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| **Before MIDS** |
| **Week#** | **Topic** | **Topic#** | **Resource** |
| 1 | **Chap#2 Measurement Errors**Design ProblemsAssignment 1Quiz 1 | 2.1 Gross errors & systematic errors2.2 Absolute errors & Relative errors2.3 Accuracy, Precision, Resolution, and Significant Figures2.4 Measurement error combinations2.5 Basics of Statistical Analysis | **Text Book:** Electronic Instrumentation and Measurements by David A.Bell (second edition) |
| 2 | **Chap#3 Electromechanical Instruments**Design Problems[Assignment 1](https://drive.google.com/open?id=1op3AMDGJZxpv8kjexItmnSqva0B5SpPG)Quiz 1 | Introduction 3.1 Permanent-Magnet Moving-Coil Instrument3.1.1 Deflection Instrument Fundamentals3.1.2 PMMC Construction3.1.3 Torque Equation and Scale | **Text Book:** Electronic Instrumentation and Measurements by David A.Bell (second edition) |
| 3 | **Chap#3 Electromechanical Instruments**Design ProblemsAssignment 1Quiz 1 | 3.2 Galvanometer3.3 DC Ammeter3.3.1 Ammeter Circuit3.3.2 Ammeter Scale3.3.3 Shunt Resistance3.3.4 Swamping Resistance3.3.5 Multirange Ammeters | **Text Book:** Electronic Instrumentation and Measurements by David A.Bell (second edition) |
| 4 | **Chap#3****Electromechanical Instruments**Design ProblemsAssignment 1Quiz 1 | 3.4 DC Voltmeter3.4.1Voltmeter Circuit3.4.2 Swamping Resistance3.4.3 Voltmeter Sensitivity3.4.4Multi-range Voltmeter3.5 Rectifier Voltmeter3.5.1 PMMC instrument on AC3.5.2 Full wave rectifier voltmeter3.5.3 Half wave rectifier voltmeter | **Text Book:** Electronic Instrumentation and Measurements by David A.Bell (second edition) |
| 5 | **Chap#3****Electromechanical Instruments**Design ProblemsAssignment 1Quiz 1 | 3.6 Rectifier Ammeter3.8 Series Ohmmeter3.9 Shunt Ohmmeter | **Text Book:** Electronic Instrumentation and Measurements by David A.Bell (second edition) |
| 6 | **Chap#3****Electromechanical Instruments**Design ProblemsAssignment 1Quiz 1 | * 1. Electrodynamic Wattmeter

Design problems | **Text Book:** Electronic Instrumentation and Measurements by David A.Bell (second edition) |
| 7 | **Chap#4 Analog Electronic Volt-Ohm-Milliammters**Design Problems[Assignment 2](https://drive.google.com/open?id=1op3AMDGJZxpv8kjexItmnSqva0B5SpPG)Quiz 2 | Introduction 4.2 Operational Amplifier Voltmeter circuits4.3 Ohmmeter Function In Electronic Instruments4.4 AC Electronic Voltmeters | **Text Book:** Electronic Instrumentation and Measurements by David A.Bell (second edition) |
| 8 | **Chap#4 Analog Electronic Volt-Ohm-Milliammters**Design ProblemsAssignment 2Quiz 2 | 4.5 Current Measurement with Electronic Instruments4.7 Multimeter Probes | **Text Book:** Electronic Instrumentation and Measurements by David A.Bell (second edition) |

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| **After MIDS** |
| **Week #** | **Topic** | **Topic#** | **Resource** |
| 9 | **Chap#10; Transducers**Design Problems[Assignment#3](https://drive.google.com/open?id=1pQYwEznpDp-ZKjdqiTyt5Rqqd8rXXtAU) | 10.1:Instructional Objectives10.2: Introduction10.3 Selection Criteria10.4 Resistance-changing Transducers10.5 self-Generating Transducers10.6 Electromagnetic Flow meter10.7 Inductive Transducer10.8 Capacitive Transducer10.9 Phototransistors & photodiodes | **Text Book:** Electronic Instrumentation and Measurements by David A.Bell (1st edition)**Assignment:** Internet resource  |
| 10 | **Chap#5; Digital Instrument Basics**Design Problems[Assignment#4](https://drive.google.com/open?id=1PSD_nxBWLHHN9ZXWZOIH5OrvmQJVda4l) | 5.1 Basic Logic gates5.2 Flip-Flops5.3 Digital Displays5.4 Digital Counting5.5 Analog-to-Digital Converter5.6 Digital-to-Analog Converter | **Text Book:** Electronic Instrumentation and Measurements by David A.Bell (second edition) |
| 11 | **Chap#6; Digital Voltmeters and Frequency Meters**Reading assignment + Viva voice+ Design Problems | 6.1 Digital Voltmeter Systems6.1.1 Ramp-type Digital Voltmeter6.1.2 Dual Slope Integrator DVM6.1.3 Range Changing6.2 Digital Multimeters6.2.1 Basic Hand Held Digital Multimeter6.2.2 High Performance Hand held DMMs6.2.3 Bench type DMM6.2.4 Comparison of Digital and Analog Multimeter6.3 Digital Frequency Meter System6.3.1 Basic Frequency Meter6.3.2 Range changing6.4 Frequency Meter Accuracy6.4.1 Range Selection error6.4.2 Accuracy Specification6.5 Time and ratio measurements6.5.1 Pulse time measurement 6.5.2 Frequency Ratio measurement6.6 Counter Input stage | **Text Book:** Electronic Instrumentation and Measurements by David A.Bell (second edition) |
| 12 | **Chap#7; Low, High and Precise Resistance Measurements**Design Problems | IntroductionMedium range resistance measurement7.1 Voltmeter and Ammeter Methods7.2 Substitution Methods7.3 Wheatstone Bridge7.4 Low Resistance Measurement( Kelvin Bridge Method) | **Text Book:** Electronic Instrumentation and Measurements by David A.Bell (second edition) |
| 13 | **Chap#7; Low, High and Precise Resistance Measurements****Chap#8; Inductance and capacitance measurements**Design Problems | 7.6 High-resistance measurement7.6.1 Voltmeter and Ammeter Method7.6.2 Guard wire and guard Ring 7.6.3 Wheatstone Bridge Measurement of High Resistance7.7 High Resistance Measuring Instrument 7.7.1 Hand-cracked Megaohmmeter8.1 RC and RL equivalent ciruits8.2 AC Bridge Theory8.4.2 Maxwell Bridge | **Text Book:** Electronic Instrumentation and Measurements by David A.Bell (second edition) |
| 14 | **Chap#8; Inductance and capacitance measurements**Design Problems | 8.4 Inductance bridges8.4.1 Inductance comparison bridge8.4.3 Hay bridgeOwen’s Bridge | **Text Book:** Electronic Instrumentation and Measurements by David A.Bell (second edition) **Owen's bridge:** Internet Resource |
| 15 | **Chap#8; Inductance and capacitance measurements**Design Problems | 8.3 Capacitance Bridges8.3.1 Simple capacitance bridge8.3.2 Series resistance bridge8.3.3Parallel resistance bridgeWein Bridge(Measurement of Frequency)8.9 Q-meter 8.9.1 Q-meter operation8.9.2 Q-meter controls8.9.3 Residuals8.9.4 Commercial Q meter8.9.5 Measuring proceduresData Acquisition System | **Text Book:** Electronic Instrumentation and Measurements by David A.Bell (second edition)**Data acquisition system:** Internet Resource |
| 16 | **Chap#9; Cathode-Ray Oscilloscopes****Chap#10 Special Oscilloscope****Chap#11 Signal Generator** Design problems | 9.1 Cathode ray tube9.2 Deflection Amplifiers9.3 waveform Display9.4 Oscilloscope Time Base9.5 Dual trace oscilloscope9.6 Oscilloscope trace9.7 Measurement of voltage, frequency and phase9.8 Pulse measurement9.9 Oscilloscope Probes9.10 Display of Device characteristics9.11 X-Y and Z Displays9.12 Oscilloscope specifications and performance10.4 Digital Storage Oscilloscope11.1 Low-Frequency Signal generator11.2 Function Generators11.3 Pulse Generators11.4 RF Signal Generators11.5 Sweep Frequency Generators | **Text Book:** Electronic Instrumentation and Measurements by David A.Bell (second edition) |