**Development of Virtual lab :Round 2 (R2)-Storyboard - Template (Worksheet)**

|  |
| --- |
| **Name of Faculty:** **MR. ASHISH SRIVASTAV**  **Institute: REC BANDA**  **Email ID** (as submitted in the registration form)**:**): **iitrashish220@gmail.com**  **Discipline to which the Lab belongs: ELECTRICAL ENGINEERING**  **Name of the Lab: BASICS OF ELECTRICAL LAB**  **Name of experiment: TO MEASURE POWER FACTOR AND STUDY IMPROVEMENT OF POWER FACTOR.**  (only one Experiment per worksheet)**:**  **Kindly Refer these documents before filling the worksheet**   1. **Coursework (MOOC ) on Pedagogy , Storyboard , Lab Manual :** [**http://bit.ly/Vlabs-MOOC**](http://bit.ly/Vlabs-MOOC) 2. **Additional Documentation booklet for reference.** [**http://vlabs.iitb.ac.in/vlabs-dev/document.php**](http://vlabs.iitb.ac.in/vlabs-dev/document.php) 3. **Sample Git Repository. :** https://github.com/nancy2502/virtual-lab |

**Round 2**

1. **Story Outline:**

The experiment is based on how to calculate power factor and its improvement .To calculate power factor students will have to give the input values in the simulator and will get the output result. Results will be compared of all the cases.

**2. Story:**

**2.1 Set the Visual Stage Description:**

The visual stage simulator consists of the electrical circuit with all the equipments used to perform the experiment. It consists buttons to perform calculations and the labels to show results. Table are given to compare the results in both the cases and evaluate the result.

* 1. **Set User Objectives & Goals:**

1. The simulator is created so that students can learn the way they used to learn in real experimental lab.
2. Make students learn the effect of power factor and its improvement.

.

**2.3 Set Challenges and Questions/Complexity/Variations in Questions:**

1. basic knowledge of power factor, electrical circuits and connections is required.
2. Conclusion should be made by students on their on the basis of the experiments they performed.
3. Post assessment questions are based on the experiment so careful performance of experiment is mendatory.

* 1. **Allow pitfalls:**

1. Connections should be correct otherwise results will not be correct.

**2.5 Conclusion:**

We concluded that:

1. to consume the maximum power factor, the power factor

should be unity

1. power factor is improved when capacitors are connected parallel to the circuit.

**2.6 Equations/formulas:**

Formulas used are:

P = I2R

P = V I cos Φ

Q = V I sin Φ

S = √P2 + Q2

Power factor = P/S