

Beginner Course:

1) Basic Component Introduction (Resistor, capacitor, transistor, mosfets, diodes, voltage regulators, relay, IC (opamp, 555 timer).....and so on)

- Resistors (types: LDR, flex, pot, different wattage, where to use?)
- Capacitor (types: electrolytic, mica and soon and their uses and purposes)
- Transistors (pnp, npn, how to use them)
- relay
- Mosfets
- voltage regulators
- 555 timer, opamp

2) Introduction to basics of actuators (motors)

- simple dc motor
- servo

3) Reading the component datasheets and Basic Simulations on proteus.

- Simulation and its advantages
- how to read datasheet and its importance

4) Practical implementations of components (bread boarding and matrix boarding)

- intro to breadboard and matrix board
- importance of bread boarding and matrix boarding

5) Simple circuit design on kicad (IR sensor)

- intro to kicad and its interface
- schematic, footprint, netlist and track routing
- steps to be taken to design the perfect circuit (track width, via)

6) Circuit fabrication and soldering techniques

- methods to be taken while fabricating circuit
- Soldering techniques

7) Introduction to basic sensors and modules (LDR, potentiometer, motor driver, bluetooth module, ultrasonic sensors, IR sensors)

8) Introduction to microcontrollers

*Arduino

- 1) Simple i/o (LED blinking)
- 2) ADC
- 3) LCD Interfacing
- 4) PWM (speed control of a motor)
- 5) UART
- 6) I2C
- 7) SPI