**ASSESSMENT RUBRICS LAB # 8**

**Mesh Current Analysis using PSPICE**

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| **LAB REPORT ASSESSMENT** | | | | |
| **Criteria** | **Excellent** | **Average** | **Nill** | **Marks Obtained** |
| 1. **Objectives of Lab** | All objectives of lab are properly covered  [Marks 0.5] | Objectives of lab are partially covered  [Marks 0.25] | Objectives of lab are not shown  [Marks 0] |  |
| 1. **Mesh Current Analysis**   **(Theory, Circuit Diagram )** | Brief introduction about Mesh Current Analysis (what is Mesh current analysis, What are meshes, How to apply KVL equations in each mesh) is shown along with properly labeled circuit diagram  [Marks 1] | Some of the points about Mesh Current Analysis are missing and circuit diagram is not properly labeled  [Marks 0.5] | Introduction about Mesh Current Analysis and circuit diagram is not shown  [Marks 0] |  |
| 1. **PSPICE**   **Simulator** | Brief introduction of PSPICE simulator  [Marks 1] | Brief introduction of PSPICE simulator  Is not shown  [Marks 0] | |  |
| 1. **Procedure** | All experimental steps are shown in detail along with how to verify Mesh Current Analysis.  [Marks 1.5] | Some of the experimental steps are missing  [Marks 1] | Experimental steps are missing  [Marks 0] |  |
| 1. **Observations & Calculations** | Mathematical calculations are shown and comparison with PSPICE results.  [Marks 5] | Mathematical calculations are shown but no comparison with PSPICE results  [Marks 2.5] | No mathematical calculations are shown  [Marks 0] |  |
| 1. **Conclusion** | Conclusion about experiment is shown  [Marks 1] | Conclusion about experiment is partially shown  [Marks 0.5] | Conclusion about experiment is not shown  [Marks 0] |  |
| Total Marks Obtained:\_\_\_\_\_\_\_\_\_\_  Instructor Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | | | |

**Lab#8: Mesh current analysis using PSPICE**

**Objective:**

* To learn how to find current at different mesh in a circuit by hand and also by PSPICE

**Mesh Current Analysis:**

**Mesh:**

A loop inside which there are no other loops is known as mesh.

**KVL:**

Mesh current analysis uses KVL to make equations and to find current. KVL is the abbreviation of Kirchhoff’s Law of Voltage which states that in any closed loop the voltage drops and the voltage rises are equal to each other, making their sum 0.

* So mesh current analysis is a way find current at different meshes of the circuit.

**PSPICE Simulator:**

PICE stands for Stimulated Program for Integrated Circuit Emphasis. It is a general-purpose analog circuit simulator and is used to verify circuit designs and also to predict the circuit behavior. PSPICE is the PC version of SPICE.

**Procedure:**

1. First we have to click on ‘get new parts’ button in PSPICE and place 10 resistors by typing ‘r‘ n the search bar, 2 voltage sources by typing ‘VDC’ and a ground by typing ‘gnd\_Earth’ in the following order and then connect them all by wire.
2. Values of the resistors at the bottom and the top parts of the circuit should be according to the registration number and other as it is.
3. Now we have click on the simulate button In PSPICE and also on ‘I’ button to show the current at the different branches.
4. At last we have to calculate all the four values of the current by Mesh Current Analysis by hand.