DARcorporation
Design • Analysis • Research

AAA Basic Training Outline

July 2011

Introduction to AAA
- Program basics
- Flight Condition, units
- Help system and documentation
- Work Pad

Weight Sizing
- Mission Profile
- Take-off Weight
- Regression
- Sensitivity

Performance Sizing
- Stall Speed Sizing
- Take-off and Landing Distance Sizing
- Performance Matching Plot,
- Wing Loading, Power Loading

Geometry Module
- Entering geometry
- Changing units
- Lateral tip-over
- Wing Fuel Volume

Aerodynamics I
- Class I Drag Polar
- L/D from weights
- Specifying aerodynamic characteristics for lifting surfaces
- High lift device sizing

Class I and Class II Weight & Balance
- Weight Fractions
- Inertias
- Center of Gravity
- Weight Iteration

Aerodynamics II
- Class II drag
  - Component Drag
  - Trendlines
  - Drag build up
- Moment
- Aerodynamic Center

- Dynamic Pressure Ratio

Propulsion
- Power Extraction
- Inlet Design
- Nozzle Design
- Installed Data

Stability and Control
- Derivatives
  - Longitudinal
  - Lateral-Directional
  - Control
  - Recalculate All
- Analysis
  - Class I
  - Class II
    - Trim Diagram

Geometry
- Tab Definitions

Dynamics
- Transfer Functions
- Flying Qualities

Control
- Root locus
- Bode Diagram

Loads
- V-n diagram

Cost
- AMPR Weight
- RDTE Cost
- Acquisition Cost
- Operating Cost
- Life Cycle Cost
- Prototype Cost
- Price Data

Final Question and Answer Session