

## AE705 / AE 153M GLIDER ASSIGNMENT

Weightage: 20%

### REQUIREMENTS:

Each team will fabricate glider(s) for addressing the following requirements, when launched from the third floor of the Lecture Hall Complex Foyer:

- 1) It should hit the blue pillar on the opposite side. If it does not hit the pillar, then it should maximize the net distance travelled (*Range*), i.e., the total length covered minus the lateral deviation from the straight line path to the point of contact.
- 2) It should maximize the total time in the air (*Endurance*), i.e., the time between launch and hitting any object.

These requirements, and videos of a previous competition can also be seen

at: <https://youtu.be/cu1v8EnTzI4>

The competition will be held on Thursday 27<sup>th</sup> September from 21-00 onwards in the Lecture Hall Complex Foyer.

Each team is required to upload Reports as follows:

- Progress Report - 1 by 23:55 on Fri 21<sup>st</sup> Sep, containing the description of design features to be provided in the glider(s), and proposed schedule of work.
- Progress Report - 2 by 23:55 on Wed 26<sup>th</sup> Sep, containing photos of the work in progress and final gliders, and YouTube links of the videos of trials conducted.
- Final Report by 23:55 on Sun 30<sup>th</sup> Sep, containing important lessons learnt during this assignment, and suggestions for change(s) in problem statement of this assignment when conducted in future.

### RULES:

- a) Teams can fabricate a separate glider to address each of the above requirements, or use the same one, with or without modifications, to address both the requirements.
- b) There is no restriction on size, weight and material of the glider(s). Tumbling and rotating glider designs are not permitted for maximizing *Endurance*. Ballistic trajectory is not permitted for maximizing *Range*.
- c) The glider should be launched by hand by any team member, within ten seconds of receiving the *go ahead* signal from the judge(s).
- d) Each Team will be given two trials for each competition, and the best *Range* and *Endurance* attained during these trials will be counted while scoring.
- e) The decisions of the judge(s) will be final and non-negotiable.

### SCORING SCHEME

$$\text{Score} = 100 * \left( 0.35 \frac{\text{Range}}{\text{Highest Range}} + 0.35 \frac{\text{Endurance}}{\text{Highest Endurance}} + 0.30 \frac{\text{Report Marks}}{\text{Highest Report Marks}} \right)$$

*Range* = best *Range* obtained by a given team,

*Highest Range* = best *Range* obtained by any team,

*Endurance* = best *Endurance* obtained by a given team,

*Highest Endurance* = best *Endurance* obtained by any team,

*Report Marks* = Marks obtained by a given team for the two Progress and the Final Reports.

*Highest Report Marks* = Highest marks obtained by any team for the two Progress and the Final Reports.