

# DUEM Solar Vehicle Design Competition

Durham University Electric Motorsport (DUEM) is calling on all aspiring designers and engineers, from Reception up to Year 11, to design their own dream solar vehicle. Each entry will be judged by our team and the winner(s) that are selected will be sent 3D printed versions of their design and have a DUEM-run outreach event at your school!\*

\* COVID permitting and must be within 30 miles of Durham University

DUEM are a team of innovative university students who love to push our engineering skills to new levels. As a student run and student led team, we design and build solar cars which we race in international events against other world-leading solar teams.

## OFFICIAL COMPETITION RULES

**1. Competition Details:** Your task is to design a vehicle that runs solely on energy from the sun. You can design it in any format e.g. sketches, building a prototype out of every day household objects, designing it on a computer etc. The vehicle does not have to be a car, just anything that can transport people or goods. This might seem like a daunting task, so here are some tips on how to get started.

- **Things to think about:**

- Mode of transport (land, sea, underwater, in air, space?)
- Where will the driver/goods sit? (Middle? Side? Front?)
- Where will the solar array/panels go? (On the roof? All over?)
- How will you make it as aerodynamic as possible?
- What will you make it from? (What materials? Lightweight? Eco-friendly?)

- **Our top tips:**

- If you're stuck for inspiration, start by looking at the following websites:

<https://www.worldsolarchallenge.org/> (solar cars)

<https://mcsebc.org/> (solar boats)

<https://solarimpulse.com/> (solar planes)

<https://www.planetary.org/articles/what-is-solar-sailing> (solar rockets)

- Begin by making a checklist of what you want the vehicle to include, and this will make sure you do not miss anything out

- Label your drawings if appropriate (the more detailed the labelling, the better)
- Include multiple views of your vehicle (front, side, back, top)
  
- **For bonus points:**
  - Be creative, there isn't necessarily a right design so think outside the box on how to make your vehicle unique
  - Make your design eye-catching (colour)
  - Discuss what your vehicle would be used for (Racing? Everyday use? Transport of goods? Military?)

Your design will be judged by members of the DUEM team. The team's evaluation criteria will be based on:

- Innovation of design proposals
- Quality of submission
- Technical detail of design
- Effectiveness of design

## 2. Submission deadline:

- All designs must be submitted by **Wednesday, 31<sup>st</sup> March 2021**.
- The official announcement of the competition winner will be announced a week after the deadline indicated.
- Designs submitted for competition shall not be returned nor shall any correspondence be entered into or any information be provided about them.

## 3. Who may enter?:

- The applicant must currently be in a form of education in the UK.
- We welcome multiple entries from each candidate but these must be done as separate submissions.
- The design must be original, and that on its date of submission to this competition, he/she is the sole and legitimate owner of the industrial and intellectual property rights for the design (in the event that the project has been produced by more than one person or by a company, they certify and guarantee that they are the sole and exclusive owners).

- You may enter on your own or as a team.

- **All competition entries and other enquires made must be submitted by the parent/guardian of the applicant, or in the case of a team submission the parent/guardian of one team member.**

#### 4. Your personal data

Durham University's data protection statement is below and can be read in full at <https://www.dur.ac.uk/ig/policies/dppolicy/>. All data will be kept in accordance of the Durham University data protection policy.

#### [Information Governance : Data Protection Policy - Durham University - Durham University - Durham University](#)

Data Protection Policy. Version 2.0 (Approved by UEC February 2018) Glossary. This policy should be read in conjunction with the University's Information Governance Glossary.. 1. Introduction. In order for Durham University to deliver its core learning and teaching functions, operate effectively as a business and meet legislative, contractual and statutory obligations, it needs to process ...

[www.dur.ac.uk](http://www.dur.ac.uk)

For any more queries on data protection, please contact [duem.electric@durham.ac.uk](mailto:duem.electric@durham.ac.uk).

**5. How to enter:** Please read the following instructions carefully before submitting a design.

You may submit your designs as an individual or as a team.

The **parent/guardian of the applicant will submit your application via email** sent to [duem.electric@durham.ac.uk](mailto:duem.electric@durham.ac.uk) with any files containing your design attached to this email. For team submissions, only one parent/guardian of one team member is required. These files can be in any format (pdf, word documents, pictures etc.). If you have your designs drawn on paper then please scan all sheets and send them electronically (we recommend Office Lens or any equivalent application).

The email must contain the following information and contents:

- **Individual or team entry**
- **Full name of applicant(s)**
- **Year of education of applicant(s)**
- **Name of school/college**

- Address of school/college
- How did you find out about this competition? (social media, school, DUEM website etc.)
- All files containing your design

Please have 'Solar Vehicle Design Competition' as your email subject.

For any queries on your submission please contact [duem.electric@durham.ac.uk](mailto:duem.electric@durham.ac.uk).

**Good luck!**