



Westinghouse Digital EHC System

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This five-day course gives students a working knowledge of Digital Electro-Hydraulic Control Systems. The course allows students to become comfortable with its operation by analyzing the system on both a block diagram and circuit card level. The course emphasizes a “nuts and bolts” approach to the DEH system that will greatly enhance the abilities of maintenance and supervisory personnel to perform their jobs.

I. Introduction to DEH

- Overall System Operation
- DEH Application Programs
- Manual Backup Control System

II. Fluid System

- E-H Fluid System
- Lubricating Oil and Auto-Stop Oil System
- Control Function and Interlocks

III. Analog System

- Manual DEH Control
- 7300 Series Relay (NRC) Card
- 7300 Series Digital Input Converter (NDI)
- 7300 Series Programmable Driver (NPD) Card
- 7300 Series Input (NCI) Card
- 7300 Series Servo Driver (NSD) Card
- 7300 Series Analog Comparator (NAC) Card
- 7300 Series Analog Mixing Amplifier (NMA) Card
- 7300 Series Quad-Loop Power Supply (NQP) Card
- 7300 Series Elco Adapter (NEA) Card
- 7300 Series Contact Output (NCO) Card
- 7300 Series Annunciator Interface

(NAI) Card

- Throttle Valve Control
- Governor Valve Control
- Throttle Pressure Control
- Throttle Valve Servo Amplifiers
- Throttle Valve Additive Position
- Position Characterizer
- Governor Valve Servo Amplifiers
- Governor Valve Additive Position
- Overspeed Protection Control (OPC)
- Load Drop Anticipation (LDA)

IV. Computer Basics

- Introduction to Logic
- Memories
- Basic Computer

V. Automatic Control

- Central Processor Unit
- Process I/O System
- External Interrupt Subsystem
- Contact-Closure Input (CCI) Subsystem
- Analog Input (AI) Subsystem
- Digital Speed Channel Subsystem
- Analog Output Subsystem
- Contact-Closure Output Subsystem
- Data Link Subsystem
- Breaker Open Interrupt Program

- Valve Pushbutton Interrupt Program
- Remote Attention Interrupt Program
- Auxiliary Synchronizer Task
- Stop Initialize Subroutine
- System Error Task
- Contact Input Scan Task
- DEH Control Analog Input Scan Task
- Analog Input Conversion Task
- Operator's Panel "B" Task
- Valve Pushbutton Task
- Visual Display Task
- Logic Task
- Control Task
- Valve Management (VM) Program
- Tracking Subroutine
- Preset Subroutine
- Control Output Task
- Data Link Programs
- ATC Programs
- ATC Message Writer Task
- CRT Programs
- Logout Task

VI. Digital System Equipment

- External Interrupt Subsystem
- Input and Output Subsystems
- Q Line Centralized I/O Subsystem
- External Interrupt/Service Request (EE) Card
- Isolated Interrupt Filter (XIF) Card
- Sequencer of Event Interrupt (XIS) Card
- 16 Bit DC Input (SCI) Card
- Single-Point Analog-to-Digital Converter (SPA)
- Isolated Digital/Analog Hybrid (XHC) Card
- 7300 Series Speed Channel (NSP) Card
- Contact Output (XCO) Card
- Resettable Contact Output (XCZ) Card
- Direct Digital Output (DDO) Card
- Digital/Analog Controller (DAC) Card

- Process Output Driver (IPO) Card
- Analog Input Point (QAV) Card
- Analog High Level Input Point (QAW) Card
- RT Input Amplifier (QRT) Card
- Universal Input/Output Bus (UIOB)
- Bus Extender (QBE) Card
- Crate Paddle (QPD) Card
- Time Base (QTB) Card
- W2500 Input/Output (W10) Card
- Asynchronous Half Duplex Series Interface (WHD) Card
- Paper Tape Reader (PTR) Card
- Teletype Beehive Board (TTB and TTY)

VII. W2500 Computer

- Function
- Basic Operation
- Interconnections