TWO-DAY ON-SITE SHORT INTRODUCTORY COURSE ON STRAPDOWN INERTIAL NAVIGATION SYSTEMS

By Strapdown Associates, Inc.

Strapdown Associates, Inc. (SAI) is now offering a Two-Day Short Introductory Course On Strapdown Inertial Navigation Systems for interested organizations, to be provided at the host selected site location in the contiguous United States and Canada. This is a shortened version of the original four and a half day Introductory Course offered by SAI in Minneapolis, Minnesota from 1982 - 2009. As with the original course, the Short Course is designed for engineering, management and marketing personnel who have a fundamental background in engineering, but no former background in inertial navigation or complex mathematics. The slides used in the two-day course are the same primary slides used in the original 4½ day course as contained in the presentation book for both courses - Introduction To Strapdown Inertial Navigation Systems by Paul G. Savage.

The standard price for the two-day course during Calendar Year 2012 is $10,000 plus $195 per attendee which covers the following items:

Presentation of the course to any number of attendees at host facility using host presentation aids. Paul G. Savage (president of Strapdown Associates, Inc. and lecturer for the 4½ day course) will be the Short Course lecturer.

Handout material for course attendees.

Subsistence for the course time period.

Travel expenses.

Handout material for the Short Course comprises the following two books also used for the 4½ day course:

Introduction to Strapdown Inertial Navigation Systems - 712 page "Yellow Book" containing copies of the two-day and 4½ day course slide material including a detailed text describing each slide.

Strapdown Inertial Navigation Lecture Notes - 376 page reformatted "Blue Book" detailing the analytical theory of strapdown inertial navigation.

A detailed description of the Short Course handout material follows, including a resume of the author and Short Course lecturer Paul G. Savage. The Short Course will cover the primary material outlined in the Yellow Book description.

For further information or to schedule a Short Course, contact SAI by telephone or Fax at 1-855-479-1981, or by email at pgs@strapdownassociates.com.

Introductory Course Books On

STRAPDOWN INERTIAL NAVIGATION SYSTEMS

Paul G Savage

Strapdown Associates, Inc.

From 1981 to 2009, Strapdown Associates, Inc. (SAI) provided its 4½ day **Introductory Course On Strapdown Inertial Navigation Systems** to the general public in Minneapolis-Minnesota and on-site at contracting host facilities. Two books by the course instructor Paul G Savage were provided as handout material to each attendee:

• **Introduction to Strapdown Inertial Navigation Systems -** 712 page paperback "Yellow Book" containing the Introductory Course presentation slides with accompanying detailed text descriptions. This book **is** the full Introductory course. It addresses the systems, sensor, and software aspects of strapdown inertial navigation system design, Kalman filter aiding, performance analysis, and test. The book can be readily comprehended by engineering, management and marketing personnel having a fundamental engineering background. Sufficient introductory material is included so that readers need no former background in inertial navigation or complex mathematics. The emphasis in the book is on providing down-to-earth explanations of basic principles associated with strapdown systems and hardware/software components. Because many elements of strapdown inertial navigation are inherently analytical in nature, the course addresses the analytical aspects, but primarily from a functional and operational standpoint. Detailed mathematical derivations are avoided and referenced instead to the supporting book - **Strapdown Inertial Navigation Lecture Notes**.

• **Strapdown Inertial Navigation Lecture Notes** - 376 page reformatted paperback "Blue Book" containing a compilation of technical material prepared by Paul G Savage including detailed derivations of strapdown inertial navigation equations, computational algorithms, Kalman filtering techniques, and descriptions of inertial systems/sensors described in the Introductory Course.

The 4½ day course is no longer being provided, however, the course books are now being used as handout material for a new SAI two-day on-site Short Introductory Course On Strapdown Inertial Navigation Systems. The books are also now available for purchase directly from SAI at www.strapdownassociates.com.

ORGANIZATIONS THAT HOSTED THE 4½ DAY INTRODUCTORY COURSE

- Naval Air Development Center
- McDonnell Douglas Corporation
- Naval Weapons Center
- U.S. Army Avionics R&D Activity
- Naval Avionics Center
- Texas Instruments
- Rockwell International
- Honeywell Avionics Division/Mpls.
- Sundstrand Instrument Division
- Singer Kearfott Division
- Wright Patterson AFB
- Contraves
- Eastman Whipstock
- Boeing Aerospace Company
- U.S. Army Missile Command
- Systron Donner
- Naval Surface Warfare Center
- NASA Goddard Space Flt Center
- Lockheed Martin Astronautics
- Honeywell Avionics Division/Clearwater
- Allied Bendix Guidance Systems Division
- Sandia National Laboratories
- Holloman AFB, Central Inertial Guidance Test Facility
- Lear Siegler, Instrument Division
- Naval Air Test Center
- General Dynamics Convair
- Bell Aerospace
- Brazilian Naval Commission, Rio de Janeiro
- Northrop Electronics Division
- Environmental Research Institute of Michigan (ERIM)
- Norwegian University Of Science And Technology
- C. S. Draper Laboratory
- United Space Alliance / NASA Johnson Space Center
- NASA Kennedy Space Center
- Johns Hopkins University Applied Physics Laboratory
- Lockheed Martin Missiles & Fire Control
- Minneapolis Sessions For The General Public (1982 - 2009)

Introduction to Strapdown Inertial Navigation Systems - Contents

(Continued On Next Page)

Introduction to Strapdown Inertial Navigation Systems - Contents

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Author Biographical Sketch

Paul G. Savage is an internationally recognized expert in the design and test of strapdown inertial navigation systems, and president of Strapdown Associates, Inc., a company he founded in 1980. Strapdown Associates has provided software and engineering services to government agencies and aerospace companies for strapdown inertial system configuration definition, flight software development, system simulation, and testing. Mr. Savage has published and presented several papers on strapdown inertial navigation systems and associated computational elements. From 1974 to 2009 he served as an author/speaker on several NATO AGARD and RTO technology transfer lecture series tours. From 1981 to 2009, Mr. Savage provided his *Introduction To Strapdown Inertial Navigation Systems* course to the aerospace industry. He has written and published the textbook *Strapdown Analytics* (available from Strapdown Associates) detailing the analytical aspects of strapdown inertial navigation system design. From 1963 to 1980, Mr. Savage was employed at Honeywell Avionics Division as Senior Principal Engineering Fellow where he led engineering design teams and provided technical consultation to Honeywell engineering managers for system design, analysis, software development, simulation, and integration/test in the evolutionary development of laser gyro strapdown inertial navigation systems for military and commercial aircraft. From 1971 through 1975, he was the engineering manager and system design engineer for the Honeywell LINS-0 strapdown inertial system, the first to prove the readiness of laser gyro strapdown inertial navigation technology for aircraft applications as demonstrated during a landmark flight test series at Holloman Air Force Base in 1975. Mr. Savage is a graduate from the Massachusetts Institute of Technology where he received his MS and BS degrees in Aeronautical Engineering in 1960.