

Erevno Aerospace On-Site Training Courses 2014

EW 101: Fundamentals of Electronic Warfare

Classification: Available in both Unclassified and Secret Formats

Dates: TBD (3 days)

Instructor: Dr. Pat Ford

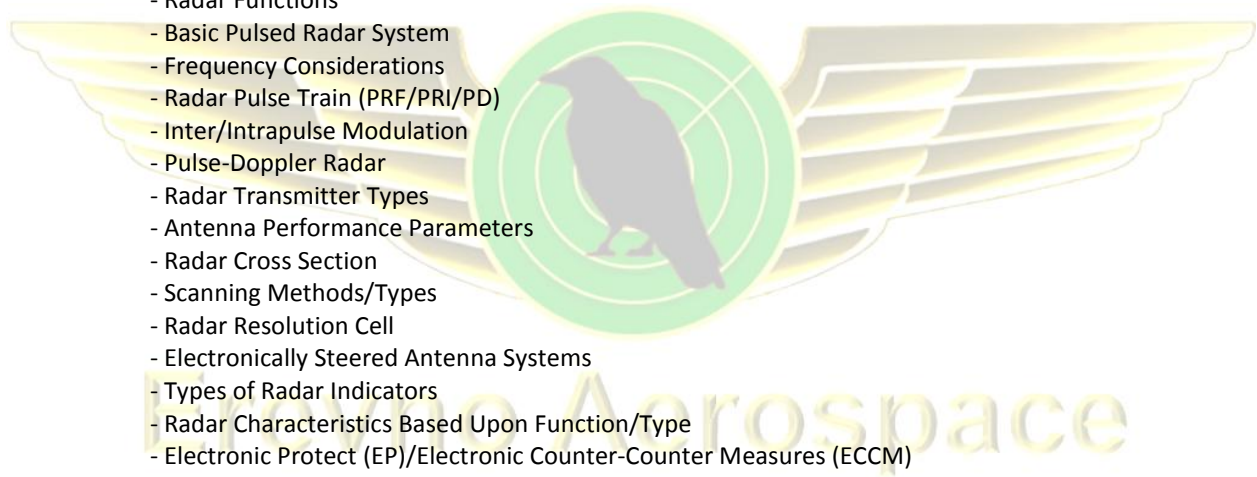
Location: Onsite Customer Facility

Course Description:

EW 101 is a concepts driven introductory course to EW; theory is presented with minimal mathematics. Throughout the course, a series of practical exercises will help each student to better reinforce the theory and concepts presented. This is an ideal course for those new to EW, supporting EW (software development/marketing), or to those returning to EW requiring a short refresher on key topics.

Course Outline

- Information Operations (IO) / Command and Control
- Radar Fundamentals
 - Radar Functions
 - Basic Pulsed Radar System
 - Frequency Considerations
 - Radar Pulse Train (PRF/PRI/PD)
 - Inter/Intrapulse Modulation
 - Pulse-Doppler Radar
 - Radar Transmitter Types
 - Antenna Performance Parameters
 - Radar Cross Section
 - Scanning Methods/Types
 - Radar Resolution Cell
 - Electronically Steered Antenna Systems
 - Types of Radar Indicators
 - Radar Characteristics Based Upon Function/Type
 - Electronic Protect (EP)/Electronic Counter-Counter Measures (ECCM)
 - Radar Range Equation
- Communications Basics
 - Receiver/Transmitter Characteristics
 - Communications Frequency Bands
 - Propagation Factors
 - Modes, Nodes, Links and Networks
 - One-way Link Equation
- Integrated Air Defense Systems (IADS)
 - Basic IADS Structure/Theory
 - IADS Battle Timeline
 - IADS Radar/Threat Systems
- Electronic Support (ES)/Electronic Support Measures (ESM)
 - Receiver Characteristics/Types
 - Search Dimensions and Impact on Probability of Intercept
 - Qualitative Comparison of ES Receiver Types
 - Emitter Locating Techniques
- Electronic Attack (EA)/Jamming Basics
- EA Primary Roles
- The J/S Equation
- Spot, Barrage, Swept Spot, and Multiple Spot Jamming
- Coherent Jamming
- EA Mission Planning



EW 103: Communications Electronic Attack

Classification: Secret

Dates: TBD (2 days)

Instructor: Dr. Pat Ford

Location: Onsite Customer Facility

Course Description:

EW 103 is an introductory course on communications electronic attack. The course covers key concepts and theory, providing a solid baseline for those supporting communications EA methods in the modern electromagnetic battlespace.

Course Outline

- Basic Signal Theory
- Antenna/Propagation Concepts
- Modes, Nodes, Links and Networks
- Sample Communications Systems
- Integrated Air Defense Systems
- Communications EA Methods
- Communications EA Mission Planning/ Tactics
- Sample Communications EA Systems

EW 104: Critical Thinking and Problem Solving for Electronic Warfare

Classification: Secret

Dates: TBD (4 days)

Instructor: Dr. Pat Ford

Location: Onsite Customer Facility

Course Description:

Although EW related buzzwords and acronyms may come and go, at the heart of successful EW remains the ability to interpret the target set, pick critical nodes to counter, apply the right EW tools for the job, and properly assess the outcome of actions taken. This four-day course provides such a foundation, through a concise overview of modern technologies, an understanding of the EA Triangle, and a series of EW team exercises. Notional threat layouts will be fully assessed by teams, providing for a series of exercises that allow for maximum use of various forms of radar, communications, EW and supporting digital technologies, including commercial off the shelf (COTS) products. When does it make sense to jam the radar? The communications link? To apply cyber? Which EW asset should be used? Where does the EW asset get placed? What level of persistence is required? This course focuses on developing the critical thinking and problem solving required to answer such questions, preparing participants to meet the challenge of successfully applying EW in the modern battle space.

Course Outline

- The EA Triangle
 - A System of Systems Approach
 - Applying Critical Thinking and Problem Solving to the Target Set
- Integrated Defense Systems
 - Assessing critical nodes
 - Countering integration
- Team Exercise One: Building an Integrated Air Defense System (IADS)
- Team Exercise Two: Counter IADS Mission
- Team Exercise Three: Irregular Warfare Mission

EW 105: Unmanned Aerial Systems (UAS) - Capabilities and EW Potential

Classification: Secret

Dates: TBD (2 days)

Instructor: Dr. Pat Ford

Location: Onsite Customer Facility

Course Description:

It is estimated that the UAS industry has the potential to bring upwards of 90 billion dollars into the economy over the next 15 years, while improving operations in such diverse areas of support as ISR, radio-relay, search and rescue (SAR), border patrol, law enforcement, and, of course, EW. This course provides attendees with a strong foundation in UAS, from basic classes and capabilities through the current testing approval process. Whether new to UAS, an EW payload or mission planning manufacturer wanting to better understand how your products could be applied to the UAS industry, or a project/program manager or sponsor wanting a broader understanding of this expanding aerospace arena, this course is the right course for you.

Course Outline

- UAS Classes and Missions
- Stability and Control
- Propulsion Systems
- Air Vehicle and Payload Control Methods/Systems
- Data Links/Command and Control (C2)
- Mission Planning
- Launch and Recovery
- Commercial Payloads
- Geometry Advantages/Disadvantages
- EW Systems Engineering Constraints
- EW Tactical Capabilities and Potential
- Sense and Avoid (SAA) Technologies
- UAS Manufacturers/Products
- Public Awareness/Privacy Issues

