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SCHOOL of ENGINEERING

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

Year: 2022-2023 **Semester: 1st** **Section: 1st Sem** **Date: 23-02-2023**

Course Title: Fundamentals of Electrical & Electronics Engineering Lab.

Course Code: EEE1001

Type of Skill: Skill Development

Type of Session: Experiential Learning.

Type of Activity: Students were encouraged to perform and demonstrate the various experiments that are listed as per the course handout through experiential learning to develop the following skill sets in the laboratory:

1. An attitude of enquiry.
2. Confidence and ability to tackle new problems.
3. Ability to interpret events and results.
4. Ability to work as a leader and as a member of team.
5. Assess errors and eliminate them.
6. Write Reports.
7. Locate faults in systems.
8. The ability to follow standard test procedures.
9. To judge magnitudes without actual measurement.

Instructor in Charge: Mr. Bishakh Paul

Instructor for Section: Mr. Bishakh Paul.

Details about the activity: Performing and demonstrating the various experiments hands-on.

Details of the students involved in the activity: 1st Sem Students Students

Sl. No	Student Id No.	Name of the Student
1.	20221CIV0004	Harsha Vardhan
2.	20221CIV0009	Chinmay VM
3.	20221CIV0010	NAFEEZ FATHIMA
4.	20221CIV0011	RUCHITHA
5.	20221CIV0012	SANJANA N
6.	20221CIV0013	Tejas S
7.	20221CIV0014	AISHWARYA S HIREMATH
8.	20221CIV0015	Naveen Kotresh Shettar
9.	20221CIV0016	ABHAY
10.	20221CIV0017	Dinesh K
11.	20221CIV0018	SUNIL
12.	20221CIV0019	TUSHARA M

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13.	20221CIV0020	Milan Lal
14.	20221EEE0001	MANISH P RAI
15.	20221EEE0002	KEMILTEN R
16.	20221EEE0003	GAURI NISHAD
17.	20221EEE0004	PAVAN SIDRAM KOLAVI
18.	20221EEE0005	VARSHA
19.	20221EEE0006	GAUTHAM U KUMAR
20.	20221EEE0007	DEVAPRIYA GOVINDAN
21.	20221EEE0008	BHAVYA P C
22.	20221EEE0009	JOSHUA C BAIJU
23.	20221EEE0010	LEENA R
24.	20221EEE0011	MONISHA KIRAN M
25.	20221EEE0012	SHIVABASAVA DODDABASAPPANAVAR
26.	20221EEE0013	SHIVAKUMAR BUTTA
27.	20221EEE0014	UDAYARAM KARTHIK R
28.	20221EEE0015	LOKESH PUNYAKAR PATIL
29.	20221EEE0016	HARSHITHA K R
30.	20221EEE0017	HEMANTH S M
31.	20221EEE0018	JYOTHI R B
32.	20221EEE0019	KHALFAN KHAN
33.	20221EEE0020	MITHUN R
34.	20221EEE0021	SHREESHAIL
35.	20221EEE0022	PRAJWAL SHARMA
36.	20221EEE0023	R GEETHANJALI
37.	20221EEE0024	ABHINAYAK D B
38.	20221EEE0025	ABHISHEK V
39.	20221EEE0026	ANKUSH YADAV
40.	20221EEE0027	AKASH S S
41.	20221EEE0028	DILEEP B
42.	20221EEE0029	HARSHA VARDHAN
43.	20221EEE0030	MANASA TR
44.	20221EEE0031	MOHAMMAD KOUSER
45.	20221EEE0032	PANIRAM CHOUDARY
46.	20221EEE0033	RAAJ S
47.	20221EEE0034	ROHITH KUMAR B R
48.	20221EEE0035	SNEHA U
49.	20221EEE0036	THAMIL SELVAM M
50.	20221EEE0037	VIVEK N
51.	20221EEE0038	SIDDARTHA N S
52.	20221EEE0039	R KUNAL
53.	20221EEE0040	Yadhuraj R
54.	20221EEE0041	CHANDANA G A
55.	20221EEE0042	SUSHANTH H
56.	20221MEC0001	FAIZ HUSSAIN KHAN
57.	20221MEC0002	MUZZAMMIL KHAN MAAZ

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58.	20221MEC0003	AKSHAY K S
59.	20221MEC0004	AARON D SOUZA
60.	20221MEC0005	DHANUSH KRISHNA U
61.	20221MEC0006	MALLIKARJUN
62.	20221MEC0007	ROHAN GOWDA GC
63.	20221MEC0008	AKASH D
64.	20221MEC0009	GOPAL NARVA
65.	20221MEC0010	Y MAHESH TIRUMAL
66.	20221MEC0011	SUMAN MAITY
67.	20221MEC0012	GARIKAPATI PHANEENDRA
68.	20221MEC0013	UDAY KUMAR G
69.	20221MEC0014	H AKASH
70.	20221MEC0016	NUAMAN FAROOQ
71.	20221MEC0017	AFSHAN SHAHISTA
72.	20221MEC0018	ANANTH KUMAR
73.	20221MEC0019	PRANITH B
74.	20221MEC0020	SAMSON BOBBY KURIAN
75.	20221MEC0021	U VISHAL VIKRAM
76.	20221PET0009	ABDUL MUIZZ
77.	20221PET0010	ANUM HALEEMA ALI
78.	20221PET0011	AISHWARYA SATISH NAIK
79.	20221PET0012	SYED SAIFUDDIN
80.	20221PET0013	AL LATHIF
81.	20221PET0014	SAFWAN B
82.	20221PET0015	SHANTHA GS

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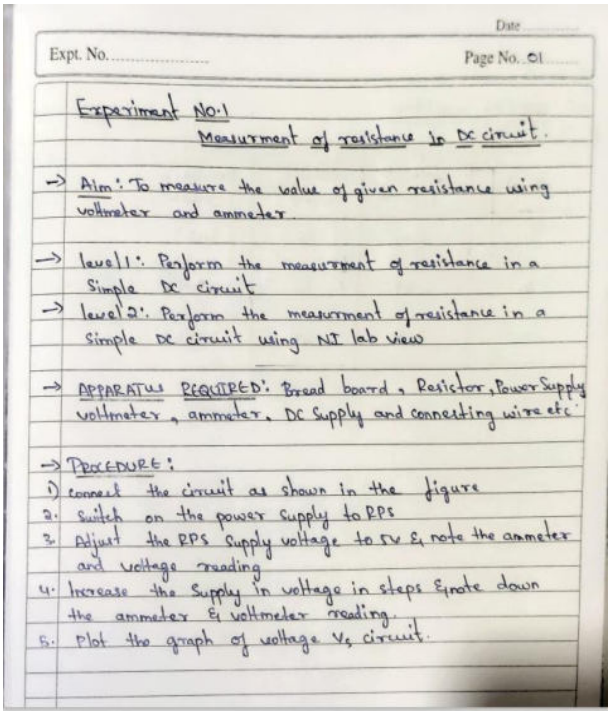
Sample Lab Record Screen shots of the activity.



Date

Expt. No. ..... Page No. 01

Experiment No.1

Measurment of resistance in DC circuit.

→ Aim: To measure the value of given resistance using voltmeter and ammeter.

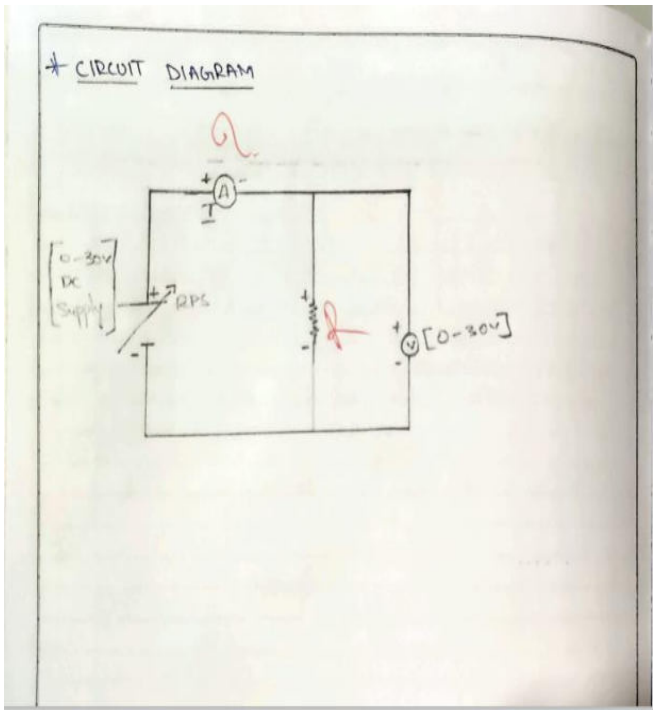
→ level 1: Perform the measurment of resistance in a simple DC circuit

→ level 2: Perform the measurment of resistance in a simple DC circuit using NI lab view

→ APPARATUS REQUIRED: Bread board, Resistor, Power Supply voltmeter, ammeter, DC Supply and connecting wire etc.

→ PROCEDURE:

1) connect the circuit as shown in the figure
2. Switch on the power supply to RPS
3. Adjust the RPS supply voltage to 5v & note the ammeter and voltage reading
4. Increase the Supply in voltage in steps & note down the ammeter & voltmeter reading.
5. Plot the graph of voltage Vs circuit.



→ TABULAR COLUMN

Sl.NO	current I in MA	voltage v in V	Resistance in Ω
1.	2.14	10	4.67
2.	4.28	20	4.67
3.	2.36	25	4.66

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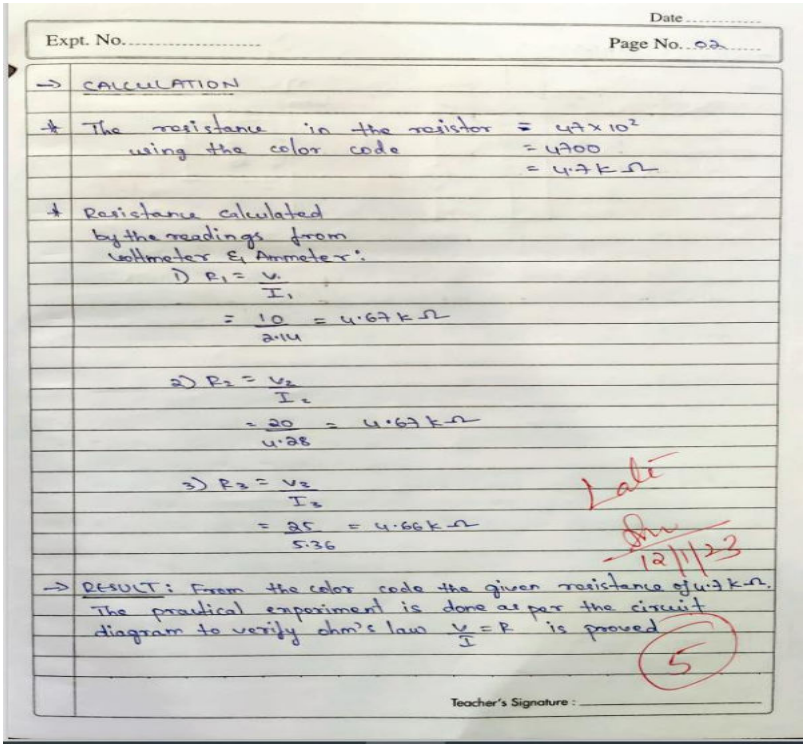

Date .....

Expt. No. ..... Page No. 02

→ CALCULATION

* The resistance in the resistor using the color code = 47×10^2
= 4700
= 4.7 kΩ

* Resistance calculated by the readings from voltmeter & Ammeter:

1) $R_1 = \frac{V_1}{I_1}$
$= \frac{10}{2.14} = 4.67\ k\Omega$

2) $R_2 = \frac{V_2}{I_2}$
$= \frac{20}{4.28} = 4.67\ k\Omega$

3) $R_3 = \frac{V_3}{I_3}$
$= \frac{25}{5.36} = 4.66\ k\Omega$

Late
12/11/23
5

→ RESULT: From the color code the given resistance of 4.7 kΩ. The practical experiment is done as per the circuit diagram to verify ohm's law $\frac{V}{I} = R$ is proved

Teacher's Signature : _____

Signature of Instructor.

Signature of Instructor In-Charge

Dr. V Joshi Manohar
Head of the Department
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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

Year: 2022-2023 **Semester: 3rd** **Section: 3-ISR-1** **Date: 14-9-2023**

Course Title: Control System for Robotic Applications Lab.

Course Code: EEE3052

Type of Skill: Skill Development

Type of Session: Experiential Learning.

Type of Activity: Students were encouraged to perform and demonstrate the various experiments that are listed as per the course handout through experiential learning to develop the following skill sets in the laboratory:

1. Drawing the circuit diagram
2. Selection of components
3. Rigging up of circuit
4. Conduction of experiment
5. Observing the waveforms
6. Computing the parameter
7. Writing the Inference

Instructor in Charge: Dr Jisha L K.

Instructors for Section: Dr Jisha L K, Mr. Ravi V Angadi

Details about the activity: Performing and demonstrating the various experiments hands-on.

Details of the students involved in the activity: 3ISR1 Students

List of students

Sl. No.	Student ID No	Name
1	20211ISR0001	SOURASHIS PAHARI
2	20211ISR0002	DILEEP R
3	20211ISR0004	SAMBAVI B
4	20211ISR0005	ALLEN SAJI
5	20211ISR0006	B HEMA
6	20211ISR0007	YARAVEDA SESHI REDDY
7	20211ISR0010	SHREYAS S

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9	20211ISR0014	DARSHAN S REDDY
10	20211ISR0015	SYED YUSUF HUSSAIN
11	20211ISR0017	P L THIYAGARAJAN
12	20211ISR0020	LIKITH N R
13	20211ISR0021	MONIKA. P .
14	20211ISR0023	NAGA NIKHITHA PEDDISETTY
15	20211ISR0024	TUSHAR SAGORE
16	20211ISR0025	BHARATH MANOHAR S
17	20211ISR0026	DARSHINI M
18	20211ISR0027	PENUKULAPATI DURGA MARUTHI VARA PRASAD
19	20211ISR0028	MERVYN CHRISTY J
20	20211ISR0031	CHANDANA V
21	20211ISR0032	NAISHHA E SHELKE
22	20211ISR0034	MADHUBALA S
23	20211ISR0036	SUSHEETH G
24	20211ISR0038	DISHA R
25	20211ISR0039	VIDYASHREE BN
26	20211ISR0040	TEJASHWINI BA .
27	20211ISR0041	PRAJWAL R NAIRY
28	20211ISR0042	ADITYA PATIL
29	20211ISR0043	HARIVATHSA S
30	20211ISR0044	M D SAILESH
31	20211ISR0045	B KRIPASHINI
32	20211ISR0046	K SRI HARI
33	20211ISR0047	RITISH N
34	20211ISR0048	M ABHISHEK
35	20211ISR0049	HEMANTH GOVINDA RAJ
36	20211ISR0051	HARSHITH GOWDA H.P
37	20211ISR0052	VIBHA D RAO
38	20211ISR0053	SNEHA N
39	20211ISR0054	BHAVANA A
40	20211ISR0055	SAI KUMAR G
41	20211ISR0056	AMULYA B
42	20211ISR0057	AKSHAY B
43	20211ISR0058	SUNIL KUMAR VB
44	20211ISR0059	AVINASH V P
45	20211ISR0060	KARTHIK M SWAMY

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47	20211ISR0065	S NAYMAAN KHAN
48	20211ISR0068	AISHWARYA C
49	20211ISR0070	MANOJ C ACHARYA
50	20211ISR0072	KISHOR C
51	20211ISR0073	DARSHAN S
52	20211ISR0074	VAISHNAVI .
53	20211ISR0076	JERA PRAKASH
55	20211ISR0078	BHAVANA B A
56	20211ISR0080	K .K AKSHAY
57	20211ISR0081	DEEKSHITH.M .
58	20211ISR0082	MITHALI S ANAND
59	20211ISR0083	PAVAN RAM A
60	20211ISR0084	LOKESH N
61	20211ISR0085	KRUTHIKA S
62	20211ISR0086	SARTHAK MISHRA .
63	20211ISR0088	SAI SUMANTH R
64	20211ISR0089	G SUPRITHA
65	20211ISR0090	MOHITH RAJ M
66	20211ISR0091	FAIZAN NIYAZUDDIN
67	20211ISR0092	LEKHANA M
68	20211ISR0093	MEGHANA .M

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Sample Lab Record Screen shots of the activity.

DC POSITION CONTROL SYSTEM

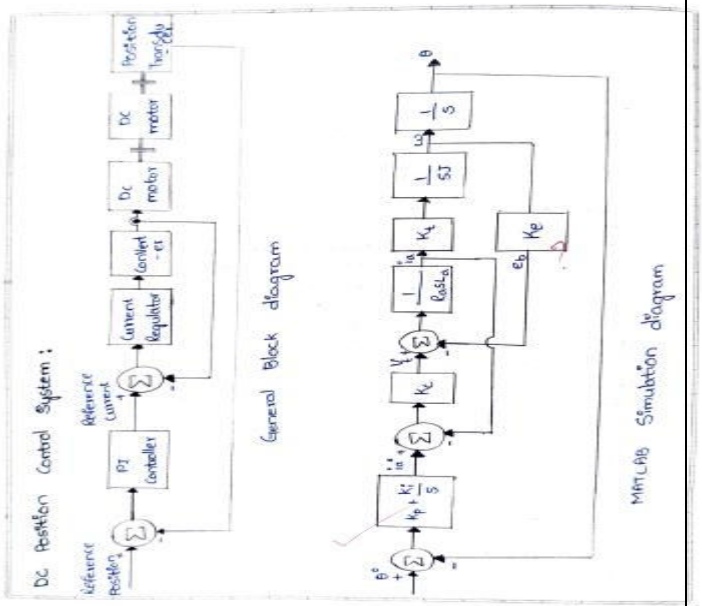
Aim: To simulate a DC position control system using MATLAB and obtain its step response.

Resources:
MATLAB Software

Procedure:

* open the Matlab and click on the Simulink in Matlab window
* Develop the complete block diagram of the given schematic diagram of position control mechanism using simulink.
* Click on the step input block and set final value as 1 and the parameters too.
* Click on transfer function block and set numerator value as 1 & denominator too.
* Click on gain block kp & enter the value as 5 similarly kc = 2, kt = 0.5 (S/J) = 125, ke = 0.5 & ki = 0.2
* connect & Saved the interconnected Block diagram.
* Click on Simulation tool bar, Start Simulation & Observe waveforms in the Scope.

Teacher's Signature :



Signature of Instructor:

Signature of Instructor In-Charge

Dr. V Joshi Manohar
Head of the Department
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SCHOOL of ENGINEERING

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

Year: 2022-2023 **Semester: 3rd** **Section: 3-EEE-1** **Date: 02-11-2022**

Course Title: Analog and Digital Electronics Laboratory.

Course Code: EEE2061

Type of Skill: Skill Development

Type of Session: Experiential Learning.

Type of Activity: Students were encouraged to perform and demonstrate the various experiments that are listed as per the course handout through experiential learning to develop the following skill sets in the laboratory:

1. An attitude of enquiry.
2. Confidence and ability to tackle new problems.
3. Ability to interpret events and results.
4. Ability to work as a leader and as a member of team.
5. Assess errors and eliminate them.
6. Observe and measure physical phenomenon.
7. Write Reports.
8. Select suitable equipment, instrument and materials.
9. Manipulative skills for setting and handling equipment.
10. The ability to follow standard test procedures.

Instructor in Charge: Mr. K Sreekanth Reddy

Instructor for Section: Mr. K Sreekanth Reddy

Details about the activity: Hands-on experience by performing and demonstrating the various experiments listed in the course handout.

Details of the students involved in the activity: 3EEE1 Students

Sl. No	Student Id No.	Name of the Student
1.	20211EAE0027	DUSHANTH B
2.	20211EEE0001	PENUGONDA CHARAN
3.	20211EEE0002	SHAIK AHAMMAD
4.	20211EEE0003	SUMAN
5.	20211EEE0004	YAMUNA M N
6.	20211EEE0005	HARIKRISHNA
7.	20211EEE0006	PIYUSH NISHAD

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10.	20211EEE0009	ANUSHA B
11.	20211EEE0010	SUPRITH D L
12.	20211EEE0011	NITHISH U
13.	20211EEE0012	VIDYA SHREE G N
14.	20211EEE0013	R V GANESH
15.	20211EEE0014	SINCHANA M
16.	20211EEE0015	BINDHU R C
17.	20211EEE0016	GAGAN SAI A S
18.	20211EEE0017	KAVYA N
19.	20211EEE0018	ROHAN R
20.	20211EEE0019	BHARATH H D
21.	20211EEE0020	RUDRAGOUDA K POLICE PATIL
22.	20211EEE0021	HARSHITHA B S
23.	20211EEE0023	MASROOR AHMED
24.	20211EEE0024	ANIRUDH S
25.	20211EEE0025	RATHISH HOMBALE N
26.	20211EEE0026	MOHAMMED AIMAN KHAN
27.	20211EEE0027	YASHWANTH KUMAR S
28.	20211EEE0028	ADARSH A
29.	20211EEE0029	CHETHAN S KATTI
30.	20211EEE0030	JATIN SHARMA
31.	20211EEE0031	TEJASHWINI ANNAPPAGOUDA PATIL
32.	20211EEE0032	MANTHU NANDHINI
33.	20211EEE0033	MOHAMMAD NABEEL ABBAS
34.	20211EEE0034	RAJANEESH B S
35.	20211EEE0035	V RAHUL BALAJIGA
36.	20211EEE0036	DEEPAK DANIEL F
37.	20211EEE0037	KHALEEL H TELSUNG
38.	20211EEE0038	HEMANT PANDIT
39.	20211EEE0039	AKASH K
40.	20211EEE0040	MOHAMED THABISH .
41.	20211EEE0041	NAYANI POORNACHANDAN ROYAL
42.	20211EEE0042	ABHISHEK BASAVARAJ HAMPANNAVAR
43.	20211EEE0043	RISHIKA R
44.	20211EEE0044	MOHAMMED ABRAR .
45.	20211EEE0046	BASIL BINU
46.	20211EEE0047	G KIRAN KUMAR

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48.	20211EEE0050	YASWANTH BUDURI
49.	20211EEE0051	MADIVADA HEMANTH
50.	20211EEE0052	YENNABOINA RAHUL
51.	20211EEE0053	KARRI GOWRI ESWAR
52.	20211EEE0055	SETTIPALLI SAINATH
53.	20211EEE0056	SHREYAS E
54.	20211EPE0002	SIRICHAPALA UDAY MALIK
55.	20221LEE0001	NANDYALA SIVA MANOJ REDDY
56.	20221LEE0002	CHINTHA MANJUNATH
57.	20221LEE0003	K TUNISH
58.	20221LEE0004	KUPPAM MANJUNATHA
59.	20221LEE0005	RITHIKA RAJ

Sample Lab Record Screen shots of the activity.

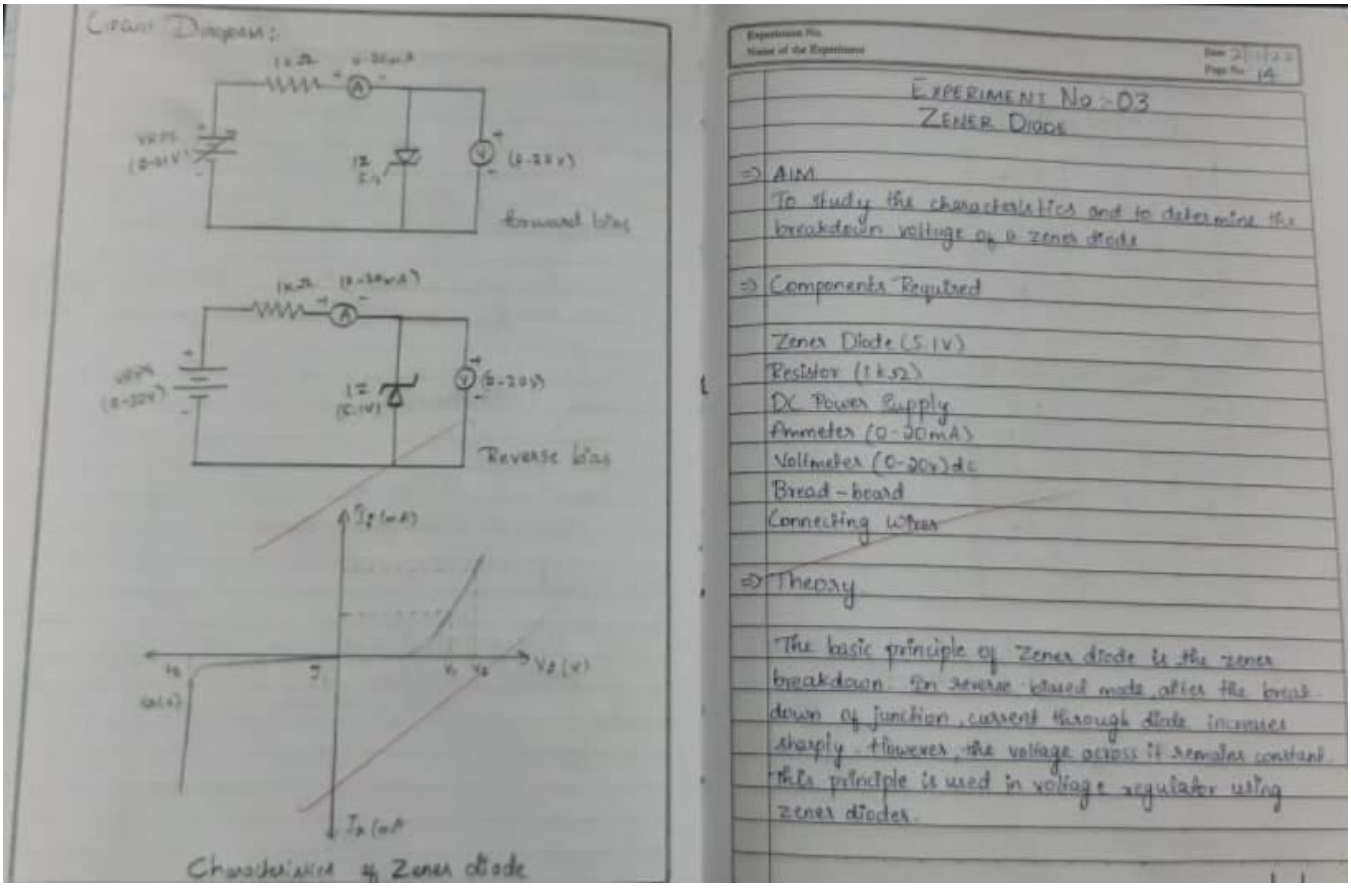

Figure 1. Screenshot of Zener Diode experiment lab record

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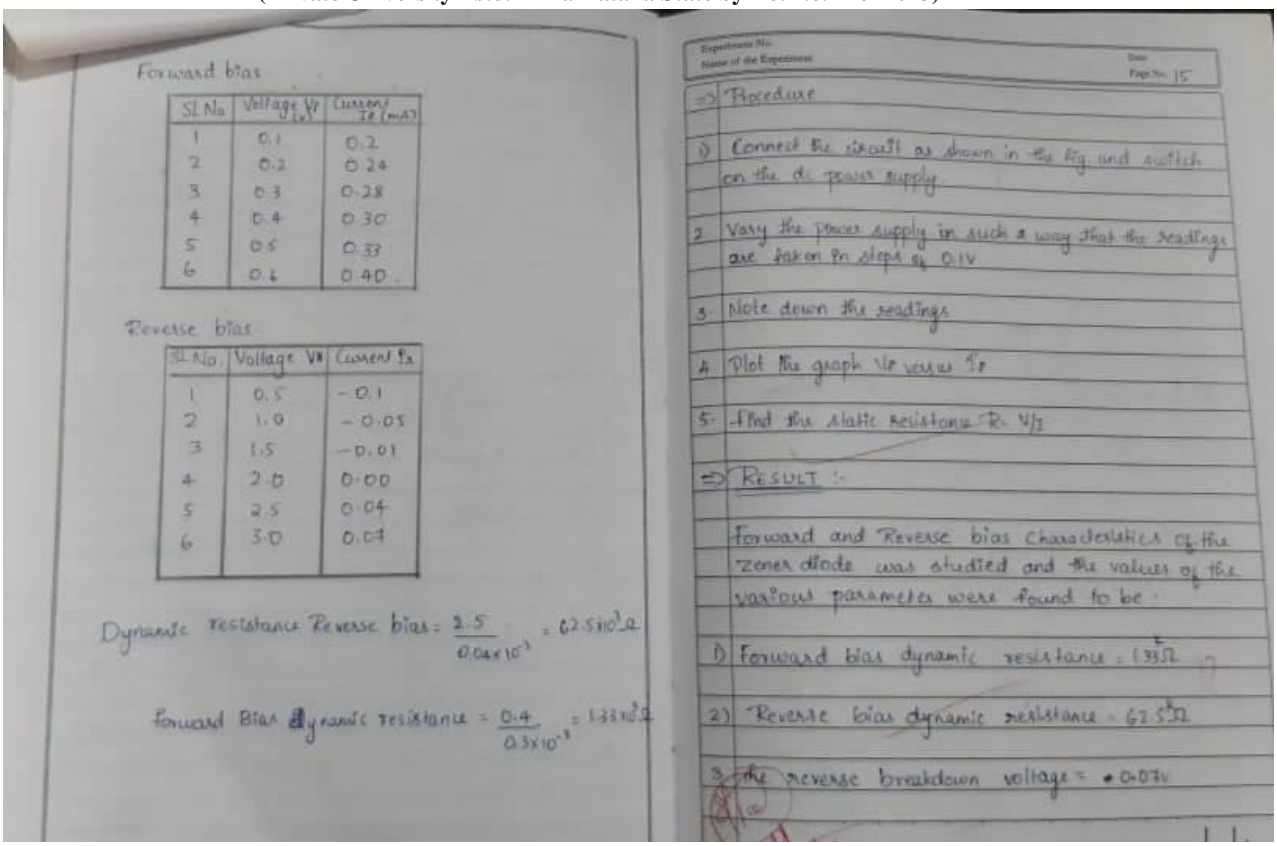

Forward bias

Sl. No	Voltage V_F (V)	Current I_F (mA)
1	0.1	0.2
2	0.2	0.24
3	0.3	0.28
4	0.4	0.30
5	0.5	0.33
6	0.6	0.40

Reverse bias

Sl. No.	Voltage V_R	Current I_R
1	0.5	-0.1
2	1.0	-0.05
3	1.5	-0.01
4	2.0	0.00
5	2.5	0.04
6	3.0	0.04

Dynamic resistance Reverse bias = $\frac{2.5}{0.04 \times 10^{-3}}$ = $62.5 \times 10^3 \Omega$

Forward Bias dynamic resistance = $\frac{0.4}{0.3 \times 10^{-3}}$ = $1.33 \times 10^3 \Omega$

Experiment No.
Name of the Experiment
Date
Page No. 15

=> Procedure

1) Connect the circuit as shown in the Fig and switch on the dc power supply

2 Vary the power supply in such a way that the readings are taken in steps of 0.1V

3. Note down the readings

4 Plot the graph V_R versus I_R

5. Find the static resistance $R = V/I$

=> RESULT :-

Forward and Reverse bias characteristics of the zener diode was studied and the values of the various parameters were found to be :

1) Forward bias dynamic resistance = 1.33Ω

2) Reverse bias dynamic resistance = 62.5kΩ

3) the reverse breakdown voltage = 0.07V

Figure 2. Screenshot of Zener Diode experiment lab record

K. Sreekanth Reddy

Signature of Instructor.

K. Sreekanth Reddy

Signature of Instructor In-Charge

Dr. V Joshi Manohar
Head of the Department
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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

Year: 2022-2023 **Semester: 3rd** **Section: 3-EEE-1** **Date: 12-12-2022**

Course Title: Signals & Systems Lab

Course Code: EEE2060

Type of Skill: Skill Development

Type of Session: Experiential Learning.

Type of Activity: Students were encouraged to perform and demonstrate the various experiments that are listed as per the course handout through experiential learning to develop the following skill sets in the laboratory:

1. An attitude of enquiry.
2. Confidence and ability to tackle new problems.
3. Ability to interpret events and results.
4. Ability to work as a leader and as a member of team.
5. Assess errors and eliminate them.
6. Write Reports.
7. Locate faults in systems.
8. The ability to follow standard test procedures.
9. To judge magnitudes without actual measurement.

Instructor in Charge: Dr. Sumit Kumar Jha

Instructor for Section: Mr. Bishakh Paul.

Details about the activity: Performing and demonstrating the various experiments hands-on.

Details of the students involved in the activity: 1st Sem Students Students

Sl. No	Student Id No.	Name of the Student
1.	20211EAE0027	DUSHANTH B
2.	20211EEE0001	PENUGONDA CHARAN
3.	20211EEE0002	SHAIK AHAMMAD
4.	20211EEE0003	SUMAN

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8.	20211EEE0007	GAGANMURTHY
9.	20211EEE0008	HRUTHIK H B
10.	20211EEE0009	ANUSHA B
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13.	20211EEE0012	VIDYA SHREE G N
14.	20211EEE0013	R V GANESH
15.	20211EEE0014	SINCHANA M
16.	20211EEE0015	BINDHU R C
17.	20211EEE0016	GAGAN SAI A S
18.	20211EEE0017	KAVYA N
19.	20211EEE0018	ROHAN R
20.	20211EEE0019	BHARATH H D
21.	20211EEE0020	RUDRAGOUDA K POLICE PATIL
22.	20211EEE0021	HARSHITHA B S
23.	20211EEE0023	MASROOR AHMED
24.	20211EEE0024	ANIRUDH S

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28.	20211EEE0028	ADARSH A
29.	20211EEE0029	CHETHAN S KATTI
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33.	20211EEE0033	MOHAMMAD NABEEL ABBAS
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36.	20211EEE0036	DEEPAK DANIEL F
37.	20211EEE0037	KHALEEL H TELSUNG
38.	20211EEE0038	HEMANT PANDIT
39.	20211EEE0039	AKASH K
40.	20211EEE0040	MOHAMED THABISH .
41.	20211EEE0041	NAYANI POORNACHANDAN ROYAL
42.	20211EEE0042	ABHISHEK BASAVARAJ HAMPANNAVAR
43.	20211EEE0043	RISHIKA R
44.	20211EEE0044	MOHAMMED ABRAR .

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45.	20211EEE0045	METTANI NAGA CHETHAN
46.	20211EEE0046	BASIL BINU
47.	20211EEE0047	G KIRAN KUMAR
48.	20211EEE0048	SAGAR D M
49.	20211EEE0050	YASWANTH BUDURI
50.	20211EEE0051	MADIVADA HEMANTH
51.	20211EEE0052	YENNABOINA RAHUL
52.	20211EEE0053	KARRI GOWRI ESWAR
53.	20211EEE0055	SETTIPALLI SAINATH
54.	20211EEE0056	SHREYAS E
55.	20211EPE0002	SIRICHAPALA UDAY MALIK
56.	20221LEE0001	NANDYALA SIVA MANOJ REDDY
57.	20221LEE0002	CHINTHAMANJUNATH
58.	20221LEE0003	K TUNISH
59.	20221LEE0004	K MANJUNATHA
60.	20221LEE0005	RITIKA RAJ
61.	20211EAE0027	DUSHANTH B

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Sample Lab Record Screen shots of the activity.

Date 18/11/2022

Expt. No. 06 Page No. 38

Sampling Theorem

Aim:- verification of Sampling theorem

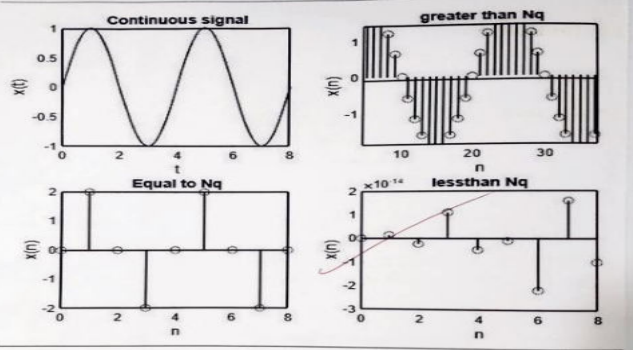
Equipments:-
operating System - windows 7 construction - Simulation Software - CC Studio 3 & MATLAB-2017.

Program

```
clc;
T=0.04; %. Time period of 50Hz signal
t=0:0.0005:0.04;
f=1/T;
disp(f);
Xa_t = sin(2*pi*2* t/T);
subplot (2,2,1);
plot (200* t,Xa_t);
title ('Verification of sampling theorem');
title ('continuous signal');
xlabel ('t');
ylabel ('x(t)');
ts1 =0.002; %. >nig rate
ts2=0.01; %. =nig rate
ts3 = 0.1;%. < nig rate
n=0:40;
x_ts2 = 2* sin(2*pi*n* ts2 /T);
subplot (2,2,2);
stem (n,x_ts2);
title ('greater than Nq ');
```

Teacher's Signature

Output :-



Verification of Sampling theorem

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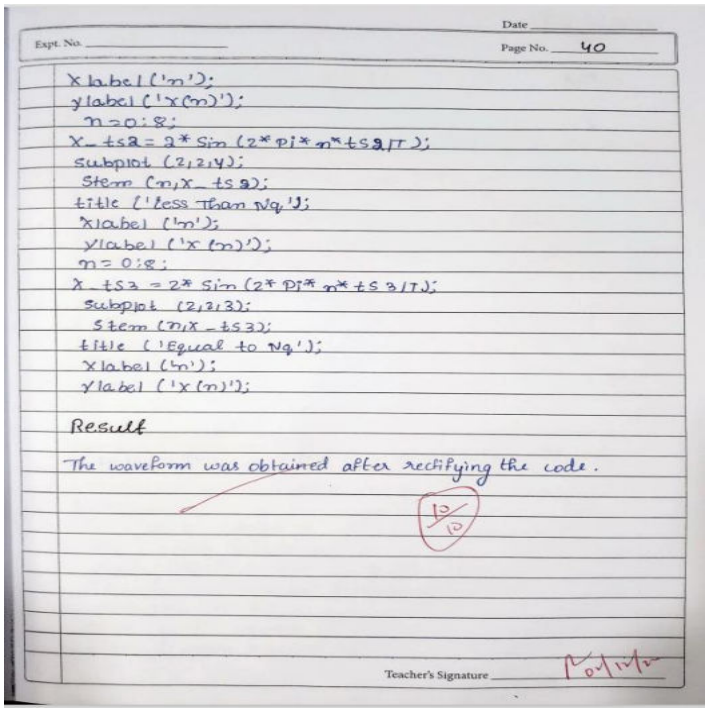

Expt. No. _____ Date _____ Page No. 40

```
xlabel('n');
ylabel('x(n)');
n=0:8;
x_ts2 = 2*sin(2*pi*n*ts2/T);
subplot(2,2,4);
stem(n,x_ts2);
title('Less Than Nq');
xlabel('n');
ylabel('x(n)');
n=0:8;
x_ts3 = 2*sin(2*PI*n*ts3/T);
subplot(2,2,3);
stem(n,x_ts3);
title('Equal to Nq');
xlabel('n');
ylabel('x(n)');
```

Result

The waveform was obtained after rectifying the code.

10/10

Teacher's Signature

Signature of Instructor.

Signature of Instructor In-Charge

Dr. V Joshi Manohar
Head of the Department
Electrical and Electronics Engineering
School of Engineering
PRESIDENCY UNIVERSITY
Rajanukunte, Yelahanka, Bengaluru -64

REGISTRAR

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SCHOOL of ENGINEERING
DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

Year: 2022-2023 **Semester: 5th** **Section: 5-EEE-1**

Course Title: Electrical and Electronics Measurements and Instrumentation.

Course Code: EEE2012

Type of Skill: Skill Development

Type of Activity: Experiential Learning

Instructor in Charge: Mr Bishakh Paul.

Instructor for Section: Mr Bishakh Paul.

Details about the activity: Students were asked to interface real time sensors procured in Lab and NI Hardware devices to develop a project for real time monitoring of parameters which provides the practical experience skills in students.

Topic of Activity: Real Time Humidity Sensor Using NI Lab-VIEW

Details of the students involved in the activity:

S.No	Name of the Student	Roll Number
1	VARSHITHA M	20201EEE0008
2	PAVAN V	20211LEE0009
3	KUSHAL R	20211LEE0027
4	NAYANA A	20201EEE0011
5	YASHAWINI BG	20201EEEE0022
6	VISHALA R	20201EEE0025

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Sample Presentation as mentioned in the topic.

Real Time Humidity Sensor Using NI LabVIEW

Name	Roll Number
VARSHITHA M	20201EEE0008
PAVAN V	20211LEE0009
KUSHAL R	20211LEE0027
NAYANA A	20201EEE0011
YASHAWINI BG	20201EEEE0022
VISHALA R	20201EEE0025

CONTENT

- INTRODUCTION
- WIRING DIAGRAM
- WORKING
- MAKING & OUTPUT
- DIGITAL FOOTPRINT

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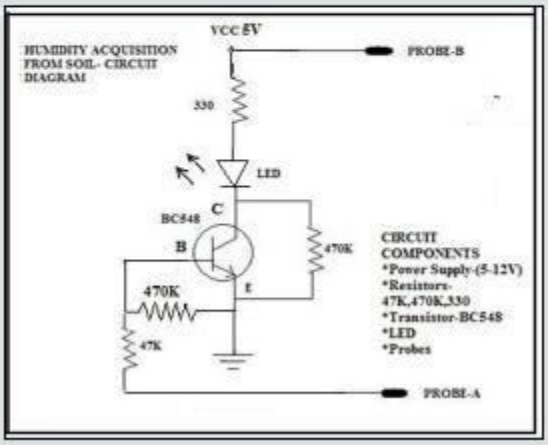
Introduction

- Soil is made up of a mixture of components, including mineral and organic particles, with water and air making up the spaces in between. Plants need a combination of all these components for healthy growth. By measuring soil moisture, crop water needs to be assessed and irrigation controlled, so as to maximize crop yield, quality and profitability. There are various methodologies and techniques by which the soil moisture could be measured such as Gravimetric Technique, Radioactive Technique, Capacitive Technique, Conductivity Technique, Soil Suction Technique.
- Here, we will be dealing with the monitoring of humidity in soil with the aid of LabVIEW & NI ELVIS.
- Humidity can be precisely defined as the amount of water vapour in air. The necessity of humidity measurement in soil is that you can gain control of soil moisture and adjust irrigation according to the need. A properly utilized irrigation system provides a condition for optimal growing economy. Excessive irrigation is a waste of time and energy, and it risks plant's nutrient leaching. The base unit is a humidity sensor which senses the moisture content and we can visualize the output on a PC based LabVIEW system with the small circuitry on the NI ELVIS and interfacing cable PCI 6221.

WIRING DIAGRAM



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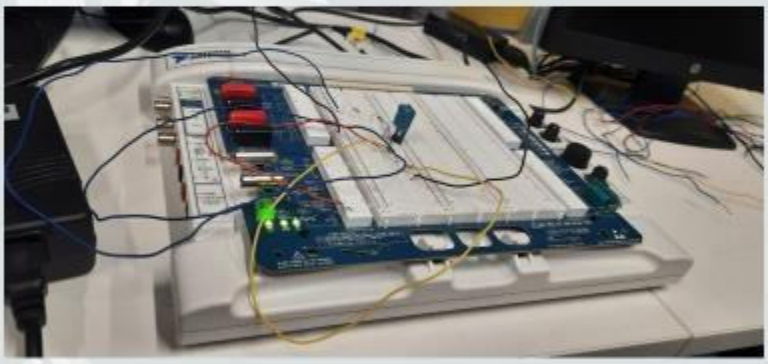
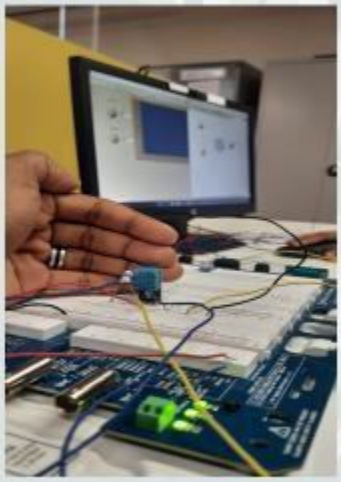
WORKING

- This section elaborates the assessing of humidity and relative humidity process in LabVIEW. The hardware implementation and the software implementation are discussed here below.
- The humidity sensor circuit primarily requires an operating voltage of about (5-12 volts) which is constructed on the NI ELVIS from which the power supply is drawn. The BC 548 transistor used in this circuit works to switch electronic signals and amplifies them. With the combination of various other resistors constructed as per the circuit diagram shown below, the moisture content is detected and hence this is indicated with the glowing of the LED. The output is acquired with the help of NI 6008 USB card and is interfaced with the LabVIEW software. Two probes will always be in contact with the soil so that it senses the wetness and the dryness of the soil.
- The real values are interfaced in the LabVIEW block diagram with the help of USB port connected to the NI ELVIS and are acquired. The block diagram clearly depicts the acquisition of the signal from DAQ, the output in volts, the relative humidity calculation according to the nature of the soil, and the filtered waveform graph. The front panel indicates the soil condition by the glowing of LED, and the filtered waveform.
- The output voltage obtained is high in the range of (5-7V) for dry soil and (1-3V) for wet condition. The relative humidity is of about 40-50% for wet condition and 20-30 % for dry condition. This method of monitoring of relative humidity of soil thus becomes very feasible, accurate, fast response at high and low humidity and reduces complexity. The readings could also be saved for backup in LabVIEW.

MAKING & OUTPUT





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Signature of Instructor:

Signature of Instructor In-Charge :

Dr V Joshi Manohar
Head of the Department
Electrical and Electronics Engineering
HOD - EEE
PRESIDENCY UNIVERSITY
Rajankunte, Yelahanka, Bengaluru-64

REGISTRAR
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SCHOOL of ENGINEERING
DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

Year: 2022-2023 **Semester: 5th** **Section: 5-EEE-1** **Date: 14-9-2023**

Course Title: Control System Engineering Lab.

Course Code: EEE2063

Type of Skill: Skill Development

Type of Session: Experiential Learning.

Type of Activity: Students were encouraged to perform and demonstrate the various experiments that are listed as per the course handout through experiential learning to develop the following skill sets in the laboratory:

1. Drawing the circuit diagram
2. Selection of components
3. Rigging up of circuit
4. Conduction of experiment
5. Observing the waveforms
6. Computing the parameter
7. Writing the Inference

Instructor in Charge: Dr Jisha L K.

Instructors for Section: Dr Jisha L K**,** Mr. Ravi V Angadi

Details about the activity: Performing and demonstrating the various experiments hands-on.

Details of the students involved in the activity: EEE1 Students

Sl. No.	Student ID No	Name
1	20201EAE0002	RAHEL ANN JOHNSON
2	20201EAE0003	ANAND UR
3	20201EEE0001	SONU KUMAR
4	20201EEE0003	SHRAVANI N
5	20201EEE0005	RAKSHITHA B
6	20201EEE0007	S THYAGARAJ
7	20201EEE0008	VARSHITHA GOWDA M
8	20201EEE0011	SAI NAYANA A
9	20201EEE0012	G YOGESHWARAN
10	20201EEE0015	ABHISHEK TT
11	20201EEE0016	KAMPA PREETHISH

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12	20201EEE0018	FIZA
13	20201EEE0021	JILLIVARI KURUVA PRASAD
14	20201EEE0022	YASHASWINI BG
15	20201EEE0023	SHRUJAN H S
16	20201EEE0025	VISHALA R
17	20201EEE0026	MANJUNATH K
18	20211LEE0001	DEEP CHATTERJEE
19	20211LEE0002	THATHIREDDY PERUMAL
20	20211LEE0003	FAKIR SAEED SALIMSHA
21	20211LEE0004	YOGENDRA
22	20211LEE0005	SANTHOSH V
23	20211LEE0006	PRABHAS M
24	20211LEE0007	SANJAY M K
25	20211LEE0008	MANOJ K P
26	20211LEE0009	PAVAN V
27	20211LEE0010	ROHIT GURUNATH MATHAPATI
28	20211LEE0011	KISHORE TEJA S N
29	20211LEE0012	HAMSA SHREE R
30	20211LEE0013	CHARANREDDY S V
31	20211LEE0014	AMBIKA M BIJAPUR
32	20211LEE0015	NAGENDRA B
33	20211LEE0016	NIRANJAN JAGADISH PAMMAR
34	20211LEE0017	NARESH R N
35	20211LEE0018	MURULI A V
36	20211LEE0019	G TARUN
37	20211LEE0020	SACHIN P
38	20211LEE0021	CHARAN P
39	20211LEE0022	MOHAMMED SHAH ALAM
40	20211LEE0023	PATEL CHIKKALINGE GOWDA
41	20211LEE0024	MAHESH M R
42	20211LEE0025	DARSHAN T C
43	20211LEE0026	ARUNA P
44	20211LEE0027	KUSHAL R
45	20211LEE0028	SHASHANK GOWDA K N
46	20211LEE0029	ABHI J T
47	20211LEE0030	BABITHA GAIKWAD G
48	20211LEE0031	RAMEGOWDA K T

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Sample Lab Record Screen shots of the activity.

Dc Position Control System

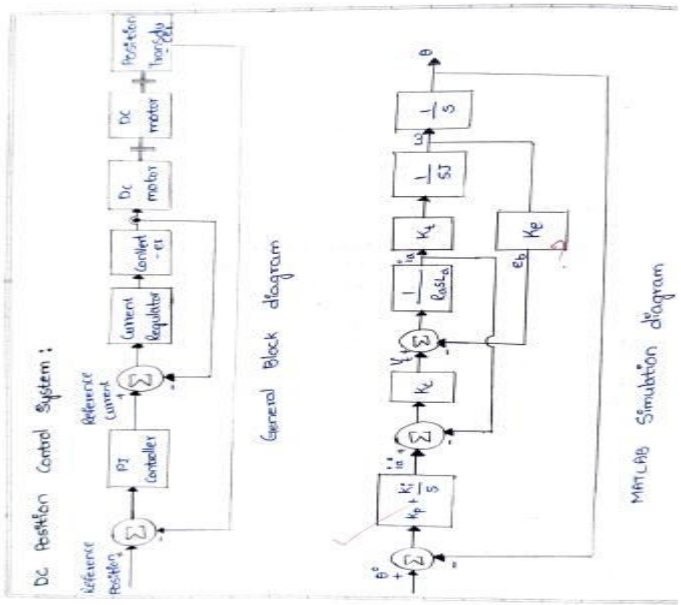
Aim: To simulate a DC position control system using MATLAB and obtain its step response.

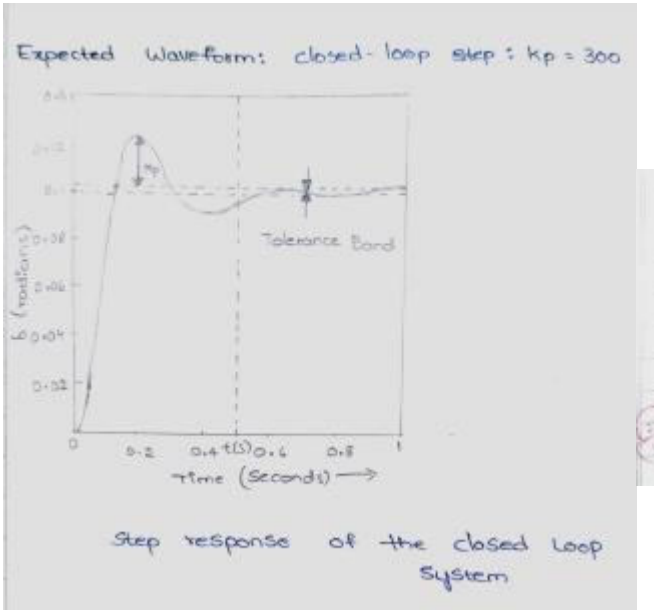
Resources:
MATLAB Software

Procedure:

* open the Matlab and click on the Simulink in Matlab window
* Develop the complete block diagram of the given schematic diagram of position control mechanism using simulink.
* Click on the step input block and set final value as 1 and the parameters too.
* Click on transfer function block and set numerator value as 1 & denominator too.
* Click on gain block kp & enter the value as 5 similarly kc = 2, kt = 0.5 (5/J) = 12c, ke = 0.5 & ki = 0.2
* connect
* Saved the interconnected Block diagram.
* Click on Simulation tool bar, start Simulation & Observe waveforms in the Scope.

Teacher's Signature :





Result:

From this experiment we obtained its step response of a DC position Control System using MATLAB.

18/10/22

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Signature of Instructor.

Signature of Instructor In-Charge

Dr V Joshi Manohar
Head of the Department
Electrical and Electronics Engineering
School of Engineering
HOD - EEE
PRESIDENCY UNIVERSITY
Rajankunte, Yelahanka, Bengaluru -64

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SCHOOL of ENGINEERING
DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

Year: 2022-2023 **Semester: 5th** **Section: 5-EEE-1** **Date: 12-11-2022**

Course Title: Power Electronics Laboratory.

Course Code: EEE2065

Type of Skill: Skill Development

Type of Session: Experiential Learning.

Type of Activity: Students were encouraged to perform and demonstrate the various experiments that are listed as per the course handout through experiential learning to develop the following skill sets in the laboratory:

1. An attitude of enquiry.
2. Confidence and ability to tackle new problems.
3. Ability to interpret events and results.
4. Ability to work as a leader and as a member of team.
5. Assess errors and eliminate them.
6. Observe and measure physical phenomenon.
7. Write Reports.
8. Select suitable equipment, instrument and materials.
9. Manipulative skills for setting and handling equipment.
10. The ability to follow standard test procedures.

Instructor in Charge: Dr.Kamalapathi

Instructor for Section: Dr.Kamalapathi

Details about the activity: Hands-on experience by performing and demonstrating the various experiments listed in the course handout.

Details of the students involved in the activity: 4EEE1 Students

Sl. No	Student Id No.	Name of the Student
1.	20201EAE0002	RAHEL ANN JOHNSON
2.	20201EAE0003	ANAND U R
3.	20201EEE0001	SONU KUMAR
4.	20201EEE0003	SHRAVANI N
5.	20201EEE0005	RAKSHITHA B

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6.	20201EEE0007	S THYAGARAJ
7.	20201EEE0008	VARSHITHA M
8.	20201EEE0011	SAI NAYANA
9.	20201EEE0012	YOGESHWARAN G
10.	20201EEE0015	ABHISHEK TT
11.	20201EEE0016	KAMPA PREETHISH
12.	20201EEE0018	FIZA
13.	20201EEE0021	JILLIVARI KURUVA PRASAD
14.	20201EEE0022	YASHASWINI BG
15.	20201EEE0023	SHRUJAN H S
16.	20201EEE0025	VISHALA R
17.	20201EEE0026	MANJUNATH K
18.	20211LEE0001	DEEP CHATTERJEE
19.	20211LEE0002	THATHIREDDY PERUMAL
20.	20211LEE0003	FAKIR SAEED SALIMSHA
21.	20211LEE0004	YOGENDRA
22.	20211LEE0005	SANTHOSH V
23.	20211LEE0006	PRABHAS M
24.	20211LEE0007	SANJAY M K
25.	20211LEE0008	MANOJ K P
26.	20211LEE0009	PAVAN V
27.	20211LEE0010	ROHIT GURUNATH MATHAPATI
28.	20211LEE0011	KISHORE TEJA S N

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29.	20211LEE0012	HAMSA SHREE R
30.	20211LEE0013	CHARANREDDY S V
31.	20211LEE0014	AMBIKA M BIJAPUR
32.	20211LEE0015	NAGENDRA B
33.	20211LEE0016	NIRANJAN JAGADISH PAMMAR
34.	20211LEE0017	NARESH R N
35.	20211LEE0018	MURULI A V
36.	20211LEE0019	G TARUN
37.	20211LEE0020	SACHIN P
38.	20211LEE0021	CHARAN P
39.	20211LEE0022	MOHAMMED SHAH ALAM
40.	20211LEE0023	PATEL CHIKKALINGE GOWDA
41.	20211LEE0024	MAHESH M R
42.	20211LEE0025	DARSHAN T C
43.	20211LEE0026	ARUNA P
44.	20211LEE0027	KUSHAL R
45.	20211LEE0028	SHASHANK GOWDA K N
46.	20211LEE0029	ABHI J T
47.	20211LEE0030	BABITHA GAIKWAD G
48.	20211LEE0031	RAMEGOWDA K T

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Sample Lab Record Screen shots of the activity.

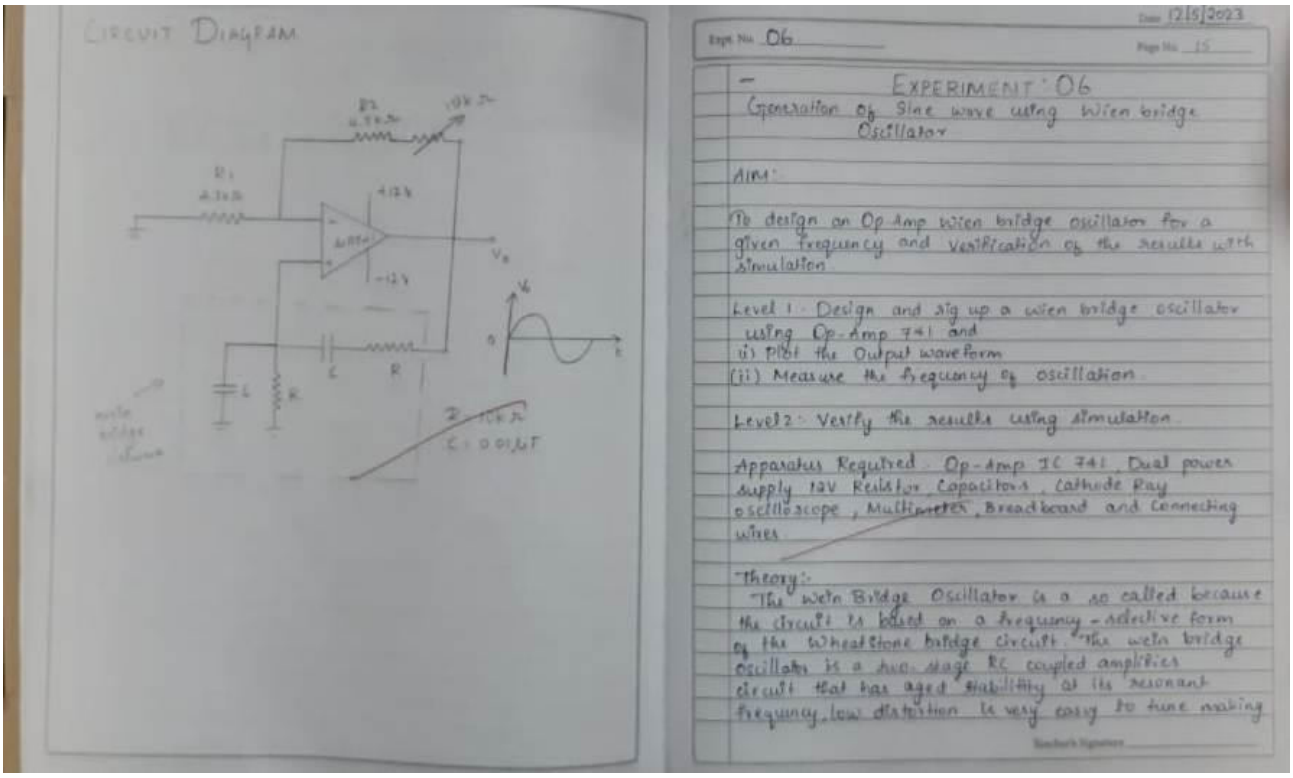

Figure 1. Screenshot of Wein Bridge Oscillator circuit lab record

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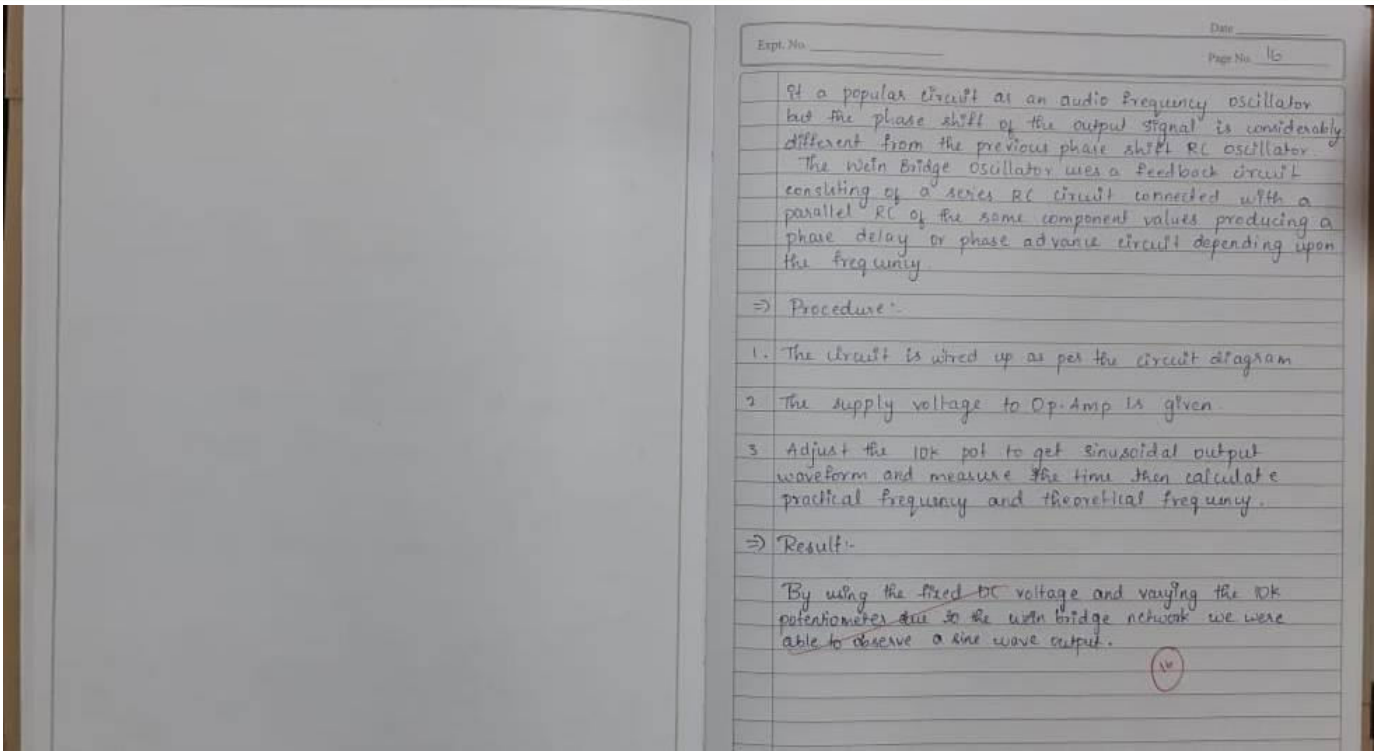

Expt. No. _____ Date _____
Page No. 16

It a popular circuit as an audio frequency oscillator but the phase shift of the output signal is considerably different from the previous phase shift RC oscillator.
The Wein Bridge Oscillator uses a feedback circuit consisting of a series RC circuit connected with a parallel RC of the same component values producing a phase delay or phase advance circuit depending upon the frequency

⇒ Procedure:-

1. The circuit is wired up as per the circuit diagram
2. The supply voltage to Op-Amp is given
3. Adjust the 10K pot to get sinusoidal output waveform and measure the time then calculate practical frequency and theoretical frequency.

⇒ Result:-

By using the fixed DC voltage and varying the 10K potentiometer due to the wein bridge network we were able to observe a sine wave output.

Figure 2. Screenshot of Wein Bridge Oscillator circuit lab record

k.kulapathi.

Signature of Instructor.

k.kulapathi.

Signature of Instructor In-Charge

Dr V Joshi Manohar
Head of the Department
Electrical and Electronics Engineering
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PRESIDENCY UNIVERSITY
Rajankunte, Yelahanka, Bengaluru-64

HOD - EEE

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(Private University Estd. in Karnataka State by Act No.41 of 2013)

SCHOOL of ENGINEERING

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

Year: 2022-2023 **Semester: 7th** **Section: 7-EEE-1** **Date: 14-10-2022**

Course Title: Power System Simulation Lab.

Course Code: EEE262

Type of Skill: Skill Development

Type of Session: Experiential Learning.

Type of Activity: Students were encouraged to perform and demonstrate the various experiments that are listed as per the course handout through experiential learning to develop the following skill sets in the laboratory:

1. An attitude of enquiry.
2. Confidence and ability to tackle new problems.
3. Ability to interpret events and results.
4. Ability to work as a leader and as a member of team.
5. Assess errors and eliminate them.
6. Write Reports.
7. Locate faults in systems.
8. The ability to follow standard test procedures.
9. To judge magnitudes without actual measurement.

Instructor in Charge: Mr. Ravi V Angadi.

Instructor for Section: Mr. Ravi V Angadi.

Details about the activity: Performing and demonstrating the various experiments hands-on.

Details of the students involved in the activity: 7EEE1 Students

Sl. No	Student Id No.	Name of the Student
1.	20191EEE0001	ABHISHEK C
2.	20191EEE0003	ANUSHA M JOLAD
3.	20191EEE0004	ARUN S
4.	20191EEE0005	ASFIYA AAZIM
5.	20191EEE0006	ASHISH SINGH BHUMIJ
6.	20191EEE0008	BINDHU D
7.	20191EEE0009	DOKLA GHOUSE
8.	20191EEE0010	EASHWAR V
9.	20191EEE0011	KEERTHANA B R

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10.	20191EEE0012	KOMALA M E
11.	20191EEE0013	KOTHAKOTA JAI RAMAKRISHNA
12.	20191EEE0014	KRUTHIKA R
13.	20191EEE0015	MANDADI KARTHIKEYAN REDDY
14.	20191EEE0016	MOHAMMAD JAMEEL
15.	20191EEE0017	MOHAMMAD ZAID FAROOQ
16.	20191EEE0018	MOHAMMED NOORUDDIN ASRAR
17.	20191EEE0019	MOKA ABHINASH
18.	20191EEE0022	NANDA KISHORE KIRAN DESHPANDE
19.	20191EEE0023	NAVYA N
20.	20191EEE0024	NAVYA SHREE M
21.	20191EEE0025	P ABHINAV
22.	20191EEE0026	PERAM BHARGAV REDDY
23.	20191EEE0028	PRAJWAL HOSAMANI
24.	20191EEE0029	PRAJWAL T R
25.	20191EEE0030	PRATHVIRAJ
26.	20191EEE0031	PRUTHVIRAJ D KUDACHI
27.	20191EEE0032	R S SHARUKH
28.	20191EEE0033	ROSHAN S
29.	20191EEE0034	S R METHESWAR
30.	20191EEE0035	SAGAR B
31.	20191EEE0036	SAMBHRAM P TAILANG
32.	20191EEE0037	SANJAY B
33.	20191EEE0038	SANJAY P
34.	20191EEE0039	SANKET VIJAY KUMAR KAMBLE
35.	20191EEE0040	SAPNA N
36.	20191EEE0041	SHAIK MUNEER
37.	20191EEE0042	SHARANYA P C
38.	20191EEE0044	SHWETHA N
39.	20191EEE0045	SIVA PRASAD L
40.	20191EEE0046	SOURODIPTTO MONDAL
41.	20191EEE0047	SRINIDHI R
42.	20191EEE0049	VARSHA B N
43.	20191EEE0050	YARRABALLI NAVEEN
44.	20191EEE0051	YASHASH N
45.	20191EEE0052	YASHWANTH N
46.	20191EEE0053	RAHUL RAMESH PAMMAR
47.	20191EEE0057	ZAID AHMED ZAUED HAMADAH
48.	20191EEE0059	SHABBEER AHMAD MUJAVAR

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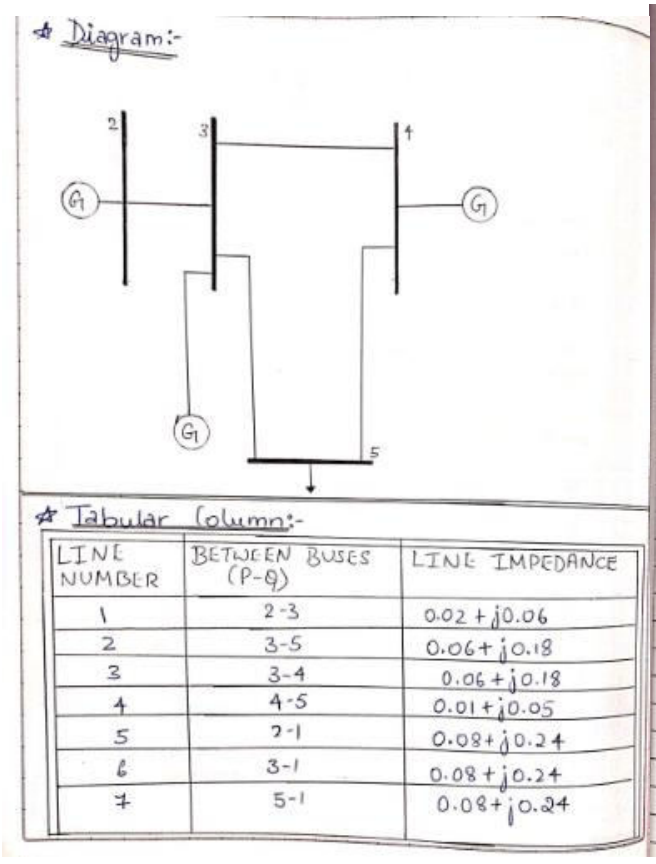
49.	20191EEE0060	NAVEEN NELSON W
50.	20191EEE9001	PRANEETH MADHAVAN
51.	20191EEE9002	KIRAN MANOJ
52.	20191EEE9003	SRINIVAS K
53.	20191EEE9005	BARU V S TRIPURA MADHU DHEERAJ
54.	20201LEE0002	SUBHAJIT BISWAS
55.	20201LEE0004	PRAVEEN M
56.	20201LEE0005	SUHEBAHAMED BALAGANUR
57.	20201LEE0006	VINUTH GOWDA R
58.	20201LEE0007	ASHWIN S
59.	20201LEE0008	SUMAN V
60.	20201LEE0010	MOHAMMED JAVED
61.	20201LEE0011	GIRISH REDDY MAMILLA
62.	20191EEE9006	MOHAMMED ZUHAIB

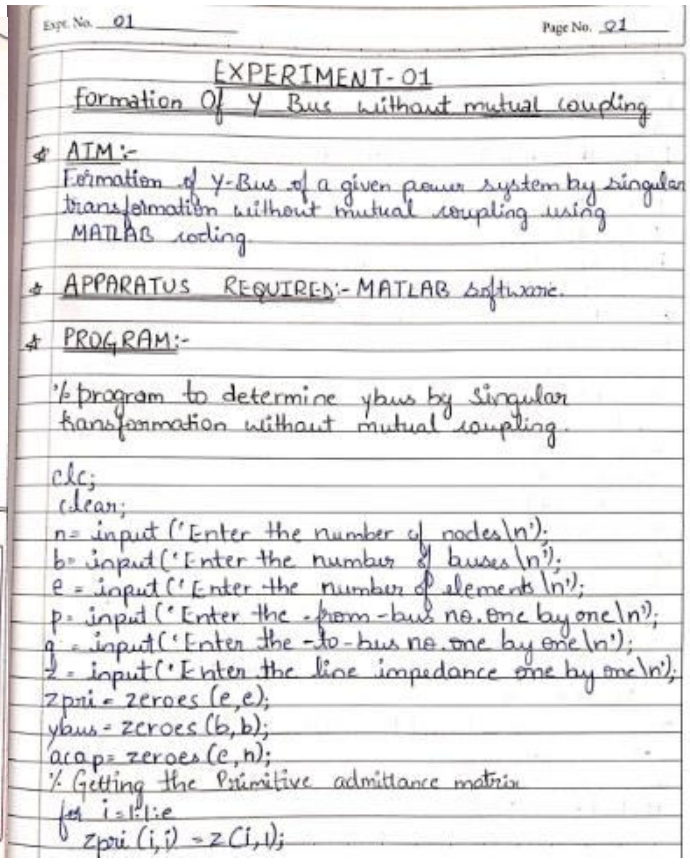
Sample Lab Record Screen shots of the activity.



☆ Diagram:-

☆ Tabular column:-

LINE NUMBER	BETWEEN BUSES (P-Q)	LINE IMPEDANCE
1	2-3	0.02 + j0.06
2	3-5	0.06 + j0.18
3	3-4	0.06 + j0.18
4	4-5	0.01 + j0.05
5	2-1	0.08 + j0.24
6	3-1	0.08 + j0.24
7	5-1	0.08 + j0.24



Expt. No. 01 Page No. 01

EXPERIMENT-01

Formation Of Y Bus without mutual coupling

☆ AIM:-

Formation of Y-Bus of a given power system by singular transformation without mutual coupling using MATLAB coding

☆ APPARATUS REQUIRED:- MATLAB Software.

☆ PROGRAM:-

```
% program to determine ybus by Singular
transformation without mutual coupling.

clc;
clear;
n= input('Enter the number of nodes\n');
b= input('Enter the number of buses\n');
e = input('Enter the number of elements\n');
p= input('Enter the -from-bus no. one by one\n');
q = input('Enter the -to-bus no. one by one\n');
z = input('Enter the line impedance one by one\n');
zpri = zeroes(e,e);
ybus = zeroes(b,b);
aca= zeroes(e,n);
% Getting the Primitive admittance matrix
for i=1:1:e
  zpri(i,i) = z(i,1);
```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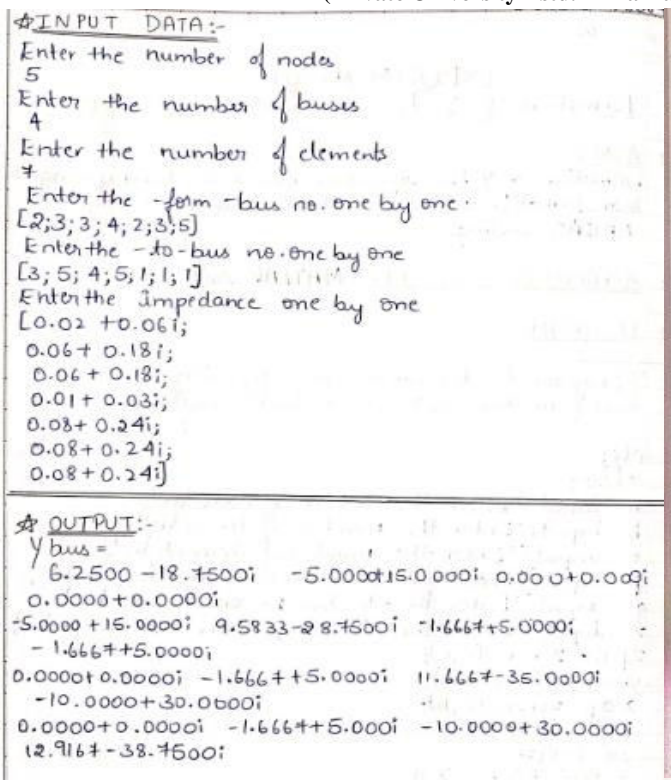
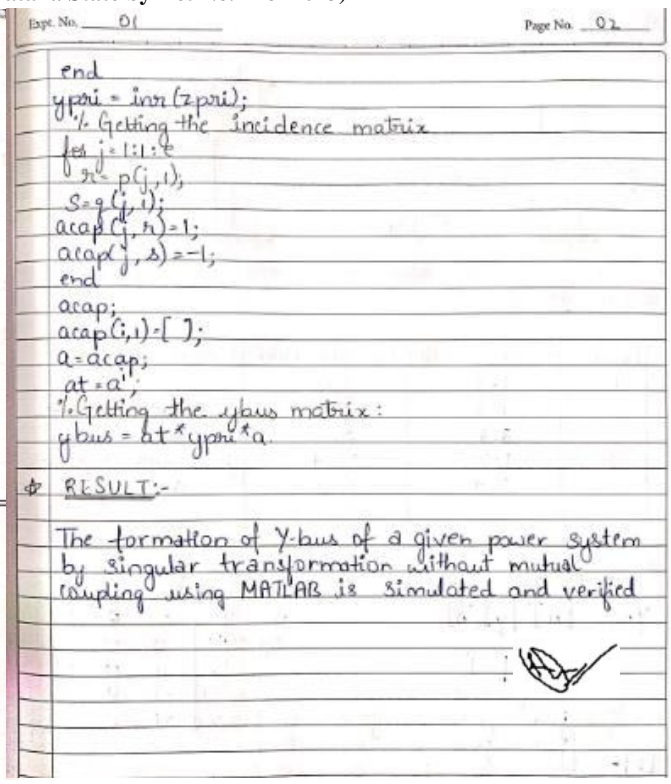


☆INPUT DATA:-

Enter the number of nodes
5
Enter the number of busses
4
Enter the number of elements
7
Enter the -from -bus no. one by one
[2;3;3;4;2;3;5]
Enter the -to-bus no. one by one
[3;5;4;5;1;1;1]
Enter the impedance one by one
[0.02 +0.06i;
0.06+ 0.18i;
0.06 + 0.18i;
0.01 + 0.03i;
0.08+ 0.24i;
0.08+ 0.24i;
0.08 + 0.24i]

☆ OUTPUT:-

Ybus =
6.2500 -18.7500i -5.0000+15.0000i 0.0000+0.0000i
0.0000+0.0000i
-5.0000 +15.0000i 9.5833-28.7500i -1.6667+5.0000i
-1.6667+5.0000i
0.0000+0.0000i -1.6667+5.0000i 11.6667-35.0000i
-10.0000+30.0000i
0.0000+0.0000i -1.6667+5.0000i -10.0000+30.0000i
12.9167-38.7500i



Expt. No. 01 Page No. 02

end
ypri = inv(zpri);
% Getting the incidence matrix
for j = 1:1:e
r = p(j,1);
s = q(j,1);
acap(j,r) = 1;
acap(j,s) = -1;
end
acap;
acap(:,1) = [ ];
a = acap;
at = a';
% Getting the ybus matrix:
ybus = at * ypri * a.

☆ RESULT:-

The formation of Y-bus of a given power system by singular transformation without mutual coupling using MATLAB is simulated and verified

Signature of Instructor.

Signature of Instructor In-Charge

Dr. V Joshi Manohar
Head of the Department
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SCHOOL of ENGINEERING
DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

Year: 2022-2023 **Semester: 2nd** **Section: 2PHY-23** **Date: 31-03-2023**

Course Title: Fundamentals of Electrical and Electronics Engineering

Course Code: EEE2061

Type of Skill: Skill Development

Type of Session: Experiential Learning.

Type of Activity: Students were encouraged to perform and demonstrate the various experiments that are listed as per the course handout through experiential learning to develop the following skill sets in the laboratory:

1. An attitude of enquiry.
2. Confidence and ability to tackle new problems.
3. Ability to interpret events and results.
4. Ability to work as a leader and as a member of team.
5. Assess errors and eliminate them.
6. Observe and measure physical phenomenon.
7. Write Reports.
8. Select suitable equipment, instrument and materials.
9. Manipulative skills for setting and handling equipment.
10. The ability to follow standard test procedures.

Instructor in Charge: Dr. Snehaprabha T V

Instructor for Section: Dr. Snehaprabha T V

Details about the activity: Hands-on experience by performing and demonstrating the various experiments listed in the course handout.

Details of the students involved in the activity: 2PHY-23 Students

Sl. No	Student Id No.	Name of the Student
1.	20221CIV0001	ARJUN . M
2.	20221CIV0002	ABDUL RAHMAN ASAD AZAD
3.	20221CIV0003	VYDYAM HAYAVADHANA RANGACHARYULU
4.	20221CIV0006	SHASHANK K S
5.	20221CIV0007	NAVYA S M
6.	20221CIV0008	PASALAPPAGARI BHARATH
7.	20221PET0001	JAY NARAYANAN
8.	20221PET0002	SALAUDDIN CA
9.	20221PET0003	AUSTIN BENOY
10.	20221PET0004	RAHEEMULLA KHAN M R
11.	20221PET0005	ABHIJITH PUTHUMANA
12.	20221PET0006	LINGESHWARAN KG

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13.	20221PET0007	ASHWINI T G
14.	20221PET0008	AYAN A

Sample Lab Record Screen shots of the activity.

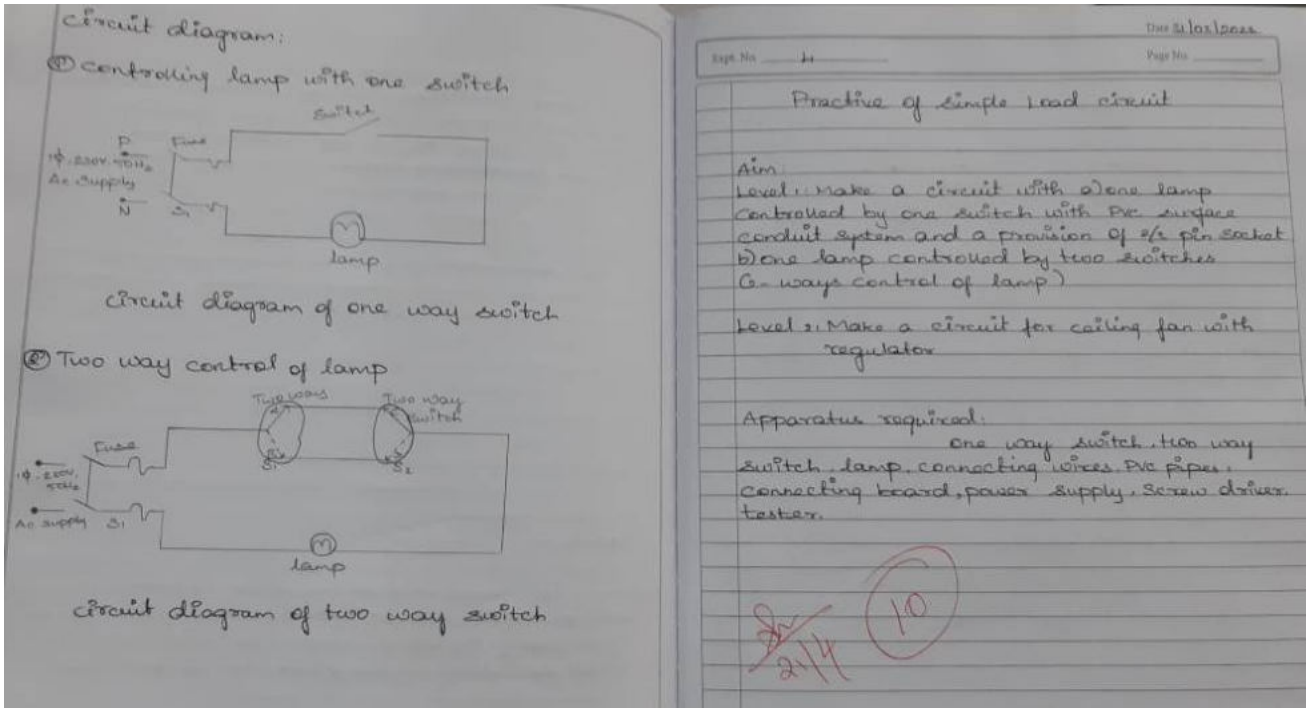

Figure 1. Screenshot of Practice of simple load circuit experiment lab record

Signature of Instructor.

Signature of Instructor In-Charge

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SCHOOL of ENGINEERING
DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

Year: 2022-2023 **Semester: 4th** **Section: 4-EEE-1** **Date: 12-05-2023**

Course Title: Op amps and Linear Integrated Circuits.

Course Code: EEE2004

Type of Skill: Skill Development

Type of Session: Experiential Learning.

Type of Activity: Students were encouraged to perform and demonstrate the various experiments that are listed as per the course handout through experiential learning to develop the following skill sets in the laboratory:

1. An attitude of enquiry.
2. Confidence and ability to tackle new problems.
3. Ability to interpret events and results.
4. Ability to work as a leader and as a member of team.
5. Assess errors and eliminate them.
6. Observe and measure physical phenomenon.
7. Write Reports.
8. Select suitable equipment, instrument and materials.
9. Manipulative skills for setting and handling equipment.
10. The ability to follow standard test procedures.

Instructor in Charge: Mr. K Sreekanth Reddy

Instructor for Section: Mr. K Sreekanth Reddy

Details about the activity: Hands-on experience by performing and demonstrating the various experiments listed in the course handout.

Details of the students involved in the activity: 4EEE1 Students

Sl. No	Student Id No.	Name of the Student
1.	20211EAE0027	DUSHANTH B
2.	20211EEE0001	PENUGONDA CHARAN
3.	20211EEE0002	SHAIK AHAMMAD
4.	20211EEE0003	SUMAN
5.	20211EEE0004	YAMUNA M N
6.	20211EEE0005	HARIKRISHNA
7.	20211EEE0006	PIYUSH NISHAD
8.	20211EEE0007	GAGANMURTHY
9.	20211EEE0008	HRUTHIK H B
10.	20211EEE0009	ANUSHA B
11.	20211EEE0010	SUPRITH D L
12.	20211EEE0011	NITHISH U

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14.	20211EEE0013	R V GANESH
15.	20211EEE0014	SINCHANA M
16.	20211EEE0015	BINDHU R C
17.	20211EEE0016	GAGAN SAI A S
18.	20211EEE0017	KAVYA N
19.	20211EEE0018	ROHAN R
20.	20211EEE0019	BHARATH H D
21.	20211EEE0020	RUDRAGOUDA K POLICE PATIL
22.	20211EEE0021	HARSHITHA B S
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27.	20211EEE0027	YASHWANTH KUMAR S
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34.	20211EEE0034	RAJANEESH B S
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37.	20211EEE0037	KHALEEL H TELSUNG
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44.	20211EEE0044	MOHAMMED ABRAR .
45.	20211EEE0046	BASIL BINU
46.	20211EEE0047	G KIRAN KUMAR
47.	20211EEE0048	SAGAR D M
48.	20211EEE0050	YASWANTH BUDURI
49.	20211EEE0051	MADIVADA HEMANTH
50.	20211EEE0052	YENNABOINA RAHUL
51.	20211EEE0053	KARRI GOWRI ESWAR
52.	20211EEE0055	SETTIPALLI SAINATH
53.	20211EEE0056	SHREYAS E
54.	20211EPE0002	SIRICHAPALA UDAY MALIK
55.	20221LEE0001	NANDYALA SIVA MANOJ REDDY
56.	20221LEE0002	CHINTHA MANJUNATH

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58.	20221LEE0004	KUPPAM MANJUNATHA
59.	20221LEE0005	RITHIKA RAJ
60.	20221LEE0006	BHUVAN B U
61.	20221LEE0007	RAGHU M

Sample Lab Record Screen shots of the activity.

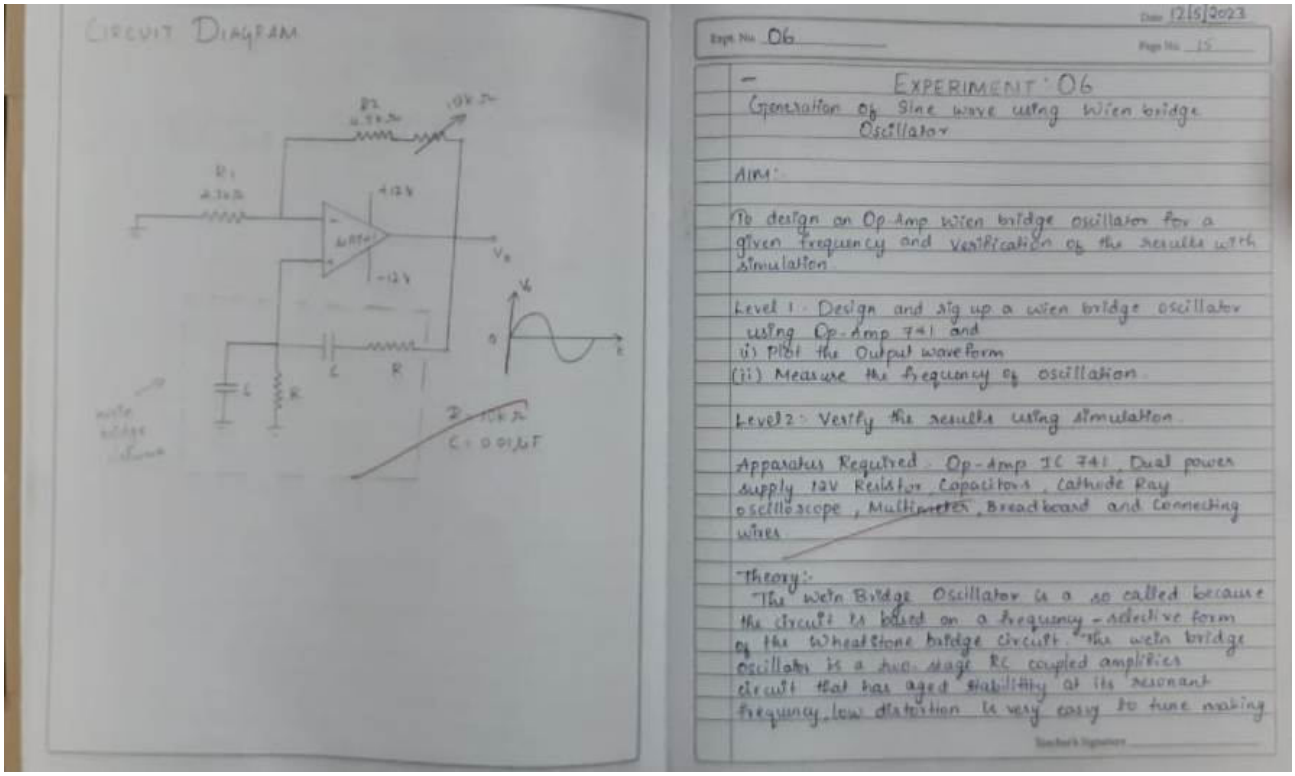

Figure 1. Screenshot of Wein Bridge Oscillator circuit lab record

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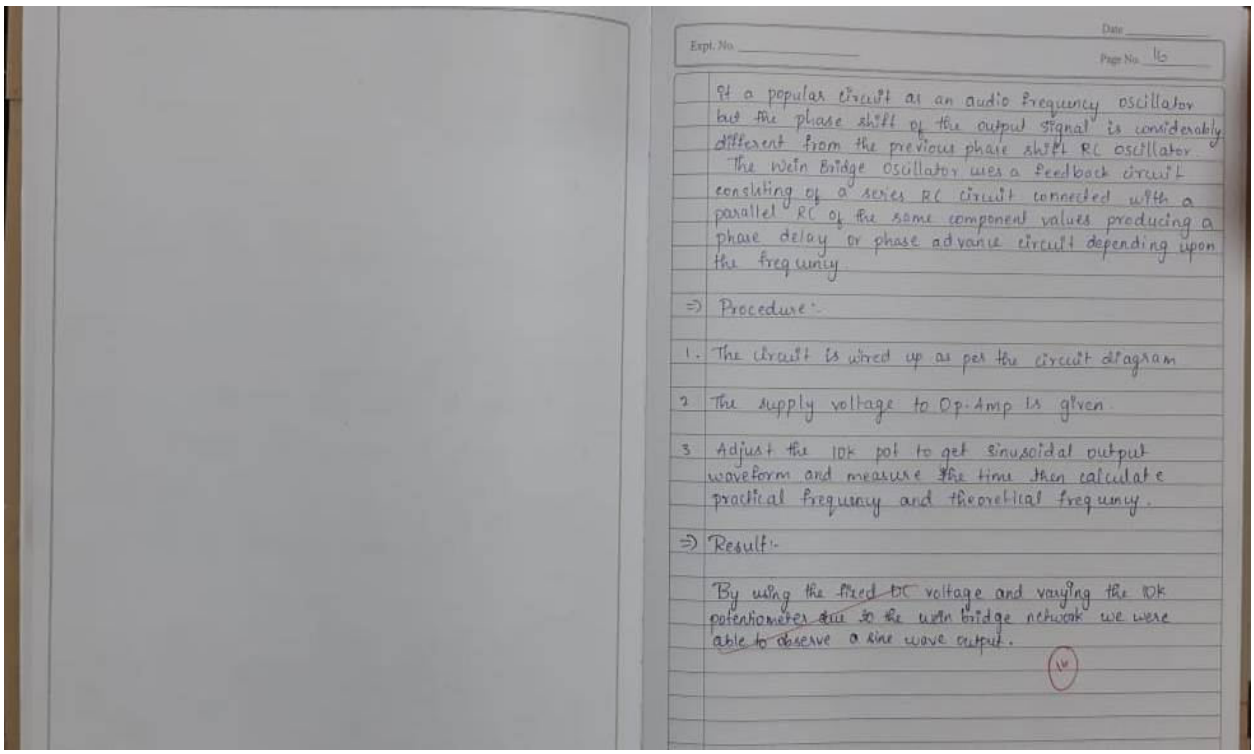

Expt. No. Date
Page No. 16

It a popular circuit as an audio frequency oscillator but the phase shift of the output signal is considerably different from the previous phase shift RC oscillator. The Wein Bridge Oscillator uses a feedback circuit consisting of a series RC circuit connected with a parallel RC of the same component values producing a phase delay or phase advance circuit depending upon the frequency.

⇒ Procedure:-

1. The circuit is wired up as per the circuit diagram
2. The supply voltage to Op-Amp is given.
3. Adjust the 10k pot to get sinusoidal output waveform and measure the time then calculate practical frequency and theoretical frequency.

⇒ Result:-

By using the fixed DC voltage and varying the 10k potentiometer ~~are~~ to the wein bridge network we were able to observe a sine wave output.

Figure 2. Screenshot of Wein Bridge Oscillator circuit lab record

K. Sreekanth Reddy
Signature of Instructor.

K. Sreekanth Reddy
Signature of Instructor In-Charge

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SCHOOL of ENGINEERING
DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

Year: 2022-2023 **Semester: 4th** **Section: 4-EEE-1** **Date: 16-05-2023**

Course Title: Microprocessor & Microcontrollers.

Course Code: EEE2005

Type of Skill: Skill Development

Type of Session: Experiential Learning.

Type of Activity: Students were encouraged to perform and demonstrate the various experiments that are listed as per the course handout through experiential learning to develop the following skill sets in the laboratory:

1. An attitude of enquiry.
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4. Ability to work as a leader and as a member of team.
5. Assess errors and eliminate them.
6. Observe and measure physical phenomenon.
7. Write Reports.
8. Select suitable equipment, instrument and materials.
9. Manipulative skills for setting and handling equipment.
10. The ability to follow standard test procedures.

Instructor in Charge: Mr. Ravi V Angadi.

Instructor for Section: Mr. Ravi V Angadi.

Details about the activity: Performing and demonstrating the various experiments hands-on.

Details of the students involved in the activity: 4EEE1 Students

Sl. No	Student Id No.	Name of the Student
1.	20211EAE0027	DUSHANTH B
2.	20211EEE0001	PENUGONDA CHARAN
3.	20211EEE0002	SHAIK AHAMMAD
4.	20211EEE0003	SUMAN
5.	20211EEE0004	YAMUNA M N
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8.	20211EEE0007	GAGANMURTHY
9.	20211EEE0008	HRUTHIK H B
10.	20211EEE0009	ANUSHA B
11.	20211EEE0010	SUPRITH D L
12.	20211EEE0011	NITHISH U
13.	20211EEE0012	VIDYA SHREE G N
14.	20211EEE0013	R V GANESH

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16.	20211EEE0015	BINDHU R C
17.	20211EEE0016	GAGAN SAI A S
18.	20211EEE0017	KAVYA N
19.	20211EEE0018	ROHAN R
20.	20211EEE0019	BHARATH H D
21.	20211EEE0020	RUDRAGOUDA K POLICE PATIL
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23.	20211EEE0023	MASROOR AHMED
24.	20211EEE0024	ANIRUDH S
25.	20211EEE0025	RATHISH HOMBALE N
26.	20211EEE0026	MOHAMMED AIMAN KHAN
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46.	20211EEE0047	G KIRAN KUMAR
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49.	20211EEE0051	MADIVADA HEMANTH
50.	20211EEE0052	YENNABOINA RAHUL
51.	20211EEE0053	KARRI GOWRI ESWAR
52.	20211EEE0055	SETTIPALLI SAINATH
53.	20211EEE0056	SHREYAS E
54.	20211EPE0002	SIRICHAPALA UDAY MALIK
55.	20221LEE0001	NANDYALA SIVA MANOJ REDDY
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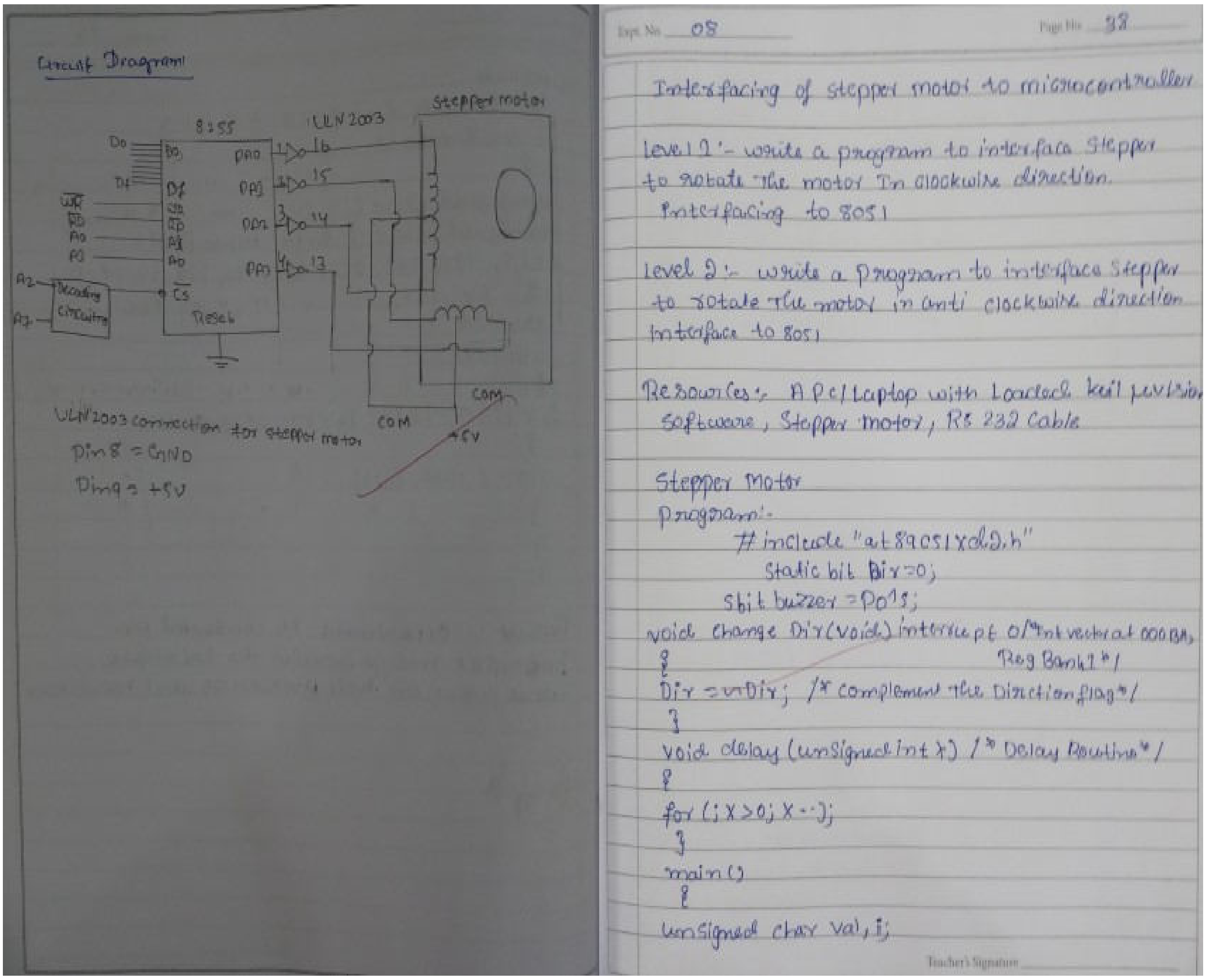
59.	20221LEE0005	RITHIKA RAJ
60.	20221LEE0006	BHUVAN B U
61.	20221LEE0007	RAGHU M

Sample Lab Record Screen shots of the activity.



Expt. No 08 Page No 38

Interfacing of stepper motor to microcontroller

Level 1:- write a program to interface stepper to rotate the motor in clockwise direction. Interfacing to 8051

Level 2:- write a program to interface stepper to rotate the motor in anti clockwise direction interface to 8051

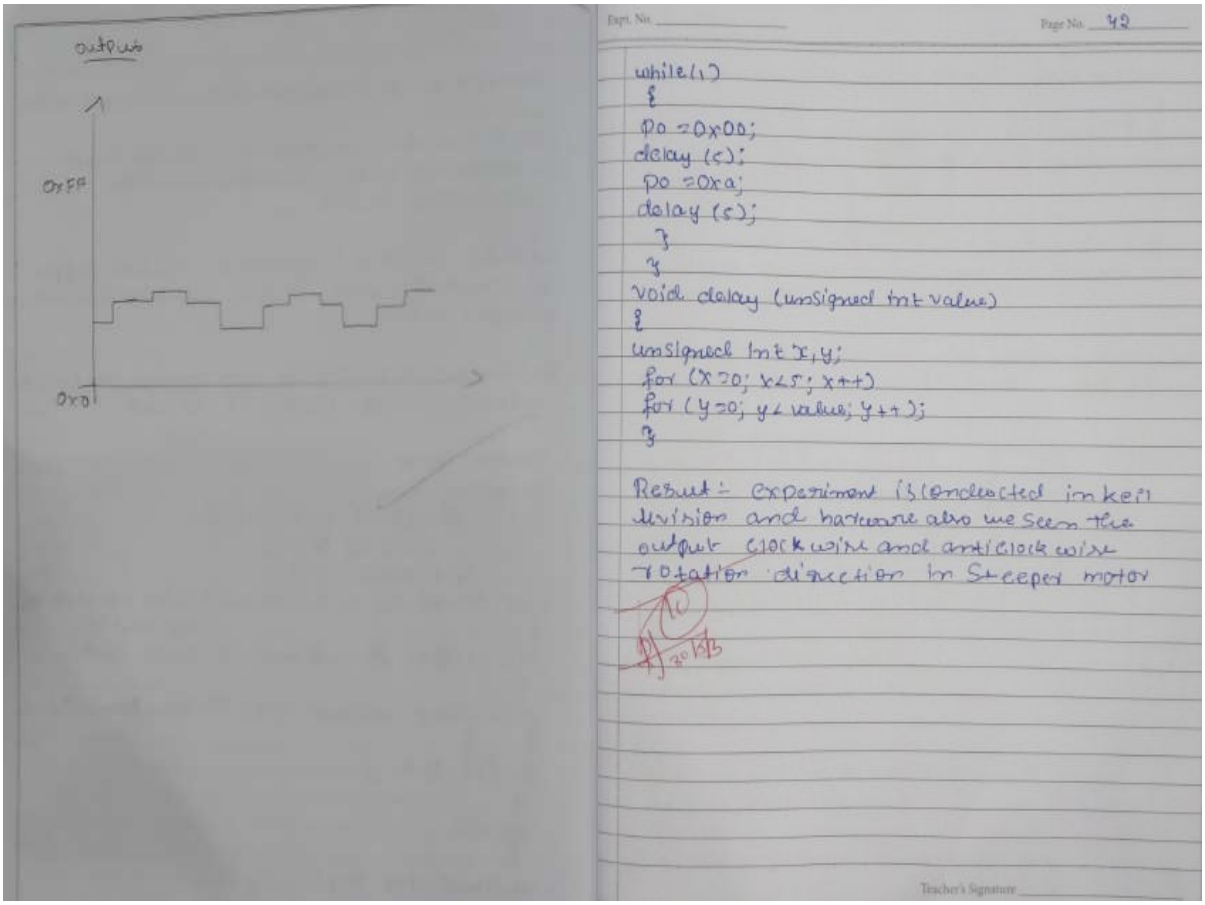
Resources:- A PC/Laptop with Loaded keil µvision software, Stepper motor, RS 232 Cable

Stepper Motor

program:-

```
#include "at89c51xd2.h"
static bit Dir=0;
sbit buzzer = P0^5;
void change Dir(void) interrupt 0 /* Int vector at 000BH, Reg Bank1 */
{
Dir = ~Dir; /* complement the Direction flag */
}
void delay (unsigned int x) /* Delay Routine */
{
for (;x>0;x--);
}
main()
{
unsigned char val, i;
```

Teacher's Signature




```
while(1)
{
P0 =0x00;
delay (5);
P0 =0xa;
delay (5);
 }
}
void delay (unsigned int value)
{
unsigned int x,y;
for (x=0; x<5; x++)
for (y=0; y< value; y++);
}
```

Result: Experiment is executed in keil division and hardware also we seen the output clock wise and anticlock wise rotation direction in Steeper motor

Signature of Instructor.

Signature of Instructor In-Charge

Dr. V Joshi Manohar
Head of the Department
Electrical and Electronics Engineering
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SCHOOL of ENGINEERING
DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

Year: 2022-2023 **Semester: 4th** **Section: 4-EEE-1** **Date: 09-03-2023**

Course Title: Electrical Machines Laboratory.

Course Code: EEE2062

Type of Skill: Skill Development

Type of Session: Experiential Learning.

Type of Activity: Students were encouraged to perform and demonstrate the various experiments that are listed as per the course handout through experiential learning to develop the following skill sets in the laboratory:

1. An attitude of enquiry.
2. Confidence and ability to tackle new problems.
3. Ability to interpret events and results.
4. Ability to work as a leader and as a member of team.
5. Assess errors and eliminate them.
6. Observe and measure physical phenomenon.
7. Write Reports.
8. Select suitable equipment, instrument and materials.
9. Locate faults in systems.
10. Manipulative skills for setting and handling equipment.
11. The ability to follow standard test procedures.
12. An awareness of the need to observe safety precautions.
13. To judge magnitudes without actual measurement.

Instructor in Charge: Mr. Sunil Kumar A V.

Instructor for Section: Mr. Sunil Kumar A V.

Details about the activity: Performing and demonstrating the various experiments hands-on.

Details of the students involved in the activity: 4EEE1 Students

Sl. No	Student Id No.	Name of the Student
1.	20211EAE0027	DUSHANTH B
2.	20211EEE0001	PENUGONDA CHARAN
3.	20211EEE0002	SHAIK AHAMMAD

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4.	20211EEE0003	SUMAN
5.	20211EEE0004	YAMUNA M N
6.	20211EEE0005	HARIKRISHNA
7.	20211EEE0006	PIYUSH NISHAD
8.	20211EEE0007	GAGANMURTHY
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43.	20211EEE0043	RISHIKA R
44.	20211EEE0044	MOHAMMED ABRAR .
45.	20211EEE0046	BASIL BINU
46.	20211EEE0047	G KIRAN KUMAR
47.	20211EEE0048	SAGAR D M

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49.	20211EEE0051	MADIVADA HEMANTH
50.	20211EEE0052	YENNABOINA RAHUL
51.	20211EEE0053	KARRI GOWRI ESWAR
52.	20211EEE0055	SETTIPALLI SAINATH
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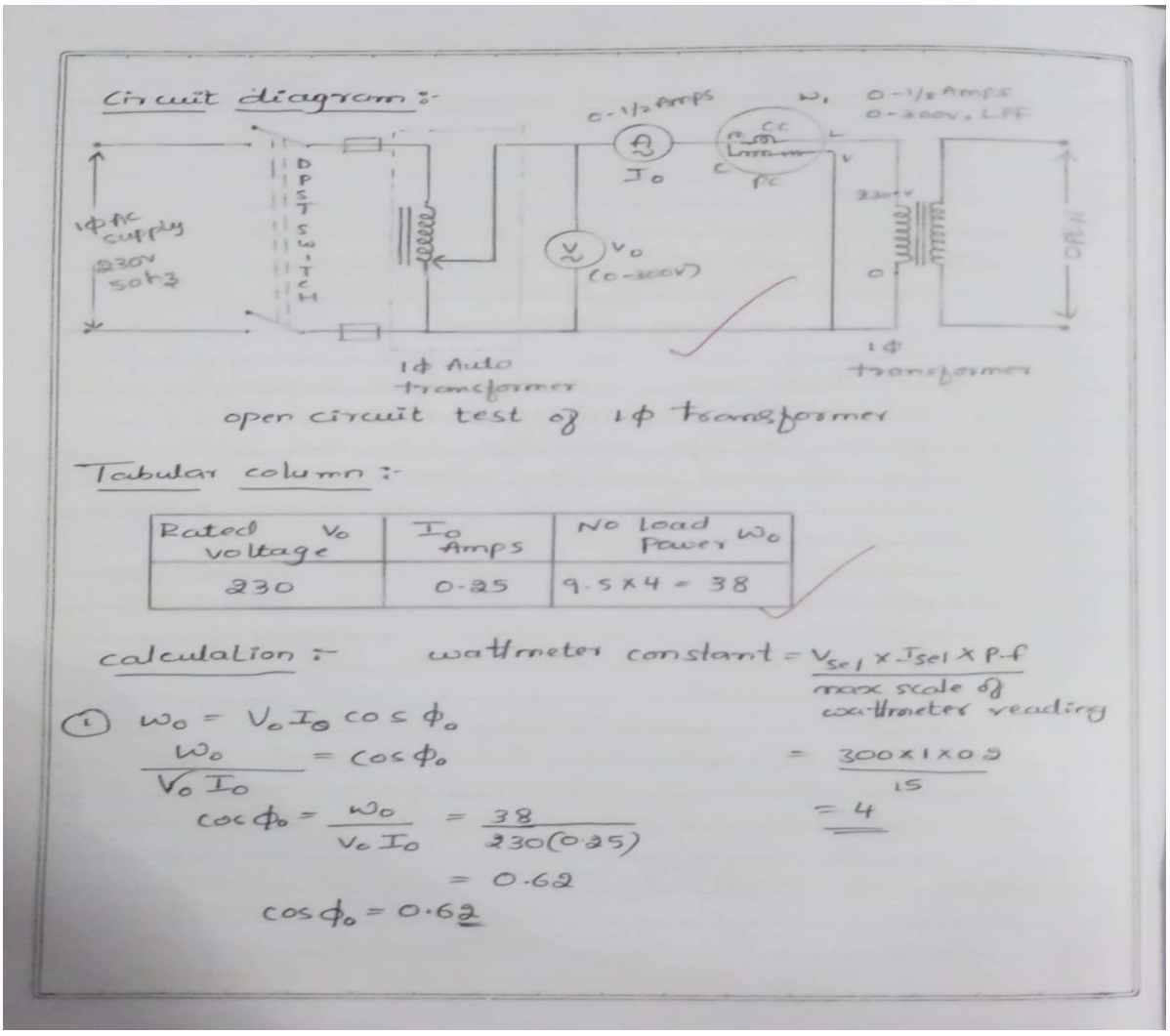
57.	20221LEE0003	K TUNISH
58.	20221LEE0004	KUPPAM MANJUNATHA
59.	20221LEE0005	RITHIKA RAJ
60.	20221LEE0006	BHUVAN B U
61.	20221LEE0007	RAGHU M

Sample Lab Record Screen shots of the activity.



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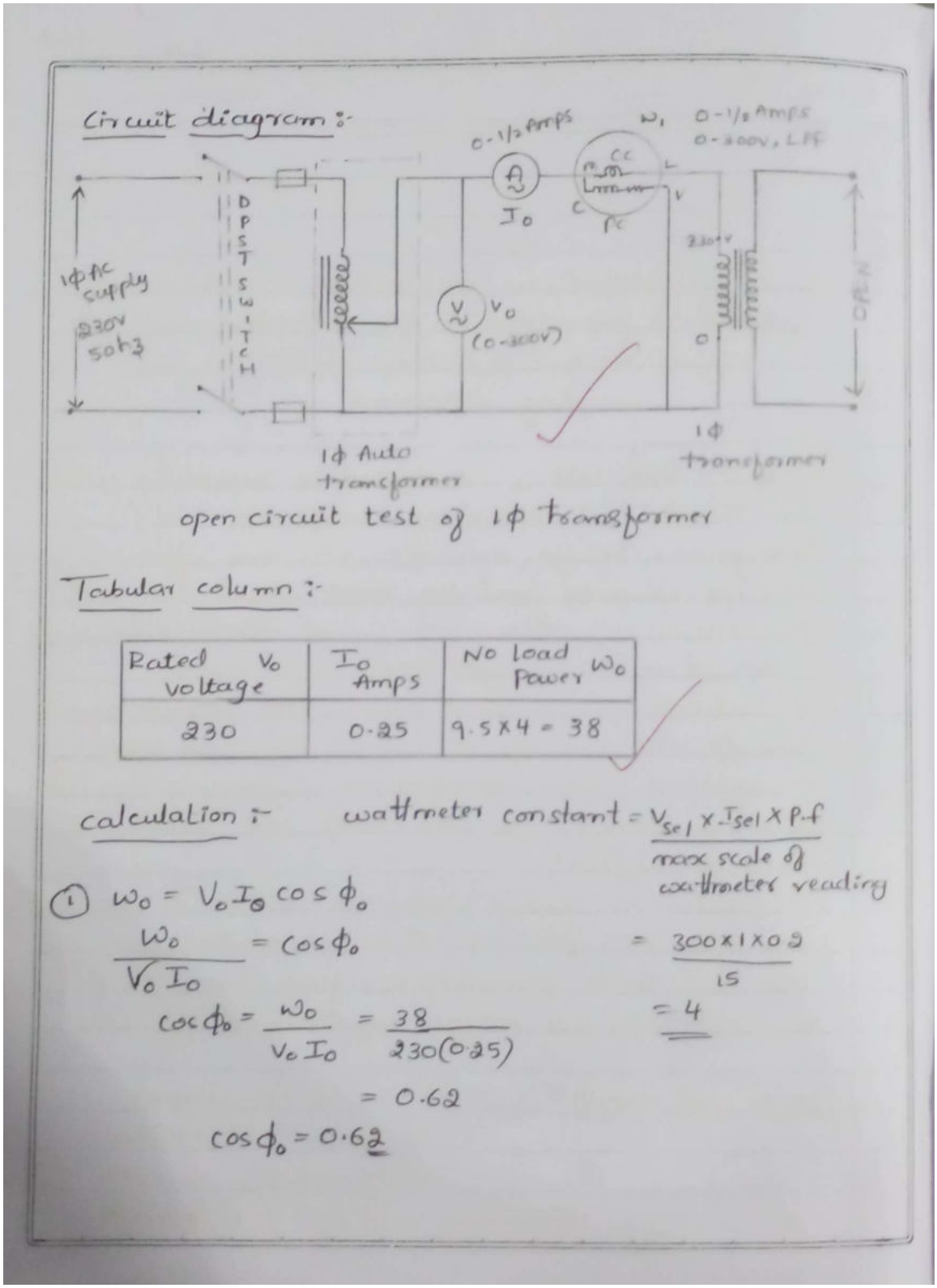

Circuit diagram :-

open circuit test of 1φ transformer

Tabular column :-

Rated V_o voltage	I_o Amps	No load Power W_o
230	0.25	9.5×4 = 38

calculation :- wattmeter constant = $\frac{V_{sel} \times I_{sel} \times P.f}{\text{max scale of wattmeter reading}}$

$= \frac{300 \times 1 \times 0.2}{15}$

$= 4$

(1) $W_o = V_o I_o \cos\phi_o$

$\frac{W_o}{V_o I_o} = \cos\phi_o$

$\cos\phi_o = \frac{W_o}{V_o I_o} = \frac{38}{230(0.25)}$

$= 0.62$

$\cos\phi_o = 0.62$

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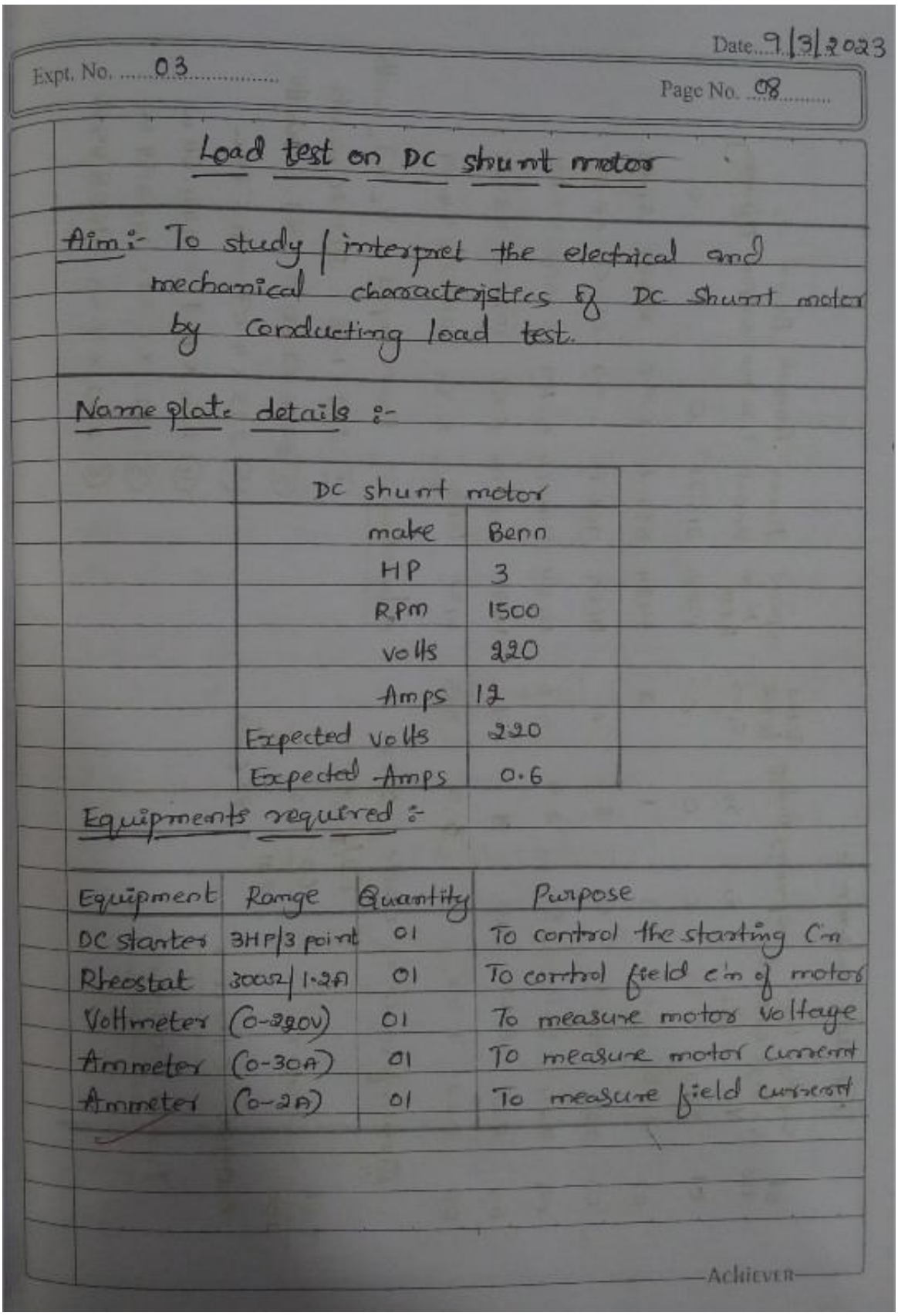

Date 9/3/2023

Expt. No. 03

Page No. 08

Load test on DC shunt motor

Aim:- To study / interpret the electrical and mechanical characteristics of DC shunt motor by conducting load test.

Name plate details :-

DC shunt motor	
make	Benn
HP	3
RPM	1500
volts	220
Amps	12
Expected volts	220
Expected Amps	0.6

Equipments required :-

Equipment	Range	Quantity	Purpose
DC starter	3HP/3 point	01	To control the starting c/n
Rheostat	300Ω/1.2A	01	To control field c/n of motor
Voltmeter	(0-300V)	01	To measure motor voltage
Ammeter	(0-30A)	01	To measure motor current
Ammeter	(0-2A)	01	To measure field current

Achiever

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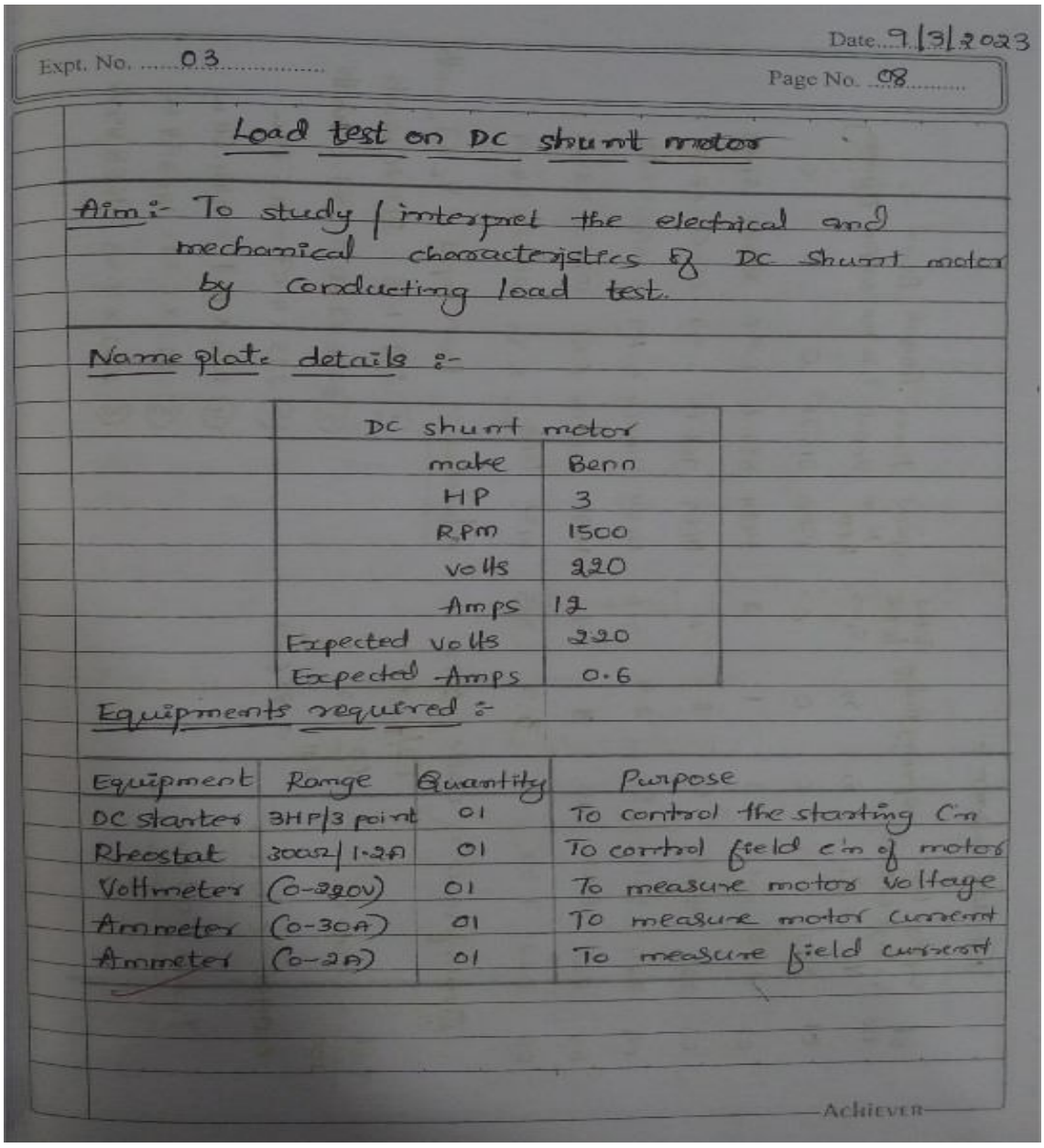

Expt. No. 03 Date 9/3/2023

Page No. 08

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Ammeter	(0-30A)	01	To measure motor current
Ammeter	(0-2A)	01	To measure field current

Achiever

Signature of Instructor.

Signature of Instructor In-Charge

Dr. V Joshi Manohar

Head of the Department
Electrical and Electronics Engineering
School of Engineering
PRESIDENCY UNIVERSITY
Rajanukunte, Yelahanka, Bengaluru -64

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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

Year: 2022-2023 **Semester: 4th** **Section: 4-ISR**

Course Title: Microcontroller Applications

Course Code: EEE3051

Type of Skill: Skill Development

Type of Activity: Experiential Learning

Instructor in Charge: Dr. Sumit Kumar Jha.

Instructor for Section: Dr. Sumit Kumar Jha.

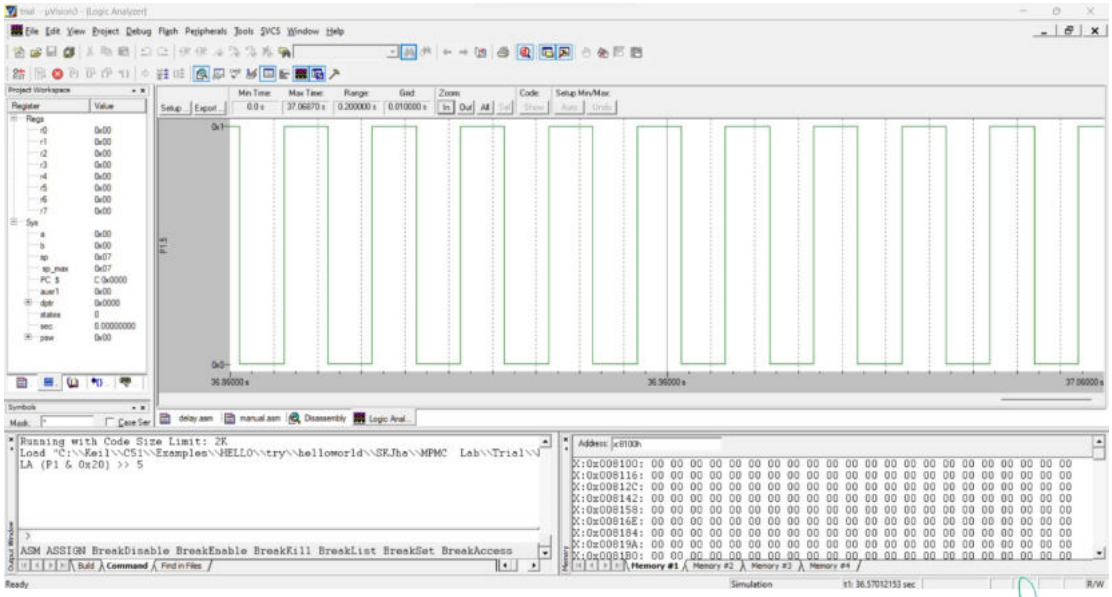
Details about the activity: Students were asked to write program on Keil µvision software to validate the logic flow of the program and write the final output. This activity is performed in groups pertaining to Experiential Learning. The activity focuses on Skill Development.

Topic of Activity: To write 8051 programs in Keil µvision software.

Details of the students involved in the activity:

S.No	Roll Number	Name of the Student
1	20211ISR0017	P L THIYAGARAJAN
2	20211ISR0034	MADHUBALA S
3	20211ISR0031	CHANDANA V

Sample Assessment as mentioned in the topic.



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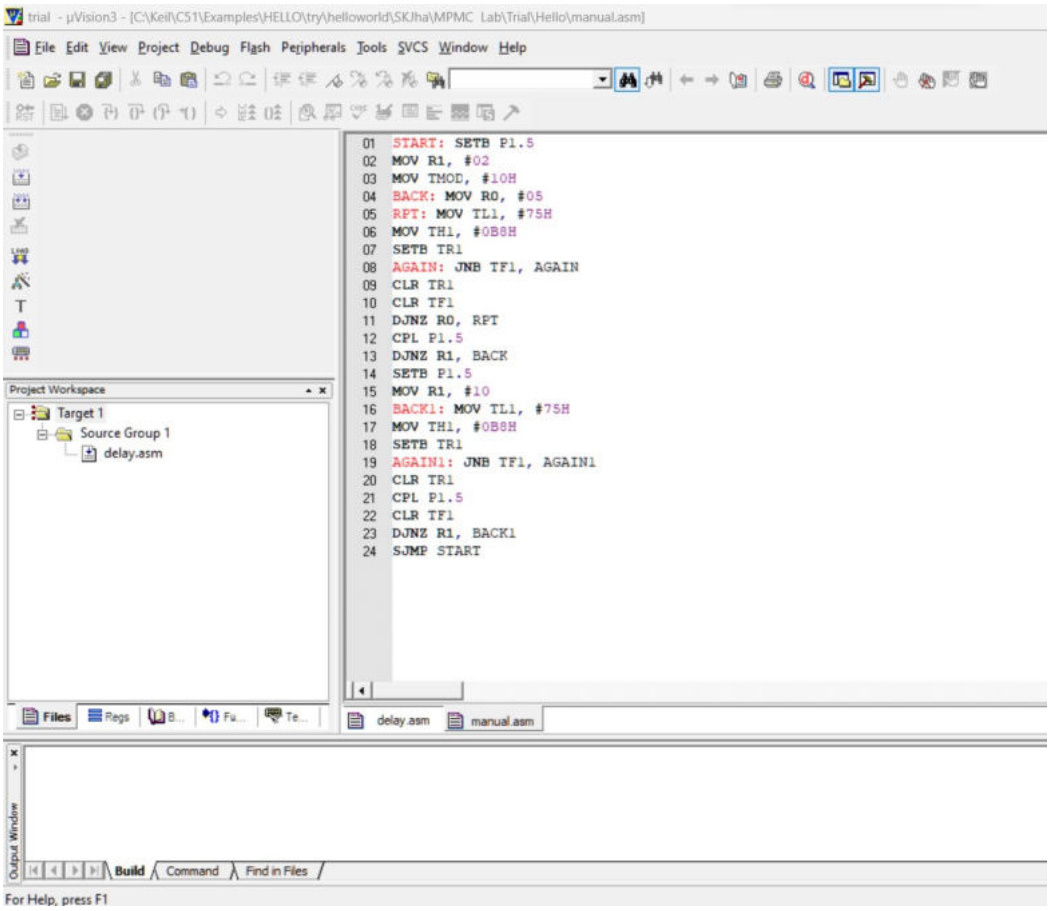


```
01  START: SETB P1.5
02  MOV R1, #02
03  MOV TMOD, #10H
04  BACK: MOV R0, #05
05  RPT: MOV TL1, #75H
06  MOV TH1, #0B8H
07  SETB TR1
08  AGAIN: JNB TF1, AGAIN
09  CLR TR1
10  CLR TF1
11  DJNZ R0, RPT
12  CPL P1.5
13  DJNZ R1, BACK
14  SETB P1.5
15  MOV R1, #10
16  BACK1: MOV TL1, #75H
17  MOV TH1, #0B8H
18  SETB TR1
19  AGAIN1: JNB TF1, AGAIN1
20  CLR TR1
21  CPL P1.5
22  CLR TF1
23  DJNZ R1, BACK1
24  SJMP START
```

Signature of Instructor.

Signature of Instructor In-Charge

Dr. V Joshi Manohar

Head of the Department
Electrical and Electronics Engineering
School of Engineering
PRESIDENCY UNIVERSITY
Rajanukunte, Yelahanka, Bengaluru -64

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SCHOOL of ENGINEERING
DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

Year: 2022-2023 **Semester: 6th** **Section: 6-EEE-1** **Date: 27-02-2023**

Course Title: Power System Simulation Lab.

Course Code: EEE3061

Type of Skill: Skill Development

Type of Session: Experiential Learning.

Type of Activity: Students were encouraged to perform and demonstrate the various experiments that are listed as per the course handout through experiential learning to develop the following skill sets in the laboratory:

1. An attitude of enquiry.
2. Confidence and ability to tackle new problems.
3. Ability to interpret events and results.
4. Ability to work as a leader and as a member of team.
5. Assess errors and eliminate them.
6. Write Reports.
7. Select suitable equipment, instrument and materials.
8. Locate faults in systems.
9. The ability to follow standard test procedures.
10. An awareness of the need to observe safety precautions.

Instructor in Charge: Mr. Ravi V Angadi.

Instructor for Section: Mr. Ravi V Angadi.

Details about the activity: Performing and demonstrating the various experiments hands-on.

Details of the students involved in the activity: 7EEE1 Students

Sl. No	Student Id No.	Name of the Student
1.	20201EAE0002	RAHEL ANN JOHNSON
2.	20201EAE0003	ANAND U R
3.	20201EEE0001	SONU KUMAR
4.	20201EEE0003	SHRAVANI N
5.	20201EEE0005	RAKSHITHA B
6.	20201EEE0007	S THYAGARAJ
7.	20201EEE0008	VARSHITHA GOWDA M
8.	20201EEE0011	SAI NAYANA
9.	20201EEE0012	G YOGESHWARAN
10.	20201EEE0015	ABHISHEK TT
11.	20201EEE0016	PRITHEESH VARMA VARMA
12.	20201EEE0018	FIZA
13.	20201EEE0021	JILLIVARI KURUVA PRASAD

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14.	20201EEE0022	YASHASWINI BG
15.	20201EEE0023	SHRUJAN H S
16.	20201EEE0025	VISHALA R
17.	20201EEE0026	MANJUNATH K
18.	20211LEE0001	DEEP CHATTERJEE
19.	20211LEE0002	T PERUMAL
20.	20211LEE0003	FAKIR SAEED SALIMSHA
21.	20211LEE0004	YOGENDRA
22.	20211LEE0005	SANTHOSH V
23.	20211LEE0006	PRABHAS M
24.	20211LEE0007	SANJAY M K
25.	20211LEE0008	MANOJ K P
26.	20211LEE0009	PAVAN V
27.	20211LEE0010	ROHIT GURUNATH MATHAPATI
28.	20211LEE0011	KISHORE TEJA S N
29.	20211LEE0012	HAMSA SHREE R
30.	20211LEE0013	CHARANREDDY S V
31.	20211LEE0014	AMBIKA M BIJAPUR
32.	20211LEE0015	NAGENDRA B
33.	20211LEE0016	NIRANJAN JAGADISH PAMMAR
34.	20211LEE0017	NARESH R N
35.	20211LEE0018	MURULI A V
36.	20211LEE0019	G TARUN
37.	20211LEE0020	SACHIN P
38.	20211LEE0021	CHARAN P
39.	20211LEE0022	MOHAMMED SHAH ALAM
40.	20211LEE0023	PATEL CHIKKALINGE GOWDA
41.	20211LEE0024	MAHESH M R
42.	20211LEE0025	DARSHAN T C
43.	20211LEE0026	ARUNA P
44.	20211LEE0027	KUSHAL R
45.	20211LEE0028	SHASHANK GOWDA K N
46.	20211LEE0029	ABHI J T
47.	20211LEE0030	BABITHA GAIKWAD G
48.	20211LEE0031	RAMEGOWDA K T

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Sample Lab Record Screen shots of the activity.

Date 27/02/2023

Expt. No. 01 Page No. 1

EXPERIMENT - 01

"DEVELOP A MAT LAB CODE OF COMPUTE Y-BUS WITHOUT MUTUAL COUPLING."

→ Level 01 : Formation of Y-bus without mutual coupling by using MAT Lab.

→ Level 02 : Formation of Y-bus without mutual coupling by using MI Power.

* Aim :- Formation of Y-bus of a given power system by singular transformation without mutual coupling using MAT Lab coding.

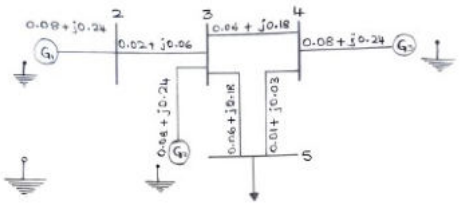
* Table :-

Line No.	Between Buses (P-Q)	Line Impedance.
1.	2-3	0.02 + j0.06
2.	3-5	0.06 + j0.18
3.	3-4	0.06 + j0.18
4.	4-5	0.01 + j0.03
5.	2-1	0.08 + j0.24
6.	3-1	0.08 + j0.24
7.	4-1	0.08 + j0.24

* Apparatus Required :- MAT Lab Software.

Teacher's Signature

→ Diagram :



Y-Bus = $[A]^T[y][A]$

% Program to determine Y-bus by singular transformation without mutual coupling.

```
clc;
clear;
n=input ('Enter the number of nodes \n');
b=input ('Enter the number of buses \n');
e=input ('Enter the number of elements \n');
p=input ('Enter the -from-bus no.one by one \n');
q=input ('Enter the -to-bus no.one by one \n');
z=input (' Enter the line impedance one by one \n');
zpri=zeros (e,e);
ybus=zeros (b,b);
acap=zeros (e,n);
```

% Getting the Primitive admittance matrix.

```
for i=1:1:e
    zpri (i,i)=z(i,1);
end
    ypri=inv (zpri);
```

% Getting the incidence matrix

```
for j=1:1:e
    s=p(j,1);
    s=q(j,1);
    acap (j,s)=1;
    acap (j,s)=-1;
end
    acap;
    acap (:,1)=[];
    a=acap
    at=a';
```

% Getting the Ybus matrix

```
ybus = at*ypri*a
```

* Input Data :-

```
Enter the number of nodes
5
Enter the number of buses
4
Enter the number of elements
7
Enter the -from-bus no.one by one
[2;3;3;4;2;3;4]
Enter the -to-bus no.one by one
[3;5;4;5;1;1;1]
Enter the line impedance one by one
[0.02+0.06i;
 0.06+0.18i;
 0.06+0.18i;
 0.01+0.03i;
 0.08+0.24i;
 0.08+0.24i;
 0.08+0.24i]
```

* OUTPUT :-

Y-bus =

6.2500 -18.7500i	-5.0000+15.0000i	0.0000+0.0000i	0.0000+0.0000i
-5.0000+15.0000i	9.8833+28.7500i	-1.6667+5.0000i	-1.6667+5.0000i
0.0000+0.0000i	-1.6667+5.0000i	11.6667+35.0000i	-10.0000+30.0000i
0.0000+0.0000i	-1.6667+5.0000i	-10.0000+30.0000i	12.9167-38.7500i

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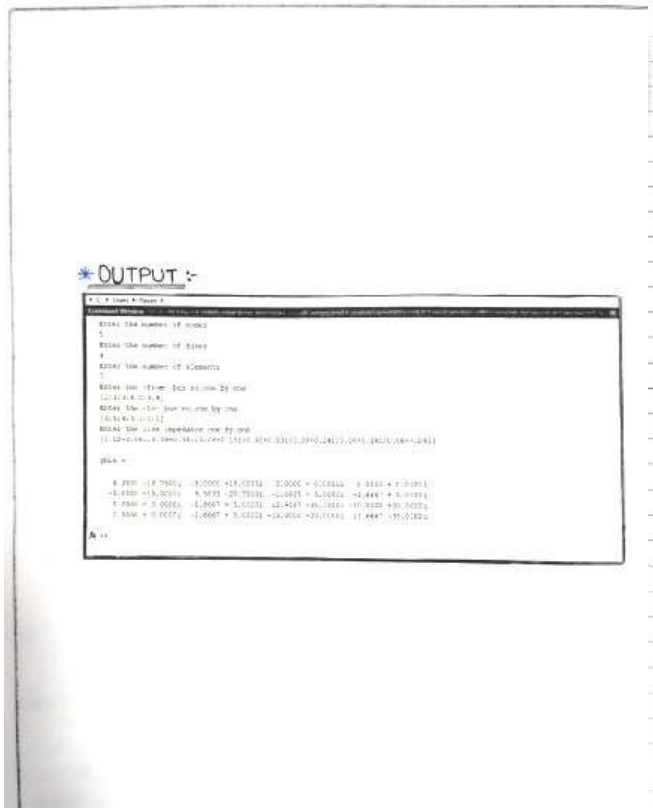

Result :

In this experiment, we learnt to develop a matlab program to create a Ybus matrix from given data & Computed same.

10/10

6/3/23

Teacher's Signature

Signature of Instructor.

Signature of Instructor In-Charge

Dr. V Joshi Manohar
Head of the Department
Electrical and Electronics Engineering
School of Engineering
PRESIDENCY UNIVERSITY
Rajanukunte, Yelahanka, Bengaluru -64

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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

Year: 2022-2023 **Semester: 6th** **Section: 6-EEE-1** **Date: 14-5-2023**

Course Title: Electrical CAD Lab.

Course Code: EEE2064

Type of Skill: Skill Development

Type of Session: Experiential Learning.

Type of Activity: Students were encouraged to perform and demonstrate the various experiments that are listed as per the course handout through experiential learning to develop the following skill sets in the laboratory:

1. An attitude of enquiry.
2. Confidence and ability to tackle new problems.
3. Ability to interpret events and results.
4. Assess errors in systems/processes/programs/computations and eliminate them.
5. Write reports
6. Select suitable equipment, instrument, materials & software
7. Manipulative skills for setting and handling systems/Process/ Issues
8. To judge magnitudes/Results/issues without actual measurement/actual contacts

Instructor in Charge: Dr Jisha L K.

Instructors for Section: Dr Jisha L K, Mr. Ravi V Angadi, Mr Bishakh Paul

Details about the activity: Performing and demonstrating the various experiments hands-on.

Details of the students involved in the activity: 6EEE1 Students

Sl. No.	Student ID No	Name
1	20201EAE0002	RAHEL ANN JOHNSON
2	20201EAE0003	ANAND UR
3	20201EEE0001	SONU KUMAR
4	20201EEE0003	SHRAVANI N
5	20201EEE0005	RAKSHITHA B
6	20201EEE0007	S THYAGARAJ
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11	20201EEE0016	KAMPA PREETHISH
12	20201EEE0018	FIZA

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13	20201EEE0021	JILLIVARI KURUVA PRASAD
14	20201EEE0022	YASHASWINI BG
15	20201EEE0023	SHRUJAN H S
16	20201EEE0025	VISHALA R
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27	20211LEE0010	ROHIT GURUNATH MATHAPATI
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47	20211LEE0030	BABITHA GAIKWAD G
48	20211LEE0031	RAMEGOWDA K T

Sample Lab Record Screen shots of the activity.

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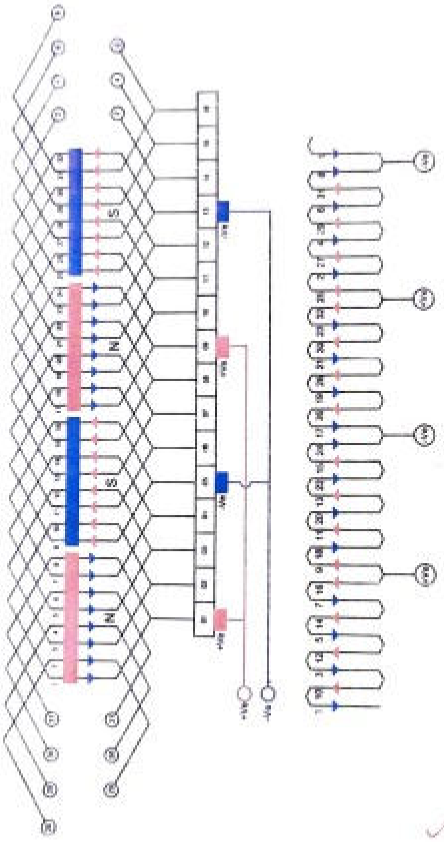


PAGE NO. 2
DATE 26/3
EXPERI. 01

Experiment No: 01

Develop a Simplex DC LAP wound armature Winding.

Aim:- Develop a simplex DC lap wound armature lap winding for the given problem statement.

Problem statement :- Develop a single layer lap winding diagram for a DC machine having 32 armature conductors and 4-poles mark the poles, draw the sequence diagram indicate the position of the brushes and show the direction of induced emf.

Solⁿ :-

1 :- Analyse the problem & list the given data no of poles (p) = 4

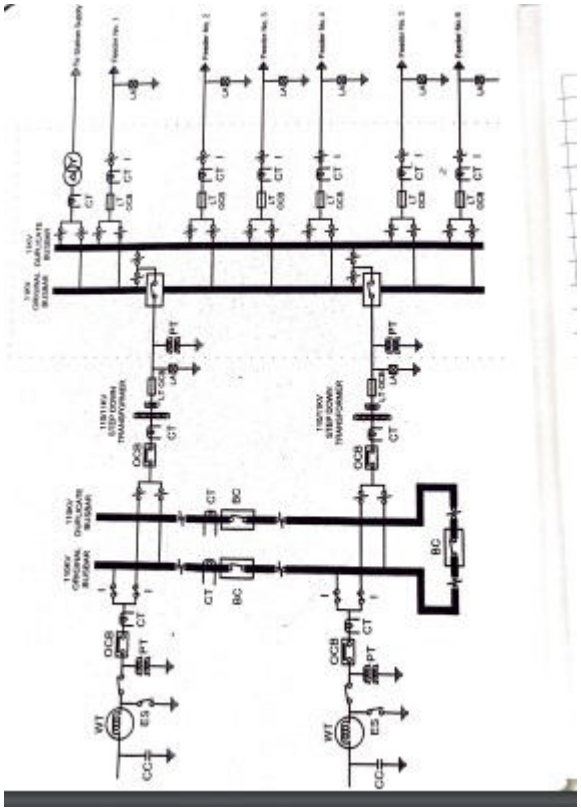
* Type of armature winding :-
Single layer & simplex lap winding

2 :- Calculate the pole pitch front pitch back pitch.

pole pitch = Z/P : $32/4 = 8$

Hence $(Y_b + Y_f)/2 = 8$

$Y_p = \frac{Y_b + Y_f}{} = Y_p(2) = Y_b + Y_f$



DATE 6/4/22
EXPNO 03

Experiment No: 03

Develop a single line diagram of substation

Aim :- Develop a neat single line diagram using ISI symbols for 110KV/11KV Master unit substation with following details.

Problem statement :-

Develop a neat single line diagram using ISI symbols for 110KV/11KV master unit substation with following details

- Incoming line :- Two 110KV
- Line :- Two, OCB 110KV
- Transformers :- Two step down 110KV/11KV
- LT OCBs for transformer :- Two.
- Duplicate bus bar on high tension & low tension sides to be indicated.
- Bus coupler on HT side only
- Feeders are 11KV at LT bus
- LT circuit breakers for feeders
- Station supply transformer :-

Indicate earthing switch, coupling condenser lightening arresters, wave traps, PTs & CT at appropriate places

ARUN'S

Signature of Instructor.

Signature of Instructor In-Charge

Dr. V Joshi Manohar

Head of the Department
Electrical and Electronics Engineering
School of Engineering
PRESIDENCY UNIVERSITY
Rajanukunte, Yelahanka, Bengaluru -64

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