

MAE155B Manned Aircraft Section

Tony Hays

ahays@alum.mit.edu

Mobile: 949-573-4225



Goal

- Respond to AIAA Foundation Undergraduate Team Aircraft Design Competition
 - Advanced, Environmentally Compatible 150 Seat Commercial Aircraft
 - Entry into Service in 2018
 - Range: 2800 nm with reserves
 - Cruise Mach no: 0.78 (Long range cruise Mach no: 0.8)



Proposal Requirements (cont'd)

- Community noise: ICAO Chapter 4 level minus 20 dB cumulative
- Initial cruise alt: >35,000 ft at MTOGW, ISA+15 deg C
- Block fuel burn < 41 lb/seat (objective is < 38 lb/seat)
- DOC 8% better than current aircraft



Proposal Requirements (cont'd)

- Suggested powerplants:
 - P&W geared turbofan
 - Advanced direct-drive HBPR turbofan
 - Unducted fan



Schedule

- Feb 19 Commit to Aero or Astro
- Feb 26 Form teams of 5 members
- March 5 Team leader writes Letter of Intent to AIAA and submits to instructor
- March 12 Letter of Intent due at AIAA
- June 12 Proposal due at AIAA HQ



Team Member Responsibilities

- Team Lead, Proposal Management, Market Research, Quality Management, Reliability
- Design, Configuration Management, Manufacturability
 - Structures, Loads and Materials
- Aerodynamics, Performance S&C and Sizing
 - Guidance and Control
- Mass Properties, Costs, Affordability
- Propulsion and Thermodynamics, Noise, Subsystems

