

# P11232: UAV Airframe X-4

Michelle Bailey, Jordan Carrick, Stephen Cramb, Nathan Hardman, Scott Melchionno  
Guide: Dr. Jason Kolodziej Sponsor : Impact Technologies, Rochester, NY



## ◆ Customer Needs :

- ◆ Robust & Durable Airframe
- ◆ Test - Mule for Imaging Science Research/Experimentation
- ◆ Successful Integration with onboard Imaging System

## ◆ Flight Requirements :

- ◆ 15 lb. Imaging System Payload
- ◆ 30 minutes steady Flight Time
- ◆ 100 hours of Total Flight Time
- ◆ 50 lbs. Total Weight ceiling
- ◆ R/C Trainer characteristics

## ◆ Fuselage Structure :

- ◆ Basswood formers - Balsa stringers
- ◆ 1/8 in. Balsa wood Sheeting
- ◆ External Skin layered with cross-directional Fiberglass

## ◆ Wing Structure :

- ◆ Foam core with 1/32 in. Balsa sheeting
- ◆ External Skin of 2 layers Fiberglass
- ◆ Kevlar leading edge
- ◆ Unidirectional carbon fiber strip

## ◆ Aerodynamics :

- ◆ NACA 5412 Wing airfoil
- ◆ Total Wingspan 12 ft.
- ◆ Tapered Wing  
22 in. root - 10 in. tip
- ◆ NACA 0012 Horizontal Tail airfoil
- ◆ Flat plate Vertical Tail

