall be manufactured by 3D printing only. Any 3D-printable material may be used, provided all stabilizers on one glider are made from the same material.

Non-compliance with this rule shall result in a 10-point penalty.

R5.6 Stabilizer Dimensions (10-Points Penalty)

The dimensions of the horizontal stabilizer shall comply with the following ratios based on the team's actual Main Wing Assembly

Stabilizer Parameter	Permitted Range
Stabilizer span	30% – 40% of actual total wingspan
Stabilizer maximum chord	30% – 40% of actual maximum wing chord
Stabilizer maximum thickness	30% – 40% of actual maximum wing thickness

Each stabilizer shall use a symmetric aerofoil profile selected from the UIUC Airfoil Coordinates Database. Where the main wing is tapered, the mean aerodynamic chord shall be used in place of the maximum wing chord in the calculation above. The stabilizer geometry, aerofoil, configuration, and stability reasoning shall be documented in the Engineering Design Report.

R5.7 Stabilizer Coupling (Critical)

The stabilizer coupling shall connect the tail spar to the stabilizers. The standard coupling base shall be 3D printed by the team from the official coupling design file supplied by the Organizing Committee and shall not be modified, except for the addition of stabilizer mounting points. The values in Table R5-1 are the nominal values of that file.

The standard coupling base shall comply with the following specifications:

Feature	Requirement
Coupling width	20 mm
Internal diameter	12 mm
External diameter	17 mm
Threaded insert	M3
Minimum mounting-point thickness	2 mm

Teams shall design their stabilizer mounting points around the standard coupling base.

The coupling shall:

- fit securely around the tail spar; be rigidly clamped to the tail spar using the M3 threaded insert and an M3 machine screw; prevent stabilizer rotation;
- prevent longitudinal movement during launch, flight, and landing, except where the stabilizer position is intentionally adjusted along the tail spar as permitted by R1.5;
- remain intact during launch, flight, and landing; and
- show no cracking, looseness, or separation during inspection.



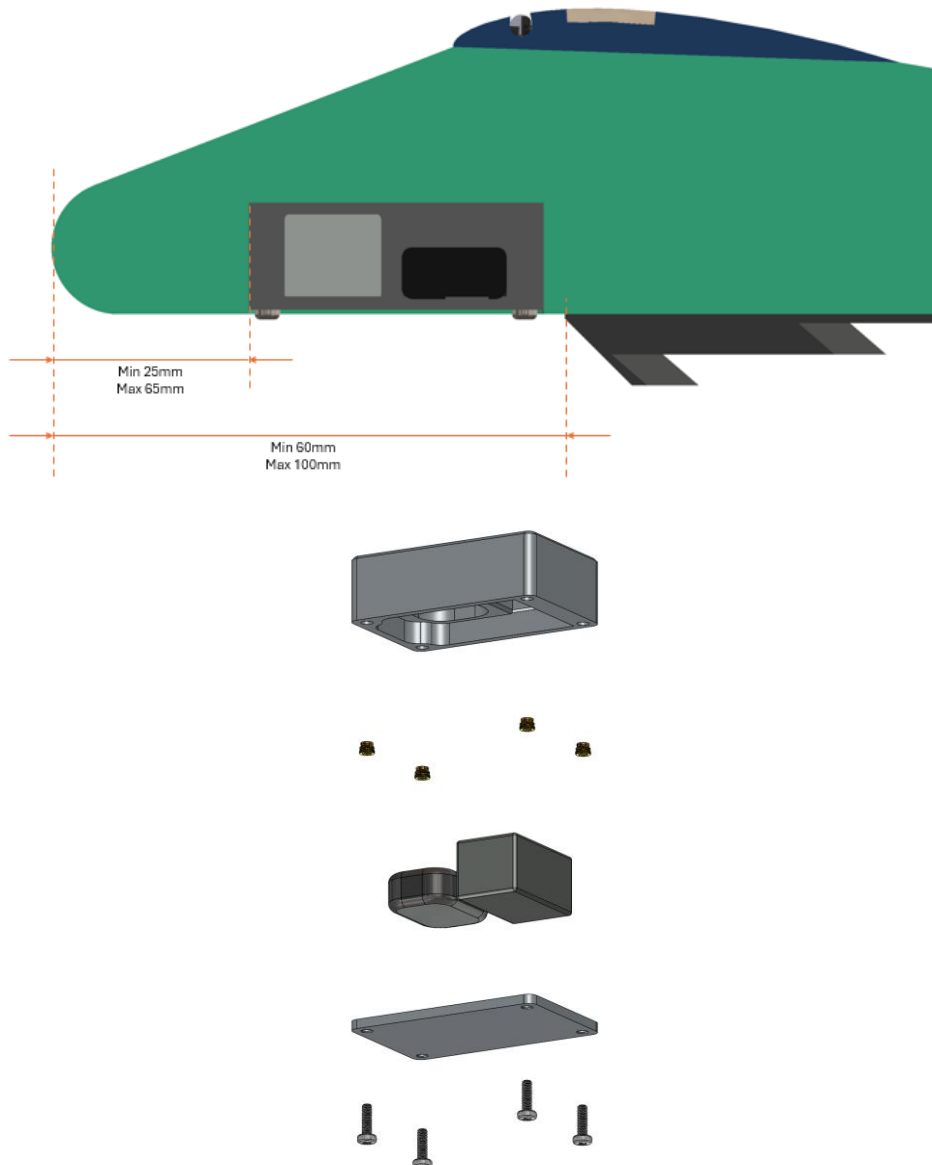
R6 Standard Payload Enclosure and Payload Bay Cavity

The glider shall incorporate a prescribed Payload Bay Cavity within the fuselage for the installation of the Standard Payload Enclosure.

The Standard Payload Enclosure shall receive and retain the Official Payload throughout launch, flight, and landing.

The complete payload arrangement shall consist of:

- the Payload Bay Cavity manufactured within the fuselage;
- the Standard Payload Enclosure Body;
- the Standard Payload Enclosure Cover;
- the prescribed M3 heat-set threaded inserts;
- the prescribed cover screws; and
- the Official Payload.



R6.1 Definitions

R6.1.1 Payload Bay Cavity

The Payload Bay Cavity is the prescribed cavity manufactured by the team within the fuselage to receive, position, and structurally support the Standard Payload Enclosure.



R6.1.2 Standard Payload Enclosure

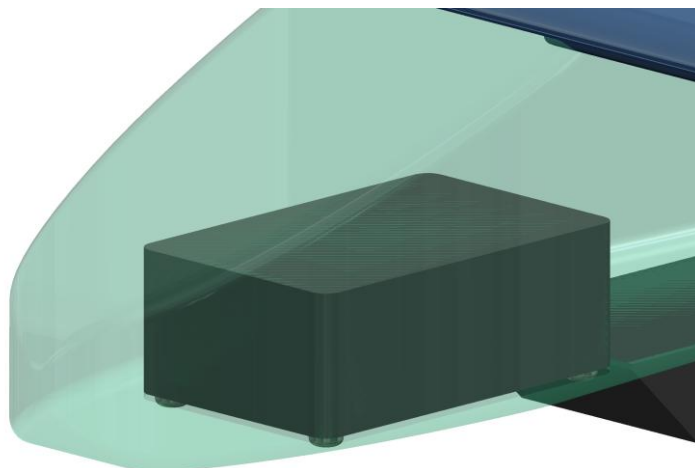
The Standard Payload Enclosure is the standardized 3D-printed container installed within the Payload Bay Cavity for receiving and retaining the Official Payload.

The Standard Payload Enclosure shall consist of:

- the Standard Payload Enclosure Body;
- the removable Standard Payload Enclosure Cover; and
- the prescribed cover screws.

R6.1.3 Official Payload

The Official Payload is the standard mass of 100 g supplied by the Organizing Committee and installed inside the Standard Payload Enclosure before the official Flight Assessment.



R6.2 Standard Payload Enclosure (Critical)

R6.2.1 Official Design Files

Aero Pakistan shall provide the official design files for the Standard Payload Enclosure.

The supplied design files shall define the approved geometry of:

- the Standard Payload Enclosure Body;
- the Standard Payload Enclosure Cover;
- the screw holes and fastening arrangement; and
- any internal features required to locate and retain the Official Payload.

R6.2.2 Team Manufacture

Each team shall 3D print its Standard Payload Enclosure from the official design files supplied by the Aero Pakistan Organizing Committee, using the material specified in Table R6-1

Teams shall not:

- scale the supplied design;
- alter any prescribed dimension;
- modify the geometry;
- remove a prescribed feature;
- add an unauthorized internal or external feature;
- alter the cover arrangement;
- change the prescribed screw positions; or
- replace the prescribed fastening arrangement.

Table R6-1 — Standard Payload Enclosure Requirements

Parameter	Symbol	Requirement	Classification
Overall enclosure length	L_E	66 mm	Critical
Overall enclosure width	W_E	43 mm	Critical
Enclosure body height	H_B	25 mm	Critical
Overall assembled height, including cover	H_E	28 mm	Critical
Number of cover screws	—	4	Critical
Cover screw specification	—	M3 × 10 mm	Critical
Enclosure material	—	PLA / ABS	Critical

R6.2.3 Dimensional Authority

The dimensions stated in Table R6-1 and the official Standard Payload Enclosure design files shall be consistent.

Where a dimensional or inspection question arises, the numerical dimensions stated in this Rulebook shall take precedence.

R6.2.4 Competition Configuration

The Standard Payload Enclosure Body, Standard Payload Enclosure Cover, and all prescribed screws shall form part of the Fully Assembled Glider.

They shall be installed during:

- weighing;
- Pre-Flight Clearance;
- the official Flight Assessment.

The Official Payload shall not be included when determining the mass of the Fully Assembled Glider.

R6.3 Payload Bay Cavity **(Critical)**

R6.3.1 Cavity Requirement

Each team shall manufacture a Payload Bay Cavity within the fuselage.

The cavity shall:

- be located entirely within the fuselage;
- receive the Standard Payload Enclosure completely;
- maintain the prescribed position and orientation of the enclosure;
- provide adequate structural support around the enclosure;
- allow the enclosure to be installed without damage to the fuselage;
- allow the cover and all prescribed screws to remain accessible; and
- comply with the dimensions stated in Table R6-2.
- The cavity dimensions shall provide sufficient manufacturing clearance for the Standard Payload Enclosure without permitting excessive movement or rotation.

Table R6-2 — Payload Bay Cavity Requirements

Parameter	Symbol	Requirement	Classification
Cavity length	L_C	66 mm	Critical
Cavity width	W_C	43 mm	Critical
Cavity depth	H_C	28 mm	Critical
Minimum surrounding fuselage material thickness	t_F	6 mm minimum	Critical

R6.3.2 Minimum Surrounding Material (Critical)

The Payload Bay Cavity shall maintain a minimum uninterrupted thickness of 6 mm of permitted fuselage material on its front, rear, left, right, and upper sides.

The lower opening required for installation and access to the Standard Payload Enclosure shall be excluded from this requirement.

Adhesive, filler, paint, tape, covering, the Standard Payload Enclosure, or any separately attached component shall not count towards the required thickness.

A thickness below 6 mm at any applicable location shall result in refusal of Pre-Flight Clearance.

Adhesive accumulation, manufacturing debris, internal surface irregularities, or other obstructions shall not prevent the enclosure from being correctly installed.

R6.4 Payload Bay Position (Critical)

The forward face of the Payload Bay Cavity shall be positioned at the distance specified in Table R3-1 and shown in the official fuselage dimensional drawing.

The Payload Bay Cavity and Standard Payload Enclosure shall:

- be centered on the Longitudinal Reference Plane;
- remain parallel to the fuselage longitudinal axis;
- be positioned vertically in accordance with the official fuselage dimensional drawing; and
- remain accessible from the lower surface of the fuselage for installation and removal of the Official Payload.

Teams shall not relocate, rotate, enlarge, or otherwise alter the prescribed position or orientation of the Payload Bay Cavity or Standard Payload Enclosure.

R6.5 Standard Payload Enclosure Installation (Critical)

The Standard Payload Enclosure shall be permanently bonded within the Payload Bay Cavity using the prescribed adhesive (epoxy resin).

The enclosure shall be installed in the prescribed position and orientation, remain securely attached throughout launch, flight, and landing, and remain accessible for payload installation, inspection, and removal.

Any movement, looseness, separation, or incorrect positioning of the Standard Payload Enclosure shall result in refusal of Pre-Flight Clearance.

The adhesive shall not obstruct the Enclosure Cover or screws.

R6.6 Standard Payload Enclosure Cover and Fasteners **(Critical)**

The Standard Payload Enclosure shall be closed using the official Standard Payload Enclosure Cover.

The Cover shall be secured using four M3 × 10 mm machine screws engaging with M3 brass heat-set threaded inserts installed in the Standard Payload Enclosure Body.

The Cover shall fully close the enclosure, remain correctly seated, and retain the Official Payload throughout launch, flight, and landing. All four screws shall be correctly installed and securely tightened before the official flight.

Tape, adhesive, clips, magnets, friction fit, or another unauthorized method shall not replace the prescribed Cover and screws.

A missing, loose, damaged, substituted, or incorrectly installed Cover, screw, or threaded insert shall result in refusal of Pre-Flight Clearance.

Table R6-3 — Fasteners

Parameter	Requirement	Classification
Number of cover screws	4	Critical
Cover screw specification	M3 × 10 mm machine screw	Critical
Threaded insert specification	M3 brass heat-set threaded insert	Critical

R6.7 Official Payload

R6.7.1 Payload Specification

The Official Payload shall have a mass of 100 g.

The dimensions, material, and form of the Official Payload shall be stated in the Official Payload specification or verified using an Official Payload sample or gauge.

R6.7.2 Official Installation

The Official Payload shall:

- be supplied by the Organizing Committee;
- be installed by, or under the direct supervision of, Competition Officials;
- be installed before the team's official flight attempt;
- remain inside the Standard Payload Enclosure throughout launch, flight, and landing;
- be removed by, or under the supervision of, Competition Officials after the flight; and
- remain under official control during the Flight Assessment.

R6.7.3 Team Restrictions

Teams shall not:

- modify or damage the Official Payload;
- attach adhesive, tape or another material to the Official Payload;
- use the Official Payload as a structural connector; or
- alter the payload after it has been officially installed.

Note : A breach of this rule shall result in the flight being declared invalid.

R6.8 Documentation Requirements (3-Points Penalty per Missing Item)

The team's submitted CAD model, engineering drawings, and Engineering Design Report shall clearly identify:

- the Payload Bay Cavity;
- the Standard Payload Enclosure;
- the enclosure dimensions; the cavity dimensions;
- the cavity position relative to the prescribed fuselage datums;
- the minimum surrounding fuselage-material thickness;
- the enclosure installation method;
- the Standard Payload Enclosure Cover;
- the cover screw specification and position;
- the position of the Official Payload; and
- the effect of the installed Official Payload on the Centre of Gravity

Dimensioned sectional views shall be included to demonstrate compliance with the minimum 6 mm surrounding fuselage-material requirement.

Each missing item shall result in a 3-point penalty, deducted from the Engineering Design Report score, up to a maximum of 15 points.

R7 Official Shuttle and Standard Launch Hook**R7.1 Official Launcher**

The glider shall be launched using the official Aero Pakistan motorized launcher.

Parameter	Official Setting
Launch speed	7 m/s
Launch angle	5° above horizontal
Launch height	6.5 m above ground level

Teams shall design and manufacture their glider to withstand the acceleration and loads produced by the official launcher.

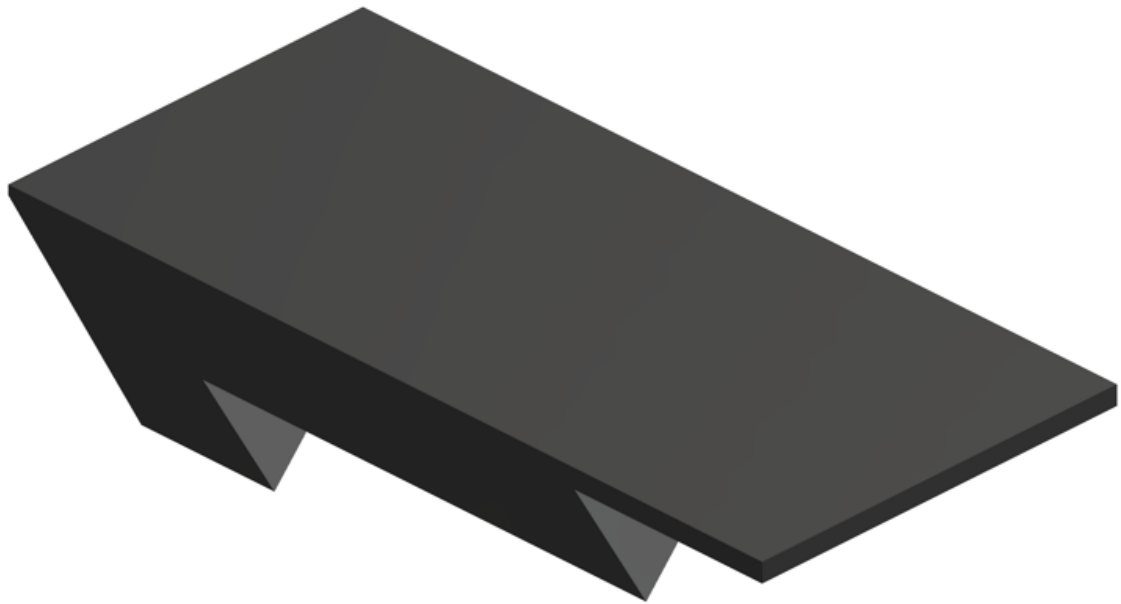
No team-provided launching device, supplementary launching mechanism, or modification to the official launcher or shuttle shall be permitted.

R7.2 Standard Launch Hook **(Critical)**

R7.2.1 Definition

The Standard Launch Hook is the standardized interface installed on the underside of the fuselage to connect the glider to the official launcher shuttle during the launch-acceleration phase.

The Standard Launch Hook shall remain securely engaged with the shuttle during acceleration and shall be released cleanly at the end of the launch rail.



R7.2.2 Official Design Files

Aero Pakistan shall provide the official design file for the Standard Launch Hook.

Each team shall manufacture its Standard Launch Hook using the supplied design file and the prescribed 3D-printing material.

Teams shall not:

- scale the supplied design;
- alter any prescribed dimension;
- modify the hook geometry;
- enlarge or reduce the shuttle-engagement feature;
- reinforce the hook using unauthorized material;
- add an unauthorized mounting feature;
- remove a prescribed feature; or
- manufacture a substitute hook using a different design.
- Apply paint or any coatings on the Standard Launch Hook.

Removal of support material, burrs, strings, or minor printing artefacts is permitted, provided that the prescribed geometry and dimensions are not materially altered.

R7.3 Standard Launch Hook Dimensions (Critical)

The Standard Launch Hook shall comply with the official design file and the dimensions stated in Table R7-1.

Table R7-1 — Standard Launch Hook Requirements

Parameter	Symbol	Requirement	Classification
Mounting-base length	L_B	85 mm	Critical
Mounting-base width	W_B	40 mm	Critical
Mounting-base thickness	t_B	6 mm	Critical
Hook material	-	ABS or PLA	Critical

The official CAD file shall define all curves, radii, chamfers, engagement surfaces, and other geometric features not separately stated in Table R7-1.

Teams shall not scale, reshape, enlarge, reduce, reinforce, or otherwise modify the Standard Launch Hook.

A Standard Launch Hook that does not comply with the prescribed dimensions, material, or manufacturing requirements shall result in refusal of Pre-Flight Clearance.

R7.4 Prescribed Launch Hook Position (Critical)

The forward-most point of the Standard Launch Hook shall be positioned at the distance specified in Table R3-1 and shown in the official fuselage and launcher-interface drawings.

The Standard Launch Hook shall:

- be bonded externally to the underside of the fuselage;
- be centered on the Longitudinal Reference Plane;
- remain parallel to the fuselage longitudinal axis;
- face the prescribed shuttle-engagement direction;
- remain fully seated against the prescribed fuselage mounting surface without a spacer or uncontrolled gap; and
- form the lowest prescribed point of the glider.

Teams shall not relocate, rotate, reverse, offset, or otherwise alter the prescribed position or orientation of the Standard Launch Hook.

Any incorrect position, orientation, alignment, or seating shall result in refusal of Pre-Flight Clearance.

R7.5 Standard Launch Hook Attachment (Critical)

The Standard Launch Hook shall be permanently bonded directly to the prescribed external mounting surface on the underside of the fuselage using epoxy resin.

The hook mounting base shall remain fully seated against the fuselage surface without an uncontrolled gap, spacer, movement, or rotation.

Before bonding, the mounting surface shall be structurally sound and free from loose material, paint, film, tape, decals, dust, grease, or other contamination.

The Standard Launch Hook shall remain securely attached throughout handling, launch, flight, and landing.

Adhesive shall not compensate for an incorrectly positioned hook, unsuitable mounting surface, or incomplete seating of the mounting base.

Any incorrect positioning, incomplete seating, looseness, movement, rotation, separation, or insecure adhesive bond shall result in refusal of Pre-Flight Clearance.

R7.6 Launcher and Shuttle Compatibility (Critical)

The Standard Launch Hook and completed glider shall interface with the official launcher shuttle without:

- forcing the hook into position;
- bending or compressing the fuselage;
- bending or deforming the Standard Launch Hook;
- modifying the official shuttle;
- adding temporary spacers;
- applying temporary tape or fixtures;
- holding the glider in position by hand during launch; or
- obstructing the intended release movement.

The interface shall permit:

- secure engagement during acceleration;
- correct longitudinal alignment;
- stable support on the shuttle;
- unrestricted movement of the shuttle;
- clean release at the end of the launch rail; and
- removal of the glider without damage.

A glider that cannot safely and correctly interface with the official launcher shuttle shall not receive Pre-Flight Clearance.

R7.7 Documentation Requirements (3-Point Penalty per Missing Item)

The team's submitted CAD model, engineering drawings, and Engineering Design Report shall clearly identify:

- the Standard Launch Hook;
- the official hook geometry;
- the hook dimensions;
- the hook reference point;
- the position of the hook relative to the Fuselage Nose Datum;
- alignment with the Longitudinal Reference Plane;
- the vertical mounting position;
- the mounting-surface geometry;
- the surrounding fuselage-material thickness;
- the prescribed adhesive; and
- the hook and shuttle interface.

Dimensioned side, bottom, and sectional views shall be included where necessary to demonstrate compliance.

Each missing item shall result in a 3-point penalty, deducted from the Engineering Design Report score, up to a maximum of 15 points.

R8 Centre of Gravity and Stability**R8.1 Centre of Gravity Limits (10-Points Penalty)**

The longitudinal Centre of Gravity of the flight-ready glider, with the Official Payload correctly installed inside the Standard Payload Enclosure and the Enclosure Cover secured using all prescribed screws, shall be located between 25% and 40% of the mean aerodynamic chord, measured rearward from the leading edge of the mean aerodynamic chord.

Centre of Gravity Parameter	Requirement
Forward limit	25% of mean aerodynamic chord
Aft limit	40% of mean aerodynamic chord
Lateral position	Longitudinal Reference Plane
Vertical position	Unrestricted within the glider

The Centre of Gravity shall not move outside the permitted range when the Standard Payload Enclosure is closed, and the glider is handled normally.

R8.2 Centre of Gravity Identification (3-Points Penalty)

The required Centre of Gravity position shall be clearly marked on the external surface of the glider and verified with the Official Payload installed. The physical Centre of Gravity mark shall correspond to the submitted calculations. A missing or incorrect mark shall result in a 3-point penalty, deducted in accordance with S1.1.4.

The submitted CAD model, engineering drawings, and Engineering Design Report shall:

- identify the Centre of Gravity position in the CAD model;
- dimension the Centre of Gravity position in the engineering drawings; and
- support the Centre of Gravity position with calculations.

Each missing item shall result in a 3-point penalty, deducted from the Engineering Design Report score, up to a maximum of 15 points.

R8.3 Centre of Gravity Calculations

Teams shall calculate and document the Centre of Gravity:

- Without the Official Payload.
- With the Official Payload installed. and
- With all permanent components included

The calculation shall identify:

- Component masses.
- Component locations.
- Official Payload location.
- Reference datum. and
- Final Centre of Gravity position.

R8.4 Static Stability (Critical)

The glider shall demonstrate positive longitudinal static stability in its official flight configuration.

Teams shall calculate and document:

- Aerodynamic Centre or neutral point estimate;
- Centre of Gravity position;
- Static margin;
- Tail-volume or equivalent stability reasoning;
- Effect of the Official Payload

A Centre of Gravity within the dimensional range does not automatically demonstrate stability.

The Static Margin shall be calculated as the distance from the Centre of Gravity to the Neutral Point divided by the mean aerodynamic chord, both measured rearward from the leading edge of the mean aerodynamic chord. The glider shall have a Static Margin of at least 5% of the mean aerodynamic chord

Competition Officials may reject a glider where the submitted analysis, physical configuration, or observed balance indicates an unsafe or predictably unstable aircraft.

R8.5 Lateral Balance (Critical)

The glider shall not contain an intentional left-right mass imbalance.

Lateral balance shall be checked by supporting the glider along the longitudinal centreline at its nose and tail with the wings level. When released, neither wing tip shall drop by more than 5% of the total wingspan.

• Causes of lateral imbalance include:

- unequal wing construction;
- unequal surface finish;
- incorrect component installation; or
- unequal stabilizer geometry.

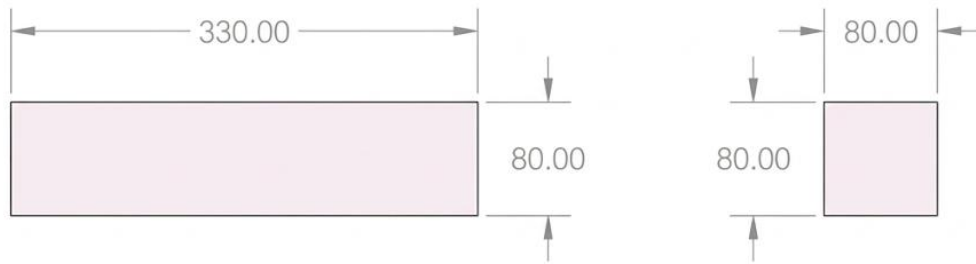
A glider that fails this check shall not receive Pre-Flight Clearance until the imbalance has been corrected.

APPENDIX

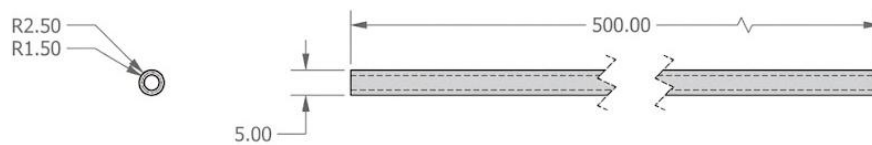
Appendix A — Drawings

CAD files are available on the Aero Pakistan Team Information page: [Click here to download](#)

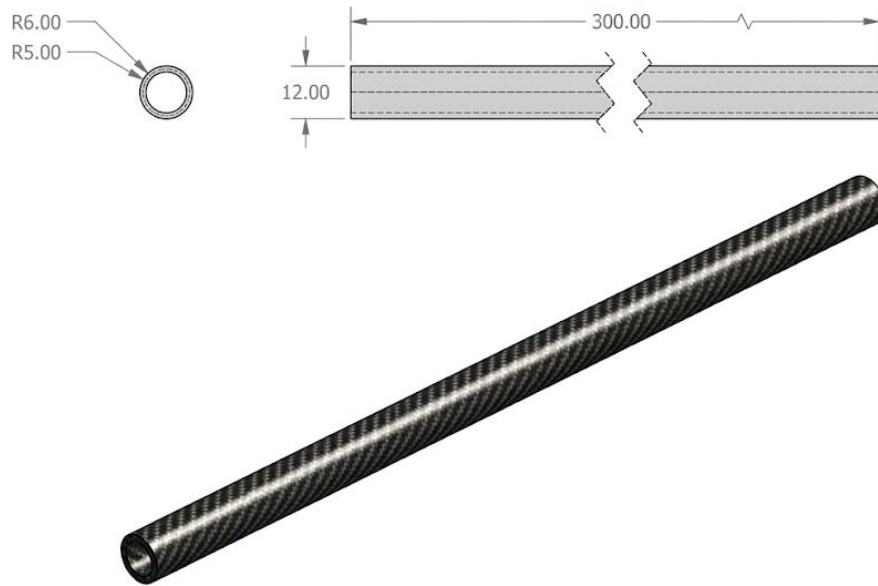
1. Fuselage



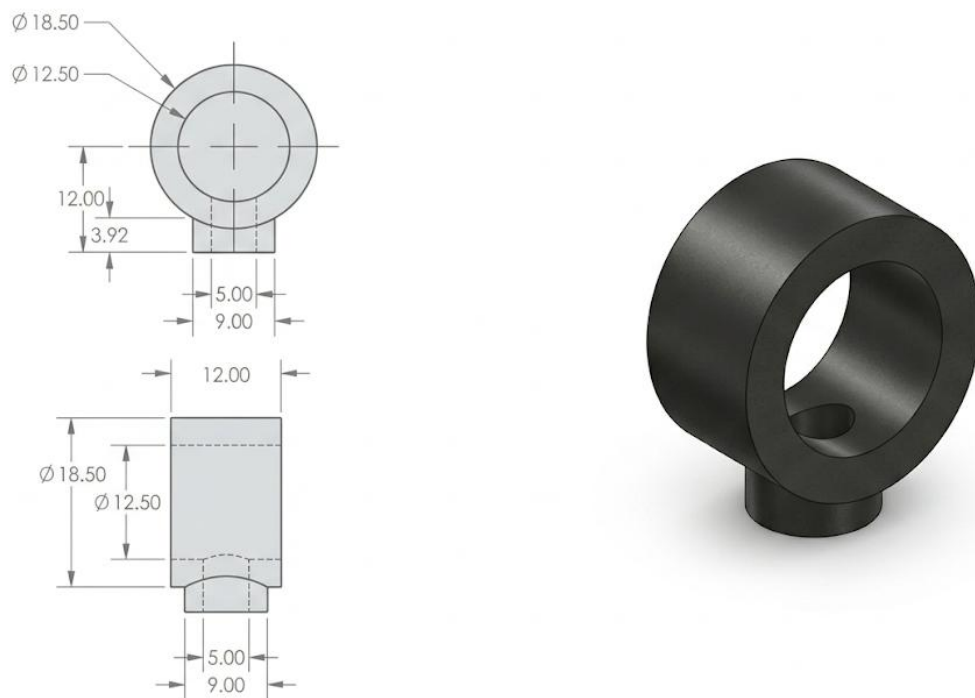
2. Main Wing Spar



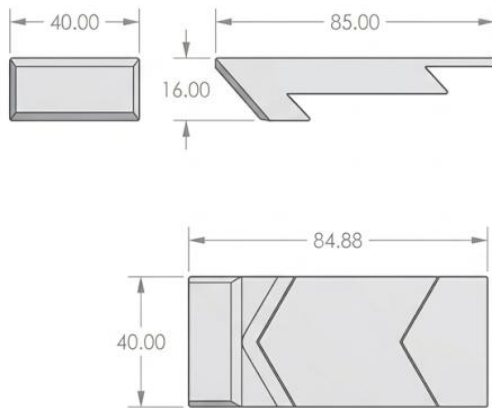
3. Tail Spar



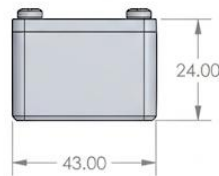
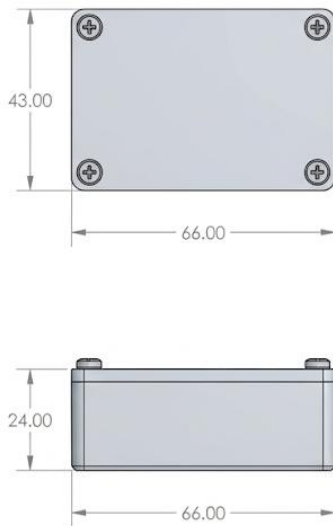
4. Coupling Ring



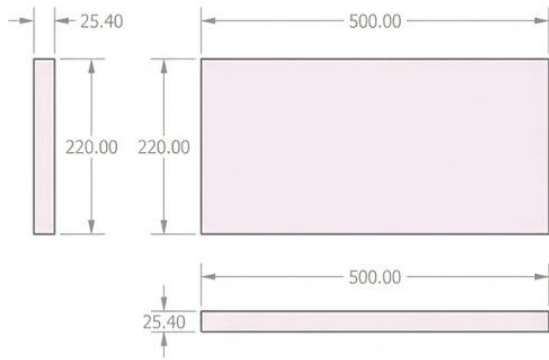
5. Launch Hook



6. Payload Bay



7. Pink Foam Sheet



Appendix B — Scoring Sheets



Engineering Design Board

				Team Number:	
				Team Name:	
					Achieved Score
Engineering Problem Definition and Design Requirements	Design objectives and requirements are unclear. Little evidence of defined targets or constraints.	Basic objectives and constraints are identified, with limited engineering justification.	Clear design objectives, measurable KPIs, and relevant constraints are established and explained.	Requirements and targets are evidence-based, and students explain how they shaped the design approach.	
	0 - 3	4 - 7	8 - 11	12 - 15	Out of 15
Aerodynamic Understanding and Design Selection	Limited understanding of aerodynamic forces. FBD, aerofoil selection, or wing selection is missing or poorly justified.	Basic aerodynamic principles explained. Limited comparison of aerofoils and wing configurations.	Correct FBD and relevant aerodynamic reasoning. Aerofoil and wing choices are supported by calculations, graphs, or comparisons.	Strong aerodynamic understanding is supported by evidence. Students defend aerofoil and wing choices, explain trade-offs, and link theory to design.	
	0 - 7	8 - 15	16 - 22	23 - 30	Out of 30
Aircraft Configuration and Stability Design	Aircraft configuration is poorly justified. CG, moment balance, or static margin calculations are missing or incorrect.	Basic configuration and CG calculations presented. Limited explanation of stability.	Configuration is supported by CG, moment balance, and static margin calculations. Students explain the relationship between these parameters and stability.	Stability and configuration are quantitatively justified. Students defend calculations, assumptions, and choices when questioned.	
	0 - 7	8 - 15	16 - 22	23 - 30	Out of 30
Engineering Analysis, Simulation and Results	Little meaningful analysis. Simulation setup is missing or incorrect. Results are absent or poorly interpreted.	Basic calculations or simulations. Limited explanation of inputs, assumptions, boundary conditions, and real-life conditions.	Relevant calculations and simulations are presented with documented setup and meaningful results. Students explain how the results relate to the design.	Analytical methods and simulation setups are evidence-based. Students consider realistic conditions, critically interpret results, and defend assumptions and engineering conclusions.	
	0 - 8	9 - 15	16 - 26	27 - 35	Out of 35
Design Iteration and Engineering Decision-Making	Only the final design is presented. Little evidence of iteration or engineering reasoning.	Some design changes are shown, but reasons and supporting evidence are limited.	Multiple meaningful iterations are demonstrated. Changes are linked to calculations, simulation results, or identified problems.	Design evolution is clear. Students justify changes, compare alternatives, explain engineering trade-offs, and support major decisions with evidence.	
	0 - 5	6 - 10	11 - 15	16 - 20	Out of 20
Manufacturing Planning and Implementation	Manufacturing methods, materials, and construction steps are poorly understood or justified.	Basic manufacturing approach identified, with limited process details and supporting evidence.	Appropriate materials, tools, processes, and manufacturing sequence are explained. Manufacturing constraints are considered.	Manufacturing decisions are justified. Students explain processes, equipment, constraints, construction challenges, and supported solutions.	
	0 - 6	7 - 12	13 - 18	19 - 25	Out of 25
Engineering Evidence, Practices and Technical Defense	Students struggle to explain their methods, calculations, or decisions. Claims lack supporting evidence, and major inconsistencies remain unexplained.	Basic understanding is demonstrated. Some answers refer to calculations, CAD, or simulation, but explanations and evidence are incomplete.	Students explain their engineering methods and assumptions. Relevant calculations, models, results, and manufacturing evidence support most answers.	Students show strong technical ownership by defending assumptions, verifying calculations, interpreting results, acknowledging limitations, and answering challenges consistently with evidence.	
	0 - 7	8 - 15	16 - 22	23 - 30	Out of 30
Glider Build Quality and Assembly,	Incomplete glider with poor assembly or major construction defects.	Basic construction with inconsistent alignment or assembly quality.	Well-assembled glider with acceptable alignment, structural integrity, and finish.	Accurate assembly, sound construction, appropriate component alignment, and good finishing.	
	0 - 3	4 - 7	8 - 11	12 - 15	Out of 15
TOTAL SCORE:					Out of 200



Engineering Design Report

Team Number:	
Team Name:	
Achieved Score	Judges Remarks

Engineering Problem, Requirements and Design Basis	Problem and design objectives are unclear. Requirements, constraints, and design targets are missing.	Basic objectives and requirements are defined. Limited design constraints and performance targets are presented.	Clear problem definition with relevant requirements, measurable KPIs, and design constraints.	Well-defined engineering objectives, measurable targets, and clear justification of the initial design basis.		
	0 - 3	4 - 7	8 - 11	12 -15	Out of 15	
Aerodynamic Design and Aerofoil Selection	Limited aerodynamic understanding; FBD, aerofoil selection, or justification is missing or incorrect.	Basic aerodynamic principles explained. Limited comparison of aerofoils and wing options.	Relevant aerodynamic calculations, graphs, and comparisons support aerofoil and wing selection.	Thorough aerodynamic evaluation with strong technical justification for aerofoil, wing, and design choices.		
	0 - 6	7 - 12	13 - 18	19 - 25	Out of 25	
Aircraft Configuration and Stability	Poor aircraft configuration; CG, moment balance, or static margin is missing or incorrect.	Basic configuration and CG calculations presented. Limited stability evaluation.	Aircraft configuration is justified using CG, moment balance, and static margin calculations.	Thorough configuration and stability evaluation, with calculations supporting key design decisions.		
	0 - 5	6 - 10	11 - 15	16 - 20	Out of 20	
CAD Development and Technical Design	Incomplete CAD model with missing components or unclear geometry.	Basic 3D models and assemblies with limited technical detail.	Complete CAD model with appropriate components, assembly, dimensions, and technical drawings.	Accurate CAD models document key stages, detailed assemblies, complete drawings, and consistent engineering practice.		
	0 - 3	4 - 7	8 - 11	12 -15	Out of 15	
Engineering Analysis and Simulation	Minimal analysis; flawed setup and unreliable results.	Basic analysis; setup, assumptions, and results lack detail.	Relevant analysis with documented setup and meaningful results.	Rigorous analysis with realistic conditions and justified results.		
	0 - 5	6 - 10	11 - 15	16 - 20	Out of 20	
Design Iteration and Engineering Decision-Making	Only the final design is presented. Little evidence of design changes or decision-making.	Some design changes are documented, with limited justification.	Design iterations are supported by calculations, simulations, or identified design problems.	Clear design evolution with evidence-based decisions, comparisons, and justified trade-offs.		
	0 - 5	6 - 10	11 - 15	16 - 20	Out of 20	
Manufacturing Development and Implementation	Manufacturing methods and materials are poorly documented or unsuitable.	Basic manufacturing plan with limited process details and justification.	Manufacturing methods, tools, and process sequence are documented.	Complete manufacturing plan with justified methods, practical constraints, and documented solutions.		
	0 - 5	6 - 10	11 - 15	16 - 20	Out of 20	
Engineering Report Quality and Evidence	Poor report structure. Important figures, calculations, and supporting evidence are missing.	Basic structure with inconsistent presentation and limited supporting evidence.	Clear report structure with relevant figures, graphs, calculations, and technical explanations.	Clear, organized report with traceable evidence and logical flow from requirements to manufacturing.		
	0 - 3	4 - 7	8 - 11	12 -15	Out of 15	
Incorrect File Name:	☐	Late Submission:	☐	TOTAL SCORE:		
					Out of 150	



Engineering Design Report

Team Number:

Team Name:

Rule Tag	Name	Description	Constrain	Value	Unit	Penalty	Cleared
R4.2	Aerofoil selection and analysis	Primary wing aerofoil selected from UIUC database, identified by designation, analysed using XFOIL/XFLR5 or equivalent, justified and documented in FER.	Document / profile check	UIUC profile + analysis		Critical	☐
R4.4	Wing aspect ratio	Total wingspan ² / projected wing planform area; include area passing over/through fuselage.	Minimum	5		Critical	☐
R4.9	Wing drawing dimensions and details	FER engineering drawings identify span, root/tip chord, sweep, dihFERal/anhFERal, twist/washout, aerofoil designation, max thickness, spar position/dimensions and wing attachment.	Required items	11 listed items	-	3 points each; max 15 from EDR	☐
R5.6	Stabilizer span	Horizontal stabilizer span as proportion of actual total wing span.	Range	30–40	% of wingspan	7 points	☐
R5.6	Stabilizer maximum chord	Use mean aerodynamic chord instead of maximum wing chord where main wing is tapered.	Range	30–40	% of wing chord reference	7 points	☐
R5.6	Stabilizer maximum thickness	Each stabilizer uses symmetric UIUC aerofoil profile; geometry/configuration/stability rationale documented.	Range	30–40	% of maximum wing thickness	7 points	☐
R6.8	Payload documentation	CAD, drawings and FER identify cavity, enclosure, dimensions, position/datums, 6 mm material, installation, cover, screws, payload position and CoG effect; sectional views show material thickness.	Required items	11 listed items		3 points each; max 15 from EDR	☐
R7.7	Launch hook documentation	CAD/drawings/FER identify hook, official geometry/dimensions/reference point, position from nose datum, longitudinal alignment, vertical position, mounting surface/thickness, adhesive and shuttle interface.	Required items	11 listed items		3 points each; max 15 from EDR	☐
R8.2	CoG documentation	CAD identifies CoG, engineering drawings dimension its position, and calculations support it.	Required items	3 listed items	—	3 points each; max 15 from EDR	☐
R8.3	CoG calculations	Document CoG without payload, with payload, and with all permanent components; identify component masses/locations, payload location, datum and final CoG.	Calculation completeness	All listed cases and inputs	—	Documentation Check	☐
R8.4	Longitudinal static stability	Document aerodynamic centre/neutral point estimate, CoG, static margin, tail-volume/equivalent reasoning and payload effect; static margin ≥5% MAC.	Minimum static margin	5	% MAC	Critical	☐



Team Enterprise Portfolio

Team Number:

Team Name:

Achieved Score

Team & Brand Identity	No clear team identity, vision, mission or brand concept. Visual elements are absent, generic or inconsistent.	Basic team identity and brand concept present, but branding lacks strategic reasoning or consistency.	Clear identity, vision and brand concept supported by cohesive visuals, defined colors, typography and design language.	Strategic identity and core values effectively communicate the team's vision through consistent design language.	
	0 - 4	5 - 8	9 - 12	13 - 15	Out of 15
Prototype & Brand Alignment	Brand has little or no meaningful connection to the prototype or its purpose.	Some connection is shown, but it is mainly aesthetic or weakly explained.	Brand identity and communication clearly align with prototype value or technical direction.	Team identity and communication clearly align with prototype purpose, features or technical direction.	
	0 - 2	3 - 5	6 - 8	9 - 10	Out of 10
Team Structure & Role Ownership	Roles, responsibilities, and team processes are absent or unclear.	Basic structure shown, but ownership and accountability are inconsistent.	Clear organizational structure with defined brand and enterprise responsibilities.	Clearly defined roles, responsibilities, and reporting structure with evidence of coordination and effective teamwork.	
	0 - 1	2 - 3	4	5	Out of 5
Marketing Strategy & Audience Insights	No clear target audience or marketing strategy. Activities seem disconnected or reactive.	Target audience and basic marketing activities are identified, but strategy is limited.	Defined target audience with clear objectives, campaigns, channels and engagement.	Insight-driven marketing showing strong audience understanding, measurable analytics, and evidence of testing or refinement.	
	0 - 4	5 - 8	9 - 12	13 - 15	Out of 15
Content, Social Media & Public Communication	Limited communication; lacks content strategy, schedule, or consistency.	Basic communication presence exists, but content quality, consistency, relevance, or engagement is limited.	Consistent, audience-focused communication supporting team objectives through appropriate channels.	Exceptional audience engagement with high-quality content and strong performance metrics.	
	0 - 2	3 - 5	6 - 8	9 - 10	Out of 10
Sponsorship & Stakeholder Engagement	No clear partnership approach or value proposition.	Basic sponsor or partner approach exists but value creation or partner relevance is weakly developed.	Clear partnership proposition with relevant sponsor targeting and structured proposals.	Tailored partnership showing mutual value, commercial reasoning, professional proposals and documented results.	
	0 - 2	3 - 5	6 - 8	9 - 10	Out of 10
Budget & Resource Management	Budget absent, unrealistic or unrelated to activities.	Basic cost planning exists, but allocation and priorities are unclear.	Realistic budget with resources logically allocated to planned activities.	Well-managed finances showing realistic costing, tradeoff analysis, resource efficiency, and sound decisions.	
	0 - 2	3 - 5	6 - 8	9 - 10	Out of 10
Project Planning, Outreach & Execution Evidence	Little evidence of planning, task allocation, tracking or actual execution.	Basic timeline shown, but tracking and execution evidence are limited.	Clear timeline and execution evidenced through outreach, media, sponsor communication or public engagement.	Well-managed execution with milestones, ownership, tracking, strong evidence and adaptation to challenges.	
	0 - 2	3 - 5	6 - 8	9 - 10	Out of 10
Reflection & Adaptation	Little evidence of reflection, learning, or improvement.	Basic descriptive reflection provided; insights into problem-solving are shallow.	Thoughtful reflection on decisions, challenges, outcomes, and lessons learned.	Deep critical evaluation demonstrating meaningful learning, adaptation, and problem-solving.	
	0 - 1	2 - 3	4	5	Out of 5
Portfolio Quality & Professional Presentation	Portfolio is difficult to navigate, lacks structure and evidence, and shows little attention to presentation.	Portfolio includes required information, but organization, presentation, evidence, or professionalism are inconsistent.	Well-organized, professional portfolio with clear structure, relevant evidence, and consistent presentation supporting readability.	Exceptionally clear, professional portfolio with logical structure, verifiable evidence, and effective presentation.	
	0 - 2	3 - 5	6 - 8	9 - 10	Out of 10
Incorrect File Name:	☐	Late Submission:	☐	TOTAL SCORE:	
					Out of 100



Business Plan Presentation

Team Number:

Team Name:

Achieved Score

Session A: Presentation Execution

Organization & Narrative Transitions	No clear structure or business narrative. No logical progression or transitions between sections.	Basic structure present but flow is inconsistent. Problems, solutions & market discussions appear disconnected.	Clear structure with sequence. Smooth transitions between topics. Every section supports the investment case.	Compelling investor-focused narrative. Market needs, solution, value, and growth strategy seamlessly connected.	
	0 - 3	4 - 7	8 - 11	12 - 15	Out of 15
Verbal Clarity & Non-Verbal Presence	Unclear delivery. Excessive technical jargon without explanation. Low confidence.	Lacks clarity. Hesitation and fillers. Limited eye contact. Reliance on notes.	Clear and professional delivery with good pace. Few fillers; notes used occasionally.	Exceptional clarity, confidence, eye contact, posture. Technical concepts translated well into business language.	
	0 - 3	4 - 7	8 - 11	12 - 15	Out of 15
Role Ownership & Handoffs	Roles are unclear. Frequent interruptions or uncoordinated transitions.	Ownership of topics is inconsistent. Some presenters appear unfamiliar with the content they present.	Relevant team members lead the appropriate discussion topics. Transitions are smooth and coordinated.	Confident representation of respective functions. Seamless handoffs enhance credibility & engagement.	
	0 - 3	4 - 7	8 - 11	12 - 15	Out of 15
Creative Delivery	Text-heavy or cluttered visuals. Limited audience engagement.	Basic visuals and storytelling.	Good visuals supporting key messages. Good storytelling and audience connection.	Professional storytelling, strong visuals, and persuasive impact.	
	0 - 3	4 - 7	8 - 11	12 - 15	Out of 15

Session B: Core Business Content

The Value Proposition & Prototype Link	Weak connection between prototype and business idea. Customer value unclear.	Business application identified but lacks differentiation. Commercial relevance not fully justified.	Clear connection between the prototype and commercial offering. Customer benefits and market need are well defined.	Innovative market application or disruptive business angle addressing a real market need in Pakistan.	
	0 - 6	7 - 12	13 - 19	20 - 25	Out of 25
Market Analysis & Commercial Viability	Limited market understanding. No meaningful competitor analysis.	Basic target market identified. Limited supporting data and weak competitive positioning.	Clear target customers. Good understanding of competitors and market opportunities. USP identified.	Evidence-based market assessment quantifying opportunity, competitive positioning, growth potential, and realistic adoption within Pakistan.	
	0 - 5	6 - 10	11 - 15	16 - 20	Out of 20
Business Model, Feasibility & Financial Viability	Revenue model unclear or unrealistic. Cost assumptions not provided.	Basic financial model identifies revenue streams, but assumptions lack justification and implementation planning.	Viable revenue model with realistic pricing, costs, and profitability. Implementation is reasonably justified, supporting sustainability and scalability.	Investor-ready model with a clear path to profitable growth. Well-justified financial and implementation assumptions support sustainable, market-aligned monetization.	
	0 - 6	7 - 12	13 - 19	20 - 25	Out of 25
Investment Readiness & Q&A Defensibility	Cannot justify assumptions or answer accurately; risks and implementation challenges are ignored.	Understands the business model, but responses lack data and awareness of execution risks.	Strong command of operational and financial assumptions; answers confidently and identifies key risks and mitigations.	Investor-ready pitch articulating funding needs, returns, and growth strategy. Defends assumptions with data and addresses regulatory, operational, and market-entry risks through realistic mitigation plans.	
	0 - 5	6 - 10	11 - 15	16 - 20	Out of 20

TOTAL SCORE:

Out of 150



Business Plan Presentation Finalist

Team Number:**Team Name:****Achieved Score**

Section A: Business Viability & Commercial Strategy

Problem Statement & Business Opportunity	Presents a compelling and relevant problem with a clear commercial opportunity, strong market relevance, defined customer benefit, and demonstrated value creation potential.	
		Out of 8
Market Research, Customer Analysis & Commercial Viability	Demonstrates understanding of target customers, market size, customer needs, and adoption barriers, supported by credible research, strong customer insights, and evidence of commercial viability.	
		Out of 12
Competitor Positioning & Unique Value Proposition (USP)	Evaluates existing alternatives and competitors, demonstrates clear differentiation, and presents a well-defined value proposition with compelling competitive advantages that justify customer preference.	
		Out of 8
Business Model & Revenue Strategy	Presents a realistic and well-justified business model with clearly defined revenue streams, pricing and monetization strategy, and a credible route to profitability.	
		Out of 10
Financial Model & Investment Readiness	Presents a credible financial model with realistic cost estimates, operating expenses, revenue projections, profitability calculations, and break-even outlook, supported by strong assumptions and a clear investment rationale.	
		Out of 12
Marketing Strategy	Presents a well-developed go-to-market plan with a clear customer acquisition and expansion strategy, realistic partnerships, and a practical growth roadmap.	
		Out of 5
Presentation Delivery	Delivers a clear, structured, professional, and persuasive investor-style pitch, demonstrating effective handling of questions and strong command of technical, operational, and financial assumptions.	
		Out of 5

Section B: Technical Feasibility & Engineering Merit

Technical Solution & Design Justification	Demonstrates a strong engineering vision with logical design choices aligned with the intended use case. Key assumptions, component selections, operating conditions, and modifications are well justified, providing a credible technical advantage.	
		Out of 15
Engineering Analysis & Performance Validation	Presents technically correct and internally consistent flight-time calculations, payload analysis, power consumption, endurance estimates, aerodynamic considerations, sizing calculations, and testing plans. Performance assumptions and engineering decisions are well justified.	
		Out of 10
Scalability, Reliability & Risk Management	Demonstrates realistic prototype scalability, manufacturability, reliability, maintenance planning, serviceability, and durability, supported by lifecycle cost considerations and practical risk mitigation measures.	
		Out of 10
Operational Feasibility & Local Applicability	Demonstrates a realistic implementation pathway within Pakistan's context, addressing operational requirements, technical challenges, regulatory constraints, safety concerns, failure modes, and practical risk mitigation measures.	
		Out of 5
Note: As per the rulebook, 10% of the finalist score will be applied to the final Business Plan Presentation results.		
		TOTAL SCORE: Out of 100



Business Plan Presentation Video

Team Number:

Team Name:

Achieved Score

Problem Definition & Target Market	Unclear problem or lack real world impact. Target market is not identified.	Problem and customer are mentioned, but lack specificity or market relevance.	Problem is clearly defined. Target market is identified and reasonably justified.	Clearly defines a meaningful problem relevant to Pakistan's market or industry and identifies a well-defined target customer.	
	0 - 2	3 - 5	6 - 8	9 - 10	Out of 10
Value Proposition & Prototype Relevance	Solution is unfeasible or Prototype relevance is unclear.	Solution lacks clear differentiation from existing alternatives. Prototype relevance is not logical.	Solution addresses identified problem and communicates clear customer value. Prototype relevance is evident.	Compelling solution with a strong value proposition. Clearly demonstrates how the prototype creates meaningful and unique competitive advantage.	
	0 - 3	4 - 7	8 - 11	12 - 15	Out of 15
Commercial Potential	No monetization stream is mentioned. Idea reads purely like a non-profit.	Revenue stream is mentioned, but unrealistic, overly vague or financially unfeasible for the local market.	Identifies monetization strategy with reasonable adoption potential.	Clear, logical monetization strategy with strong adoption potential in Pakistan.	
	0 - 2	3 - 5	6 - 8	9 - 10	Out of 10
Audience Engagement & Creativity	Fails to capture attention. Limited creativity or audience engagement.	Some creative elements present but impact is limited.	Engaging presentation with effective storytelling and visual appeal.	Memorable and highly engaging pitch with a strong hook and creative execution.	
	0 - 2	3 - 5	6 - 8	9 - 10	Out of 10
Production Quality & Professionalism	Poor audio, visuals, or editing hinder understanding.	Acceptable quality with noticeable technical issues.	Good production quality with clear audio and visuals.	Professional-quality production with polished visuals, clear audio, and readable subtitles and crisp editing.	
	0 - 1	2 - 3	4	5	Out of 5
Incorrect File Name:	☐	Late Submission:	☐	TOTAL SCORE:	
					Out of 50

Instructions: This sheet is locked. Fill in only the yellow-highlighted cells. Red cells indicate that entered data is not acceptable.

Team Number:

Team Name:

Mass grams
CoG x meter
CoG y meter
CoG z meter

Note: Including 100 g payload, total mass must be at least 250 g.
Note: Measure from the aircraft's nose tip.

Instructions: Enter the details for one side of the wing only. The opposite side will be assumed to be symmetrical.

Main Wing	X Position (meter)	Y position (meter)	Chord (meter)	Dihedral (degree)	Twist (degree)	Airfoil
Root						
1						
2						

Tail Type	Conventional	T	V	A	Double	Other
	☐	☐	☐	☐	☐	☐

Stabilizers	X Position (meter)	Y position (meter)	Chord (meter)	Dihedral (degree)	Twist (degree)	Airfoil
Root						
Tip						

Tail Design Does your aircraft have a V-tail, A-tail, or any other tail configuration where the any one stabilizer perform both vertical and horizontal functions?

Instructions: Fill in the Fin details only if the Tail Design answer is **No**.

Fin	X Position (meter)	Z position (meter)	Chord (meter)	Airfoil
Root				
Tip				

Instructions: Upload pictures of the aircraft components and use the following colors to identify each part:

Red: Main Wing | **Blue: Horizontal Stabilizer** | **Green: Vertical Stabilizer** | **Orange: Fuselage**

ORTHOGRAPHIC VIEW
 Click to upload picture

FRONT VIEW
 Click to upload picture

SIDE VIEW
 Click to upload picture

TOP VIEW
 Click to upload picture