Physics by fiziks

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Study Plan of Electronics and Experimental Methods for Pre-recorded Batches

(For NET-JRF, GATE, JEST, TIFR Aspirant and M.Sc Students)

Days	Enter Your Dates	Topics
		PART-A: Semiconductor Physics
Day:1		Lecture 1: Introduction to Semiconductor Physics
		Lecture 2: Semiconductor Physics-Direct and Indirect Band Gap
Day:2		Lecture 3: Electron and Hole Concentration in Intrinsic Semiconductor
		Lecture 4: Donor Levels in Extrinsic Semiconductor
Day:3		Lecture 5: Fermi Level in n-type Semiconductor
		Lecture 6: Conducivity of Extrinsic Semiconductor
Day: 4		Lecture 7: Problem Discussion of Semiconductor Physics
Day: 5		**Solve Assignment : Semiconductor Physics (Lect-1 to Lect-7)**
Day: 6		**Revision**
Day: 7		**Class Test: Semiconductor Physics (Lect-1 to Lect-7)**
		PART-B: Electronics
Day: 8		Lecture 1: Introduction of Electronics and Experimental Methods
		Lecture 2: KVL-KCL Part -1
Day: 9		Lecture 3: KVL-KCL Part-2
		Lecture 4: Superposition Theorem
Day: 10		Lecture 5: Thevenins Theorem
		Lecture 6: Nortons Theorem
Day: 11		Lecture 7: Maximum Power Transfer Theorem
		Lecture 8: Miscellaneous Example on Network Analysis and Wheatstone Bridge
		Solve Assignment No. 1: Lect-1 to Lect-8
Day: 12		Lecture 9: Drift and Diffusion Current in Semiconductor
		Lecture 10: pn Junction at Equilibrium Condition
Day: 13		**Revision and Practice**
Day: 14		**Class Test 1: Lect-1 to Lect-8**
Day: 15		Lecture 11: Biased pn Junction Diode
		Lecture 12: DC Analysis of pn Junction Diode
Day: 16		Lecture 13: Rectifier Circuit
		Lecture 14: Series Clipper Circuit
		Solve Assignment No. 2: Lect-9 to Lect-13
Day: 17		Lecture 15: Parallel Clipper Circuit
		Lecture 16: Clamper Circuit
Day: 18		Lecture 17: Peak Detector and Voltage Doubler Circuit
		Lecture 18: Zener Diode Applications Part-1
Day: 19		Lecture 19: Zener Diode Applications Part-2
		Solve Assignment No. 3: Lect-14 to Lect-19
Day: 20		**Revision and Practice**
Day: 21		**Class Test 2: PN Junction diode (Lect- 9 to Lect-19)**
Day: 22		Lecture 20: Basics of Transitor
		Lecture 21: DC Biasing of Transistor Part-1 (Fixed Bias)
Day: 23		Lecture 22: DC Biasing of Transistor Part-2 (Emitter Stablished)
		Lecture 23: DC Biasing of Transistor Part-3 (Voltage Divider)

Day: 24		Lecture 24: Miscellaneous Example on DC Biasing
		Lecture 25: Biasing Stablisation of Q-point
		Solve Assignment No. 4 (Lect-20 to Lect-25)
Day: 25		Lecture 26: AC Analysis of CE Transistor-Part-1
		Lecture 27: AC Analysis of CE Transistor Part-2
Day: 26		Lecture 28: AC Analysis of CE Transistor Part-3
		Lecture 29: Miscellaneous Example on AC Analysis
		Solve Assignment No. 5: (Lect-26 to Lect-29)
Day: 27		**Revision and Practice**
Day: 28		**Class Test 3: Transistor (Lect-20 to Lect-29)**
Day: 29		Lecture 30: Basics of OP-AMP
		Lecture 31: Non Inverting OP-AMP with Feedback
Day: 30		Lecture 32: Inverting and differential mode with Feedback
		Lecture 33: Summing, Scaling, Averaging Amplifier (OP-AMP)
Day: 31		Lecture 34: Integrator Circuit (OP-AMP)
		Lecture 35: Differentiator Circuit (OP-AMP)
Day: 32		Lecture 36: OP-AMP Circuit with Diode
		Lecture 37: Filter Circuit (OP-AMP)
		Solve Assignment No. 6: Lect-30 to Lect-36
Day: 33		Lecture 38: Oscillator Circuit (OP-AMP)
		Lecture 39: Comparator and Voltage Limiter (OP-AMP)
		Solve Assignment No. 7: Lect-37 to Lect-39
Day: 34		**Revision and Practice**
Day: 35		**Class Test 4: OP-AMP (Lect-30 to Lect-39)**
Day: 36		Lecture 40: Number System (Digital Electronics)
		Lecture 41: Representation of Signed Binary Numbers (Digital Electronics)
Day: 37		Lecture 42: Binary Addition and Subtraction (Digital Electronics)
		Lecture 43: Basic Rules of Boolean Algebra (Digital Electronics)
Day: 38		Lecture 44: Cannonical form of Boolean Function (Digital Electronics)
		Lecture 45: Karnaugh Map (Digital Electronics)
Day: 39		Lecture 46: Basic Gates and Their Implementation (Digital Electronics)
		Lecture 47: Combinational Circuit (Digital Electronics)
Day: 40		Lecture 48: Miscellaneous Example on Combinational Circuit (Digital Electronics)
		Solve Assignment No. 8: Lect-40 to Lect-48
Day: 41		**Revision and Practice**
Day: 42		**Class Test 5: Digital Electronics (Lect-40 to Lect-48)**
Day: 43		Lecture 49: Decoder, Demux, Encoder and MUX (Digital Electronics)
		Lecture 50: Latches & Edge Trigger Flip Flop (Digital Electronics)
Day: 44		Lecture 51: Master Slave Flip Flop (Digital Electronics)
		Lecture 52: Asynchronous and Synchronous Counter (Digital Electronics)
Day: 45		Lecture 53: Shift Register (Digital Electronics)
		Lecture 54: Analysis of Clock Sequential Circuit (Digital Electronics)
Day: 46		Lecture 55: D/A and A/D Converter Part-1 (Digital Electronics)
		Lecture 56: D/A and A/D Converter Part-2 (Digital Electronics)
Day: 47		**Solve Assignment No. 9: Lect-49 to Lect-56**
Day: 48		**Class Test 6: Digital Electronics (Lect-49 to Lect-56)**
PART-C: Experimental Technique		
Day: 49		Lecture 57: Concept of Errors, Precision and Accuracy in Measurements (Experimental Methods)
		Lecture 58: Root Mean Squared Error and Significant Digits (Experimental Methods)
Day: 50		Lecture 59: Data Characterisation and Standard Deviation (Experimental Methods)
		Lecture 60: Error Propagation Part-1 (Experimental Methods)
Day: 51		Lecture 61: Error Propagation Part-2 (Experimental Methods)
		Lecture 62: Least Squared Fit (Experimental Methods)
		Solve Assignment No. 10: Lect-57 to Lect-62
Day: 52		**Class Test 7: Experimental Methods (Lect-57 to Lect-62)**