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SCHOOL of ENGINEERING

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

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

Course Title: Electric Circuit Analysis.

Course Code: EEE2002

Type of Skill: Skill Development

Type of Activity: Problem solving Methodologies

Instructor in Charge: Ms. Priyanka Ray.

Instructor for Section: Ms. Ragasudha C P

Details about the activity: Students are encouraged to brainstorming sessions where they are encouraged to solve the given electrical circuit to compute the various parameters and were asked to solve the problem theoretically and verify the results using Multi sim simulation tools to enhance the problem solving skill set of the students.

Topic of Activity: Multisim simulation of Electric Circuits

Details of the students involved in the activity (Batch-1)

S. No	Name of the Student	Roll Number
1	20221EEE0001	MANISH P RAI
2	20221EEE0002	KEMILTEN R
3	20221EEE0003	GAURI NISHAD
4	20221EEE0004	PAVAN S K
5	20221EEE0006	GAUTHAM U KUMAR
6	20221EEE0042	SUSHANTH H
7	20221EEE0017	HEMANTH
8	20221EEE0009	JOSHUA
9	20221EEE0018	JYOTHI
10	20221EEE0019	KHALFAN KHAN
11	20221EEE0010	LEENA
12	20221EEE0015	LOKESH PUNYAKAR PATIL
13	20221EEE0030	MANASA

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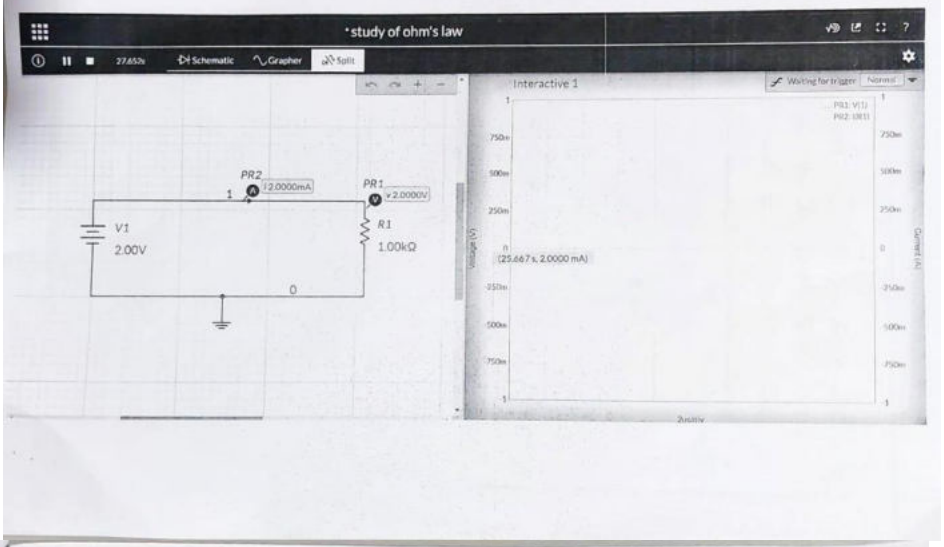
AIM:- To verify ohm's law using multisim and by comparing the results with theoretical calculation.



Calculations.

According to ohm's law at constant value of temperature V is directly proportional to I

i.e $V \propto I$ which indicates $V = IR$

current $I = \frac{V}{R}$, current value calculated theoretically

$V = 2V \qquad R = 1k\Omega$

$I = \frac{V}{R} = \frac{2}{1} = 2mA$

RESULT

Studied and verified ohm's law by comparing theoretical values and multisim simulation results.

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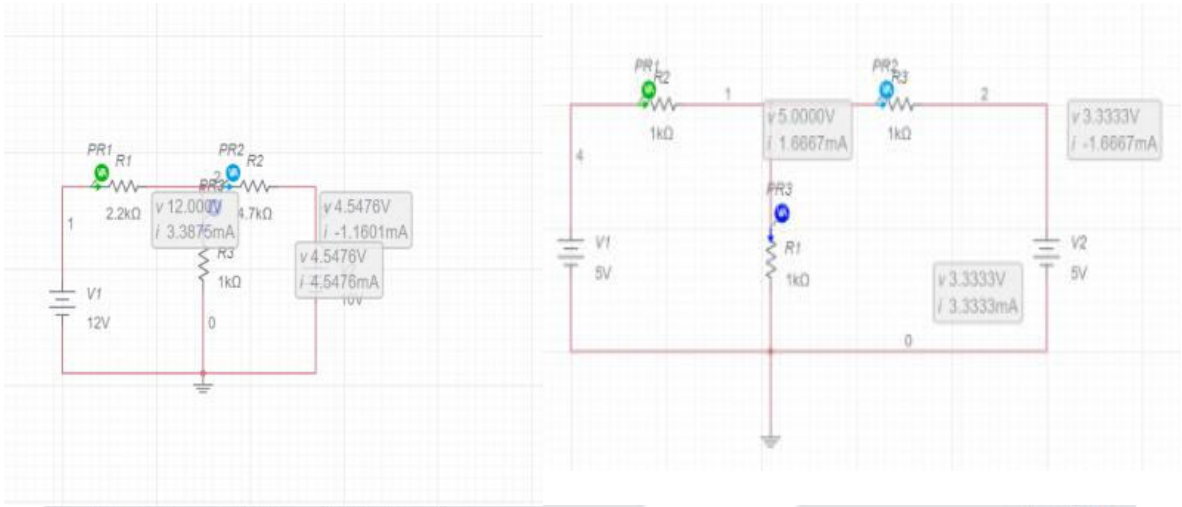

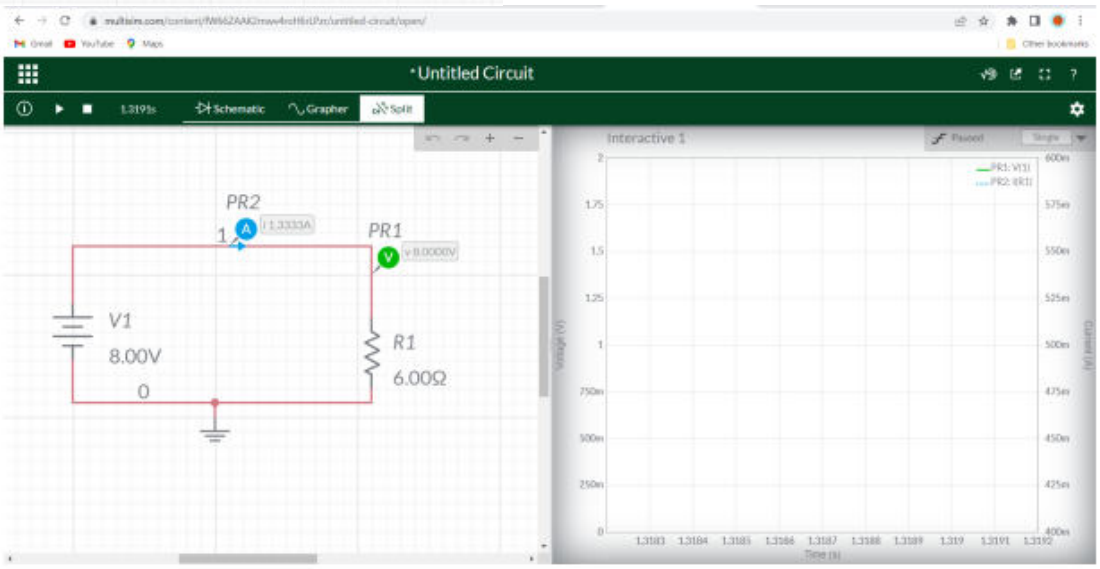

Signature of Instructor.

Signature of Instructor In-Charge

Dr. V Joshi Manohar
Head of the Department
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Rajanukunte, Yelahanka, Bengaluru -64

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SCHOOL of ENGINEERING

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

Year: 2022-2023 **Semester: 3rd** **Section: 3-EEE** **Date: Date: 28-11-2022**

Course Title: Electrical Machines - I

Course Code: EEE2016

Type of Skill: Skill Development

Type of Activity: Problem solving Methodologies

Instructor in Charge: Dr. Snehaprabha T V.

Instructor for Section: Dr. Snehaprabha T V.

Details about the activity: Students are encouraged to do brainstorming sessions to develop the skill set of the student to identify the unknown parameter for the scenario based conditions and they were asked and to compute the missing data by using the problem solving methodologies

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
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
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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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
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
57.	20221LEE0003	K TUNISH
58.	20221LEE0004	KUPPAM MANJUNATHA
59.	20221LEE0005	RIITHIKA RAJ

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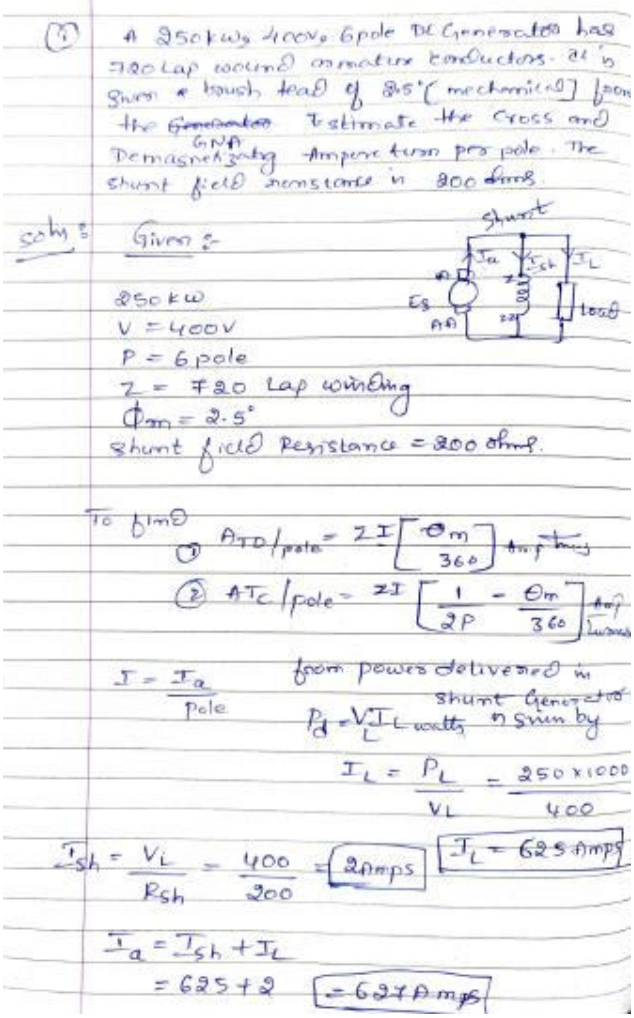
Question: In a DC machine, two kinds of magnetic fluxes are present; 'armature flux' and 'main field flux'. The effect of armature flux on the main field flux is called as armature reaction. EMF is induced in the armature conductors when they cut the magnetic field lines. There is an axis (or, you may say, a plane) along which armature conductors move parallel to the flux lines and, hence, they do not cut the flux lines while on that plane. MNA (Magnetic Neutral Axis) may be defined as the axis along which no emf is generated in the armature conductors as they move parallel to the flux lines. Brushes are always placed along the MNA because reversal of current in the armature conductors takes place along this axis. GNA (Geometrical Neutral Axis) may be defined as the axis which is perpendicular to the stator field axis. A 250 kw, 400 V, 6 pole DC generator has 720 lap wound conductors. It is given the brush lead of 2.5 degree mechanical from the GNA. Identify the unknown parameter that could be found from the given data and compute the same.

Sample answer submitted by the student:



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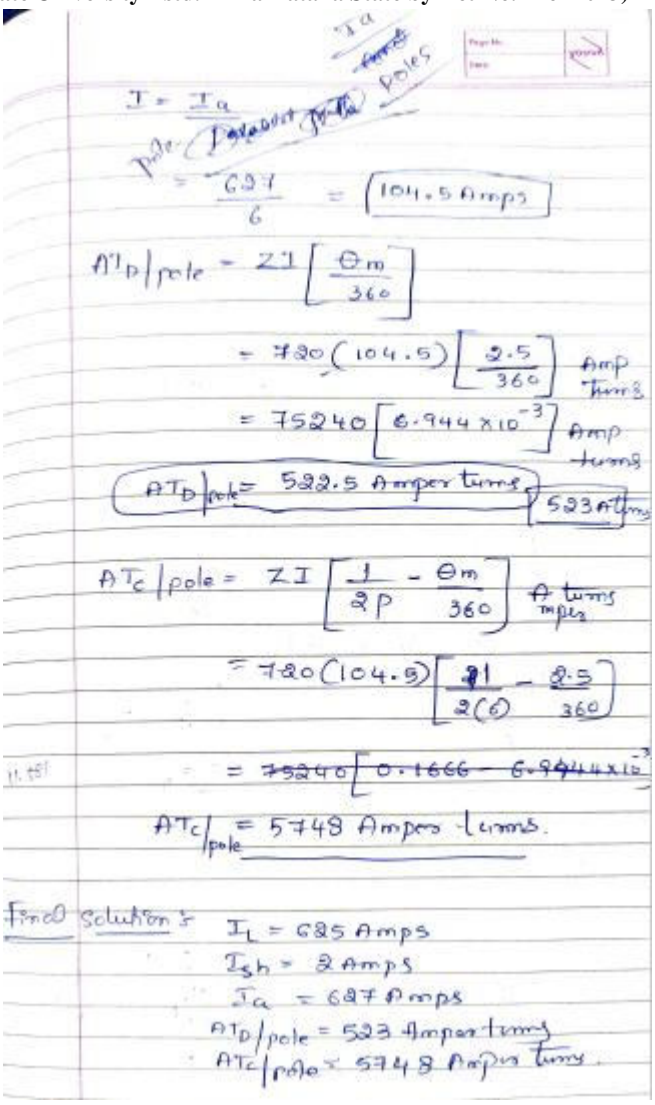

$I = I_a$

$= \frac{697}{6} = 104.5$ Amps

$AT_D/pole = ZI\left[\frac{\theta m}{360}\right]$

$= 720(104.5)\left[\frac{2.5}{360}\right]$ Amp turns

$= 75240\left[6.944 \times 10^{-3}\right]$ Amp turns

$AT_D/pole = 522.5$ Amper turns

$AT_C/pole = ZI\left[\frac{1}{2P} - \frac{\theta m}{360}\right]$ A turns

$= 720(104.5)\left[\frac{1}{2(6)} - \frac{2.5}{360}\right]$

$= 75240\left[0.1666 - 6.944 \times 10^{-3}\right]$

$AT_C/pole = 5748$ Amps turns.

Final Solution :

$I_L = 685$ Amps

$I_{sh} = 2$ Amps

$I_a = 697$ Amps

$AT_D/pole = 523$ Amper turns

$AT_C/pole = 5748$ Amps turns.

Signature of Instructor.

Signature of Instructor In-Charge

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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

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

Course Title: Analog Electronics Circuits

Course Code: EEE2009

Type of Skill: Skill Development

Type of Activity: Problem Solving

Instructor in Charge: Dr. Sumit Kumar Jha

Instructor for Section: Dr. Sumit Kumar Jha

Details about the activity: Students were asked to submit a report on any real-life application of clipper circuit along with the MATLAB Code in groups pertaining to Problem Solving. The activity focuses on Skill Development.

Topic of Activity: To submit a report on the application of clipper circuit.

Details of the students involved in the activity:

S.No	Name of the Student	Roll Number
1	VIDYA SHREE G N	20211EEE0012
2	ANUSHA B	20211EEE0009
3	YAMUNA M N	20211EEE0004
4	SUPRITH D L	20211EEE0010
5	SUMAN	20211EEE0003
6	BINDHU.R	20211EEE0015

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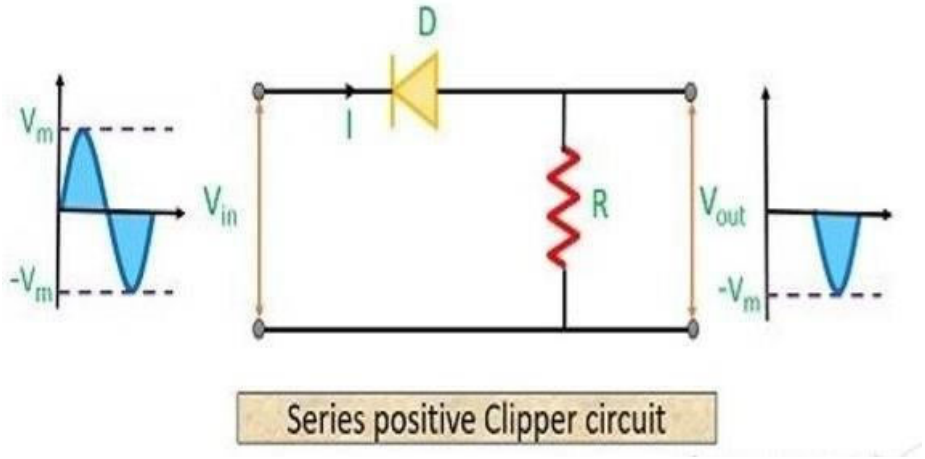
Sample Report as mentioned in the topic.



Series positive Clipper circuit

CLIPPERS WORKING IN MATLAB

```
x = -pi:pi/20:pi;
y = sin(-pi:pi/20:pi);
plot(x,y)
ylim([-0.9 0.9])
```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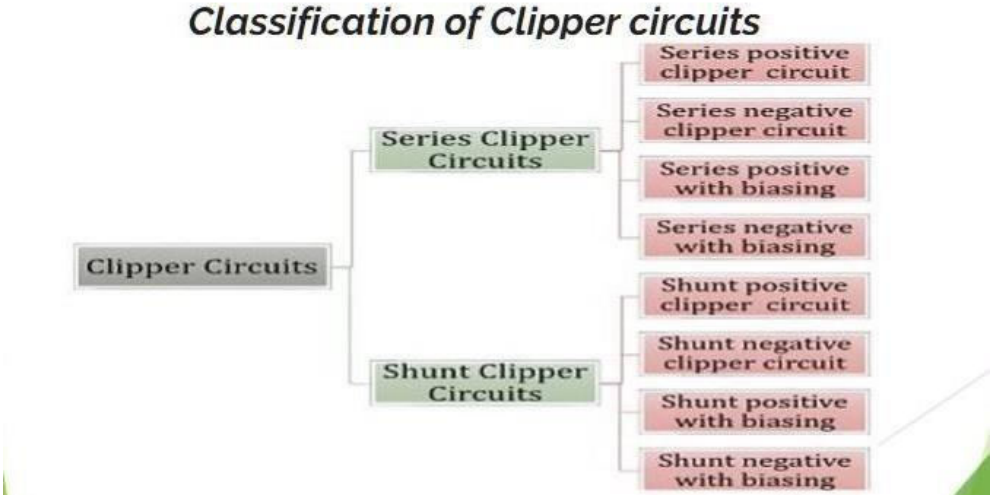
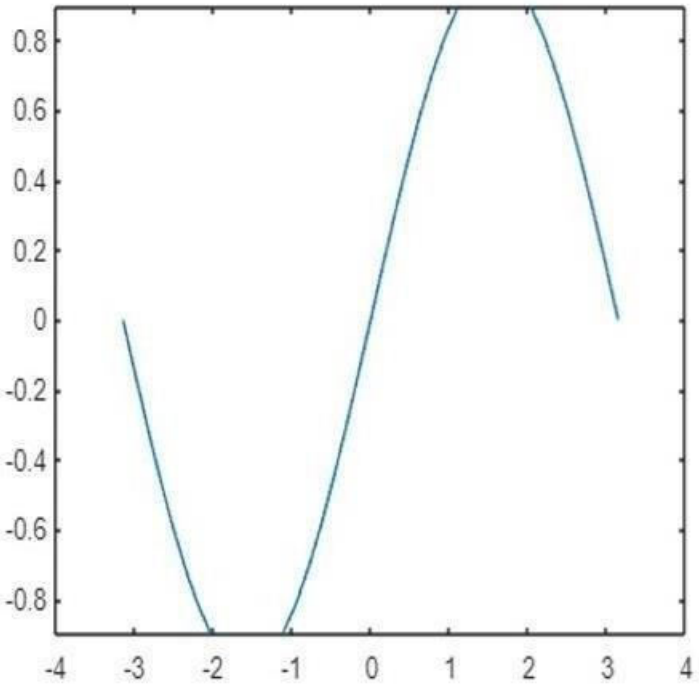
Clipper circuits are basically termed as **protection devices**. As electronic devices are voltage sensitive and voltage of large amplitude can permanently destroy the device. So, in order to protect the device clipper circuits are used.





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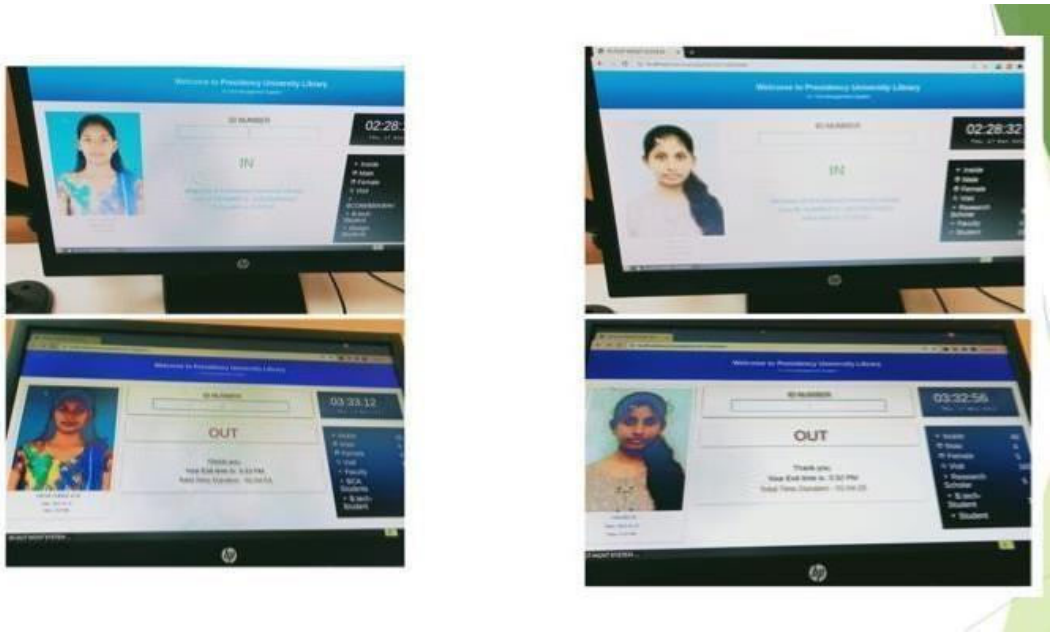

Signature of Instructor:

Signature of Instructor In-Charge :

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Head of the Department
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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

Year: 2022-2023 **Semester:3rd** **Section: 3-EEE-1** **Date: 22-11-2022**

Course Title: Digital Electronics

Course Code: EEE2015

Type of Skill: Skill Development

Type of Session: Problem Solving.

Instructor in Charge: Mr. K Sreekanth Reddy

Instructor for Section: Mr. K Sreekanth Reddy

Type of Activity: Students were asked to identify the real time applications of gates and implement the same to understand the problem.

Details about the activity: Implementing real time application using logic gates.

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
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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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
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25.	20211EEE0025	RATHISH HOMBALE N
26.	20211EEE0026	MOHAMMED AIMAN KHAN
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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

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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
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
57.	20221LEE0003	K TUNISH
58.	20221LEE0004	KUPPAM MANJUNATHA
59.	20221LEE0005	RIITHIKA RAJ

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Questions:

1. A certain system contains two identical circuits operating in parallel. As long as both are operating properly, the outputs of both circuits are always the same. If one of the circuits fails, the outputs will be at opposite levels at some time. Devise a way to monitor and detect that a failure has occurred in one of the circuits.

2. As part of an aircraft's functional monitoring system, a circuit is required to indicate the status of the landing gears prior to landing. A green LED display turns on if all three gears are properly extended when the "gear down" switch has been activated in preparation for landing. A red LED display turns on if any of the gears fail to extend properly prior to landing. When a landing gear is extended, its sensor produces a LOW voltage. When a landing gear is retracted, its sensor produces a HIGH voltage. Implement a circuit to meet this requirement.

Sample Answers by student:

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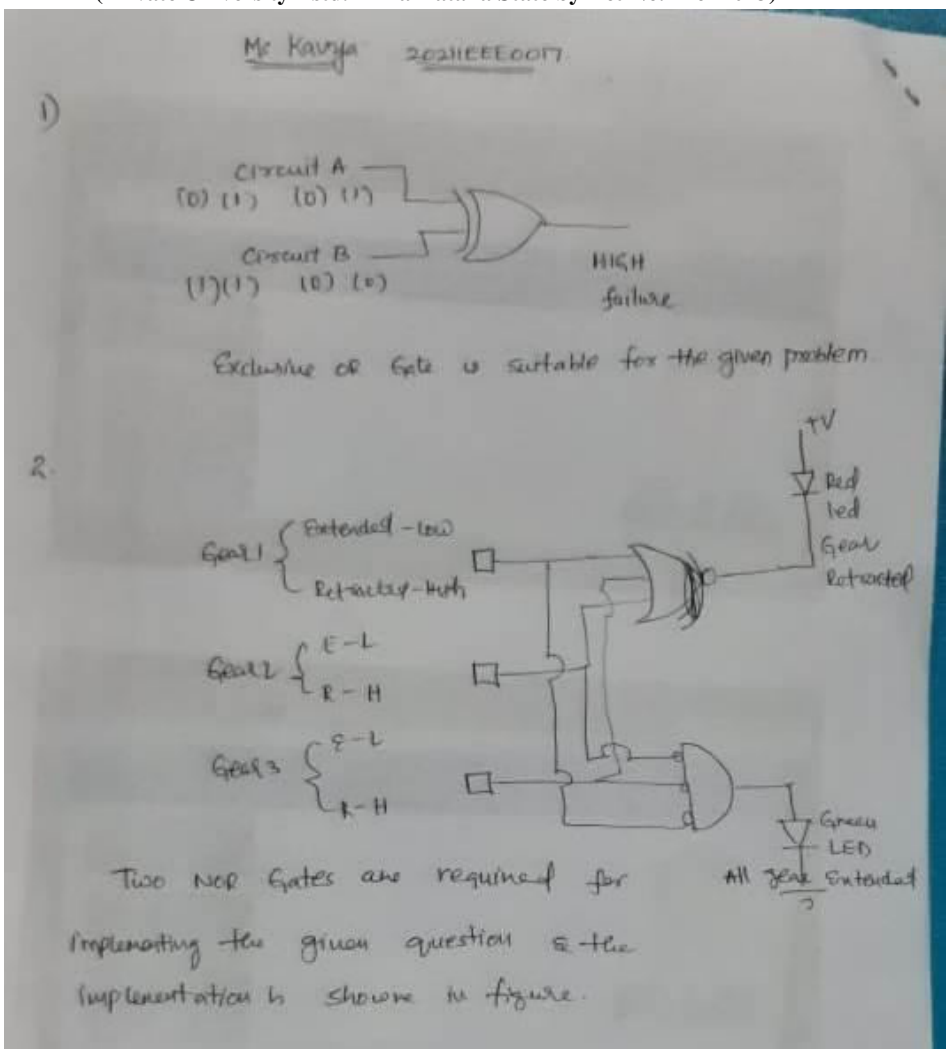

K. Sreekanth Reddy

Signature of Instructor.

K. Sreekanth Reddy

Signature of Instructor In-Charge

Signature of HoD-EEE

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: 3rd** **Section: 3-EEE-1**

Course Title: Electromagnetic Fields

Course Code: EEE2003

Type of Skill: Skill Development

Type of Activity: Problem Solving

Instructor in Charge: Dr Jisha L K

Instructor for Section: Dr Jisha L K.

Details about the activity: The students were given a set of numerical problems as assignment. This activity focusses on skill development.

Details of students involved in the activity: 3EEE students

Assignment Questions

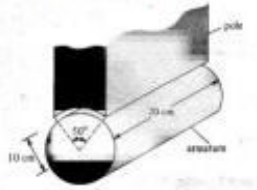
Course Name: Electromagnetic fields **Course Code: EEE2003**

Assignment 1

1. Two point charges - 4 μC and 5 μC are located at (2,-1 , 3) and (0, 4, -2), respectively. Find the potential at (1, 0, 1) assuming zero potential at infinity.
2. The electric motor shown in Figure below has field

$$\mathbf{H} = \frac{10^6}{\rho} \sin 2\phi \, \mathbf{a}_\rho \text{ A/m}$$

Calculate the flux per pole passing through the air gap if the axial length of the pole is 20 cm



3. Calculate the self-inductance per unit length of an infinitely long solenoid. A very long solenoid with 2 X 2 cm cross section has an iron core (μ_r- 1000) and 4000 turns/meter. If it carries a current of 500 mA, find (a) Its self-inductance per meter (b) The energy per meter stored in its field

4 A unit normal vector from region 2 ($\mu = 2\mu_0$) to region 1 ($\mu = \mu_0$) is $\mathbf{a}_{n21} = (6\mathbf{a}_x + 2\mathbf{a}_y - 3\mathbf{a}_z)/7$. If $\mathbf{H}_1 = 10\mathbf{a}_x + \mathbf{a}_y + 12\mathbf{a}_z$ A/m and $\mathbf{H}_2 = H_{2x}\mathbf{a}_x - 5\mathbf{a}_y + 4\mathbf{a}_z$ A/m, determine

(a) $\mathbf{H}_{2x}$

(b) The surface current density **K** on the interface

(c) The angles $\mathbf{B}_1$ and $\mathbf{B}_2$ make with the normal to the interface.

Note:
1. Date of submission of assignment 27/12/2022.
2. Please use the library facility and submit the assignment with digital foot print
3. Text book to refer: **"Elements of Electromagnetics" By Mathew N O Sadiku**
4. Weblink: https://presiuniv.knimbus.com/user#/home

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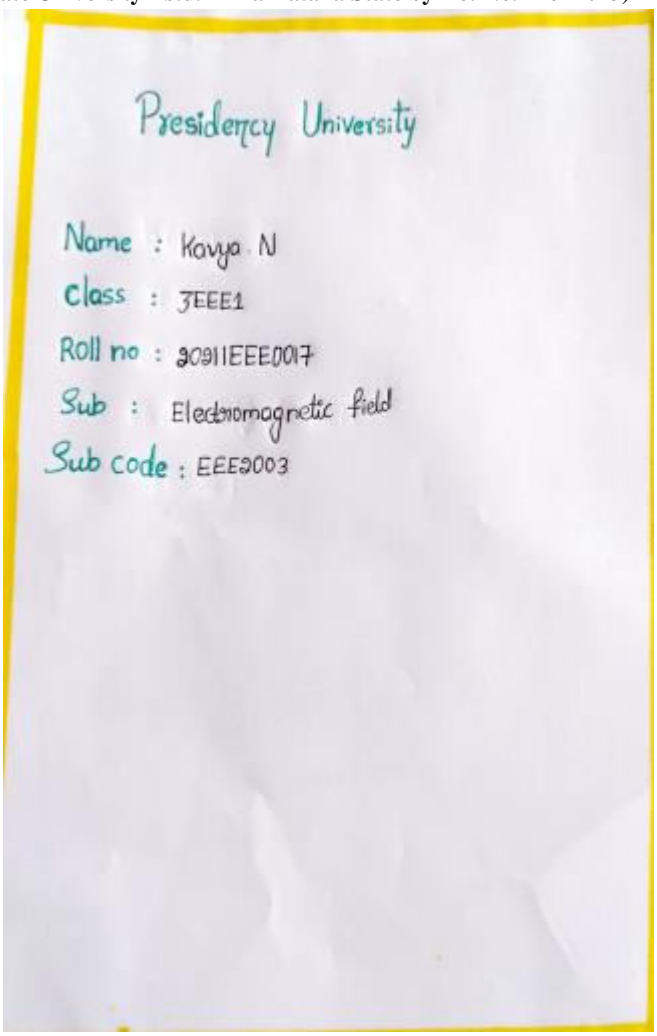

Presidency University

Name : Kavya N

Class : 3EEE1

Roll no : 20911EEE0017

Sub : Electromagnetic field

Sub code : EEE2003

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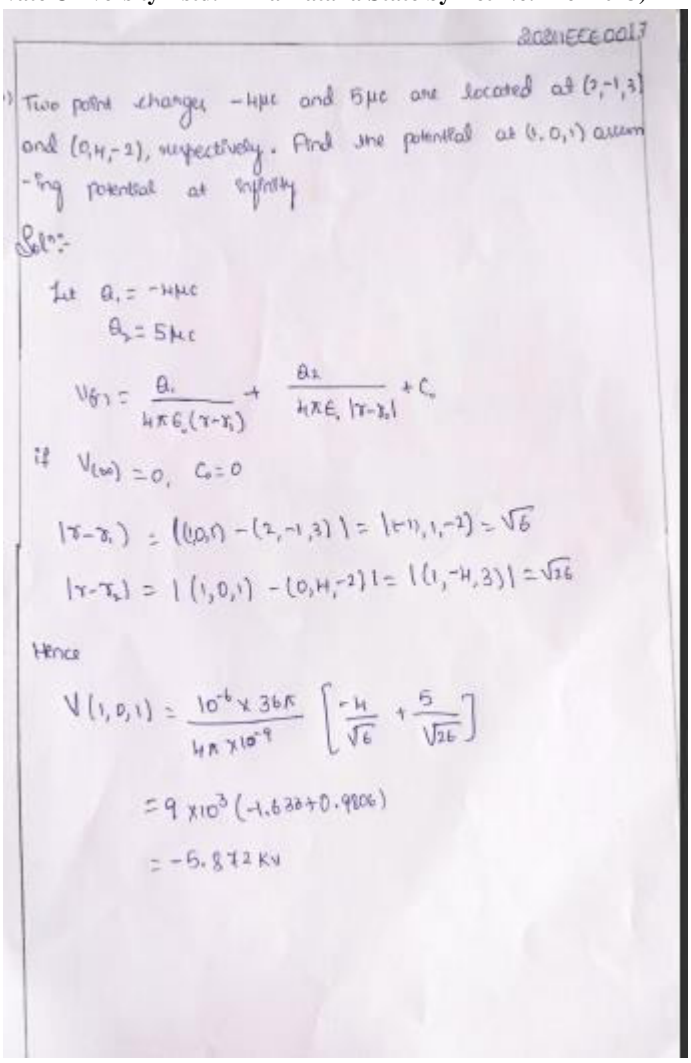

20BEECE001J

1) Two point charges $-4\mu c$ and $5\mu c$ are located at $(2,-1,3)$ and $(0,4,-2)$, respectively. Find the potential at $(1,0,1)$ assuming potential at infinity

Sol:-

Let $Q_1 = -4\mu c$

$Q_2 = 5\mu c$

$$V_{(r)} = \frac{Q_1}{4\pi\epsilon_0(r-r_1)} + \frac{Q_2}{4\pi\epsilon_0|r-r_2|} + C_0$$

if $V_{(\infty)} = 0$, $C_0 = 0$

$|r-r_1| = |(1,0,1) - (2,-1,3)| = |(-1,1,-2)| = \sqrt{6}$

$|r-r_2| = |(1,0,1) - (0,4,-2)| = |(1,-4,3)| = \sqrt{26}$

Hence

$$V(1,0,1) = \frac{10^{-6} \times 36\pi}{4\pi \times 10^{-9}} \left[\frac{-4}{\sqrt{6}} + \frac{5}{\sqrt{26}}\right]$$

$= 9 \times 10^3 (-1.6330 + 0.9806)$

$= -5.872$ KV

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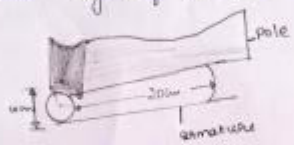
(12) The electric motor shown in figure below has field

$$H = \frac{10^4}{P} \sin 2\phi \, a_\rho \, A/m$$

Calculate the flux per pole passing through the air gap if the axial length of the pole is 20 cm



$$\psi = \oint \vec{B} \cdot d\vec{s} = \mu_0 \int_{\phi=0}^{0.2} \int_{\phi=0}^{50} \frac{10^4}{P} \sin 2\phi \, P \, d\phi \, dz$$

$$\psi = 4\pi \times 10^{-7} \times 10^4 (0.2) \left[-\frac{\cos 2\phi}{2} \right]_0^{50^\circ}$$

$$= 0.04\pi \left[1 - \cos 100^\circ \right)$$

$$\psi = 0.1475 \text{ Wb}$$

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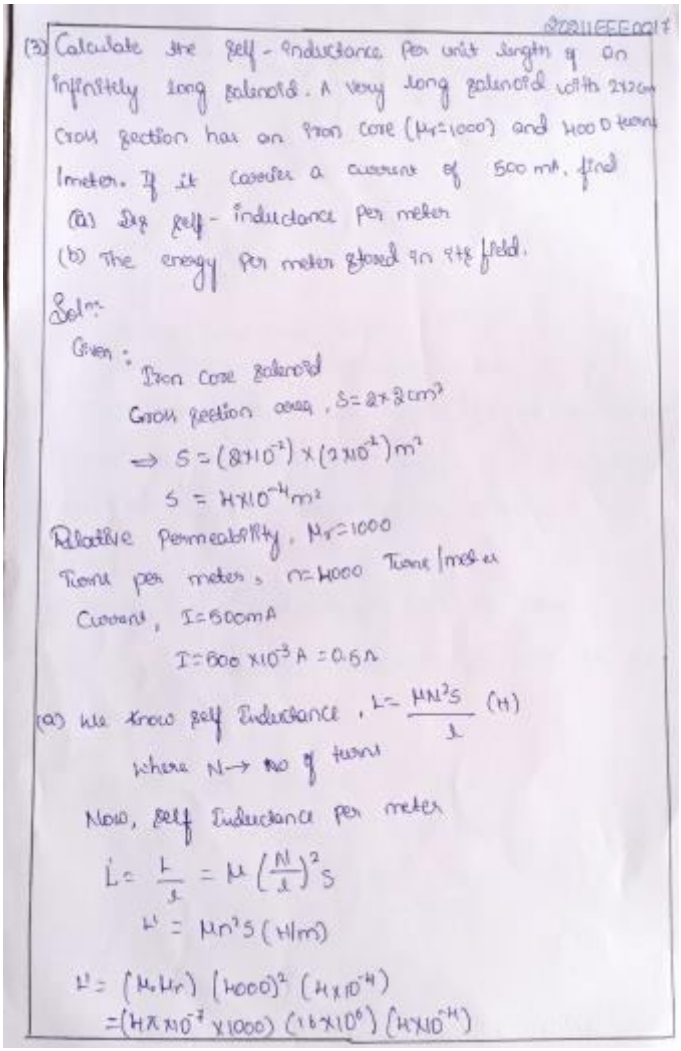

(3) Calculate the self-inductance per unit length of an infinitely long solenoid. A very long solenoid with 2 cm² cross section has an iron core (μ_r=1000) and 4000 turns/meter. If it carries a current of 500 mA, find
(a) the self-inductance per meter
(b) the energy per meter stored in the field.

Soln:

Given:
Iron core solenoid
Cross section area, $S = 2\ cm^2$
$\Rightarrow S = (2\times10^{-2})\times(2\times10^{-2})\ m^2$
$S = 4\times10^{-4}\ m^2$
Relative permeability, $\mu_r = 1000$
Turns per meter, $n = 4000$ Turns/meter
Current, $I = 500\ mA$
$I = 500\times10^{-3}\ A = 0.5\ A$

(a) We know self inductance, $L = \frac{\mu N^2 S}{l}$ (H)
where N → no of turns
Now, self inductance per meter
$L = \frac{L}{l} = \mu\left(\frac{N}{l}\right)^2 S$
$L' = \mu n^2 S$ (H/m)
$L' = (\mu_0\mu_r)(4000)^2(4\times10^{-4})$
$= (4\pi\times10^{-7}\times1000)(16\times10^6)(4\times10^{-4})$

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$L' = 8.042\ H/m$

$\therefore$ The self-inductance is $8.042\ H/m$

b) Energy Per meter, E'

$E = \frac{1}{2} L' I^2 = \frac{1}{2}(8.042)(0.5)^2$

$E = 1.005\ J/m$

$\therefore$ Energy stored in a field is $1.005\ J/m$

---

4) A unit normal vector from region 2 ($\mu = 2\mu_0$) to region 1 ($\mu = \mu_0$) is $a_{n21} = (6a_x + 2a_y - 3a_z)/7$. If $H_1 = 10a_x + a_y + 12a_z$ A/m and $H_2 = H_{2x}a_x - 5a_y + 4a_z$ A/m, determine

a) H_{2x}

b) The surface current density K on the interface

c) The angle θ_1 and θ_2 make with the normal to the interface

Soln:

(a) Given, $\vec{H_1} = 10\hat{a}_x + \hat{a}_y + 12\hat{a}_z$

$= H_{2x}\hat{a}_x + (-5)\hat{a}_y + 4\hat{a}_z$

$\vec{a}_n = \frac{6\hat{a}_x + 2\hat{a}_y - 3\hat{a}_z}{7}$

$\vec{H_{1n}} = (\vec{H_1} \cdot \vec{a}_n)\vec{a}_n$

$= \left(\frac{60 + 2 - 36}{7}\right)\left(\frac{6\hat{a}_x + 2\hat{a}_y - 3\hat{a}_z}{7}\right)$

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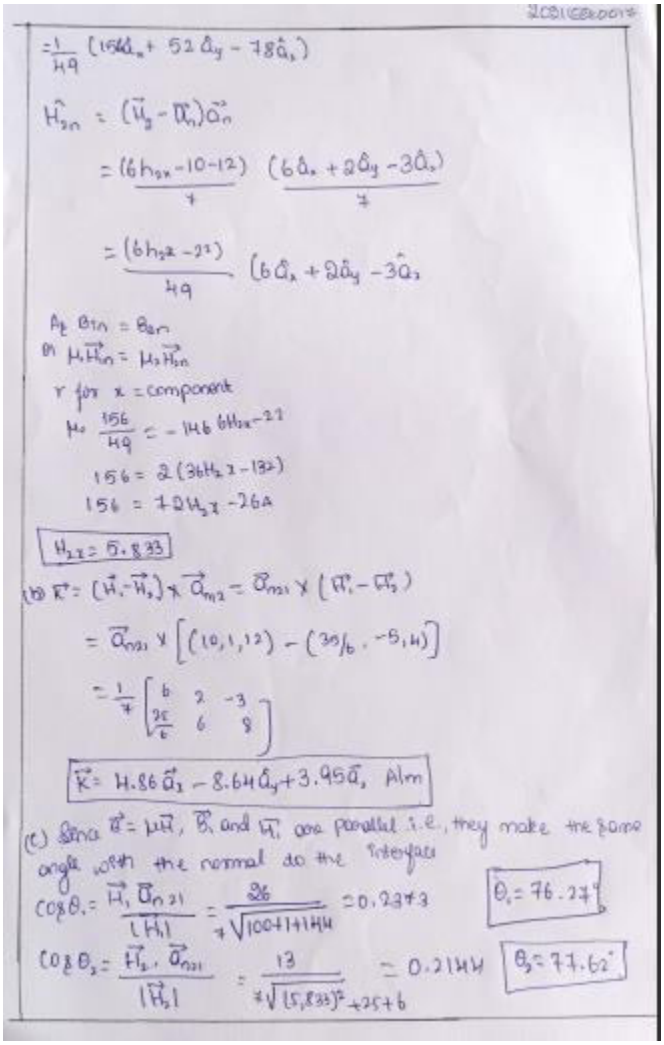

$= \frac{1}{49}(156\hat{a}_x + 52\hat{a}_y - 78\hat{a}_z)$

$\vec{H}_{2n} = (\vec{H}_2 \cdot \vec{a}_n)\vec{a}_n$

$= \frac{(6h_{2x} - 10 - 12)}{7}(6\hat{a}_x + 2\hat{a}_y - 3\hat{a}_z)$

$= \frac{(6h_{2x} - 22)}{49}(6\hat{a}_x + 2\hat{a}_y - 3\hat{a}_z)$

At $B_{1n} = B_{2n}$

or $\mu_1 \vec{H}_{1n} = \mu_2 \vec{H}_{2n}$

for x-component

$\mu_0 \frac{156}{49} = 2(6H_{2x} - 22)$

$156 = 12H_{2x} - 264$

$H_{2x} = 5.833$

(b) $\vec{K} = (\vec{H}_1 - \vec{H}_2) \times \vec{a}_{n2} = \vec{a}_{n21} \times (\vec{H}_1 - \vec{H}_2)$

$= \vec{a}_{n21} \times \left[(10, 1, 12) - \left(\frac{35}{6}, -5, 4\right)\right]$

$= \frac{1}{7}\begin{bmatrix} 6 & 2 & -3 \\ \frac{25}{6} & 6 & 8 \end{bmatrix}$

$\vec{K} = 11.86\hat{a}_x - 8.64\hat{a}_y + 3.95\hat{a}_z$ A/m

(c) Since $\vec{B} = \mu\vec{H}$, $\vec{B}_1$ and $\vec{H}_1$ are parallel i.e., they make the same angle with the normal to the interface

$\cos\theta_1 = \frac{\vec{H}_1 \cdot \vec{a}_{n21}}{|\vec{H}_1|} = \frac{26}{7\sqrt{100+1+144}} = 0.2373$ $\quad \theta_1 = 76.27°$

$\cos\theta_2 = \frac{\vec{H}_2 \cdot \vec{a}_{n21}}{|\vec{H}_2|} = \frac{13}{7\sqrt{(5.833)^2 + 25 + 6}} = 0.2144$ $\quad \theta_2 = 77.62°$

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**

Course Title: Signals & Systems.

Course Code: EEE2001

Type of Skill: Skill Development

Type of Activity: Problem Solving

Instructor in Charge: Mr Bishakh Paul.

Instructor for Section: Mr Bishakh Paul.

Details about the activity: Students were asked to collect information on any real life problem involving Discrete Fourier transform along with the MATLAB Code in groups pertaining to

Topic of Activity: Presentation on Spectrogram

Details of the students involved in the activity:

S.No	Name of the Student	Roll Number
1	NITHISH U	20211EEE0011
2	R V GANESH	20211EEE0013
3	SINCHANA M	20211EEE0014
4	KAVYA N	20211EEE0017
5	BHARATH H D	20211EEE0019
6	RISHIKA	20211EEE0043

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Sample Assignment submitted as mentioned in the topic.

APPLICATION OF DISCRETE FOURIER TRANSFORM

by

Name	Roll No.
NITHISH U	20211EEE0011
R V GANESH	20211EEE0013
SINCHANA M	20211EEE0014
KAVYA N	20211EEE0017
BHARATH H D	20211EEE0019
RISHIKA	20211EEE0043

To

Mr. BISHAKH PAUL

Asst.Professor

Dept of EEE

PRESIDENCY UNIVERSITY 40 YEARS

REAL LIFE APPLICATION OF DFT

SPECTROGRAM :

- A **spectrogram** is a visual representation of the spectrum of frequencies of a signal as it varies with time. When applied to an audio signal.
- spectrograms are sometimes called sonographs, voiceprints, or voicegrams.

PRESIDENCY UNIVERSITY 40 YEARS

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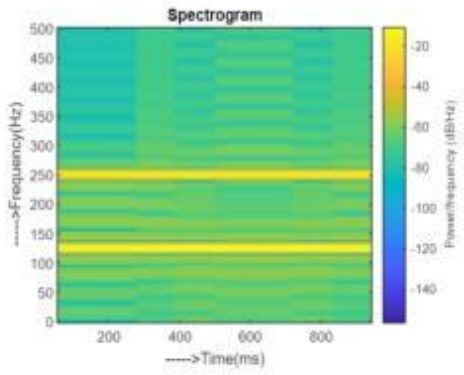
WHY DO WE USE SPECTROGRAM?

In the seismic world, spectrograms are increasingly being used to look at frequency content of continuous signals recorded by individual or groups of seismometers to help distinguish and characterize different types of earthquakes or other vibrations in the earth.

MATLAB SIMULATION

```
clear all;
close all;
clc;
n = 0:999;
fs = 1000;
t = 0:0.001:1-0.001;
x1 = cos(2*pi*125*t)+0.5*sin(2*pi*250*t);
freq=[125 250];
[s2,f,t2]=spectrogram(x1,[],8,freq,fs);
spectrogram(x1,[],[],[],fs,'yaxis');
xlabel('----->Time(ms)');
ylabel('----->Frequency(Hz)');
title('Spectrogram');
```



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www.presidencyuniversity.in

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Signature of Instructor:

Signature of Instructor In-Charge :

Dr. V Joshi Manohar

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SCHOOL of ENGINEERING
DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

Year: 2021-2022 **Semester: 5th** **Section: 5-EEE-1** **Date: 24-03-2022**

Course Title: Power Electronics.

Course Code: EEE2019

Type of Skill: Skill Development

Type of Activity: Problem solving

Instructor in Charge: Ms. Ragasudha CP

Instructor for Section: Ms.Ragasudha CP

Type of Activity: Students were given the design specifications of power electronics circuit and they have to design and simulate the circuit using MATLAB. The activity was to improve the problem solving skill of the student.

Details of the students involved in the activity: 5EEE1

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
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

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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

Sample Screen shots of the activity.

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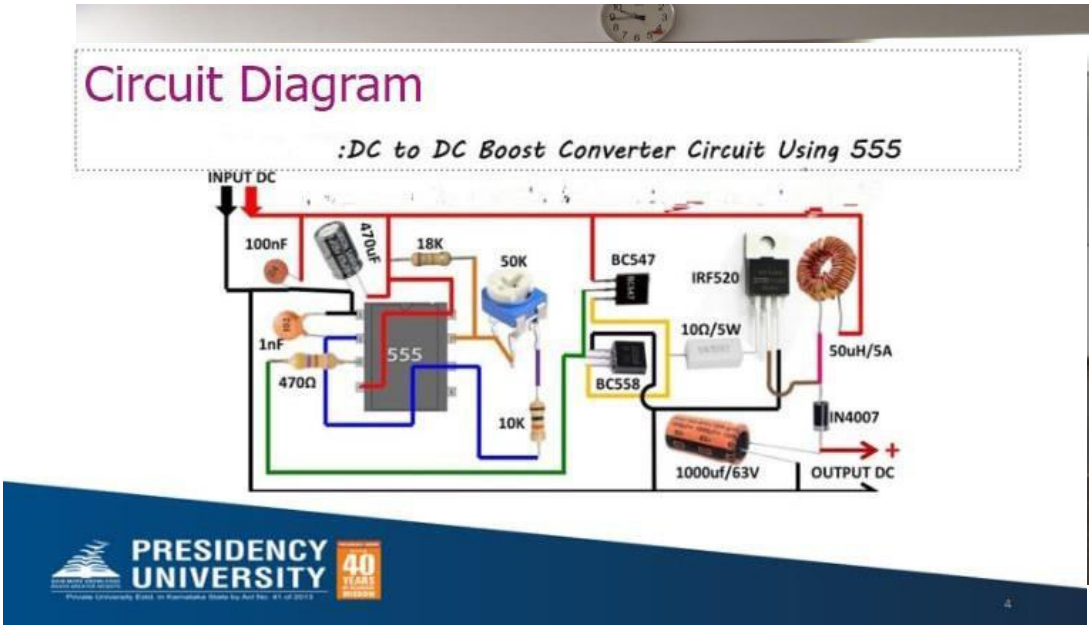

Signature of Instructor.

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: 5th** **Section: 5-EEE-1** **Date: 15-10-2022**

Course Title: Control systems engineering

Course Code: EEE2007

Type of Skill: Skill Development

Type of Activity: Problem Solving

Type of Session: Assignment

Instructor in Charge: Dr K Kamalapathi

Instructor for Section: Dr K Kamalapathi

Details about the activity: Students are given the assignment questions and were asked to solve and submit within a week. The answers to the problems were presented and discussed in the class which enhances the problem solving skills of students.

Details of the students involved in the activity: All students of 5EEE-1

Sample Assignment by students.

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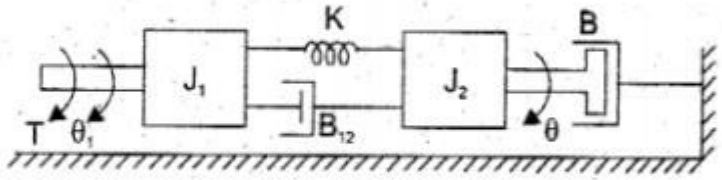
Assignment 1

Course Name and Course Code: Control Systems (EEE2007)

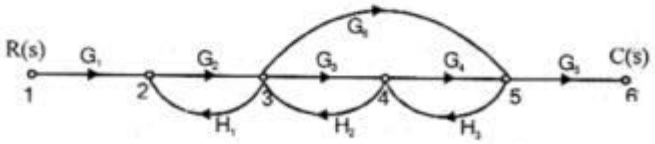
Topic: Module 1

1. Write the differential equation governing the mechanical rotational system. Also find the Transfer

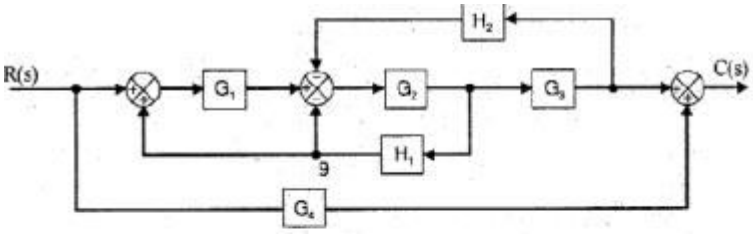
   function.



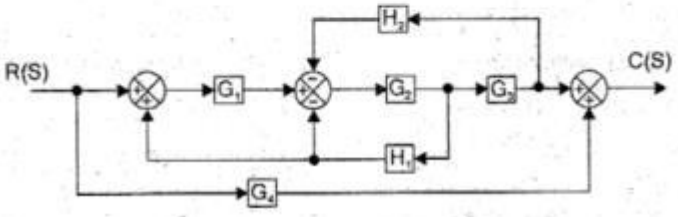
2. The Signal flow graph for a feedback control system is given in Fig below. Find the closed loop transfer function C(s) / R(s)



3. Draw the SFG and find the overall gain of the following block diagram.



4. For the closed loop system shown in figure obtain the transfer function C(s)/R(s).



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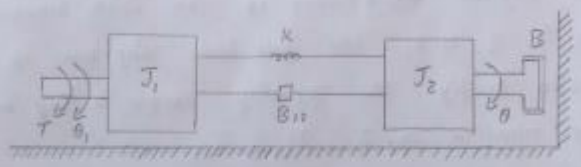
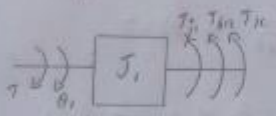
Sample answer

COURSE NAME : Control Systems.
EEE 2007

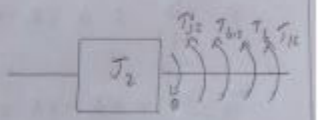
① Write the differential equation governing the mechanical rotational System. Also find the transfer function.



⇒ Free body diagram of mass with moment of inertia J_1.



Free body diagram of mass with moment of inertia J_2



In the given system applied torque T and angular displacement θ_1 is the input and angular displacement θ is output.

Let, laplace transform of $T = L\{T\} = T(s)$

laplace transform of $\theta_1 = L\{\theta_1\} = \theta_1(s)$

laplace transform of $\theta = L\{\theta\} = \theta(s)$

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Hence the required transfer function is $\frac{\theta(s)}{T(s)}$

The system has two nodes and they are masses with moment of inertia J_1 & J_2. The differential eqns governing the system are given by torque balance Equation at these nodes.

The angular displacement of mass with moment of inertia J_1 be θ_1. The free body diagram of J_1 is shown in fig. The opposing torque acting on J_1 are marked as T_K, T_{J_1} & T_{b12}.

$T_{J_1} = J_1 \frac{d^2\theta}{dt^2}$; $T_K = K(\theta_1 - \theta)$; $T_{b12} = B_{12} \frac{d}{dt}(\theta_1 - \theta)$

By newtons second law, $T_{J_1} + T_K + T_{b12} - T = 0$

$$J_1 \frac{d^2\theta}{dt^2} + K(\theta_1 - \theta) + B_{12} \frac{d}{dt}(\theta_1 - \theta) = T$$

$$J_1 \frac{d^2\theta}{dt^2} + K\theta_1 - K\theta + B_{12} \frac{d\theta_1}{dt} - B_{12} \frac{d}{dt}\theta = T \quad -(1)$$

On taking laplace transform of equation (1) with zero initial conditions we get,

$$J_1 s^2 \theta_1(s) + K\theta_1(s) - K\theta(s) + sB_{12}\theta_1(s) - B_{12} s\theta(s) = T(s)$$

$$(J_1 s^2 + K + sB_{12})\theta_1(s) - (K + sB_{12})\theta(s) = T(s) \quad -(2)$$

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$T_{J_2} = J_2 \frac{d^2\theta}{dt^2}$; $T_b = B \frac{d\theta}{dt}$; $T_K = K(\theta - \theta_1)$; $\therefore T_{b12} = B_{12} \frac{d}{dt}(\theta - \theta_1)$

By Newton second law, $T_{J_2} + T_b + T_K + T_{b12} = 0$

$\therefore J_2 \frac{d^2\theta}{dt^2} + B \frac{d\theta}{dt} + K(\theta - \theta_1) + B_{12} \frac{d}{dt}(\theta - \theta_1) = 0$

$J_2 \frac{d^2\theta}{dt^2} + B \frac{d\theta}{dt} + K\theta - K\theta_1 + B_{12} \frac{d}{dt}(\theta) - B_{12} \frac{d}{dt}\theta_1 = 0$

on taking laplace transform of above Equation with zero initial conditions we get,

$J_2 s^2 \theta(s) + Bs\theta(s) + K\theta(s) - K\theta_1(s) + B_{12} s\theta(s) - B_{12} s\theta_1(s) = 0$

$(J_2 s^2 + Bs + K + B_{12} s)\theta(s) - (sB_{12} + K)\theta_1(s) = 0$

$(J_2 s^2 + s(B_{12} + B) + K)\theta(s) - (sB_{12} + K)\theta_1(s) = 0$

$\theta_1(s) = \frac{(J_2 s^2 + (B_{12} + B)s + K}{[B_{12} s + K]}\theta(s)$ → (3)

Substitute eqn (3) into Eqn (2)

$\frac{[J_1 s^2 + sB_{12} + K][J_2 s^2 + (B_{12} + B)s + K]}{[B_{12} s + K]}\theta(s) - \theta(s)[B_{12} s + K] = T(s)$

$\frac{[J_1 s^2 + sB_{12} + K][J_2 s^2 + (B_{12} + B)s + K]}{[B_{12} s + K]}\theta(s) - \theta(s)[B_{12} s + K] = T(s)$

$\theta(s)[[J_1 s^2 + sB_{12} + K][J_2 s^2 + (B_{12} + B)s + K] - [B_{12} s + K]^2] = T(s)[B_{12} s + K]$

$T.F = \frac{\theta(s)}{T(s)} = \frac{B_{12} s + K}{[J_1 s^2 + sB_{12} + K][J_2 s^2 + (B_{12} + B)s + K] - [B_{12} s + K]^2}$

differential Equation governing the system

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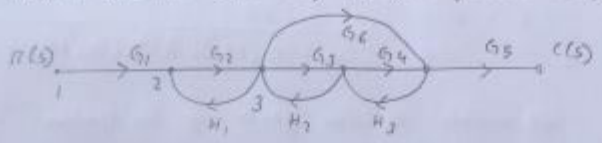
8. The signal flow graph for a feedback control system is given in fig below. Find the closed loop transfer function $C(s)/R(s)$



$$\Rightarrow \frac{C(s)}{R(s)} = \frac{\sum_k P_k \Delta_k}{\Delta}$$

$$k=2; \quad \frac{C(s)}{R(s)} = \frac{P_1\Delta_1 + P_2\Delta_2}{\Delta}$$

$P_1 = G_1 G_2 G_3 G_4 G_5$

$P_2 = G_1 G_2 G_3 G_5$

Two non touching loops

$L_1 L_3$

Δ_1

loops: $L_1 = G_2 H_1$

$L_2 = G_3 H_2$

$L_3 = G_4 H_3$

Δ = 1- Sum of all the loops) + (Σ non-touching loop gain taken two at a time - (Σ non touching loop gain taken three at a time

Δ_k = 1- (loop gain which does not touch the forward path.

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$$\Delta = 1 - (L_1 + L_2 + L_3) + (L_1 L_3) - 0$$

$$\Delta = 1 - (L_1 + L_2 + L_3) + (L_1 L_3)$$

$$\Delta_1 = 1 - 0$$

$$\Delta_1 = 1$$

$$\Delta_2 = 1 - 0$$

$$\Delta_2 = 1$$

$$\frac{C}{R} = \frac{(1)(G_1 G_2 G_3 G_4 G_5) + 1(G_1 G_2 G_6 G_5)}{1 - (L_1 + L_2 + L_3) + L_1 L_3}$$

$$= \frac{G_1 G_2 G_3 G_4 G_5 + G_1 G_2 G_6 G_5}{1 - H_1 G_2 - H_2 G_3 - H_3 G_H + H_1 H_3 G_2 G_H}$$

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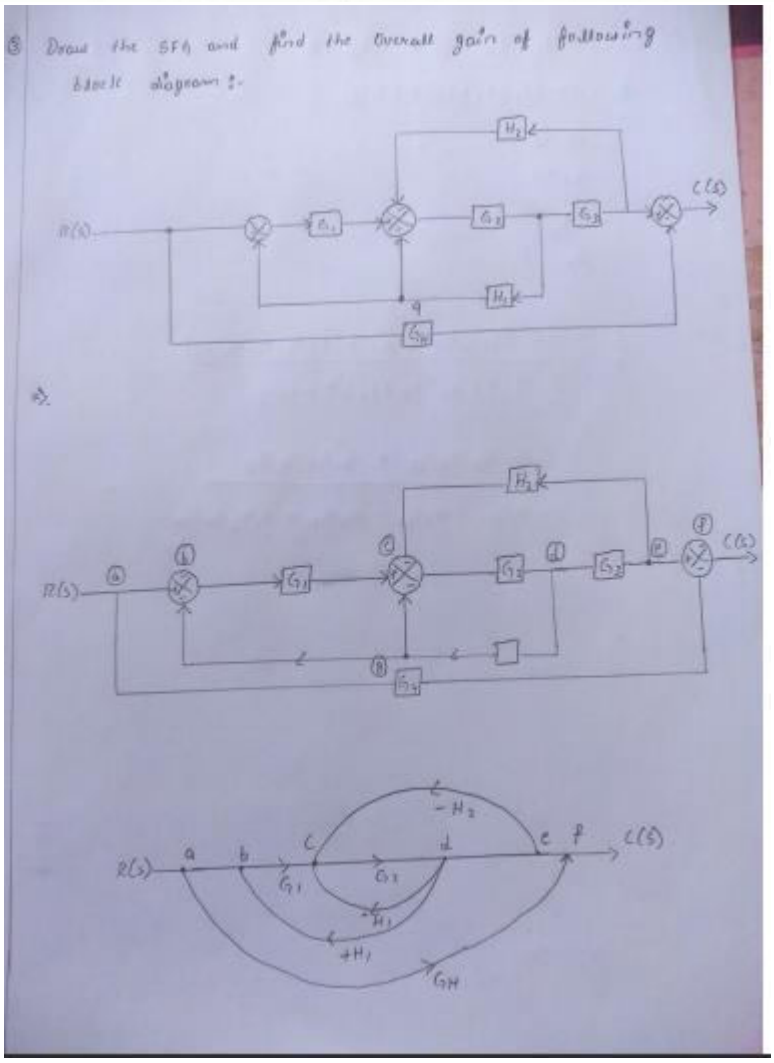

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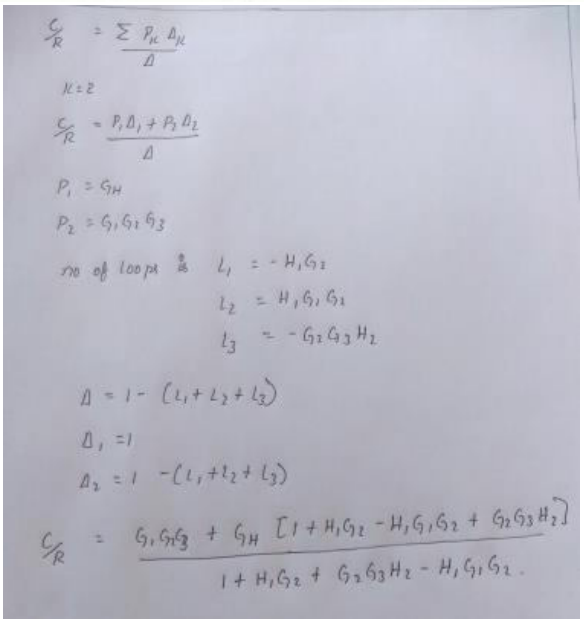

$$\frac{C}{R} = \frac{\sum P_k \Delta_k}{\Delta}$$

$k = 2$

$$\frac{C}{R} = \frac{P_1\Delta_1 + P_2\Delta_2}{\Delta}$$

$P_1 = G_1H$

$P_2 = G_1G_2G_3$

no of loops & $L_1 = -H_1G_2$

$L_2 = H_1G_1G_2$

$L_3 = -G_2G_3H_2$

$\Delta = 1 - (L_1 + L_2 + L_3)$

$\Delta_1 = 1$

$\Delta_2 = 1 - (L_1 + L_2 + L_3)$

$$\frac{C}{R} = \frac{G_1G_2G_3 + G_1H\,[1 + H_1G_2 - H_1G_1G_2 + G_2G_3H_2]}{1 + H_1G_2 + G_2G_3H_2 - H_1G_1G_2}$$

Signature of Instructor : k-kulaparthi.

Signature of Instructor In-Charge : k-kulaparthi.

Dr V Joshi Manohar
Head of the Department
Electrical and Electronics Engineering
School of Engineering
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**

Course Title: Special Electrical Machines.

Course Code: EEE3004

Type of Skill: Employability

Type of Activity: Problem Solving

Instructor in Charge: Mr K Sreekanth Reddy.

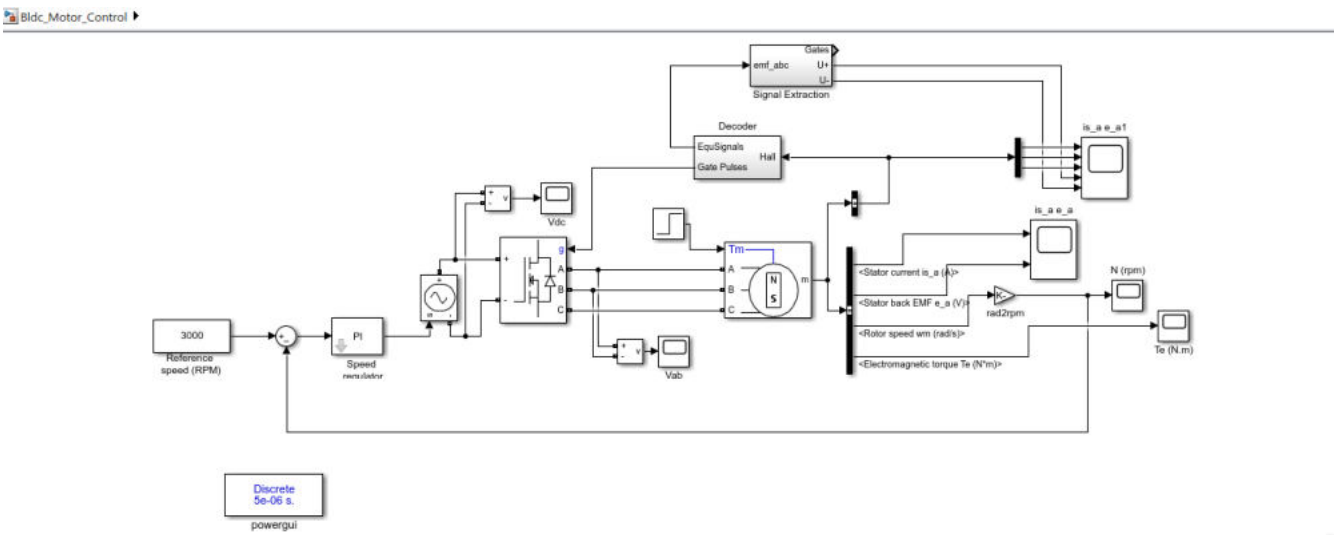
Instructor for Section: Mr Sreekanth Reddy.

Details about the activity: Students were asked to identify the issues which are associated with the Simulink file of BLDC motor as a problem solving activity. The activity focuses on problem solving which enhances the employability skills.

Topic of Activity: BLDC motor control

Details of the students involved in the activity: All the 5EEE-1 students.

Sample Simulink model as mentioned in the topic.



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K. Sreekanth Reddy

Signature of Instructor:

Signature of Instructor In-Charge : K. Sreekanth Reddy

Dr V Joshi Manohar
Head of the Department
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School of Engineering
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Year: 2022-2023 **Semester: 7th** **Section: 7-EEE-1** **Date: 14-10-2022**

Course Title: Power System Analysis.

Course Code: EEE215

Type of Skill: Skill Development

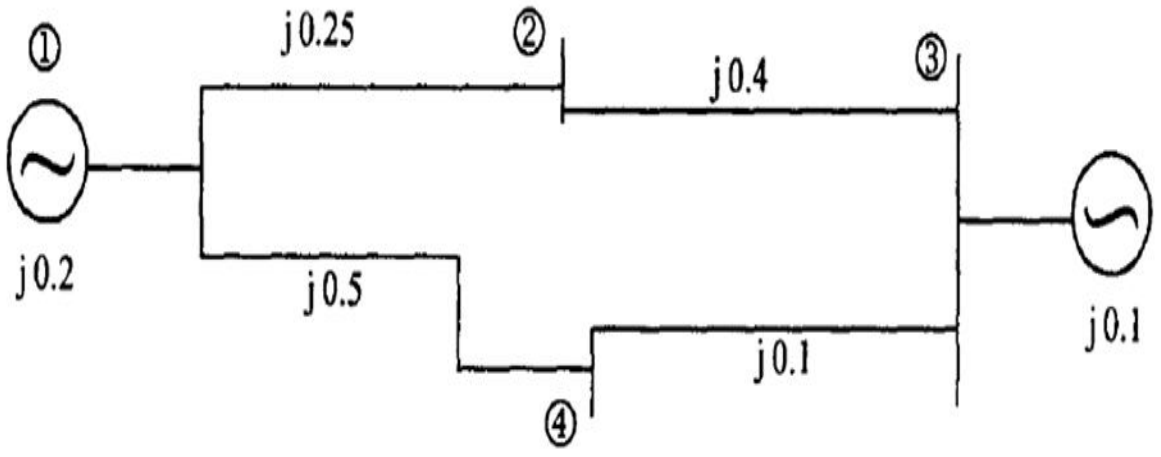
Type of Session: Problem Solving

Type of Activity: Students are encouraged to brainstorming sessions where they are encouraged to solve numerical for the given practical based scenario and were asked to solve the problem theoretically and verify the results using Simulation tools (Mi power, MATLAB, Power world simulator and etc.,)

Instructor in Charge: Mr. Ravi V Angadi.

Instructor for Section: Mr. Ravi V Angadi.

Details about the activity: A power system consists of 4 buses. Generators are connected at buses 1 and 3 reactances of which are j0.2 and j0.l respectively. The transmission lines are connected between buses 1-2, 1-4, 2-3 and 3-4 and have reactance's j0.25, j0.5, j0.4 and j 0.1 respectively. By any appropriate modern power system simulation tool compute bus admittance matrix. i. Compute the Ybus using inspection method and ii. Verify the result using bus incidence matrix and admittance matrix method by developing the necessary matlab code. (Neglect the generator reactance)



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Details of the students involved in the activity:

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
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

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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
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

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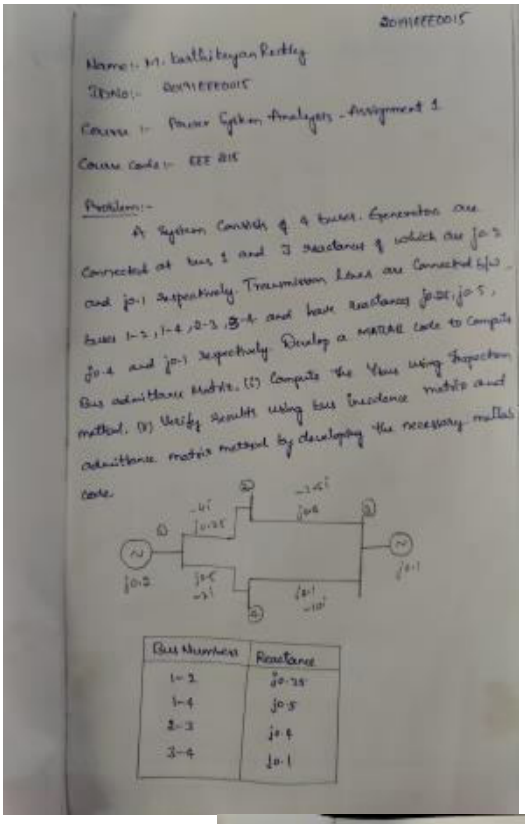
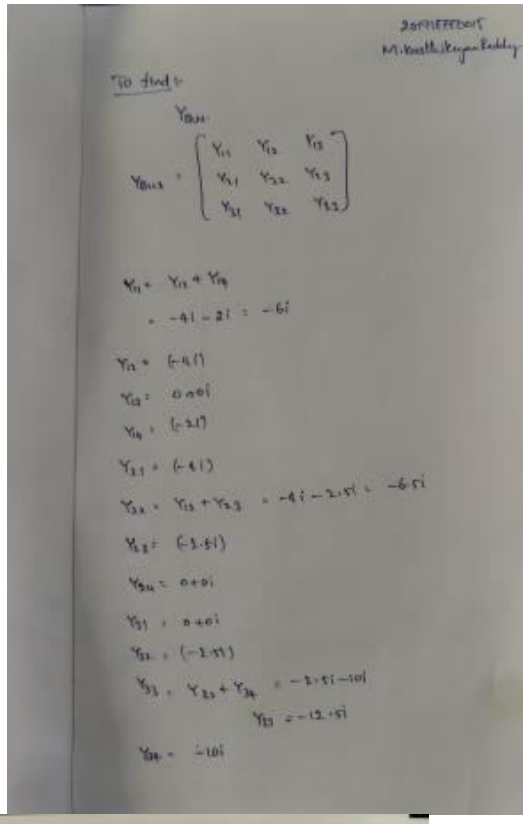
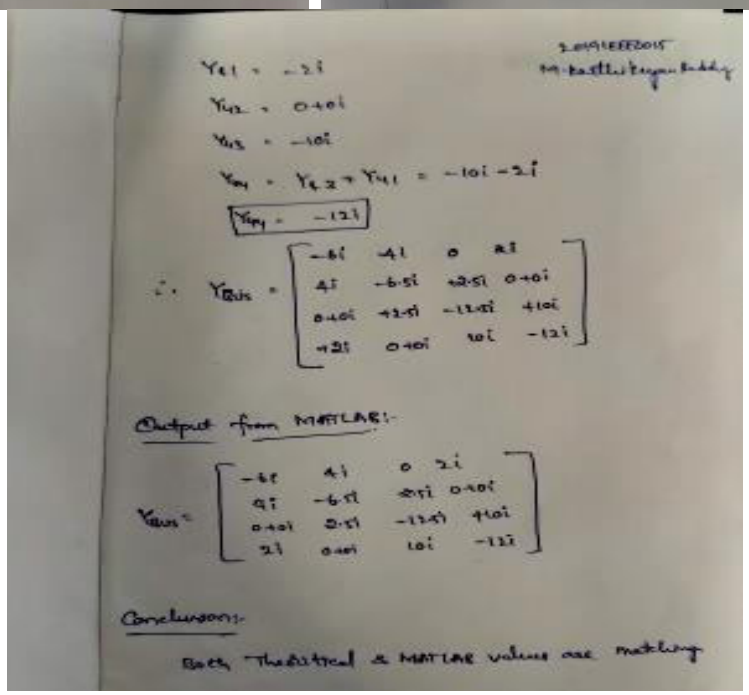
Sample Screen shots of the activity.







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22/12/22 11:19 AM D:\matlab req\bin\mid.m 1 of 1

```
clc;
clear;
disp("20191EEE0015");
disp("Karthikeyan reddy");
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);
ecap=zeros(e,n);
for i=1:1:e
zpri(i,i)=z(i,1);
end
ypri=inv(zpri);
disp(ypri);
for j=1:1:e
r=p(j,1);
s=q(j,1);
ecap(j,r)=1;
ecap(j,s)=-1;
end
ybus(1,1)=ypri(1,1)+ypri(4,4);
ybus(1,2)=ypri(1,1)*-1;
ybus(1,3)=0+0i;
ybus(1,4)=ypri(4,4)*-1;
ybus(2,1)=ybus(1,2);
ybus(2,2)=ypri(1,1)+ypri(2,2);
ybus(2,3)=ypri(2,2)*-1;
ybus(2,4)=0+0i;
ybus(3,1)=ybus(1,3);
ybus(3,2)=ybus(2,3);
ybus(3,3)=ypri(2,2)++ypri(3,3);
ybus(3,4)=ypri(3,3)*-1;
ybus(4,1)=ybus(1,4);
ybus(4,2)=ybus(2,4);
ybus(4,3)=ybus(3,4);
ybus(4,4)=ypri(4,4)+ypri(3,3);
disp(ybus)
```


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MATLAB Command Window Page 1

```
20191EEE0015
Karthikeyan reddy
Enter the number of nodes
4
Enter the number of buses
4
Enter the number of elements
4
Enter the -from- bus no.one by one
[2;3;4;5]
Enter the -to- bus no.one by one
[3;4;5;2]
Enter the line impedance one by one
[0.25i;0.4i;0.1i;0.5i]
   0.0000 - 4.0000i   0.0000 + 0.0000i   0.0000 + 0.0000i   0.0000 + 0.0000i
   0.0000 + 0.0000i   0.0000 - 2.5000i   0.0000 + 0.0000i   0.0000 + 0.0000i
   0.0000 + 0.0000i   0.0000 + 0.0000i   0.0000 -10.0000i   0.0000 + 0.0000i
   0.0000 + 0.0000i   0.0000 + 0.0000i   0.0000 + 0.0000i   0.0000 - 2.0000i

   0.0000 - 6.0000i   0.0000 + 4.0000i   0.0000 + 0.0000i   0.0000 + 2.0000i
   0.0000 + 4.0000i   0.0000 - 6.5000i   0.0000 + 2.5000i   0.0000 + 0.0000i
   0.0000 + 0.0000i   0.0000 + 2.5000i   0.0000 -12.5000i   0.0000 +10.0000i
   0.0000 + 2.0000i   0.0000 + 0.0000i   0.0000 +10.0000i   0.0000 -12.0000i
```

Signature of Instructor.

Signature of Instructor In-Charge

Dr. V Joshi Manohar
Head of the Department
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School of Engineering
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GAIN MORE KNOWLEDGE
REACH GREATER HEIGHTS

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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

AY: 2022-2023(ODD Sem)

Semester &Section: 7EEE-1 **Date: 31-12-2022**

Course Title: Introduction to Electrical Drives

Course Code: EEE304
Instructor Incharge: Dr Joshi Manohar V

Instructor for Section: Dr Joshi Manohar V

Type of Skill: Skill Development

Type of Activity: Problem Solving

Assessment: CA-2

Details about the activity: Students were given the assignment question to develop the Single phase fully controlled fed dc Motor drive in MATLAB which was intended to develop the skills of a student.

Assignment Question: Develop the single phase fully controlled dc motor drive system Simulink Model in **Matlab** and control the dc shunt motor at following conditions

I. Rated torque and rated speed

II. Half rated torque and rated speed

Comment on the variation of firing angle in above cases

One Drive Link:

https://rb.gy/wwbdm

Screen shorts of Simulink Model in Matlab :

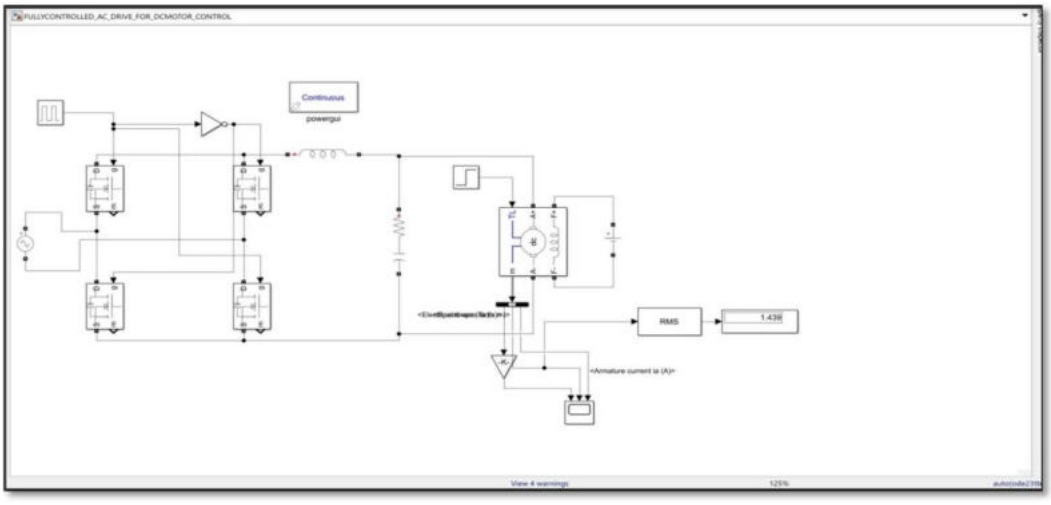

Fig.1. Circuit diagram referring dc motor control

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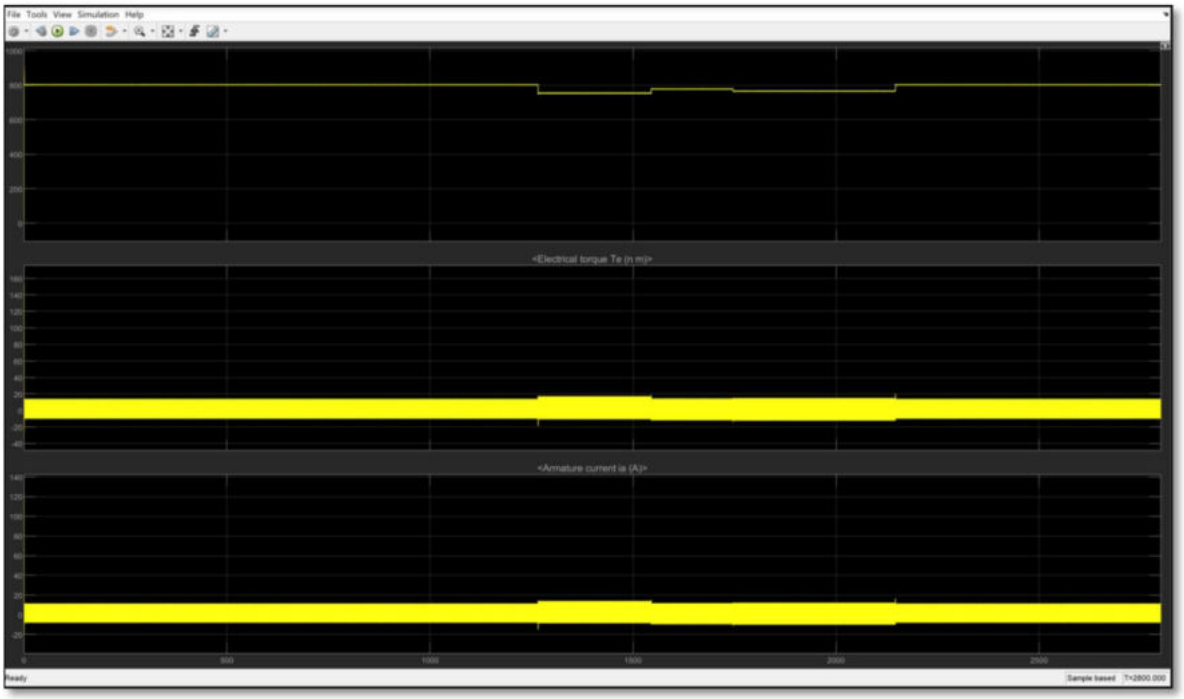

Fig.2.Speed, Torque and Armature current graph

Simulation Results :-

- As back Emf increases speed increases
- In order to increase backemf firing angle is being increased
- For half rated speed Eb applied is also half and using firing angle it has being achieved and results are tagged below
- For half rated torque we need to apply half rated current and in matlab torque is being provided as input so visualizing torque is not possible.

Outcome:

- **Skill of Computing the Firing angle at different Torque and Speed**
- **Skill of developing Mathematical model using MATLAB Simulink Environment**
- **Skill of developing the Power Converter using MATLAB Simulink Environment**

Signature Instructor & HoD -EEE

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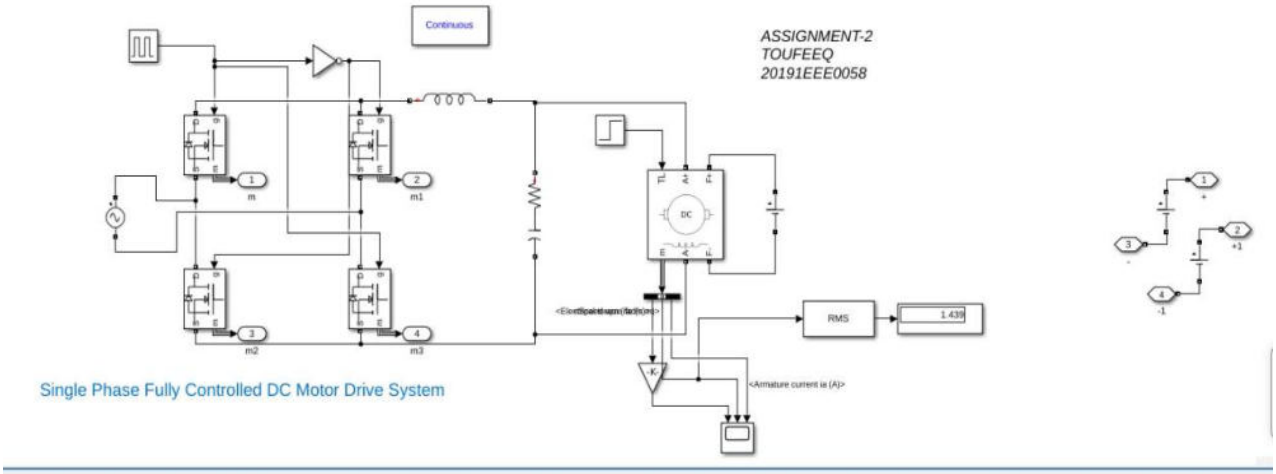
Simulation Results:



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- ✓ As back EMF increases speed increases
- ✓ In order to increase back EMF firing angle is being increased.
- ✓ For half rated speed Eb applied is also half and using firing angle it has being achieved and results are tagged below.
- ✓ For half rated torque we need to apply half rated current and in MATLAB torque is being provided as input so visualising torque is not possible.

Simulation Model:

fully_control_ac_drive_fed_dc_motor.slx

SCHOOL of ENGINEERING
DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

Year: 2022-2023 **Semester:2nd** **Section: 2-EEE-1** **Date: 08-05-2023**

Course Title: Digital Electronics

Course Code: EEE2015

Type of Skill: Skill Development

Type of Session: Problem Solving.

Type of Activity: Students were asked to use a software tool to verify the truth tables of combnational logic circuits.

Instructor in Charge: Mr. K Sreekanth Reddy

Instructor for Section: Mr. K Sreekanth Reddy

Details about the activity: Assignment is provided to students to simulate the combinational logic circuit by using any software tool and compare the results with other group.

Details of the students involved in the activity: 2EEE1 Students

Sl. No	Student Id No.	Name of the Student
1.	20221EEE0001	MANISH P RAI
2.	20221EEE0002	KEMILTEN R
3.	20221EEE0003	GAURI NISHAD
4.	20221EEE0004	PAVAN SIDRAM KOLAVI
5.	20221EEE0005	VARSHA
6.	20221EEE0006	GAUTHAM U KUMAR
7.	20221EEE0007	DEVAPRIYA GOVINDAN
8.	20221EEE0008	BHAVYA P C
9.	20221EEE0009	JOSHUA C BAIJU
10.	20221EEE0010	LEENA R
11.	20221EEE0011	MONISHA KIRAN M
12.	20221EEE0012	SHIVABASAVA DODDABASAPPANAVAR
13.	20221EEE0013	SHIVAKUMAR BUTTA

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14.	20221EEE0014	UDAYARAM KARTHIK R
15.	20221EEE0015	LOKESH PUNYAKAR PATIL
16.	20221EEE0016	HARSHITHA K R
17.	20221EEE0017	HEMANTH S M
18.	20221EEE0018	JYOTHI R.B
19.	20221EEE0019	KHALFAN KHAN
20.	20221EEE0020	MITHUN R
21.	20221EEE0021	SHREESHAIL SANGANI
22.	20221EEE0022	PRAJWAL SHARMA
23.	20221EEE0023	R GEETANJALI
24.	20221EEE0024	ABHINAYAK D B
25.	20221EEE0025	ABHISHEK V
26.	20221EEE0026	ANKUSH YADAV
27.	20221EEE0027	AKASH S S
28.	20221EEE0028	DILEEP B
29.	20221EEE0029	HARSHA VARDHAN
30.	20221EEE0030	MANASA TR
31.	20221EEE0031	MOHAMMAD AFFAN AFFAN KOUSER
32.	20221EEE0032	PANIRAM CHOUDARY
33.	20221EEE0033	RAAJ ABHISHEK S
34.	20221EEE0034	ROHITH KUMAR BR
35.	20221EEE0035	SNEHA U
36.	20221EEE0036	THAMIL SELVAM M
37.	20221EEE0037	VIVEK N
38.	20221EEE0038	SIDDARTHA N S

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39.	20221EEE0039	R KUNAL
40.	20221EEE0040	YADHURAJ R
41.	20221EEE0041	CHANDANA G A
42.	20221EEE0042	SUSHANTH H

Sample Lab Record Screen shots of the activity.

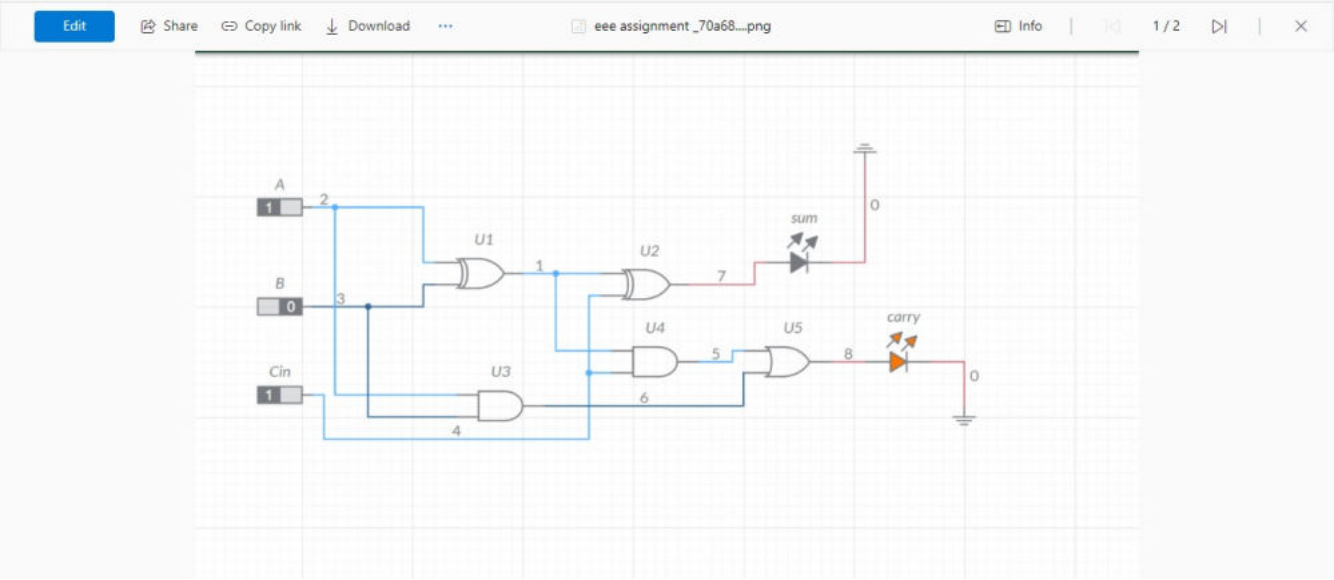

Figure 1. Sample Assignment of subtractor circuit using Multisim software submitted by student

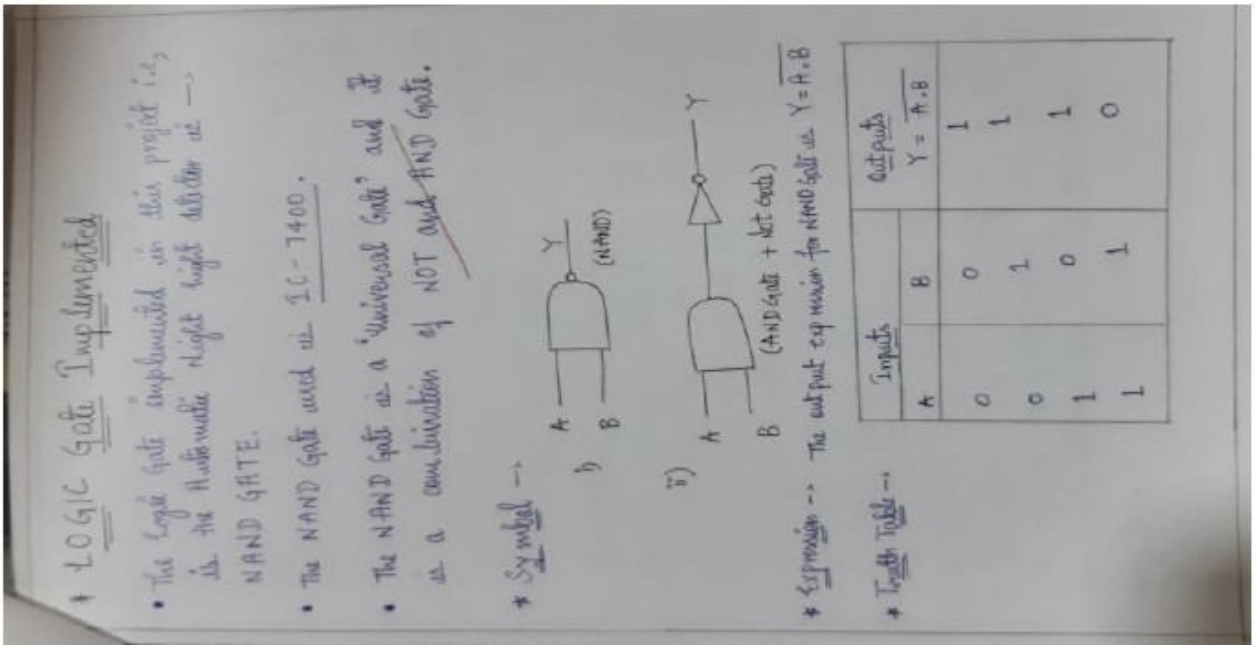

Figure 2. Sample report submitted by student

K. Sreekanth Reddy
Signature of Instructor.

K. Sreekanth Reddy
Signature of Instructor In-Charge

Dr. V Joshi Manohar
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School of Engineering
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SCHOOL OF ENGINEERING

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

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

Course Code: EEE2017

Type of Skill: Skill Development

Type of Session: Problem Solving.

Type of Activity: Students were encouraged to solve the practical scenario based questions related to machines in order develop the problem solving skills in students.

Instructor in Charge: Dr. Snehaprabha T V

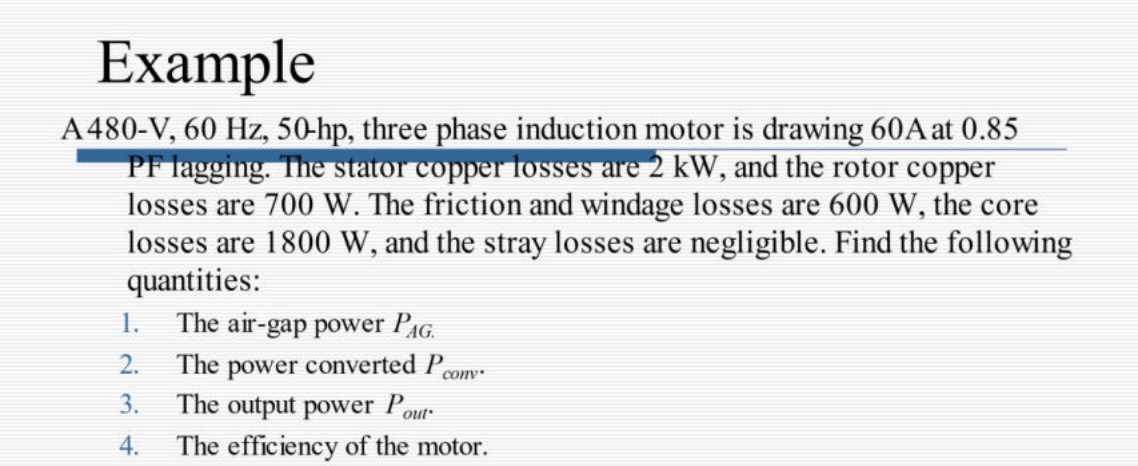
Instructor for Section: Dr. Snehaprabha T V

Details about the activity: Problem Solving

Details of the students involved in the activity: All 4EEE-1 Students

Assessment:

Type of Assessment-Numerical



Example

A 480-V, 60 Hz, 50-hp, three phase induction motor is drawing 60A at 0.85 PF lagging. The stator copper losses are 2 kW, and the rotor copper losses are 700 W. The friction and windage losses are 600 W, the core losses are 1800 W, and the stray losses are negligible. Find the following quantities:

1. The air-gap power P_{AG}.
2. The power converted P_{conv}.
3. The output power P_{out}.
4. The efficiency of the motor.

- **Sample Answer by Students:**

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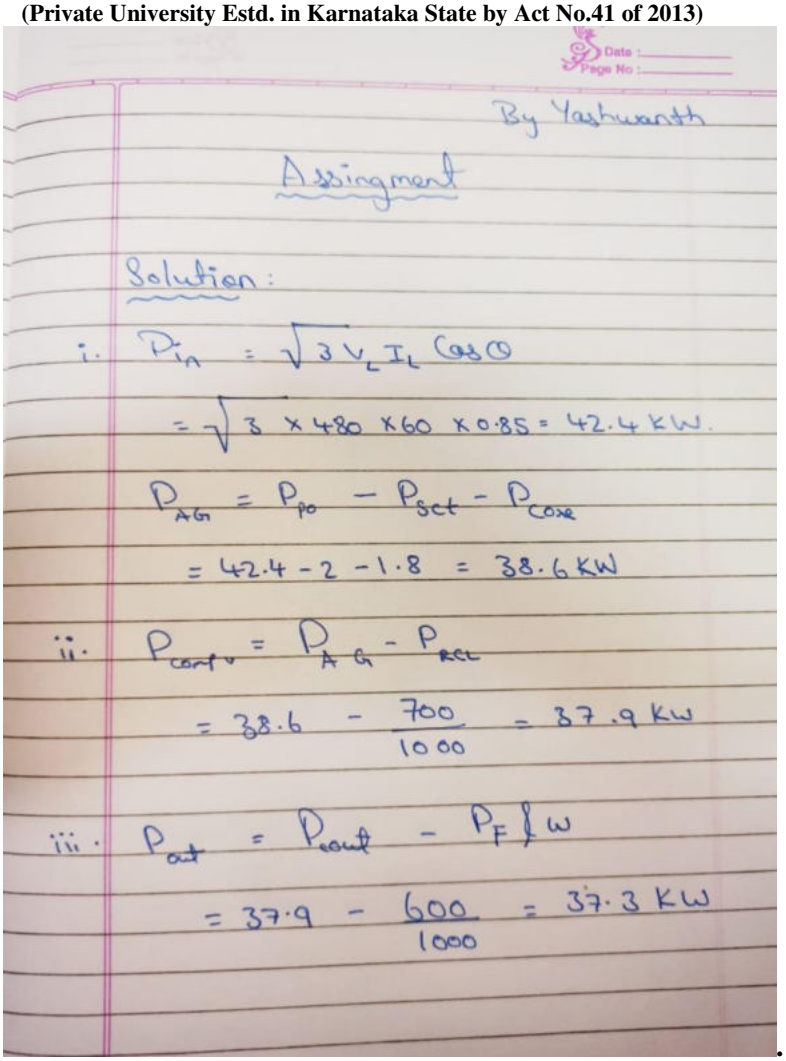

By Yashwanth

Assignment

Solution:

i. $P_{in} = \sqrt{3} V_L I_L \cos\theta$

$= \sqrt{3} \times 480 \times 60 \times 0.85 = 42.4 \text{ KW}$.

$P_{AG} = P_{po} - P_{sct} - P_{core}$

$= 42.4 - 2 - 1.8 = 38.6 \text{ KW}$

ii. $P_{conv} = P_{AG} - P_{rcl}$

$= 38.6 - \frac{700}{1000} = 37.9 \text{ KW}$

iii. $P_{out} = P_{cout} - P_{fw}$

$= 37.9 - \frac{600}{1000} = 37.3 \text{ KW}$

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: 15-04-2023**

Course Title: Control systems Engineering

Course Code: EEE2007

Type of Skill: Skill Development

Type of Activity: Problem Solving

Type of Session: Assignment

Instructor in Charge: Dr Jisha L K

Instructor for Section: Dr Jisha L K

Details about the activity: The activity is to improve the problem solving skills of the students. Students were given the assignment questions and were asked to solve and submit within a week. The answers to the problems were presented and discussed in the class.

Details of the students involved in the activity: All students of 4EEE-1

Sample Assignment by students.

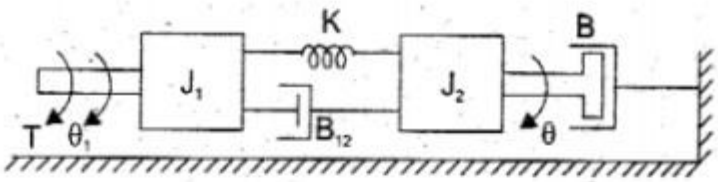
Assignment 1

Course Name and Course Code: Control Systems (EEE2007)

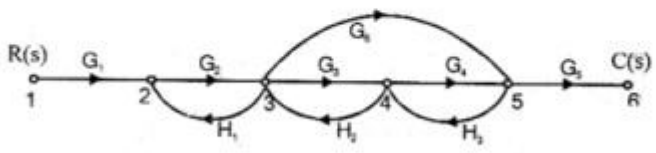
Topic: Module 1 **Date of Submission:11/04/2023**

1. Write the differential equation governing the mechanical rotational system. Also find the Transfer

   function.



2. The Signal flow graph for a feedback control system is given in Fig below. Find the closed loop transfer function C(s) / R(s)



3. Draw the SFG and find the overall gain of the following block diagram.

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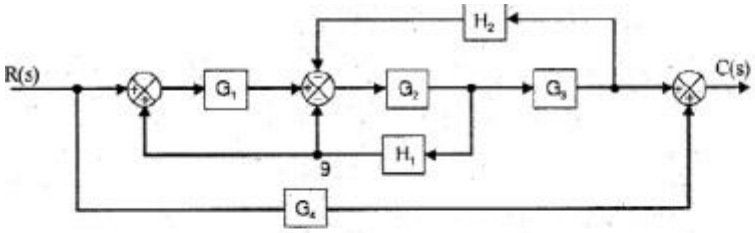
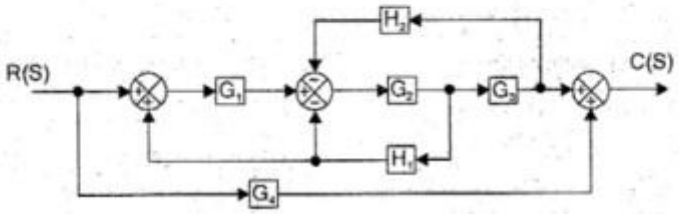
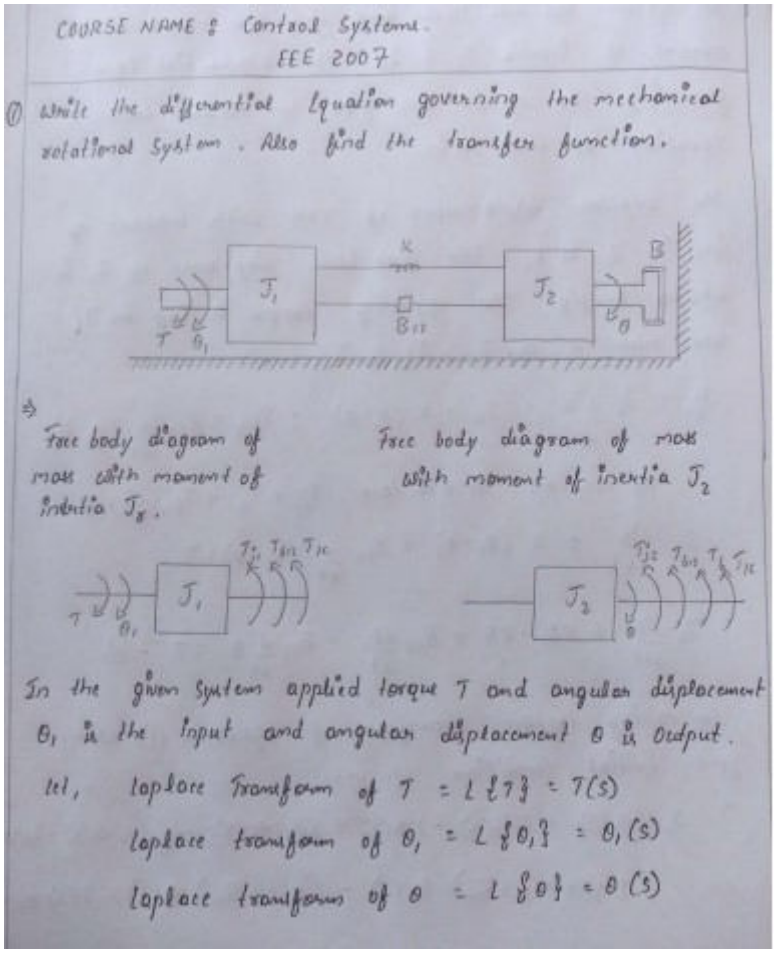


4. For the closed loop system shown in figure obtain the transfer function C(s)/R(s).



Sample answer



COURSE NAME : Control Systems.
EEE 2007

① Write the differential equation governing the mechanical rotational system. Also find the transfer function.

⇒ Free body diagram of mass with moment of inertia J_1.

Free body diagram of mass with moment of inertia J_2

In the given system applied torque T and angular displacement θ_1 is the input and angular displacement θ is output.

let, laplace transform of $T = L\{T\} = T(s)$

laplace transform of $\theta_1 = L\{\theta_1\} = \theta_1(s)$

laplace transform of $\theta = L\{\theta\} = \theta(s)$

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Hence the required transfer function is $\frac{\theta(s)}{T(s)}$

The system has two nodes and they are masses with moment of inertia J_1 & J_2. The differential eqns governing the system are given by torque balance Equation at these nodes.

The angular displacement of mass with moment of inertia J_1 be θ_1. The free body diagram of J_1 is shown in fig. The opposing torque acting on J_1 are marked as T_K, T_{J_1} & $T_{b_{12}}$.

$$T_{J_1} = J_1 \frac{d^2\theta}{dt^2} \; ; \; T_K = K(\theta_1 - \theta) \; ; \; T_{b_{12}} = B_{12} \frac{d}{dt}(\theta_1 - \theta)$$

By newtons second law, $T_{J_1} + T_K + T_{b_{12}} - T = 0$

$$J_1 \frac{d^2\theta}{dt^2} + K(\theta_1 - \theta) + B_{12} \frac{d}{dt}(\theta_1 - \theta) = T$$

$$J_1 \frac{d^2\theta}{dt^2} + K\theta_1 - K\theta + B_{12} \frac{d\theta_1}{dt} - B_{12} \frac{d}{dt}\theta = T \quad - (1)$$

On taking laplace transform of equation (1) with zero initial conditions we get,

$$J_1 s^2 \theta_1(s) + K\theta_1(s) - K\theta(s) + sB_{12}\theta_1(s) - B_{12} s\theta(s) = T(s)$$

$$(J_1 s^2 + K + sB_{12})\theta_1(s) - (K + sB_{12})\theta(s) = T(s) - (2)$$

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$T_{J_2} = J_2 \frac{d^2\theta}{dt^2}$; $T_b = B \frac{d\theta}{dt}$; $T_K = K(\theta - \theta_1)$; $T_{b12} = B_{12} \frac{d}{dt}(\theta - \theta_1)$

By Newton second law, $T_{J_2} + T_b + T_K + T_{b12} = 0$

$$\therefore J_2 \frac{d^2\theta}{dt^2} + B \frac{d\theta}{dt} + K(\theta - \theta_1) + B_{12} \frac{d}{dt}(\theta - \theta_1) = 0$$

$$J_2 \frac{d^2\theta}{dt^2} + B \frac{d\theta}{dt} + K\theta - K\theta_1 + B_{12} \frac{d}{dt}(\theta) - B_{12} \frac{d}{dt}\theta_1 = 0$$

On taking laplace transform of above Equation with zero initial conditions we get,

$$J_2 s^2 \theta(s) + B s \theta(s) + K\theta(s) - K\theta_1(s) + B_{12} s\theta(s) - B_{12} s\theta_1(s) = 0$$

$$(J_2 s^2 + B s + K + B_{12} s)\theta(s) - (s B_{12} + K)\theta_1(s) = 0$$

$$(J_2 s^2 + s(B_{12} + B) + K)\theta(s) - (s B_{12} + K)\theta_1(s) = 0$$

$$\theta_1(s) = \frac{(J_2 s^2 + (B_{12} + B)s + K}{[B_{12} s + K]} \quad \theta(s) \rightarrow (3).$$

Substitute eqn (3) into eqn (2)

$$\frac{[J_1 s^2 + s B_{12} + K]\ [J_2 s^2 + (B_{12} + B)s + K]}{[B_{12} s + K]}\theta(s) - \theta(s)[B_{12} s + K] = T(s)$$

$$\frac{[J_1 s^2 + s B_{12} + K]\ [J_2 s^2 + (B_{12} + B)s + K]}{[B_{12} s + K]}\theta(s) - \theta(s)[B_{12} s + K] = T(s)$$

$$\theta(s)\left[\frac{[J_1 s^2 + s B_{12} + K]\ [J_2 s^2 + (B_{12} + B)s + K]}{[B_{12} s + K]} - [B_{12} s + K]\right] = T(s)$$

$$S.F = \frac{\theta(s)}{T(s)} = \frac{B_{12} s + K}{[J_1 s^2 + s B_{12} + K][J_2 s^2 + (B_{12} + B)s + K] - [B_{12} s + K]^2}$$

Differential Equation governing the system

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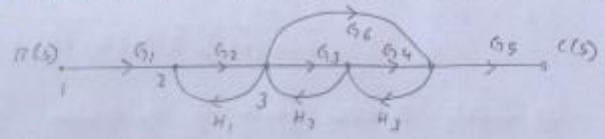
3. The signal flow graph for a feedback control system is given in fig below. Find the closed loop transfer function C(s)/R(s)



$$\Rightarrow \frac{C(s)}{R(s)} = \frac{\sum_k P_k \Delta_k}{\Delta}$$

$$k = 2; \quad \frac{C(s)}{R(s)} = \frac{P_1\Delta_1 + P_2\Delta_2}{\Delta}$$

$P_1 = G_1 G_2 G_3 G_4 G_5$

$P_2 = G_1 G_2 G_3 G_5$

Two non touching loops

$L_1 L_3$

Δ_1

loops: $L_1 = G_2 H_1$

$L_2 = G_3 H_2$

$L_3 = G_4 H_3$

Δ = 1 - (sum of all the loops) + (Σ non-touching loop gain taken two at a time - (Σ non touching loop gain taken three at a time

Δ_k = 1 - (loop gain which does not touch the forward path.

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$$\Delta = 1 - (L_1 + L_2 + L_3) + (L_1 L_3) - 0$$

$$\Delta = 1 - (L_1 + L_2 + L_3) + (L_1 L_3)$$

$$\Delta_1 = 1 - 0$$

$$\Delta_1 = 1$$

$$\Delta_2 = 1 - 0$$

$$\Delta_2 = 1$$

$$\frac{C}{R} = \frac{(1)(G_1 G_2 G_3 G_4 G_5) + 1(G_1 G_2 G_6 G_5)}{1 - (L_1 + L_2 + L_3) + L_1 L_3}$$

$$= \frac{G_1 G_2 G_3 G_4 G_5 + G_1 G_2 G_6 G_5}{1 - H_1 G_2 - H_2 G_3 - H_3 G_H + H_1 H_3 G_2 G_H}$$

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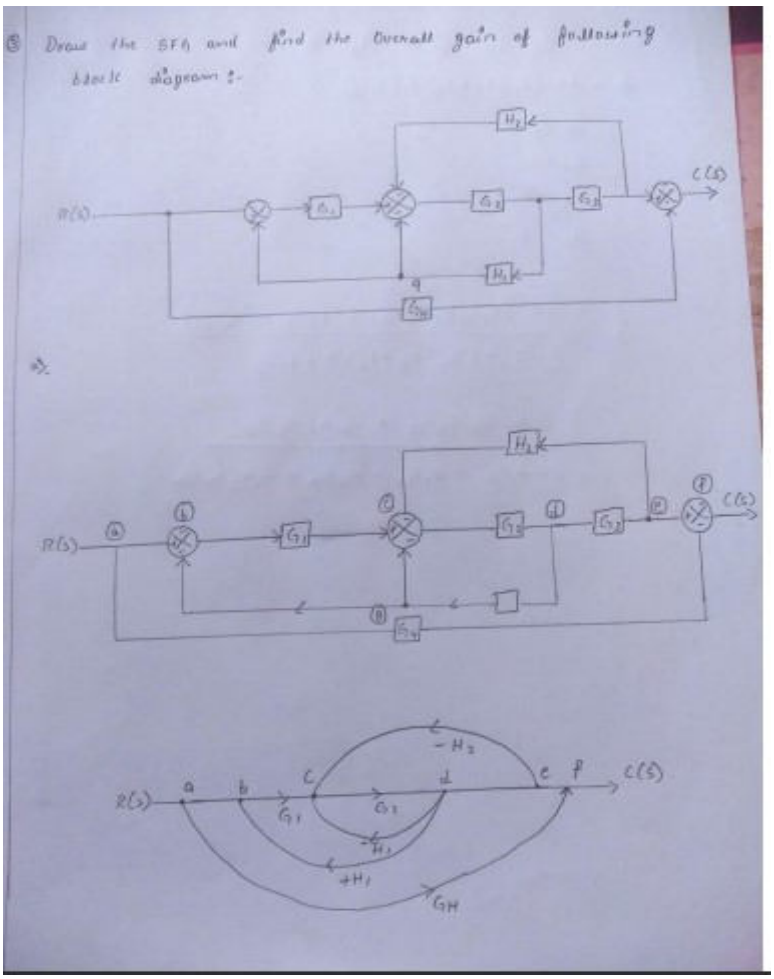

$$\frac{C}{R} = \frac{\sum P_k \Delta_k}{\Delta}$$

$k = 2$

$$\frac{C}{R} = \frac{P_1\Delta_1 + P_2\Delta_2}{\Delta}$$

$P_1 = G_H$

$P_2 = G_1 G_2 G_3$

no of loops & $L_1 = -H_1 G_2$

$L_2 = H_1 G_1 G_2$

$L_3 = -G_2 G_3 H_2$

$\Delta = 1 - (L_1 + L_2 + L_3)$

$\Delta_1 = 1$

$\Delta_2 = 1 - (L_1 + L_2 + L_3)$

$$\frac{C}{R} = \frac{G_1 G_2 G_3 + G_H\left[1 + H_1 G_2 - H_1 G_1 G_2 + G_2 G_3 H_2\right]}{1 + H_1 G_2 + G_2 G_3 H_2 - H_1 G_1 G_2}$$

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The assignment questions were discussed in the class and student Ms Kavya presented her solutions

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
Rajankunte, Yelahanka, Bengaluru -64

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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

Year: 2022-2023 **Semester: 4th** **Section: 4-ISR-1** **Date: 24-05-2023**

Course Title: Signals & Systems

Course Code: EEE2001

Type of Session: Presentation

Type of Skill: Skill development

Type of Learning: Problem Solving Methodologies

Instructor in Charge: Mr Bishakh Paul

Instructor for Section: Mr Bishakh Paul

Details about the activity: Students were asked to collect information on solving real time problem using MATLAB code for DFT of various signals.

Topic of Activity: Implementation of MATLAB code for DFT of various signals

Details of the students involved in the activity: All students of 4-ISR-1

Sample Assignment by students.

Title: Discrete Fourier Transform Implementation in MATLAB without Built-in Function

Manoj C Acharya
20211ISR0070
EEE2001

Abstract:

The Discrete Fourier Transform (DFT) is a fundamental mathematical tool used for analysing signals in the frequency domain. In this report, we present a MATLAB implementation of the DFT without using the built-in function. The code provides a practical example of how to compute the DFT of a given time-domain signal using basic mathematical operations.

Introduction:

The DFT is widely used in various fields such as signal processing, communications, and image processing. The built-in DFT function in MATLAB, `fft`, simplifies the computation; however, understanding the underlying principles and implementing the DFT from scratch can enhance our knowledge of the Fourier transform.

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```
subplot(311);
stem(t,x);
xlabel('Time (s)');
ylabel('Amplitude');
title('Time domain - Input sequence');

subplot(312);
stem(t,abs(X));
xlabel('Frequency');
ylabel('|X(k)|');
title('Frequency domain - Magnitude response');

subplot(313);
stem(t,angle(X));
xlabel('Frequency');
ylabel('Phase');
title('Fr
```


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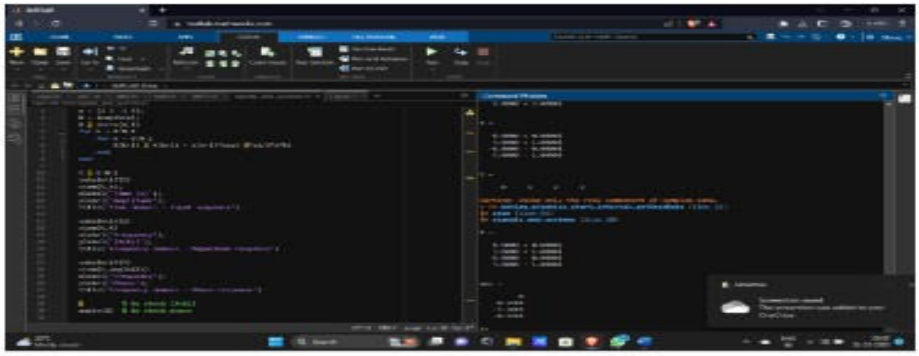
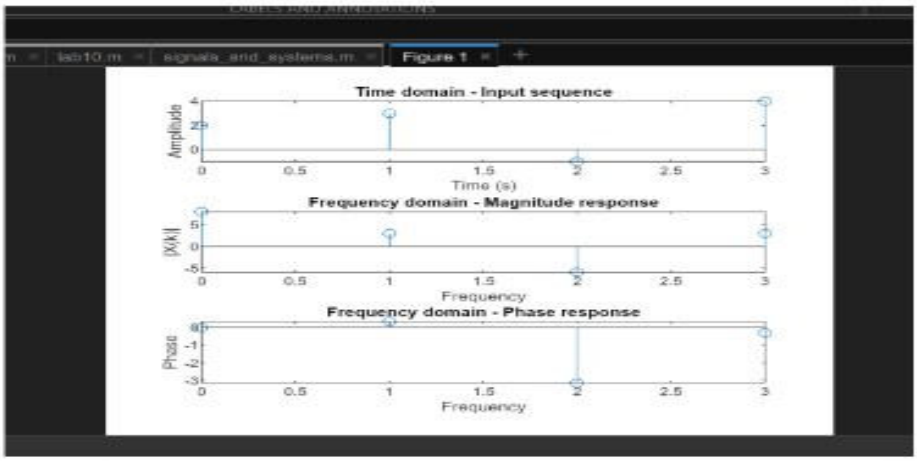


The response X[k] is what we expected and it gives exactly the same as we calculated. The plots are:



Signature of Instructor.

Signature of Instructor In-Charge

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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

Year: 2022-2023 **Semester:6th** **Section: 6-EEE-1** **Date: 15-03-2023**

Course Title: Electrical Drives

Course Code: EEE3001

Type of Skill: Skill Development

Type of Activity: Problem Solving

Type of Session: Assignment/ Industrial Visit

Instructor in Charge: Dr Joshi Manohar

Instructor for Section: Dr Joshi Manohar

Details about the activity: Students are given the assignment questions during Industrial Visit and were asked to solve and submit after the visit. The assignments questions were intended to develop the skills of a student.

Sample Questions:

1. List out the various sections of stone cutting industry and Identify the challenges or problems in control of motors at different section.
2. Chose any application, specify the operating conditions of the motor and comment on it.

Details of the students involved in the activity: All students of 6EEE-1

Brief Report of the visit:

All the students 6EEE1 participated in an industrial visit to Advent Stone Calibration Pvt (Ltd), Bangalore which was scheduled on 24th February 2023. The team left the University at 12.00PM and returned at 3.30PM. The main objective of the industry is to cut the Granite stones for export and also for utility purpose. This industry specializes in breaking down big block down of rocks of rocks and produce number of different types of stone based accessories used and seen in day to day life like stone pillars, marble floors, aesthetic and decorative stone statues/sculptures etc.

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Induction motors of different ratings are used to cut different sizes of stones and water was used as a lubricator for smooth and precise strokes.

The manager at the industry answered all the questions about the rated torque, current used and the overall work done at the industry. He demonstrated the cutting of Granite stones too. There were two motors used in the cutting machine, one is for vertical movement and the other for horizontal movement. A three-phase induction motor with higher capacity was used to cut thicker stones. Students observed that as the load (the size of the stones) increases the more rated torque is required by the machine to meet the requirements.

It is observed that there were various applications of three phase induction motor at the industry at the various sections of industry such as raw stone cutting, edge cutting, bed polish etc.

Fig.1 Students at Advent Stone Industry

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Fig.2 Stone cutting process

Assignment Questions: Attached to the report

Sample Answers of the students: Attached to the report

Course IC & HOD - EEE

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

PU-SOE-EEE 2022-23

REF.NO.PU/ SOE/ EEE /2022-23/CIR/INDUSTRY VISIT/02 21-02-2023

CIRCULAR

Industrial Visit to "Advent stone calibration Pvt (ltd)"

All the students of 4EEE-1 & 6EEE-1are informed that an industrial visit to **Advent stone calibration Pvt (ltd), Bangalore** has been scheduled on 24th F e b r u a r y 2023. It is mandatory for all the students to attend the same and required to submit one assignment in the course of Electrical Machines (EEE 2017) for 4EEE-1 students and Electrical Drives (EEE3001) for 6EEE-1 students.

"Attendance is compulsory and will be recorded

Date: 24th February 2023 Timings: 1:15 pm-3:45 pm
Day: Friday

Faculty Coordinators:
Mr. Bishakh Paul
Mr. K Sreekanth Reddy

Dr. Joshi Manohar
HOD - EEE

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how does stone cutting machine work?

- A stone cutting machine is a tool that makes cutting stones easier. It does this by **using either a diamond blade or a carbide wheel to cut the stone into the desired shape**. A basic stone cutting machine is composed of three main parts: A work surface that goes into the machine, a clamp, and the blade holder.

List out the various sections of stone cutting industry and identify the motors at different section.

- Stone-cutting machines, also called stone masons, stone cutters, stone splitters, and rock cutters, have hydraulically operated rams to split and cut various types of stone products used mainly for decorative purposes in the landscaping industry. The machines are produced in both stationary and mobile models. Their high-pressure hydraulic systems may be driven by combustion engine (gasoline/diesel) or electric motor.

- Stone-cutting machines with unguarded cutting blades can cause amputations and other serious injuries. According to the Bureau of Labour Statistics, in 2010 (the most recent detailed data), 180 injuries occurred while using shears, which operate similar to stone cutters. Of these injuries, 100 were amputations and 50 were described as cuts, lacerations and punctures. Amputations can occur when shears or stone cutters are not guarded properly and a worker's hands or other body part is placed in the **point of operation** during operation.

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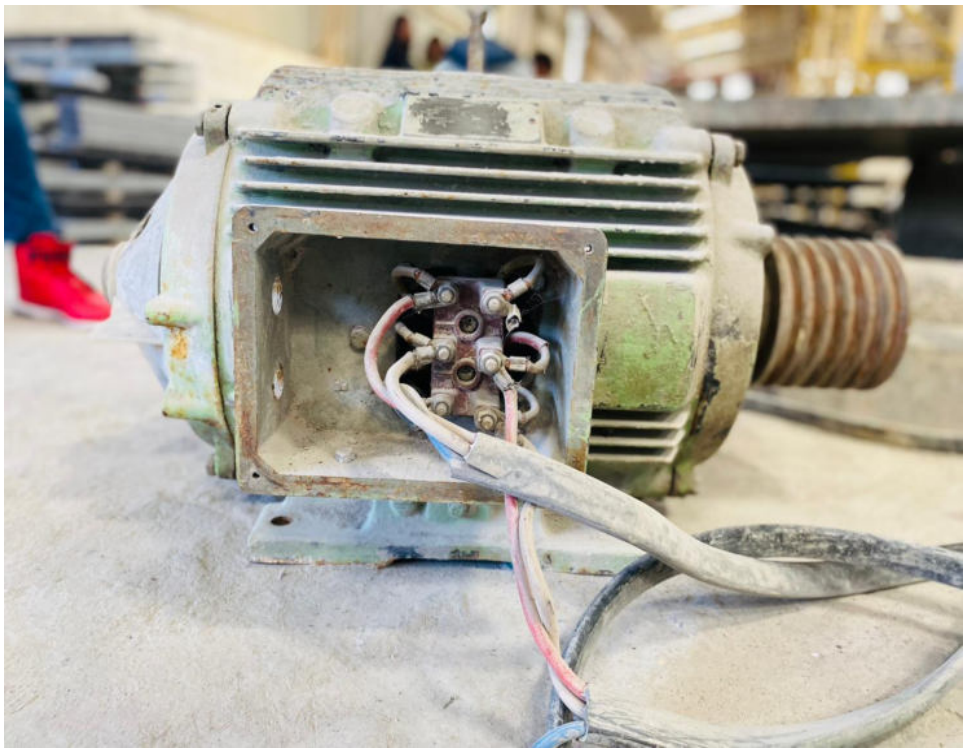
NAME PLATE DETAILS

1400rpm, ac drive for horizontal induction motor.
1hp vertical motor
2hp ac drive for speed control
40 hp motor, 3 phase induction motor for horizontal and vertical stone ctutting.



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Benefits of Cutting Stone with a Water Jet Machine

Cold Cutting Process

No Cracking

Dust Free Cutting

Etching

Eco-Friendly

Chose any application, specify the operating conditions of the motor and comment on it.

Cutting Stone with Water Jet Cutter

Natural stones are the first choice when anyone wants a material that is luxurious and durable at the same time. Among stones, there are many different materials, such as granite, marble, limestone, slate, and more.

Stone cutting is required to make it usable for any application. For this purpose, traditional cutting tools such as angle grinders or blades are used for very small-scale applications. However, these cutting tools don't work well for large production applications because of the thickness of the stone and frequent wear and tear on blades.

Therefore, modern methods such as laser and **water jet stone cutting** have wide applications in the stone cutting industry. Many experts consider **cutting stone with water jet cutter** technology the best modern method.

Presidency University

GAIN MORE KNOWLEDGE
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Name: Yashaswini BG

Roll no: 20201EEE0022

Section: 6EEE

Course:Electrical Drives

Course code: EEE3001

Course Incharge: Dr.Joshi Manohar

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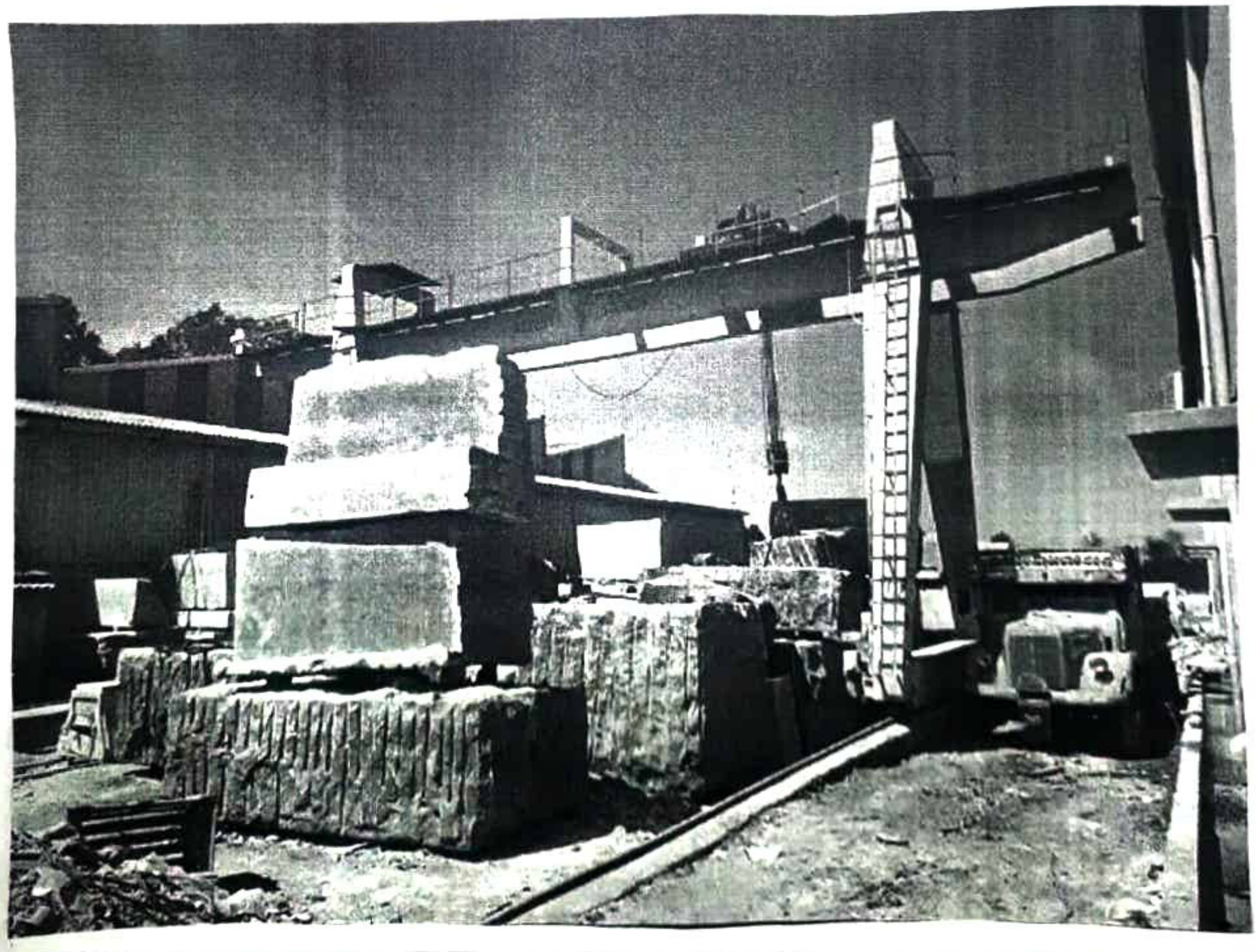
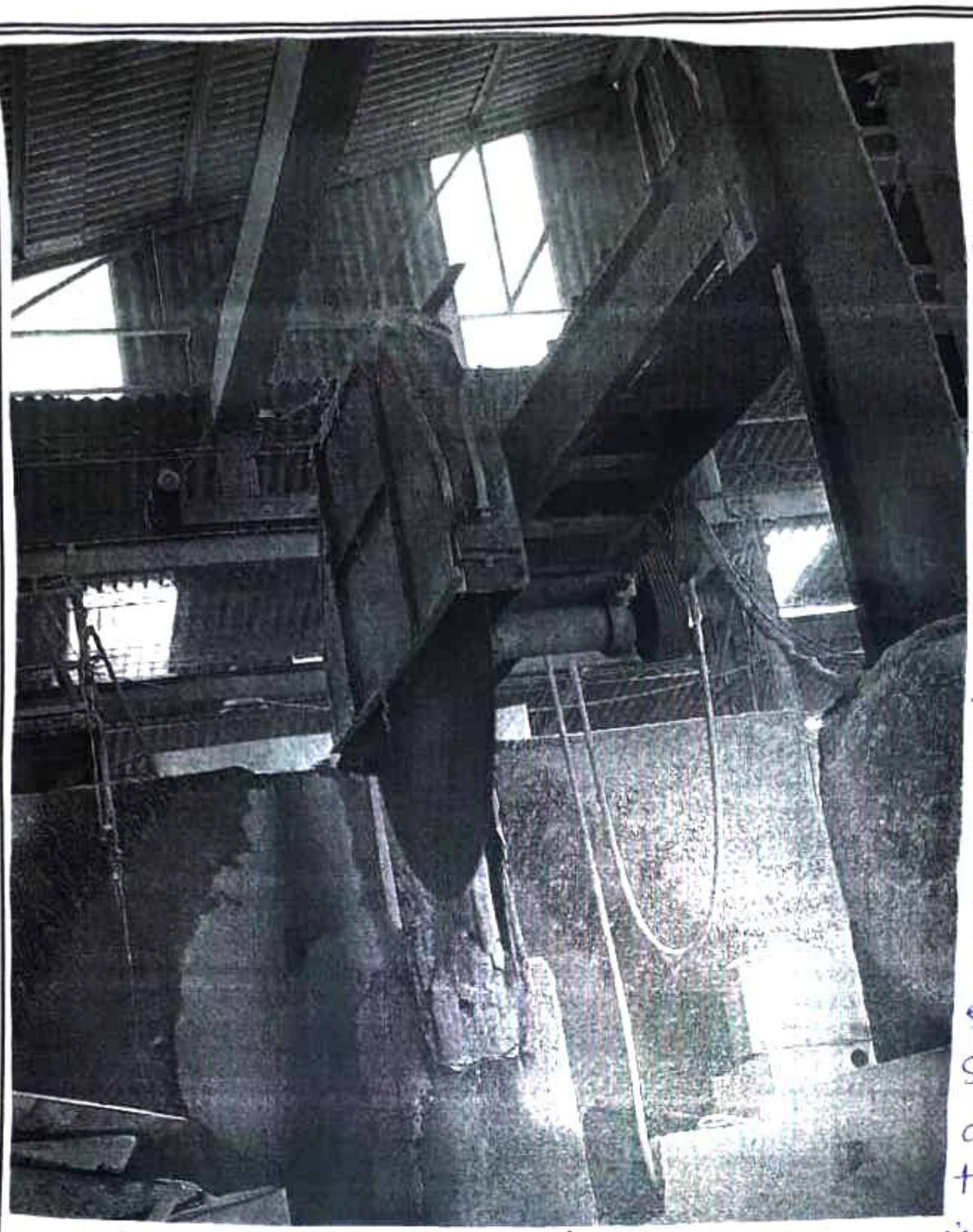
Electrical Drives

EEE 3001

Stone industry refers to the part of the primary sector of the economy, similar to the mining industry, but these industries are concerned with excavations of stones, in particular granite, marble, slate and sandstone.
Stone industry is one of the oldest in the world.
Some other products of the industry include crushed stone dimension stone.

Dimension stone is natural stone or rock that has been selected and finished (trimmed, cut, drilled or ground to specific shapes and sizes.. Colour, texture and pattern.





Waterjet stone cutting machine can easily cut 12 inches of stone at high speed. It is possible to cut more than 12-inch-thick granite, marble, and other similar stone. greater thickness reduces cutting speeds.

once block has been cut it is been shaped from wire-saw, matting is done to ensure that there are no cracks or breakage during the cutting process. Every 2-3 hours machine and the block is observed re-adjusted.

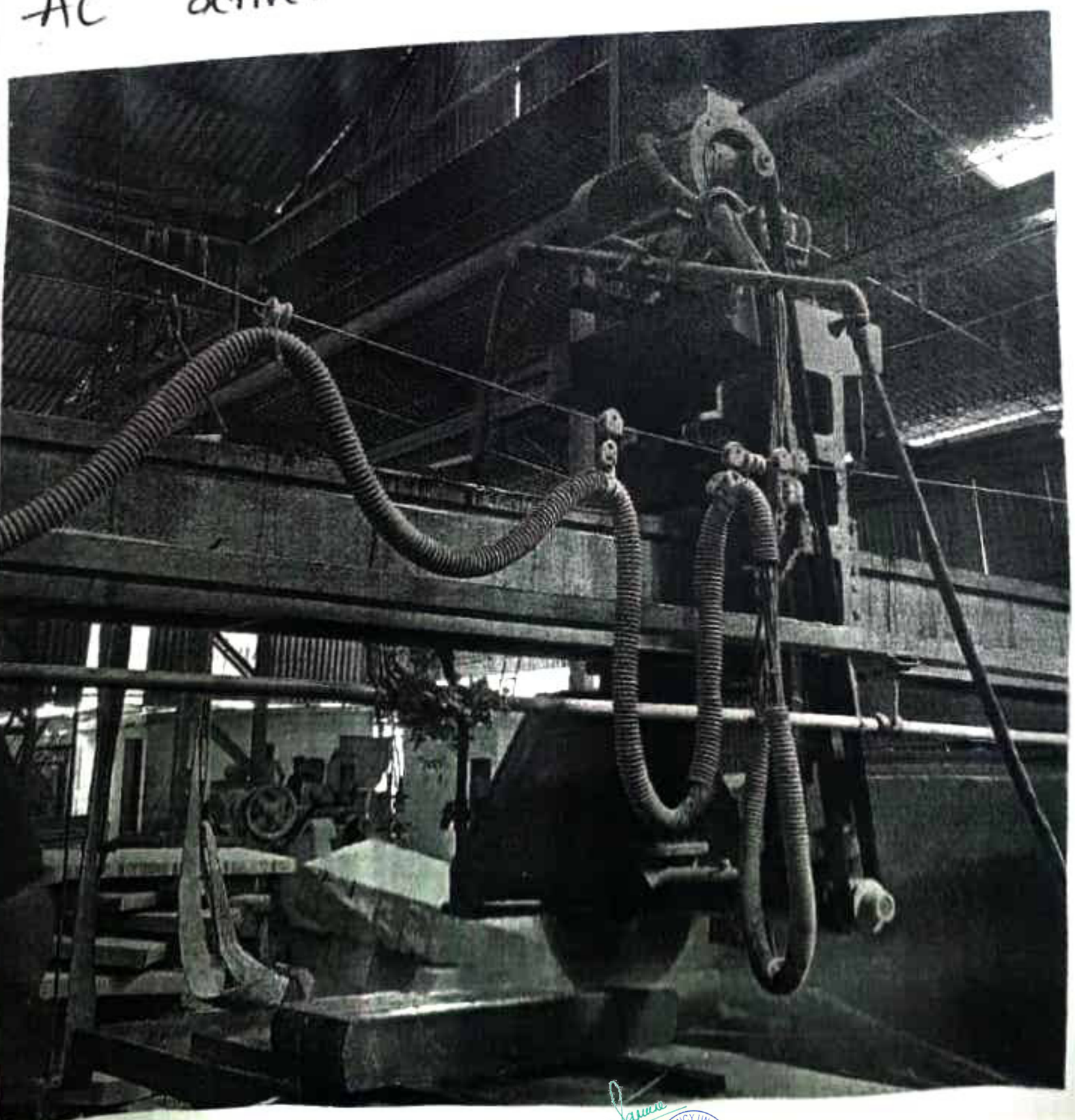
* Grinding:- once slabs are cut and marked, they are then sent for grinding. Grinding is a process to smotten of grainite, so they lose their grainy finish, as a result of cutting process & achieve a smooth to touch finish.

→ Grinding is done in a grinding machine with multiples heads attached to diamond abrasives of different densists to achieve an even surface finish, Again water is used in this process to minimise heat created from friction.

★ Polishing:- This is the final step before the granite slabs are ready. This step is done to remove any excess resin on top of the granite surface as well as smoothen the surface finish.

Slabs are processed with special silicon Carbide abrasives in a polishing machines & goes through a process of differing hardness and pressure with 21 abrasives to ensure a smooth surface finish & mirror like shine.

The type of motor used for stone cutting industries are 3 ϕ Induction motor" (Horizontal) motor, AC drive.
Specifications are vertical, speed at 1400 rpm,
CT motor (vertical) Speed control is made by AC drive.



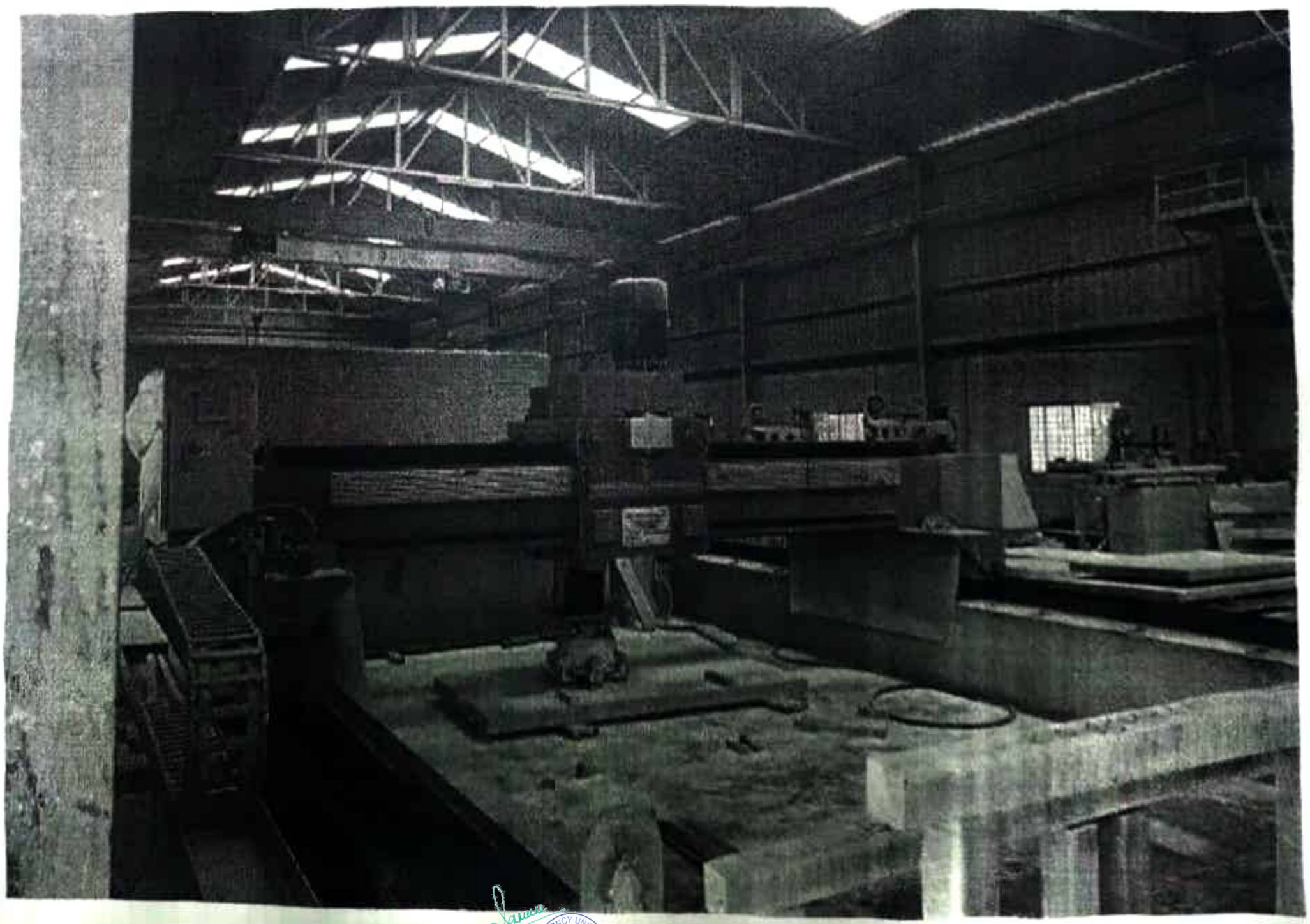
3-ϕ Induction motor.

→ 30 KW
→ 415 v ±10 volts.
→ Crompton greaves
→ speed at 1475 rpm
→ A-51
Machine No
- NADM 2490.

stone cutting process consists of two broad steps:-
(i) extracting stone from the earth and then treating and shaping it for its desired purpose. Over time, a number of different tools and methods have been used to cut stone. The most primitive method of stone cutting involved simply hitting a soft stone with a harder one. This process dates back to appropriately enough, the early stone Age.

★ Cutting (block cutting)

→ For cutting stone modern methods such as laser and water jet stone cutting have wide applications in stone cutting industry. Water jet cutting is one the most common industrial cutting methods for thick granite, marble & even other materials such as glass, metals etc..



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SCHOOL of ENGINEERING
DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

Year: 2022-2023 **Semester: 6th** **Section: 6-EEE-1** **Date: 24-03-2022**

Course Title: Power System Analysis.

Course Code: EEE3002

Type of Skill: Skill Development

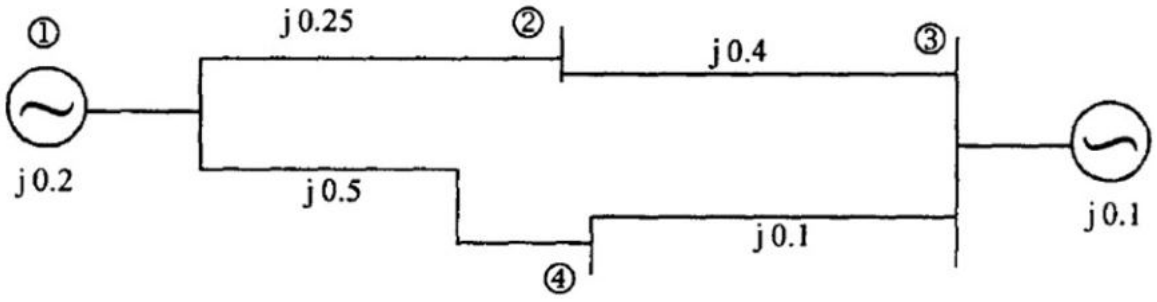
Type of Session: Problem Solving

Type of Activity: Students are encouraged to brainstorming sessions where they are encouraged to solve numerical for the given practical based scenario and were asked to solve the problem theoretically and verify the results using Simulation tools (Mi power, MATLAB, Power world simulator and etc.,) to enhance the problem solving skill set of the students.

Instructor in Charge: Mr. Ravi V Angadi.

Instructor for Section: Mr. Ravi V Angadi.

Details about the activity: A power system consists of 4 buses. Generators are connected at buses 1 and 3 reactances of which are j0.2 and j0.1 respectively. The transmission lines are connected between buses 1-2, 1-4, 2-3 and 3-4 and have reactance's j0.25, j0.5, j0.4 and j 0.1 respectively. By any appropriate modern power system simulation tool compute bus admittance matrix. i. Compute the Ybus using inspection method and ii. Verify the result using bus incidence matrix and admittance matrix method by developing the necessary matlab code. (Neglect the generator reactance)



Details of the students involved in the activity: 6EEE1

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 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
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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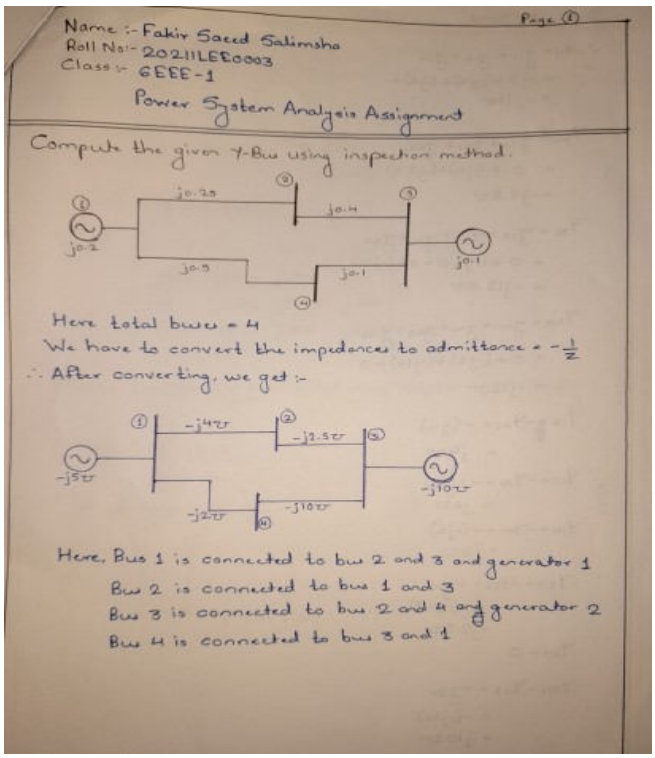
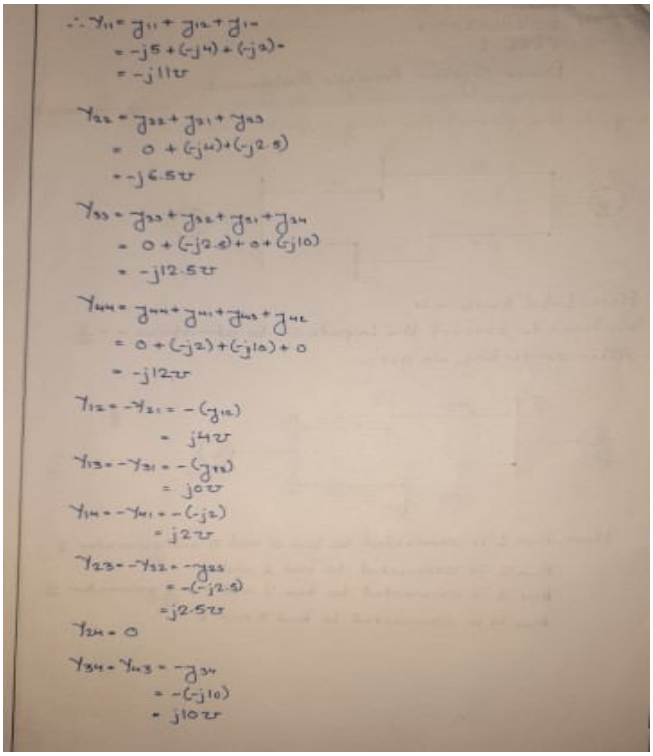
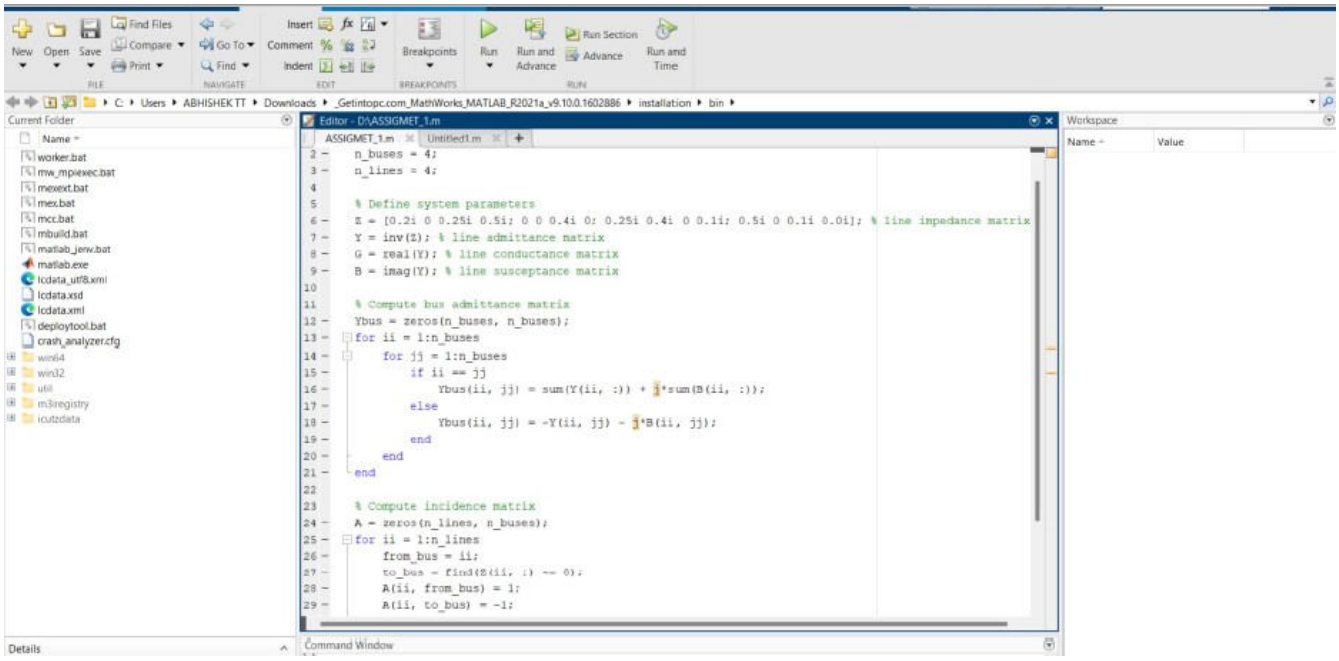
Sample Screen shots of the activity.







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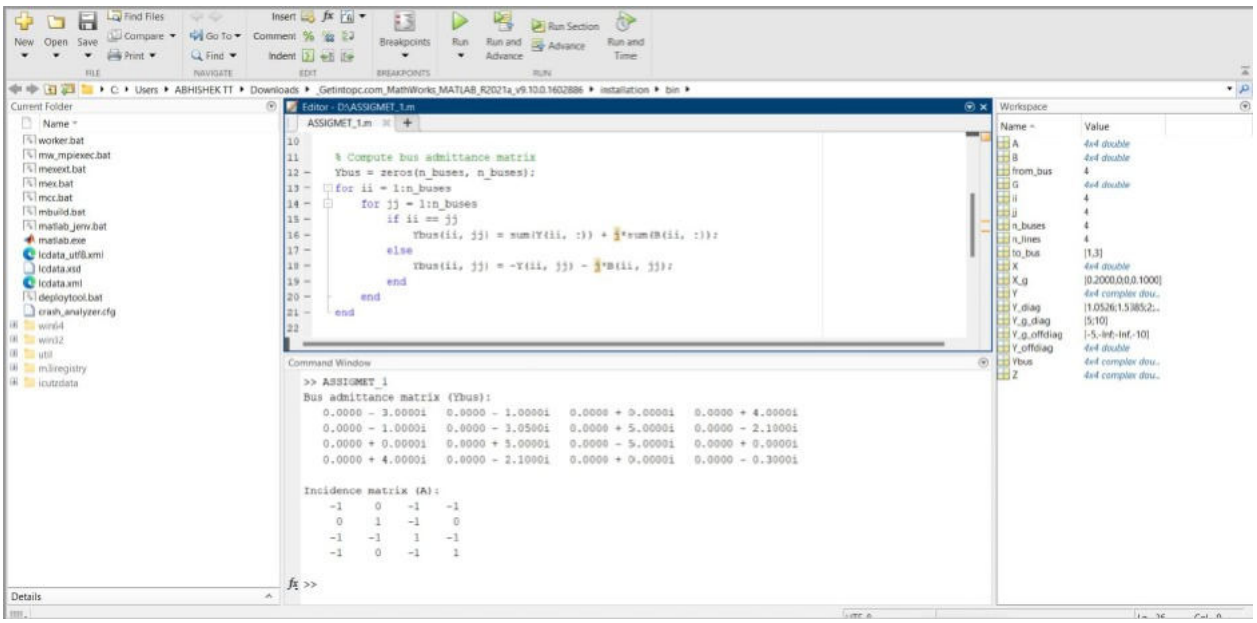

Signature of Instructor.

Signature of Instructor In-Charge

Dr. V Joshi Manohar
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