**CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENTS**



**Assignment 6**

Course Title: System Integration with Dymola

Course Code: CUTM1022 (0-0-2)

**Submitted to:**

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Semester: 4th Sem

Section: C

**Experiment No.: 6**

What happens when two diodes are connected with a resistor

**Requirements:**

OpenModelica software

**Procedure:**

Step 1: Open Openmodelica connection editor

Graphical user interface, application

Description automatically generated

Step 2: Click on New Modelica class, give a new Modelica class name, then click on ok

Graphical user interface, text, application

Description automatically generated

Step 3: Then this type of page will appear

A picture containing white, tub, bath

Description automatically generated

Step 4: Go to Modelica packages, then go to electrical, then analog, then basic, then drag resistor and ground to the modeling field , then choose the constant voltage from source packages.

 i connect the positive terminal of sineVoltage to the diode and positve terminal of resistor to the diode, the connect the negative terminal of sineVoltage to the ground and negative terminal of resistor to the ground.

Add some information of the modeling

Text, letter

Description automatically generatedDiagram

Description automatically generated

Step 5: After the completion of modeling then save the Modelica file into your pc as .mo extensions, after that go for simulation, when clicking on simulation then compilation occurs, graphical language changes into modelica language.

model Assignment\_6

Modelica.Electrical.Analog.Basic.Ground ground annotation(

Placement(visible = true, transformation(origin = {0, -58}, extent = {{-10, -10}, {10, 10}}, rotation = 0)));

Modelica.Electrical.Analog.Basic.Resistor resistor(R = 10) annotation(

Placement(visible = true, transformation(origin = {64, 2}, extent = {{-12, -12}, {12, 12}}, rotation = -90)));

Modelica.Electrical.Analog.Semiconductors.Diode diode annotation(

Placement(visible = true, transformation(origin = {2, 76}, extent = {{-10, -10}, {10, 10}}, rotation = 0)));

Modelica.Electrical.Analog.Semiconductors.Diode diode1 annotation(

Placement(visible = true, transformation(origin = {4, 50}, extent = {{-10, -10}, {10, 10}}, rotation = 180)));

Modelica.Electrical.Analog.Sources.SineVoltage sineVoltage(V = 100) annotation(

Placement(visible = true, transformation(origin = {-63, -1}, extent = {{-13, -13}, {13, 13}}, rotation = -90)));

equation

connect(diode.p, diode1.n) annotation(

Line(points = {{-8, 76}, {-24, 76}, {-24, 50}, {-6, 50}}, color = {0, 0, 255}));

connect(diode.n, diode1.p) annotation(

Line(points = {{12, 76}, {32, 76}, {32, 50}, {14, 50}}, color = {0, 0, 255}));

connect(sineVoltage.p, diode.p) annotation(

Line(points = {{-62, 12}, {-62, 76}, {-8, 76}}, color = {0, 0, 255}));

connect(sineVoltage.n, ground.p) annotation(

Line(points = {{-62, -14}, {-64, -14}, {-64, -48}, {0, -48}}, color = {0, 0, 255}));

connect(diode.n, resistor.p) annotation(

Line(points = {{12, 76}, {64, 76}, {64, 14}}, color = {0, 0, 255}));

connect(resistor.n, ground.p) annotation(

Line(points = {{64, -10}, {64, -48}, {0, -48}}, color = {0, 0, 255}));

annotation(

uses(Modelica(version = "4.0.0")),

Documentation(info = "<html><head></head><body><div>Requirement for this circuit</div><div>1 AC voltage (sineVoltage)</div><div>2. Resistor</div><div>3. Two diodes</div><div>4. Ground</div><div><br></div>In this Circuit diagram,<div>V=100V</div><div>R=10 ohm</div><div>First i connect the positive terminal of sineVoltage to the diode and positve terminal of resistor to the diode, the connect the negative terminal of sineVoltage to the ground and negative terminal of resistor to the ground. then check it, then go for simulation.</div><div><br></div><div>Theory</div><div><div>The current through both the diodes remain the same and is equal to the total current flowing in the circuit.</div><div>Hence the maximum current that a diode can withstand remains the same and does not change.</div><div>In other words, the current-carrying capacity of the diode does not change.</div></div><div><br></div><div>Diode D1 will be forward biased and diode d2 will be reversed biased.</div></body></html>"));

end Assignment\_6;

Text

Description automatically generated

Step 6:after the compilation it will show you a plotting area where you have to plot, as per your given data you have to simulate.

Chart, line chart

Description automatically generated