i.Electro

Event Structure

Phase 1:

There will be simple and straightforward multiple choice questions covering all the topics mentioned below. You don't need to have any exclusive hardware related knowledge to participate in this phase. You need to have knowledge of some basic components like resistors, inductors, capacitors, switches, diodes, etc. There is a list of all the topics from which questions may be asked.

Phase 2:

You will be given a real life based problem, most probably related to Digital logic. There may be a choice depending on the final arrangements and one Analog circuit may also be included. You have to design and present the solution in the form of a working hardware model. All the necessary hardware will be provided. Points will be given on the basis of design, hardware, efficiency and time taken.

Topics for the event:

1. Kirchhoff's Laws.
2. Superposition principle and Thevenin's Theorem.
3. Diode
    - I-V Characteristics.
    - Full Wave and Half Wave Rectifiers.
    - P-N Junctions, terminal characteristics and their regions of operation.
4. Response of RC and RL circuits.
5. Basics of Operational Amplifiers.
    - Voltage Gain
6. BJT Transistors
    - I-V characteristics
    - Modes of operation.
    - Applications of BJT Transistors.
7. Basic knowledge of resistors, capacitors, inductors, etc.
8. Number Systems.
9. Boolean algebra.
10. Logic Gates.
11. Combinational Logic.
12. Latches, Flip-Flops and Registers.