Course Objectives
This is a highly intensive, 4-day short course on Kalman filtering theory and Kalman filtering applications. The student will receive a thorough understanding of linear, extended, uncentered, and square root Kalman filters and their practical applications to real time strapdown navigation and target tracking. The student will also be exposed to information filters, 2nd and 3rd order extended Kalman filters, particle filters, integrity monitoring, and methods of smoothing.

Emphasis is on practical applications, but sufficient supporting theory is provided to give attendees the necessary tools for meaningful research and development work in the field. Considerable time is devoted to modeling, the most difficult aspect of Kalman filtering, in an application setting.

There will be a high level of instructor/attendee interaction, designed to provide hands-on problem solving and solution discussions.

Who Should Attend?
Engineers who need a working knowledge of Kalman filtering or who work in the fields of either navigation or target tracking.

Equipment Recommendation
- A laptop (PC or Mac) with full version of MATLAB® 5.0 (or later) installed. This will allow you to work the problems in class and do the practice “homework” problems each evening. All of the problems will also be worked in class by the instructor, so this equipment is not required, but is recommended.
- These course notes are searchable and you can take electronic notes with the Adobe® Acrobat® 9 Reader we will provide you.

Prerequisites
- A basic understanding of linear systems
- A basic understanding of probability, random variables, and stochastic processes
- A thorough familiarity with matrix algebra principles.

Materials You Will Keep
- A color electronic copy of all course notes will be provided on a USB Drive or CD-ROM. Bringing a laptop to this class is highly recommended; power access will be provided.
- A black and white hard copy of the course notes will also be provided.
- Public Venue Attendees: Introduction to Random Signals and Applied Kalman Filtering, 3rd edition, by R. Grover Brown and Patrick Hwang, John Wiley & Sons, Inc., 1996. (Note: This arrangement does not apply to on-site contracts. Any books for on-site group contracts are negotiated on a case by case basis.)

Instructor
Mr. Michael Vaujin, Aerospace, Navigation and Defense Consultant

To REGISTER or for MORE INFORMATION, Contact Carolyn McDonald at (703) 256-8900 or cmcdonald@navtechgps.com.