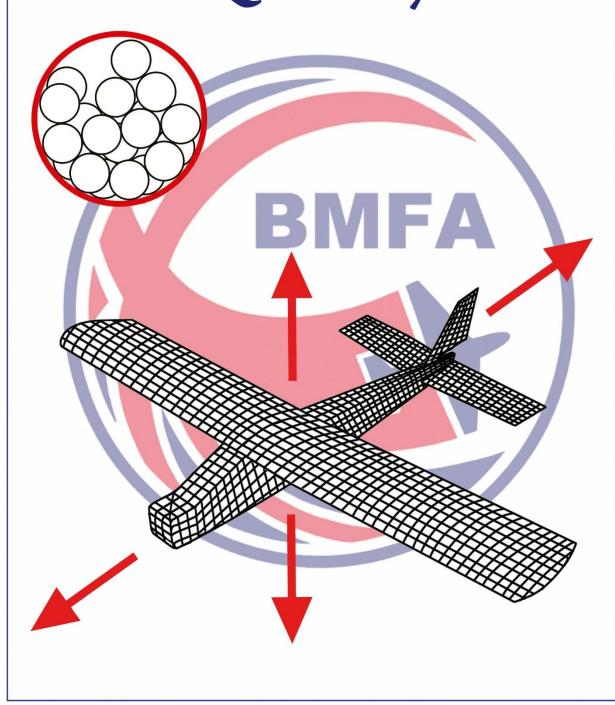
# 2024 Payload Challenge 4 Quantity



# British Model Flying Association 2024 University and Schools Payload Challenges

# **Dates Notice**

11th, 12th & 13th June 2024

National Centre for Model Flying
BMFA Buckminster
Sewstern Lane
Grantham
Lincolnshire
NG33 5RW

# **Sponsored By**



# **Supported By**

# BAE SYSTEMS







The British Model Flying Association invite your university or school to enter a team or teams in the

# 2024 Payload Challenge Challenge 4 Quantity

The information contained in this brochure provides a detailed overview of the 2024 Payload Challenge 4 as well as all information and forms for prospective entrants. We look forward to meeting your staff and students in 2024.

Should you require any assistance please contact the BMFA Challenge Co-ordinator. Manny Williamson manny@bmfa.org

## **NOTE**

These competitions are supported by cash prizes, both for the organisation/department and the individual members of the winning team.

### INTRODUCTION

The Payload Challenge 4 (quantity) has continually evolved to present fresh challenges to teams taking part in the competition.

This year's challenge utilises 150mm diameter polystyrene spheres as the payload to be transported, and having designed a suitable airframe for this challenging task, teams are required to submit a design report and drawings for their aircraft. In addition, they will conduct a 5 minute presentation to a panel of judges that addresses the key elements of the design, as well as outlining the thought processes and considerations involved.

For the flying element of the competition, teamwork, planning and a well-structured approach combined with a well-designed and practical airframe will be key elements to success in this competition.

<u>Please note that it is strongly recommended that the help of an experienced aero</u> modeller is enlisted from the very start.

Local contacts are available from the BMFA office.

We look forward to receiving your team's entry for the 2024 Payload Challenge 4 (quantity).

### **Sponsored by the Royal Aeronautical Society**

- The Royal Aeronautical Society (RAeS) is pleased to be the headline Sponsor for the 2024 BMFA Payload Challenge.
- The RAeS will provide Aerospace Professional support for judging and operation of the competition
- This support for the competition is part of the RAeS outreach programmes to schools, colleges and universities.
- The RAeS also provides career support to aspiring and established Aerospace Professionals and details can be found on its website at https://www.aerosociety.com/careers-education/



### **GENERAL CONTEST RULES**

### **TEAMS**

- **G 1.1** A team will consist of a maximum of five students plus a manager and a pilot.
- **G 1.2** For the flying element of the contest a pilot can be supplied by the contest organisers if required.
- **G 1.3** Only registered team members may participate in all elements of the competition.
- **G 1.4** The role of team manager is an organisational position, however for teams with less than 5 members, the manager may participate as an active member of the team.
- **G 1.5** All team members including the manager and pilot must attend the daily morning briefings.
- **G 1.6** Team pilots will receive an individual flight-line briefing as appropriate.
- **G 1.7** Teams will be allocated a defined workspace in the hangar building and must work within the designated area.
- **G 1.8** Teams should familiarise themselves with the contents of the competition rules brochures.

### AIRCRAFT CONFIGURATION

- **G 2.1** Aircraft must be of fixed wing configuration (no rotating lifting surfaces).
- **G 2.2** The specified power system for each category must be used.
- **G 2.3** Only the battery pack supplied by the organisers may be used for the flight competition.
- **G 2.4** No modification to the motor is permitted.
- **G 2.5** Only the specified "isolator" unit must be fitted (XT60-Wall)
- **G 2.6** The "isolator" must be mounted in such a location as to be readily accessible by team members and also easily visible to flightline marshals.
- **G 2.7** The Isolator unit must be located a minimum of 100mm from the propeller arc and orientated so as to promote removal of the isolator predominantly away from the direction of the propeller arc (25 degree minimum).
- **G 2.8** The isolator unit must be accessible from behind the propeller arc, insertion/removal must not be through the propeller arc.

- **G 2.9** A tag or pennant must be affixed to the isolator to aid removal and visibility.
- **G 2.10** Only one flight battery may be used per flying round.
- **G 2.11** A propeller spinner or rounded safety nut must be fitted on forward facing motors.
- **G 2.12** The allocated team number must be displayed on the upper wing surface of the aircraft in characters a minimum of 100mm high in a contrasting colour.
- **G 2.13** Aircraft must display a valid UK Operator ID Number before flying this is a legal requirement, teams will be provided with a sticker carrying the appropriate number at aircraft scrutineering.

### **RADIO RESTRICTIONS**

- **G 3.1** Radio control will be used to fly and manoeuvre the aircraft.
- **G 3.2** Equipment on the 2.4GHz band only.
- **G 3.3** A correctly set failsafe must be programmed that as a minimum returns the throttle to stop on loss or corruption of the radio signal this is a UK legal requirement.
- **G 3.4** Aids to flight stabilisation such as gyros and auto level are not permitted unless stated in the specific challenge rules.

### **FLIGHT COMPETITION**

- **G 4.1** The flight-line controller has overall responsibility and authority for all matters relating to flight safety.
- **G 4.2** Once the flight-line has opened for competition flights no other flying must take place other than with the permission of the flight-line controller.
- **G 4.3** A flight may not commence until the pilot has received a flight-line briefing from the flight-line controller or their appointee.
- **G 4.4** A flight may not commence without the permission of the flight-line controller or their appointee.
- **G 4.5** The pilot must perform appropriate pre-flight checks.
- **G 4.6** Only the registered team members plus the pilot and manager may be in the competition flight box during a competition flight.
- **G 4.7** Only the registered team members (maximum of 5) may take an active participation and handle the aircraft and payload during the competition flight.
- **G 4.8** Team members may only enter the active runway for aircraft dispatch/recovery with permission of the flight-line controller or their appointee.

- **G 4.9** The aircraft must be made safe (isolator removed) before handling, this must be clearly demonstrated to the flight-line controller or their appointee.
- **G 4.10** Non-compliance with flight-line safety procedures may result in a zero score for the related flight and for repeated violations a zero score for the round.
- **G 4.11** Pilots must act immediately as directed by the flight-line controller or their appointee at any time an aircraft is in the air and must ditch (forced termination of flight) immediately if directed.
- **G 4.12** The extent of the flying area will be announced during the pilots briefing, any pilot flying within the briefed "no fly" areas will be directed to land immediately.
- **G 4.13** The number of flight rounds will be announced at the pilots briefing to reflect the expected weather conditions and number of entries.
- **G 4.14** The distances indicated on the flight plan sheet are for guidance purposes only, these will be set and announced at the pilots briefing to reflect the prevailing wind conditions and location on the airfield.

### CONDUCT

- **G 5.1** Deliberate or repeated violation of safety rules may result in the team's expulsion from the competition.
- **G 5.2** In the event of unsportsmanlike conduct, the team will receive a warning from the Competition Director. A second violation will result in expulsion of the team from the competition.
- **G 5.3** The Competition Director reserves the right to ground any aircraft if in their opinion, or that of their appointee, the aircraft does not meet an appropriate standard of air worthiness.

### **PROTESTS**

- **G 6.1** Any protest must be filed in writing to the Contest Director by the team manager.
- **G 6.2** Any protest relating to the flying element of the competition must be filed no more than 15 minutes after the Flight Competition is announced as being completed.
- **G 6.3** In order to have a protest considered a team must be willing to sacrifice points as specified in each Challenge, which may be forfeit, if their protest is not upheld.
- **G 6.4** The Contest Director may call upon a jury of interested parties to help with their decision.
- **G 6.5** The Contest Director carries the final vote in the event of a split decision.

### **GENERAL**

- **G 7.1** Time for flight testing will not be available on the day of the competition except at Contest Director's discretion where it is deemed advisable to conduct a test flight after repairing major damage incurred in an earlier round.
- **G 7.2** Tuesday 11<sup>th</sup> June is the official practice day for the competition, teams arriving before this date will not be permitted to use the flying area.
- **G 7.3** Teams arriving from overseas in advance of the competition must not attempt to fly their aircraft at any location other than the official competition venue \*
- **G 7.4** Teams found to be flying unlawfully prior to the competition may be subject to scoring penalties or disqualification.

Non-compliance with the terms of the Article 16 Authorisation is a criminal offence under UK Law.

<sup>\*</sup> This is a legal requirement – in order to fly a model aircraft in the UK pilots and aircraft are required to be registered with the UK Civil Aviation Authority under the terms of the Article 16 Authorisation granted to members of the British Model Flying Association.

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# Competition resources supported by

http://www.4-max.co.uk/bmfa-payload-challenge.html

Visit their website to view materials for the 2024 Payload Challenges but it is important that you place your order either by telephone or email in order to receive the discounted payload challenge prices.

Quote **2024BMFA** for 10% discount on competition items.

Please note; the BMFA does not stock competition materials.

### Q 1 OBJECTIVES

- **Q 1.1** Teams are to research, design, build and fly an electric powered, radio-controlled aircraft, to transport the greatest number of 150mm (+/- 10mm) diameter polystyrene spheres of mass 35g (+/- 5g) around a predetermined course in the three, 6 minute time slots utilising a standardised propulsion unit.
- **Q 1.2** Teams are required to submit a technical report outlining their aircraft's design and construction together with design drawings.
- **Q 1.3** Teams are then required to give a verbal presentation in front of a panel of judges on their aircraft.
- **Q 1.4** Teams are required to take part in a flight competition to demonstrate the performance of their aircraft.
- **Q 1.5** Competing aircraft are permitted to make any number of flights during the prescribed time period (6 minutes) and competitors must arrive at a strategy that best utilises the characteristics of their design within the time available (i.e. the two extremes would be a very fast and agile aircraft that carries only a small number of payload items but may complete several cycles, or a larger slow aircraft that will carry a larger number but may only complete one or two cycles).
- **Q 1.6** The winning Team is the Team with the highest aggregate score for all aspects of the competition.
- **Q 1.7** Although normal course tuition and guidance is expected, the reports, drawings and the building of the aircraft are to be treated as though they are examination submissions and are to be the sole work of the students.

### **Q 2 CHALLENGE ELIGIBILITY**

- **Q 2.1** The contest is open to all students in full time education including accredited apprenticeships.
- **Q 2.2** Applications outside of this criteria will be considered on an individual basis.

### **Q 3 AIRCRAFT - POWER REQUIREMENTS**

- **Q 3.1** Aircraft must be of a fixed wing design (no rotating lifting surfaces).
- **Q 3.2** There are no dimensional restraints on aircraft design.
- **Q 3.3** The power system will comprise one 4-Max PO-3541-1070 motor and 4M-ESC50AV2 speed controller.
- **Q 3.4** The aircraft design must incorporate an XT60-Wall bulkhead mounted isolator unit to disconnect the battery from the speed controller when the isolator plug is removed.

- Q 3.5 One 3 cell Lithium Polymer battery PPL-60C3S-2200 of 2200 mAh nominal capacity per round (supplied fully charged by the organisers for each round).
- **Q 3.6** No modification to the motor or ESC is permitted.
- **Q 3.7** The motor may be used as direct drive or fitted with the addition of a gearbox.
- **Q 3.8** Propellers must be of fixed pitch.
- **Q 3.9** Only batteries supplied by the organisers may be used for competition flights.
- **Q 3.10** Batteries will be fitted with XT60 connectors (negative to pointed end)

### DUPLICATE/REPLACEMENT AIRCRAFT

- Teams may submit multiple aircraft for scrutineering.
- Teams must indicate which aircraft is their primary aircraft.
- Replacement aircraft must be of identical design to the primary aircraft.
- Replacement aircraft must weigh no less than the primary aircraft.
- Teams must indicate to the flight-line team when a duplicate/replacement aircraft is being utilised for the flight-line competition.
- A penalty of 15 points will be applied to the flight round score (for that round only) where a duplicate/replacement aircraft is utilised.

### W 4 RADIO RESTRICTIONS

- **Q 4.1** Radio control equipment must utilise the 2.4Ghz band and be UK compliant.
- **Q 4.2** The use of gyros/auto stabilisation is permitted, however any aids to stable flight must be able to be overridden by pilot command at any phase of flight.
- **Q 4.3** Fully autonomous flight is not permitted in this class.
- **Q 4.4** Radio installations will be scrutinised by the organisers and must be deemed fit for the intended application.

### **Q 5 COMPETITION PROCEDURES**

There will be three elements to the competition in which all teams are required to participate.

- **Q 5.1** The design element, will enable the contestants to present their designs and demonstrate their calculations to a panel of expert judges.
- **Q 5.2** The presentation, where students will be required to explain their design to a panel of judges
- **Q 5.3** The flight element, will determine which aircraft is able to transfer the greatest number of payload spheres from the "departure lounge" to the "arrivals gate" via the prescribed course in the fixed time period.

- **Q 5.4** Each team must display their designated entry reference on the wing of the aircraft in characters a minimum of 100mm high in a contrasting colour. Aircraft not fulfilling this requirement will not pass scrutineering and processing.
- **Q 5.5** A safety and airworthiness inspection will also be conducted to enable teams to address any item requiring attention before flight.

Correct Failsafe operation must also be demonstrated at this time so it is important that the transmitter is made available to the scrutineering team.

### **Q 6 DESIGN COMPETITION**

**Q 6.1 DRAWINGS**: Each team must submit detailed drawings for the aircraft which is to be flown. The drawings must contain fully dimensioned front, end, and plan elevations. These must all be drawn to scale and with the scale shown. Drawing files must be of sufficient resolution to permit all detail to be clearly noted. Materials and sizes are to be indicated. Detail drawings, which are deemed necessary to explain structure of the aircraft are also to be included.

Each drawing sheet will include the name of the team and the designated reference number in the title box.

Teams must submit the drawing set by Email in PDF format to the Challenge Administrator lisa@bmfa.org 30 days prior to the flight competition.

- **Q 6.2** The judges will evaluate the drawings based on a professional standard format. Areas of evaluation will include:
  - Detail
  - Completeness
  - Explanation of structures
  - Readability
  - Graphical standards
- **Q 6.3** A maximum of three sheets of drawings is permitted.

The drawings will be worth **25 points**.

**Q 6.4 REPORT**: It is intended that the written report will be less academically rigorous when compared to Challenge 5. Each team must submit a report which outlines the design philosophy of the aircraft, team roles and responsibilities, choice of configuration, payload distribution, manufacturing techniques and any practical testing undertaken. No prediction of the total payload to be transported is required. Any original or innovative ideas should be described, together with the use of unique or advanced structural techniques and materials. The report is worth **25 points** and should comprise no more than six double-spaced, typewritten pages of A4 paper, including any appendices and diagrams (not including the front cover sheet). Minimum type size to be 12 point. Where an institution enters more than one team, the designs, reports and drawings are to be produced by each team independently.

<u>Each page of the report will include the name of the team in the footer or header as well as the designated reference number</u> (supplied with confirmation of entry). If a report exceeds six pages, only the first six pages will be marked. As per the drawings, the report must be submitted in PDF format.

**Q 6.5** Drawings and reports are to be submitted by Email to Challenge Administrator <a href="mailto:lisa@bmfa.org">lisa@bmfa.org</a> at least 30 days prior to the start of the flight competition. Late submissions will be penalised and competitors are advised that, in these circumstances, the judges' comments may be less carefully considered. The organisers are not responsible for lost/misdirected drawings/reports, please ensure that you request an acknowledgement Email when you submit your team's information and do not assume that your Email has arrived if you do not receive this. Do not send reports to the contest director.

Although normal course tuition and guidance is expected, the reports, drawings and the building of the aircraft are to be treated as though they are examination submissions and are to be the sole work of the students.

NOTE: The drawings/reports form an important opportunity to gain points, ensure that all submissions are compliant with the rules and submitted on time in order to avoid penalties.

### **Q 7 SCRUTINEERING**

- **Q 7.1** All aircraft must pass through scrutineering and receive a "passed" sticker before being eligible for all elements of the challenge.
- **Q 7.2** More than one aircraft may be submitted for scrutineering.
- **Q 7.3** Where multiple aircraft are presented teams must indicate which is their primary aircraft.
- **Q 7.4** Aircraft must be presented for scrutineering with the following items: -
  - The controlling transmitter
  - The correct propeller (not fitted)
  - The isolator plug (not fitted)
  - The payload receptacles (not fitted)
- **Q 7.5** Aircraft scrutineering will cover the following points:-
  - General airworthiness/structural integrity
  - Compliance with competition rules
  - Recording of airframe weight
  - Recording of payload receptacle weight
  - Correct operation of failsafe
- **Q 7.6** On completion of successful scrutineering "passed" stickers will be affixed to major/detachable airframe components.
- **Q 7.7** Duplicate/replacement aircraft will receive a different colour "passed" sticker.

- **Q 7.8** The design submitted for scrutineering must be in accordance with the drawings and reports submitted for judging (see penalties section).
- **Q 7.9** If during the flying competition it is necessary to make repairs to the aircraft, such repairs must not reduce the empty weight or substantially alter the original design.
- **Q 7.10** Following any repair, aircraft must be re-scrutineered and approved for flight by the Contest Director or their appointee.
- **Q 7.11** Where major components are substituted this must be cleared with the Contest Director or their appointee and indicated to the flight-line team
- **Q 7.12** Any repair or modification that alters the design of the aircraft submitted for judging (for example to improve flight performance or controllability) must be approved by the Contest Director or their appointee.

### **Q8 PRESENTATION**

- **Q 8.1** Prior to the first competition flight, each team will present their aircraft design before a panel of professional engineers.
- **Q 8.2** Each team will be allocated five minutes in which to describe and promote their design.
- **Q 8.3** Content falling outside of the allocated time will not be considered during marking.
- **Q 8.4** Visual aids will not be permitted, however teams may utilise material/test samples, aircraft cross section samples and replica components as part of the presentation to judges.
- **Q 8.5** The aircraft must be available for the presentation.
- **Q 8.6** A **10 point** penalty will be incurred if the complete aircraft does not feature as part of the presentation.
- **Q 8.7** The presentation is worth **30 points**. Judging criteria for the presentation will include:
  - Balance and continuity
  - Articulation
  - Technical highlights
- **Q 8.8** Subsequent to each team's presentation, aircraft details will be recorded.

NOTE: Experience has shown that teams do not make the best use of the opportunity to gain the additional points that the presentation offers, remember, your team's presentation should aim for a professional standard and "sell" the benefits of your particular design to the maximum.

This competition is as much a test of your organisational skills as of your engineering flair. You may well have a world-beating design....on paper but each

year several teams fail to complete their projects by the date of the Flight Competition.

### Q 9 FLIGHT COMPETITION

- **Q 9.1** The aircraft must be rendered "safe" on all occasions that it is handled by the team for the purpose of payload transfer, a team member must display the isolator/breaker for the benefit of the flight line marshals during loading and unloading.
- **Q 9.2** The payload may be carried on or in the airframe in whatever manner is deemed appropriate. Duplicate removable module(s) are <u>not</u> permitted, and it is important that the payload is distributed and secured in such a manner that it cannot significantly alter the centre of gravity of the airframe in flight. It should be borne in mind that the payload will need to be transferred to the scoring receptacle in the shortest possible time in order to maximise the overall scoring opportunity.
- **Q 9.3** Any number of flights may be made during the allocated time slots.
- **Q 9.4** At the start of the time slot the aircraft should be without load, on being given the start signal the team must load the aircraft from the "out box" with an appropriate quantity of polystyrene spheres. The aircraft must then be carried to the take off line and set down facing predominantly into wind, at this time the power system can be rendered "live" by inserting the "isolator".
- **Q 9.5** The aircraft must take off from a standing start (no pushing) utilising it's own undercarriage.
- **Q 9.6** Take off must be achieved by pylon one whereupon a flag will be raised immediately the model has passed the pylon. The aircraft will then proceed to pylon two where the same process will apply. The aircraft is then flown on a path that most effectively lines up for a landing in the prescribed area.
- **Q 9.7** Should a successful take-off not be completed, teams may retrieve the model for further attempts without reloading and the payload may be reduced at this time if required.
- **Q 9.8** The aircraft must land in the designated area. The designated area will be defined at briefing). Only when the aircraft has come to a <u>complete standstill</u>, may a team member approach, disarm, then retrieve the aircraft and return it to the loading bay where the payload will be transferred to the "in box". This rule will be strictly enforced in the interests of safety and fairness, teams should note that there are no limits on the number of functions utilised therefore a "braking system" (for example) could be considered as a compliant addition to the airframe.
- **Q 9.9** Further flights within the time slot will commence immediately with loading from the "out box" followed by a repeat of the previously outlined process.
- **Q 9.10** At the end of the time slot the "in box" will be closed and the contents checked and recorded by the CD or his appointee.
- **Q 9.11** No transfer of payload will take place after the end of the time slot has been reached.

- **Q 9.12** No transfer of payload may take place outside of the designated area (other than to reduce payload).
- **Q 9.13** The aircraft must finish the slot in an airworthy condition and with the original parts. The only exception being the propeller and undercarriage components.
- **Q 9.14** The aim is for each team to fly three, 6 minute slots, however, a final decision will be announced at the morning briefing to reflect the time available, the number of teams competing and the expected weather conditions.
- **Q 9.15** The distances indicated on the flight plan sheet are for guidance purposes only, these will be set and announced at the morning briefing to reflect the prevailing wind conditions and location on the airfield.
- **Q 9.16** Time for flight testing will not be available on the day of the competition. Entrants should test fly their aircraft with a full load prior to the competition.
- **Q 9.17** For protest information see General Rules but in this category the team will need to put up 20 points.

### Q 10 SCORING

### Penalty points are assessed as follows:

- 2 points deducted for each day or part day late in delivery of plans or reports.
- 10 points deducted for no aircraft at presentation.
- 20 points deducted for unsuccessful protest.
- A penalty of 15 points will be applied to the flight round score (for that round only) where a duplicate/replacement aircraft is utilised.

The flight score will be normalised, **100 points** will be awarded to the team who transport the largest quantity of payload items across all three rounds and all other teams' scores will be calculated as a percentage of this figure.

See scoring panel for further detail.

# **Challenge 4: Quantity Scoring**

## Report

Maximum six A4 sheets, double-spaced, PDF format.

Category	Points Available	The judges would like to see:
Design, Philosophy of the aircraft	5	How the team approached the challenge. Include time and budget constraints.
Team roles and responsibilities	5	Include management, technical and manufacturing roles.
Choice of configuration	5	A logical explanation of the aircraft concept, including the factors which influenced the final choice, such as payload considerations.
Manufacturing techniques	5	Any fabrication and assembly processes used. Include jigs and cutting templates if used, together with any novel build features.
Testing	5	Tests might include: Loading of sample joined pieces for bond strength tests, structural testing of wing, motor thrust rig, pit-stop training etc.
Total Max Points	25	

# **Drawings**

Maximum three sheets, PDF format.

Category	Points Available	The judges would like to see:
Detail	5	3 clear views of plan, side and front elevation. Include template outlines of ribs, frames etc. Include a wing section to permit some structural assessment.
Completeness	5	Include dimensions for span, length, CG location. Indicate extent of control surfaces, payload provision and R/C gear location. Use a bill of materials or table of parts.
Explanation of structures	5	Use section views to reveal crucial internal features. Avoid unnecessary isometric views without dimensions or notes attached. Show payload provision and access features.
Readability	5	Logical progression of explanatory notes. Arrows, labels and part idents to be unambiguous. Where section arrows are used, indicate sheet and grid ref. to locate views.
Graphical standards	5	Neat outlines, clear text, fine leader lines and uncluttered dimensions. Standardised bordered sheet with reference grid and title block.
Total Max Points	25	

# **Presentation (5 minutes)**

Category	Points Available	The judges would like to know:
Balance and Continuity	10	Each team is to describe the design of their aircraft. Include any interesting features, especially payload loading/unloading. Avoid
Articulation	10	copying content of your report and consider this a sales pitch to promote your design. We like to see contributions from several
Technical Highlights	10	team members.
Total Max Points	30	

# Flight Competition

	Circuit 2 Circuit n	End of allocated round time	Flight Score
Complete a flight around pylons, land	Aircraft is loaded with fresh spheres from the out-box, out-box, performs another	_	
sarely and unload spheres to in-box.	performs another flight and unloads to inuloads to in-box.	spheres to In-box in- before round ends.	
			► Count the number
	6 minutes round time available		of completed laps
			<ul> <li>Count the number</li> </ul>
	6 minutes round time available		of completed laps
			Count the number
	6 minutes round time available		of completed laps

	Flight score = 12	
	Aircraft is airbome with 2 more spheres at end of round time. These are not included in the flight	score.
	2 more circuits are performed with 2 spheres delivered each flight	
	Aircraft is loaded with 3 more spheres, successfully delivering all to the inbox	
	Successful flight, 2 spheres to inbox	
6	Aircraft is loaded with 3 spheres and takes off	
	Example Round	

# Normalisation of flight scores

Upon completion of all three rounds, the number of spheres are added together. The team with the highest aggregate score is awarded 100 points. All other scores are calculated as a percentage of this figure.

Report	Max possible score	25 points
Drawings	Max possible score	25 points
Presentation	Max possible score	30 points
Normalised flight score	Highest aggregate flight score	100 points
Penalty 1	Late Report and/or drawings	-2 points per day
Penalty 2	No aircraft at presentation	-10 points
Penalty 3	Protest not upheld	-20 points

### Q 11 PRIZE AND AWARD DETAILS

### 1<sup>st</sup> Place

Presentation of the BMFA University and Schools Payload Challenge Trophy.

£150.00 Cash prize, paid to university department or school.

£50.00 Cash prize, paid individually to each team member (up to a limit of seven including Pilot and Team Manager)

Certificates will be awarded to all competitors.

Note: The trophy is presented to the winning team but is not permitted to be taken from the BMFA premises.

### Q 12 ENTRY DETAILS

Please complete the online Entry Form and payment to register your teams entry for the 2024 Payload Challenge.

To facilitate planning, we must receive, by 1<sup>st</sup> April 2024, a formal notification of your intent to enter the 2024 competition.

### Q 13 REPORTS AND DRAWINGS

All reports and drawings must be submitted at least 30 days prior to the day of the flying competition, late submission will be penalised as described previously.

Material should be e-mailed to the Challenge Administrator:

lisa@bmfa.org

