Concept Note
for
LED Art Workshop

Makerspace Workshop Code: ***MKE101***

Workshop Goal: To introduce basics of Electricity (Votage, Current, Power, Ohms Law and Series & Parallel combinations)

Workshop Dates: 13th to 14th Feb, 2020.
Timings: 10:30 Am to 5:00 Pm

Total number of Participants: 15 to 20 (Approx).
Standard: Mostly are 8th Graders.
School: Mostly are from Sir Sayyed English High School, Mankhurd.

Group Formation: Two/three participants will form a group.

Workshop Execution: This workshop is designed to encourage participants to play passionately with thier peers around few basic passive electronics components such as LED, buzzer, resistor, switches, wires, copper tape etc and also few basic active components and tools such as battery, multimeter etc for discovering their own concepts related to voltage, current, power, ohms law, series & parallel combination. On an application part (project) workshop also motivates participants to integrate the blinking of LED and buzzing of Buzzer to the Art form to be developed by them depends on their imagination and choices. So as an artifact they will be developing paper circuits.

The plan of execution of workshop for both days is given below:

Day One : 13th Feb, 2020 (Thrusday)

First Half (10:30 pm to 1:00 pm)

Brief intro to workshop and COOOL STEMGames.

Giving them all the passive and active components, Let them play around these components, do discussion with their peers and accessing resources such as Internet, seek mentors help, referring to books etc.

Lunch (1:00 pm to 2:00 pm)

Post Lunch (2:00 pm to 3:00 pm)

They will rejoin their ongoing work.

Causery Session(3:00 pm to 4:30 pm)

Each group will present their concept discoveries and do discourse with other groups and mentors.

Day Two : 14th Feb, 2020 (Friday)

First Half (10:30 pm to 1:00 pm)

Small introduction to paper circuits and Art.

Giving them access to color sketch pens, crayons, card sheets, paper etc and let them draw, craft their own imagination and integrate the leds, swithes, buzzer etc to them.

Lunch (1:00 pm to 2:00 pm)

Post Lunch (2:00 pm to 3:00 pm)

They will rejoin their ongoing work.

Causery Session(3:00 pm to 4:30 pm)

Each group will present their developments and do discourse with other groups and mentors.

Please Note participants are allowed to take their own build artifacts with them as an Inspirational token.

Materials to be played with:

- **Passive Components:** Resistors, LED, Buzzer, Switches, Wires, Copper tape.
- **Active Components:** 9v Battery and 3v Coin Cell.
- **Tools:** Multimeter, Scissor, Scale.

Research Question: To observe there learnings and Conceptual understanding of basics of Electricity by their own concept discoveries via playing in an open making environment.

Work to be done on mentor side:

- Video/Audio record the entire session.
- Trigger probing question to groups and record such episodes.
- Pitching them to pen down their own thoughts in the form of diagram, doodle, graph etc.
- Create profiles of group/individual and carefully observe their conversation, body language, material handling, sharings, seeking help etc. Maintian observational notes.
- Probe their design related decisions.
- Task/activity should made clear to participants.
- Keep set of diagnostic questions handy, so that these can be probed to check if they have understood the concepts.

Post Workshop Plan:

We can develop a concept inventory for the follow-up workshop after 2 weeks (tentitively on 28th Feb 2020) to check the learning is persistant.

During post workshop two weeks participants can also come to HBCSE Makerspace for exploring more on the same context.