

# TEST SYSTEMS, Inc.

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## MIL-STD-1553 SEMINAR • 3-DAY FORMAT

### FIRST DAY (Morning Lecture 8:00 am to 12:00 noon)

#### **I. Introduction to Multiplexing & MIL-STD-1553**

Integration and multiplexing, evolution and history of MIL-STD-1553, applications of MIL-STD-1553, overview of MIL-STD-1553.

#### **II. MIL-STD-1553: Definitions, Encoding & Formats**

Definitions of basic 1553 terms, data bus operation, data encoding, word sync, word formats, message formats, intermessage gap, response time.

#### **AFTERNOON LAB SESSION 1 ( 1 hour )\***

Decoding Manchester encoded words and identifying message formats.

### SECOND DAY (Morning Lecture 8:00 am to 12:00 noon)

#### **III. MIL-STD-1553: Protocol**

Command word, mode codes, mode command formats, data word, status word, message error bit.

#### **IV. MIL-STD-1553: Terminal Operation**

Common operation, Bus Controller operation, Remote Terminal operation, Bus Monitor operation.

#### **V. MIL-STD-1553: Hardware Characteristics**

Data bus cable, data bus coupling, terminal input/output characteristics, redundant data bus requirements.

#### **VI. Hardware Design**

Terminal design-functional elements, Bus Controller/Remote Terminal/Bus Monitor requirements, data bus network considerations, overview of available vendor products.

#### **AFTERNOON LAB SESSION 2 ( 1 hour )\***

Practice in trouble-shooting Remote Terminal problems.

### THIRD DAY (Lecture 8:00 am to 4:00 pm)

#### **VII. System Design**

Data bus topology (single & multiple levels), data bus control, partitioning & redundancy, bus loading.

#### **VIII. Software Design**

Bus Controller/Remote Terminal/Bus Monitor S/W, data transfer, data grouping, system control & requirements, errors & failures, message headers, message sequences, synchronous message timing.

#### **IX. Philosophy of Testing & Phases of Testing**

Evaluation of testing, development tests, design verification, production tests, system tests, field testing, system self-test.

#### *Lunch*

#### **X. Test Requirements**

Electrical interface, noise rejection, Remote Terminal protocol, Bus Controllers, Bus Monitors, system.

#### **XI. Test Equipment: Requirements & Overview**

Test equipment functional requirements, common interface requirements, Remote Terminal tester, Bus Controller tester, Bus Monitor, bus activity simulator, overview of available test equipment.

\* The class will be divided into groups. Each group will have a 1 hour Lab Session in the afternoon.

Group 1: 12 noon to 1 pm; Group 2: 1 pm to 2 pm; Group 3: 2 pm to 3 pm; Group 4 (if required): 3 pm to 4 pm.

**Supporting MIL-STD-1553 since 1979**