



Rocket Design

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Objectives

- Design a 3 piece rocket that can be 3D printed
- Meet tolerance, length, and weight requirements
- Include integral rocket components (launch lug, motor mount interface, shock chord attachment points)
- Analyze feasibility of design
- Assemble and test rocket

Design Intent

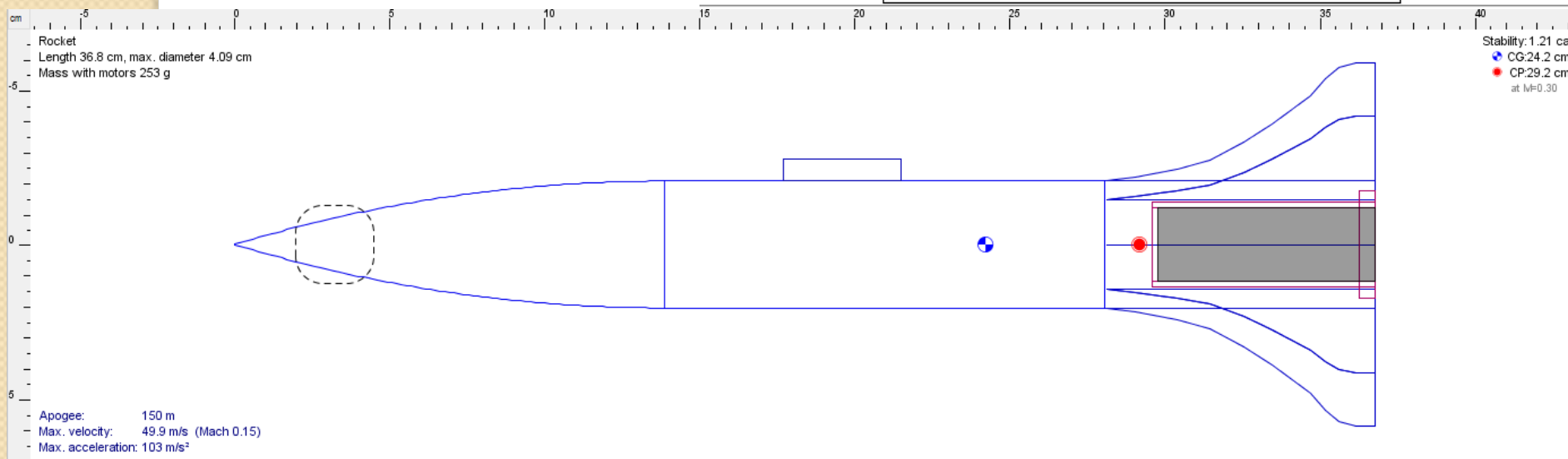
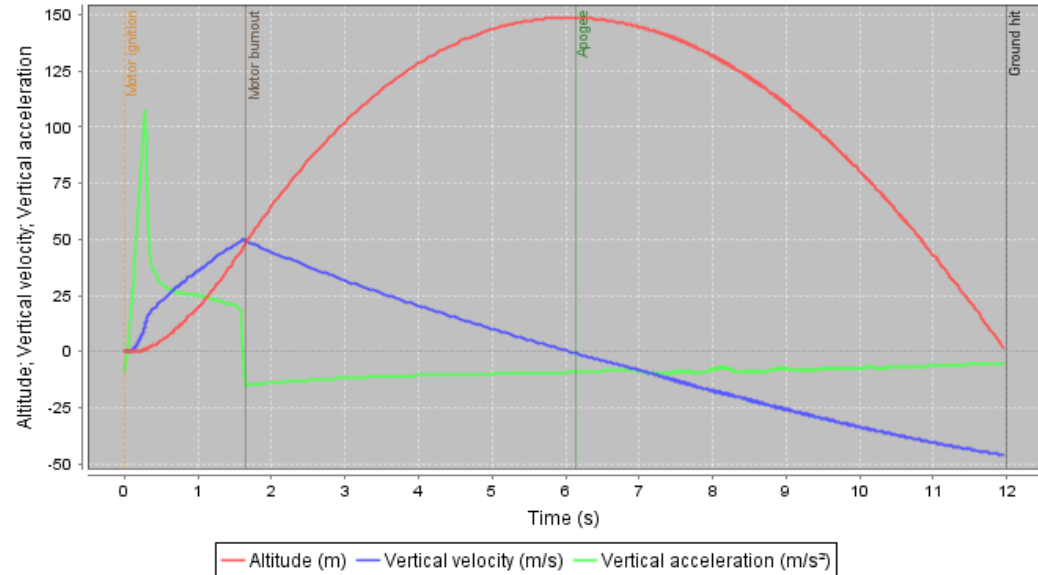
- Design was based off of the wyvern model rocket
- Similar design was made with emphasis on large tail fins



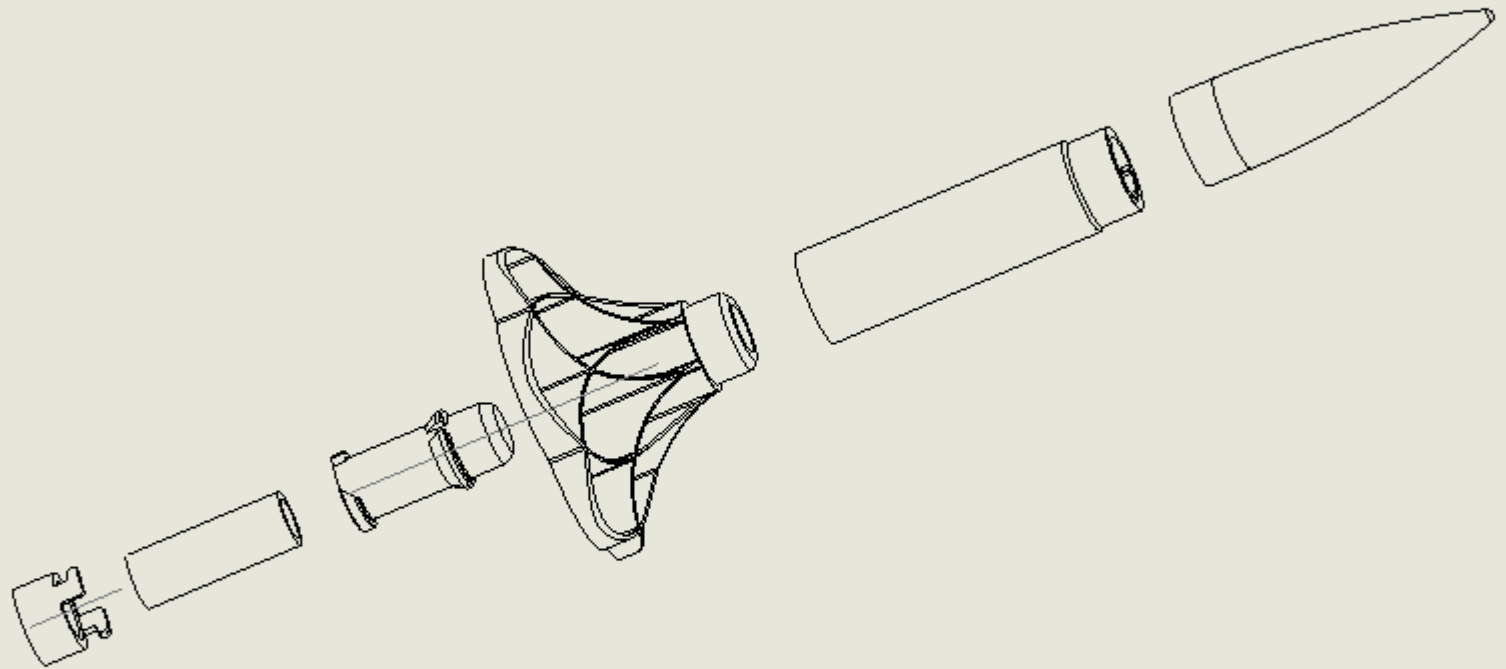
Open Rocket

- Stability requirement of 1.2 met
- Final weight w/ ballast and motors of 253 g
- Simulation altitude of 150 m

Simulation 1
Vertical motion vs. time



Shop Drawings



		mm
TITLE: Exploded		
SIZE A	Course: EDSGN 497B	REV
SCALE: 1:5	RGB	SHEET 1 OF 4

5

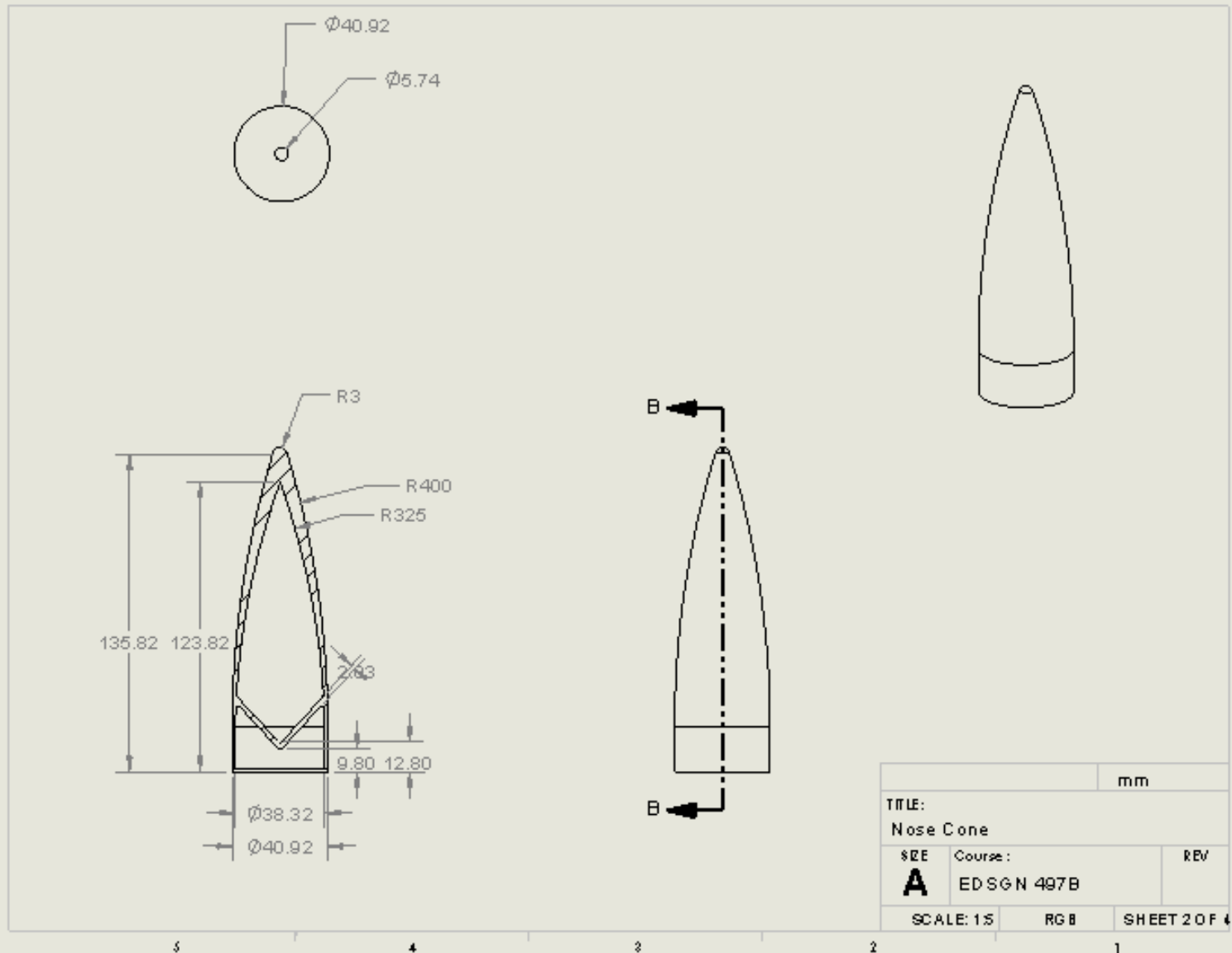
4

3

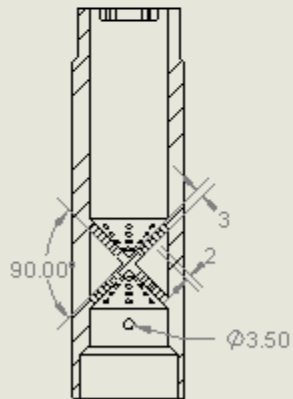
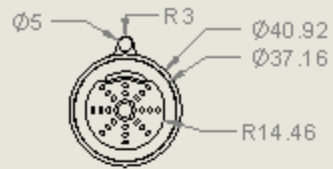
2

1

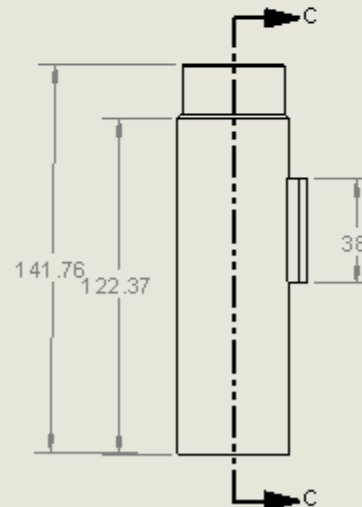
Shop Drawings



Shop Drawings

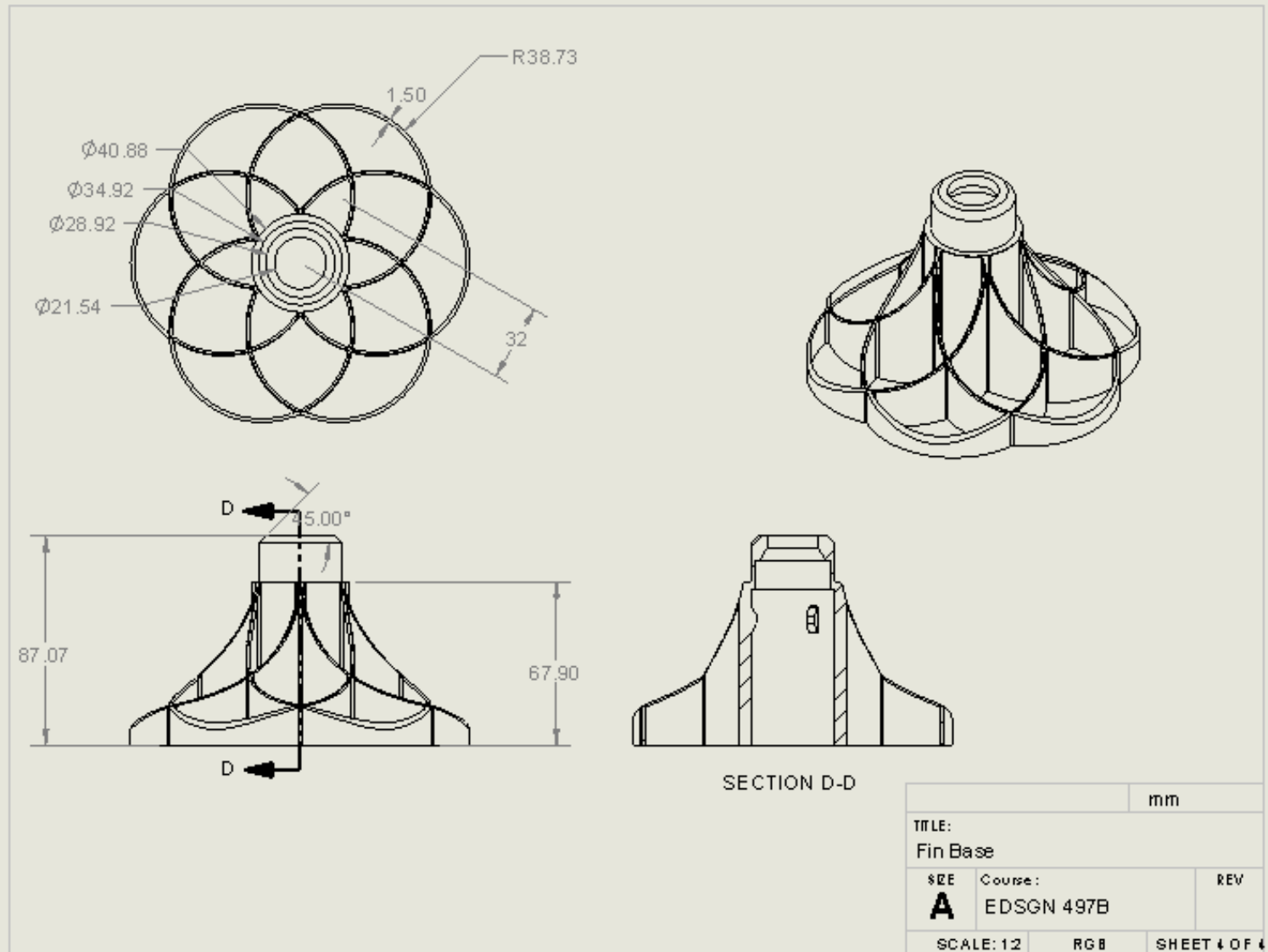


SECTION C-C



		mm
TITLE: Body		
SEE A	Course: EDSGN 497B	REV
SCALE: 1:2	RGB	SHEET 3 OF 4

Shop Drawings



Discussion

- Rocket flew successfully
- Parachute burned together in center
- Fell quickly but still controlled
- Not damaged in landing

Future Improvements

- Nose cone connector shifted so that no build issues with 3d printer
- Added chamfers for launch lug
- Reduce weight to achieve higher altitude at launch
- Change weight distribution to eliminate need for ballast