

- **WHEN and WHERE:** 13-16 June 2023 at Wright Brothers Institute, 5000 Springfield St, Dayton, OH 45431. Class runs from 8:00-4:30 each day.
- **COURSE DESCRIPTION and MATERIALS:** After taking this 32-hour short course, you will never look at an airplane the same way again! Using design as a common thread, this course answers questions like: high wing placement or low -- swept or unswept? One vertical stabilizer or two? Canard or conventional configuration? Turbofan or turbojet? Packed full of examples, you will graduate with a solid understanding of the basics of aeronautics and the give-and-take inherent to aircraft design. You'll also gain an appreciation for the aircraft as a collection of subsystems ... a "collection" that must be successfully integrated for the aircraft to accomplish its mission. A "field trip" to a local air museum will bring the concepts home! With clear lesson objectives, the key aspects of aeronautics are presented:
 - Low and High-Speed Aerodynamics ⇒ Lift -- Sources of Drag -- Stall -- Mach Number Effects -- Designing for Speed
 - Stability and Control ⇒ Ailerons, Elevator, and Rudder -- Designing for Roll, Pitch, and Yaw Stability
 - Structures ⇒ Ribs, Spars, and Pressure Bulkheads -- G-Loading -- Landing Gear -- Flight "Envelope"
 - Propulsion Systems ⇒ Propellers to SCRAMjets -- Piston and Gas Turbine Engines -- Airframe & Engine Integration
 - Aircraft Performance ⇒ Thrust Curves, Range and Endurance, Glides, Climbs, Takeoffs and Landings, and Turns

While the focus is clearly on conventional airplanes, discussion will include other air vehicles, including airships, RPVs, helicopters, and stealth, hypersonic, and micro-air vehicles. You will be given a set of course notes and a copy of *A Practical Introduction to Aeronautics*, a new text designed specifically for this course. 3.2 Continuing Education Units (CEUs) are awarded.
- **WHO SHOULD ATTEND:** Anyone working directly or indirectly in the field of aviation -- program managers, analysts, engineers, scientists, and technicians -- aircraft operations, test, logistical, and maintenance personnel. A building-block approach is used -- no prior knowledge is assumed. Since 2002, we've taught thousands of students from audiences across the Air Force, Navy, NASA, FAA, and industry. Our instructors have earned a tremendous reputation for teaching fundamental aeronautics and propulsion -- in our classroom, theory and practical application come alive! Here's what a few graduates have said:
 - *"The course covered the topic at a high level without dumbing down too much. I appreciate the physics-based approach."* Dayton, Ohio
 - *"This course has helped me make the connection from theory (school) to work (application)."* Oklahoma City, Oklahoma
 - *"Course was a good mix of overview and details for someone with little engineering knowledge. It was presented in practical terms to make it easy to understand. Videos and visual aids made it interesting."* Hampton, Virginia
 - *"Perfect balance of technical and practical information -- best class I've taken since I've been with NASA (17 years) -- spoke at a level where everyone could understand."* Huntsville, Alabama
 - *"Best airplane/flying/aero course I've taken! Furthermore, quite possibly the best teaching technique I've ever seen. Am going to add this class to our engineer's required curriculum."* Warner Robins, Georgia
- **COURSE DIRECTOR:** Mr. John Norton is Practical Aeronautics' Vice President for Aeronautics and is the author of the *Introduction to Aircraft Systems* course. He is a 1982 Graduate of the US Air Force Academy, retired Air Force pilot, and teaches for Embry-Riddle Aeronautical University and the National Test Pilot School. He has a BS in Aeronautical Engineering and a MS in Mechanical Engineering. John has over 8,200 flying hours, including 41 combat sorties—and served as a C-17 Operational Test pilot for four years. He is an active FAA Certified Flight Instructor in single/multi-engine airplanes and gliders.
- **COST, REGISTRATION, and CANCELLATION POLICY:** \$1800 (\$1750 if registered by 30 May 2023), \$1700 for Federal Government employees. Single payment group pricing available. For more information and to register, visit PracticalAero.com, contact JEllsworth@PracticalAero.com, or call (719) 659-7319. Substitutions may be made at any time. Cancellations must be received two weeks prior to course start date and are subject to a \$50 fee. If you must cancel within the two-week period, and do not have a substitute, you may forfeit the entire fee. Refunds of the registration fee (only) are issued if the course is canceled. NOTE: We can only accommodate a few seats for this course...register early!