

Lab 12 – Airplane Construction

Unified Engineering

23 Apr 09

Learning Objectives

- Hands-on construction of electric RC airplane for UE Flight Competition.
- Progress reporting.

Procedure

- Correct any calculation errors which occurred in the wing and overall configuration design in Lab 11.
- Finalize your wing and airplane design. This may differ somewhat from what you submitted for Lab 11, even if that was correct.
- Update your 3-view and parameter table if necessary.
- See the lab staff (Dave Roberts, Dick Perdichizzi) to get a lab table for your team.
- Pick up your UE kit (source to be announced). Kit contents are listed farther below.
- Start building!

Reporting

- Each team will turn in one report.
- Contents:
 - Title, team number, team member names, date.
 - Briefly explain any fixes and/or design changes made since Lab 11.
 - Latest 3-view of your airplane.
 - Latest parameter table of your airplane.
 - Brief building progress report. Itemized list of tasks completed is sufficient. Minimum expected progress is “1/3rd done”.

Lab Etiquette

- * *Respect other people’s stuff.*
- * *Respect lab tools and materials (rulers, sanding blocks, razor saws, adhesives, etc.). Return these to the cabinets when done.*
- * *Discard used razor blades in the red safety containers, not in the trash.*
- * *Under no circumstances take any kit contents, airplane parts, or building materials from other tables. If you accidentally break a kit item, we can probably replace it.*
- * *Using lab tools or adhesives lying on other tables is permitted, since these should have been put back in the cabinets anyway.*
- * *Protect tabletops with brown paper and blue cutting mats.*
- * *Clean up any spilled adhesives.*

UE Competition Kit

S-280 6V motor #6328, soldered to ESC, with caps
2mm ID prop hub adapter
6x4 ACP prop

ESC (GWS), soldered to motor
two HS55 servos
RX
TX

0.078" pre-bent LG wire
two wheels

Dubro 1/32" pushrod kit
two 1/16" ply control horns

Building Materials

3/32 or 1/16 balsa sheet for tail surfaces
1/2 x 1/2 x 36 balsa stick for fuselage
Miscellaneous balsa and plywood stock
Anything else not forbidden by the rules