

Course Outline

Course Outline

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| 1. Introduction
Welcome
Sequence of Instruction
SD Patents
Published Papers
Why do we need more than one drive?
Definition of Terms | Monday Morning |
| 2. MIMO Appreciation
Lab Pictures
Difficulties Related to the Physical World
Geometric Distortion
“Stick-Slip” Distortion
Transducer Placement | Monday Morning |
| 3. Concepts and Ideas
Noise Generators
Coherence
Probability Density Functions (Vector Position)
Singularity
Impedance | Monday Morning |
| 4. Introduction to Matrix Mathematics
Complex Conjugate
Matrix Definition
Matrix Multiplication
Matrix Transpose
Learning Aids | Monday Morning |
| 5. Introduction to Jaguar Multi-Shaker Testing
The Jaguar System
General Multi Shaker testing
Spectral Density Matrix | Monday Afternoon |
| 6. Tube Lab | Monday Afternoon
Tuesday Morning |

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| 7. Matrix Mathematics
Decomposition
Determinate of a Matrix
Matrix Inverse
Singular Matrix
Pseudo Inverse of a Singular Matrix | Tuesday Afternoon |
| 8. Jaguar Multi-Shaker Testing
Impedance Matrix
Positive Definite
Square Control
Rectangular Control
Hybrid Control
Input/Output Transformations
System Identification
Closed Loop Control vs. Adaptive Control
Multi-Variable Control
Drive Signal Generation | Tuesday Afternoon |
| 9. Case Studies
Torsion Rejection | Wednesday Morning |
| 10. Plate Lab | Wednesday Morning
Wednesday Afternoon |
| 11. Trouble Shooting and Fixing
Checklist Before Running a MIMO Test
Checklist During a MIMO Test
Operator Adjustments
Displays are talking to you | Thursday Morning |
| 12. MIMO Applications
Identification
Random
Sine
Shock
Replication
Generator | Thursday Morning |

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13. **3-Dimension Fixture Lab**

**Thursday Afternoon
Friday Morning**

14. **Summary and Conclusions**

Friday Afternoon