

AVE-2122 LABORATORY

THE LIST OF REQUIRED MATERIALS

- Breadboard
- Multimeter
- Jumper cable wire kit or 2 m single-core cable (0.5 mm) or M-M/M-F jumpers
- At least 2 crocodile cables
- The required circuit components are given in a table below:

Resistor	Quantity	Resistor	Quantity	Capacitor	Quantity
50 Ω	1	10 kΩ	1	1 nF	1
100 Ω (0.25W)	1	12k Ω	1	0.1 uF	2
220 Ω	1	33 kΩ	1	1 uF	3
270 Ω	1	56 kΩ	1	2 uF	1
330 Ω	1	82 kΩ	1	10 uF	3
480 Ω	1	100 kΩ	1	33 uF	1
680 Ω	1	360 kΩ	1	100 uF (1x25V)	3
1 kΩ (0.25W)	1	1 MΩ	1	200 uF (25V)	1
1.1 kΩ	1	Potentiometer	Quantity	470 uF	1
1.5 kΩ (0.25W)	1	10 kΩ	2	Transistor	Quantity
2.2 kΩ	1	1 MΩ	1	BC237	1
3.3 kΩ	2	Diode	Quantity	BDY135	1
4.8 kΩ	1	1N4001	4	BS108	1
5.6 kΩ	1	10V zener diode	1	2N3904 or BC107	1
6.8 kΩ	2	Integrated C.	Quantity	2N3823	1
8.2 kΩ	1	IC 555	1		

- It is recommended to have some spare components. (**Especially for transistors because they may easily breakdown**)
- Some resistor and capacitor values may not be found easily. You may use several of these components to obtain required value. (For instance, 1uF+1uF=2uF or 1kΩ+100Ω=1.1kΩ)
- You may prefer equivalent components. (For instance, BDY137 or BDY139 are equivalent of BDY135. The difference is they can operate at higher voltage levels.)
- The material list is for each group.

The Required Materials for Each Experiment

- Cables, multi-meter, breadboard

Experiment 1: SQUARE WAVE OSCILLATOR WITH 555 INTEGRATED-1

- 1 x 555 square wave oscillator integrated
- 2 x 6.8 k Ω , 3.3 k Ω resistors
- 1 x 480 Ω , 1k Ω , 2.2k Ω , 4.8k Ω , 10 k Ω resistors
- 2 x 0.1 μ F capacitors

Experiment 2: SQUARE WAVE OSCILLATOR WITH 555 INTEGRATED-2

- 1 x potentiometer 1 M Ω
- 1 x 555 square wave oscillator integrated
- 1 x 2 μ F capacitor
- 2 x 1N4001 diodes

Experiment 3: HALF AND FULL WAVE RECTIFIERS

- 4 x 1N4149 or 1N4001 diodes
- 1 x 1k Ω , 100 Ω , 1.5k Ω resistance (0.25W)
- 1 x 100 μ F, 200 μ F capacitor (25V)

Experiment 4: TRANSISTOR CHARACTERISTICS

- Transistor: 1xBC 237
- Diode: 1x1N4001 or 1N4148
- Resistor: 1x1 k Ω , 1x33k Ω

Experiment 5: SERIES VOLTAGE REGULATOR

- 1 x NPN transistor BDY135
- 1 x zener diode 10V
- 2 x 10 k Ω potentiometers
- 1 x 50 Ω , 270 Ω resistors
- 1 x decade resistance box

Experiment 6: SINGLE STOREY AMPLIFIER, BJT EXPERIMENT

- 1 x 2N3904 or BC107 transistor
- 1 x 330 Ω , 680 Ω , 5.6k Ω , 10k Ω , 56k Ω , 100k Ω resistors
- 2 x 0.1 μ F, 1 μ F capacitors
- 3 x 10 μ F capacitors

Experiment 7: AMPLIFIER WITH JFET

- 1 x 2N3823 JFET
- 1 x 1.1k Ω , 2.2k Ω , 1M Ω resistors
- 1 x 33 μ F, 10 μ F capacitors

Experiment 8: CHARACTERISTICS OF MOSFET

- 1xBS108 N-Channel or equivalent. (Please take spare MOSFET in case of breakdown.)
- 1x1N4001 or 1N4148
- 1x1 k Ω ,

Experiment 9: Frequency Analysis of Bipolar Transistor Amplifiers

- 1x BC237 transistor
- 2x10 μ f, 1x470 μ f, 1x1nf,
- 1 x 8.2k Ω , 1k Ω , 3.3k Ω , 12k Ω , 82k Ω

Experiment 10: FREQUENCY RESPONSE OF MOS TRANSISTOR AMPLIFIERS

- 1x BS108 transistor or equivalent
- 3x1 μ f, 3x100 μ f.
- 1x220 Ω , 1x1k Ω , 1x10k Ω , 1x360k Ω , 1x1M Ω .