



Excelssior Education Society's
K. C. College of Engineering and Management Studies and Research
(Affiliated to the University of Mumbai)
Mith Bunder Road, Near Hume Pipe, Kopri, Thane (E)-400603
NAAC accredited with B++ grade

Department of Humanities and Applied Sciences

2019-20 I Sem

Innovative Practices Followed in Teaching and Learning		
Sr. No.	Activities	Subject
1 1.	Online Qize	Engineering Mathematics-FEC101
2 2.	Think Pair share	Engineering Physics -FEC102
3 3.	Animated Teaching	Engineering Chemistry-FEC103
4 4.	Designing of Experiment	Engineering Mechanics-FEC104
5 5.	Bridge Course Aim Spice Circuit Simulation for DC Circuit	Basic Electrical Engineering -FEC105



EXCELSSIOR EDUCATION SOCIETY'S

K. C. College of Engineering & Management Studies & Research

Mith Bunder Road, Kopri, Thane (E)

Department of Humanities and Applied Sciences

A.Y.2019-20

CLASS: F.E. A,B,C,D

SEMESTER: I

SUBJECT: ENGINEERING MATHEMATICS-I (FEC101)

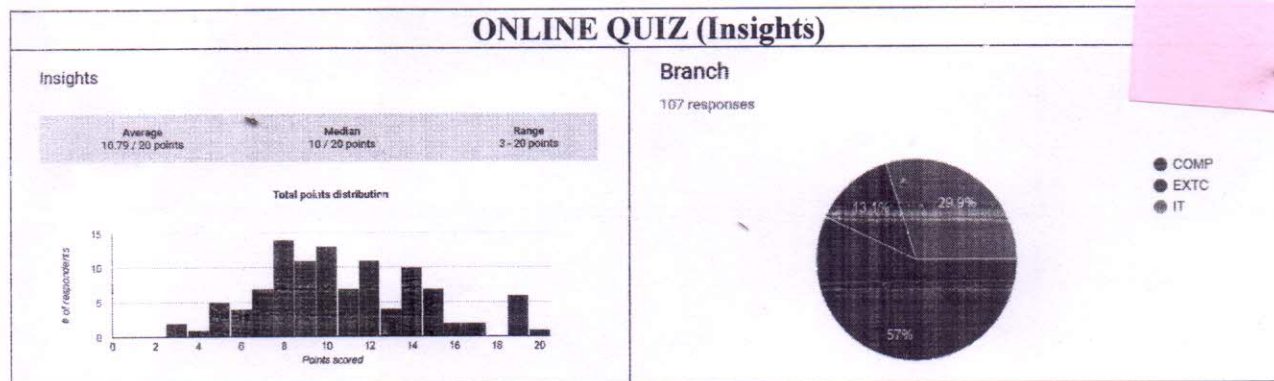
ACTIVITY: ON LINE QUIZ (For Pre-requisite)

ACTIVITY REPORT:

Academic year 2019-20 has been started with Induction program as per the Modular Curriculum plan of AICT and University of Mumbai for the First Year Engineering students. As per the plan the students have been given the Pre-requisite test in Basic Mathematics, the test was conducted online which was the first ICT mode practice has been encountered by the First Year Engineering Students.

OUT COME:

1. According to the students performance the special Lecture has been conducted, by connecting Basic and Higher Engineering Mathematics.
2. Through the above activity students have revised the concepts and got practice for the ongoing semester topics.





EXCELSSIOR EDUCATION SOCIETY'S

K. C. College of Engineering & Management Studies & Research

Mith Bunder Road, Kopri, Thane (E)

Department of Humanities and Applied Sciences

A.Y.2019-20

CLASS: F.E. C,D

SEMESTER: I

SUBJECT: ENGINEERING PHYSICS -I (FEC102)

ACTIVITY: THINK PAIR SHARE (For Intrinsic & Extrinsic Semiconductor)

ACTIVITY REPORT:

It is a innovative tool in which students were asked to sit in pairs on one- one bench. Topic, intrinsic & extrinsic semiconductor was given to the students. Without discussing with each other first students wrote individually in their book and then after 20 minutes they discussed their points with their partner and then one-one pair of students came forward and explained and shared their views based on the topic. Students wrote keywords of their content on the board.

OUT COME:

Students found this activity as an effective way of learning.

Smchaul



EXCELSSIOR EDUCATION SOCIETY'S

K. C. College of Engineering & Management Studies & Research

Mith Bunder Road, Kopri, Thane (E)

Department of Humanities and Applied Sciences

A.Y.2019-20

CLASS: F.E. C&D

SEMESTER: I

SUBJECT: ENGINEERING CHEMISTRY -I (FEC103)

ACTIVITY: Animated teaching through sharing of videos(For Polymers)

ACTIVITY REPORT: For the topics during the lecture period. This makes the concept clearer to understand. This is very usual practice in my lecture for the topics which is difficult to understand and can be explained through video lectures.

OUT COME: By the video lectures and animations students had made clarity of concepts.

Links for topics like polymers and:

1. <https://youtu.be/wCMUCFXA.Vo> (Transfer Moulding)
2. <https://youtu.be/b1U9W4iNDiQ> (Injection Moulding)



EXCELSSIOR EDUCATION SOCIETY'S

K. C. College of Engineering & Management Studies & Research

Mith Bunder Road, Kopri, Thane (E)

Department of Humanities and Applied Sciences

A.Y. 2019-20

CLASS: F.E. (A,B,C,D)

SEMESTER-I

SUBJECT: BASIC ELECTRICAL ENGINEERING (FEC105)

ACTIVITY:

- Bridge Course (Crossword Activity & Online Quiz)
- Aim-Spice Circuit Simulation for DC Circuits
- Assignment No. 2 (Online Quiz)

ACTIVITY REPORT:

In order to recall the basic concepts of emf, potential difference, current, ohm's law, resistance, resistivity, series and parallel connections, power dissipation in resistance, effect of temperature on resistance, Faraday's laws of electromagnetic induction, Working of Wattmeter for the students crossword activity and online line quiz has been conducted.

To encourage the use of open source software the first year engineering students have been undergone the practice of solving dc circuit by using Aim-Spice Circuit Simulation software.

For the assignment purpose another online quiz from A.C. circuits, three-phase A.C. circuits, Single-phase transformers, three-phase machines, single-phase machines and D.C. machines has been conducted.

OUTCOME:

Through the above activity students recalled the concepts, experienced the use of open source software and one formative assessment also has been done.

Neha



Excelssior Education Society's
K. C. College of Engineering and Management Studies and Research
(Affiliated to University of Mumbai)
MithBunder Road, Near Hume Pipe, Kopri, Thane (E)- 400603.
NAAC Accredited with B++ Grade

Department of Humanities and Applied Sciences
A.Y. 2019-20

CLASS: F.E.

SEMESTER: I

SUBJECT: BASIC ELECTRICAL ENGINEERING

Bridge Course

Topics: Resistance, inductance, capacitance, series and parallel connections of resistance, concepts of voltage, current, power and energy and its units. Working of wattmeter, Magnetic circuits, MMF, Magnetic field strength, reluctance, series and parallel magnetic circuits, BH Curve, Time domain analysis of first order RL and RC circuits. Concept of emf, potential difference, ohm's law, resistivity, power dissipation in resistance, effect of temperature on resistance. Capacitors with uniform and composite medium, energy stored in capacitor, R-C time constant. Magnetic field, Faraday's laws of Electromagnetic induction, Hysteresis and eddy current losses, energy stored in an inductor, time constant in R-L circuit.

ELECTRIC POTENTIAL: The movement of charges contributes to current and the amount of work done per unit charge is the potential difference between the two points. The electronic charges flow from a lower potential to a higher potential.

ELECTROMOTIVE FORCE, or emf, is better described as the total voltage in an electric circuit generated by the source or battery.

ELECTRIC CURRENT: An electric current is defined as the time rate of flow of charge through a certain section. Its unit is ampere.

RESISTANCE (R): A circuit element designed to have property of resistances is known as a resistor and its circuit symbol is shown in Fig. The resistors normally are in the form of wires.

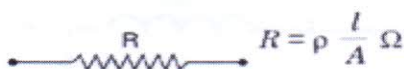


Fig. Circuit Symbol of a Resistor

RESISTIVITY: The resistivity of the material or specific resistance is the resistance of a cube of material measured between opposite forces.

OHM'S LAW: $V/I = \text{Constant} = R$ Ohms

Ohm's Law can be expressed in three forms:

$$I = V/R \text{ Amperes, } V = IR \text{ Volts, } R = V/I \text{ Ohms}$$

RESISTANCE IN SERIES:

$$\text{Series: } \begin{array}{c} R_1 \\ \text{---} \end{array} \begin{array}{c} R_2 \\ \text{---} \end{array} \begin{array}{c} R_3 \\ \text{---} \end{array} = \begin{array}{c} R_{eq} = R_1 + R_2 + R_3 \\ \text{---} \end{array}$$

Fig.

RESISTANCE IN PARALLEL:

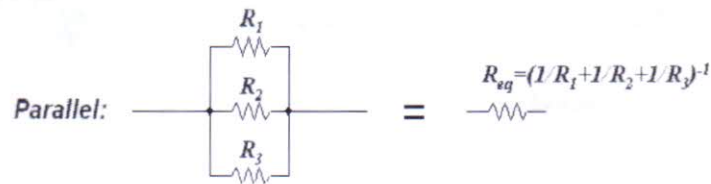


Fig.

ELECTRIC POWER = Work done in electric circuit/Time

$$P = VI \text{ Watts, } P = I^2R \text{ Watts, } P = V^2/R \text{ Watts}$$

CAPACITANCE (C): The ability of a system to store an electric charge. The ratio of the change in an electric charge in a system to the corresponding change in its electric potential.

INDUCTANCE (L): The property of an electric conductor or circuit that causes an electromotive force to be generated by a change in the current flowing. A component with the property of inductance.

Eddy Current & Hysteresis Losses: These two losses are produced in any magnetic material which is subjected to an alternating time varying fields.

Energy Stored in an Inductor:

$$= \frac{1}{2} L I^2 \text{ Joule}$$

Energy Stored in Capacitor:

$$Q = CV$$

$$W = \frac{1}{2} C V^2 \text{ Joule}$$

Magnetic Field, Faraday's Laws of Electromagnetic Induction:

A changing magnetic flux induces an EMF.

$$e = -N d\phi/dt$$

The wattmeter is an instrument for measuring the electric power (or the supply rate of electrical energy) in watts of any given circuit.

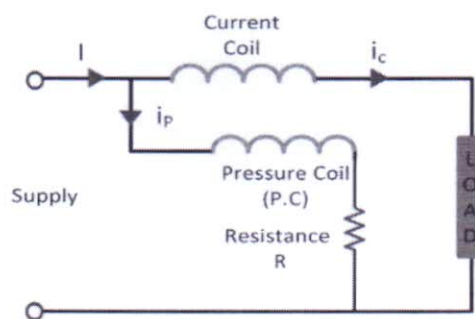
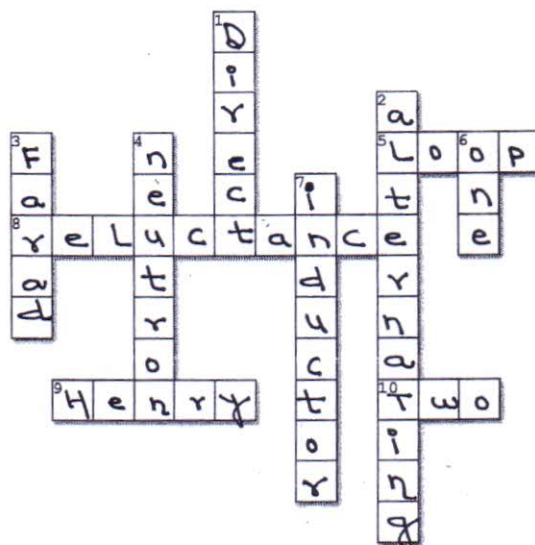


Fig.

Bridge Course Activity (16/08/19)

Name: _____

Complete the crossword puzzle below



Created using the Crossword Maker on TheTeachersCorner.net

Across

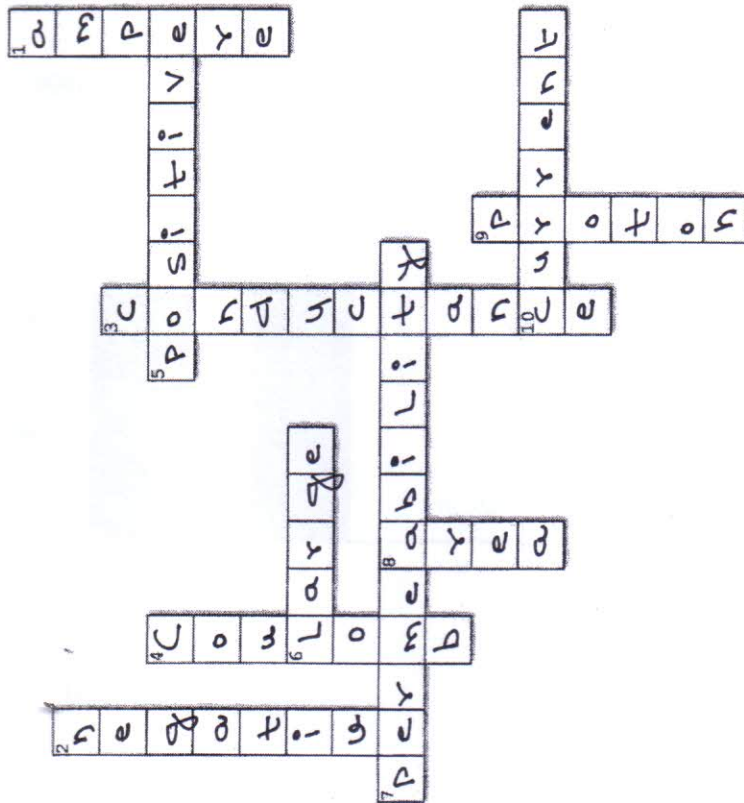
5. Mesh is also called as a
 8. Opposition to the flux in magnetic circuit
 9. Unit of Inductance
 10. Transformer has _____ number of coils

Down

1. Current which has no frequency
 2. Current which has frequency
 3. Unit of Capacitance
 4. Neutral charge on particle in an atom
 6. Relative permeability of air is
 7. Coil is also called as a

Bridge Course Activity (16/08/19)

Name: _____



Created using the Crossword Maker on TheTeachersCorner.net

Across

5. For metals Temperature coefficient of resistance is
6. For the large area of hysteresis loop loss will be
7. Conductivity is analogous to
10. Flux in a magnetic circuit is equivalent to this quantity in electric circuit

Down

1. Unit of Current
2. For Insulators Temperature coefficient of resistance is
3. This quantity is the reciprocal of resistance
4. Unit of Charge
8. This quantity is inversely proportional to resistance
9. Positively charged particles in an atom



Excelssior Education Society's
K. C. College of Engineering and Management Studies and Research
(Affiliated to University of Mumbai)
MithBunder Road, Near Hume Pipe, Kopri, Thane (E)- 400603.
NAAC Accredited with B++ Grade

Department of Humanities and Applied Sciences
A.Y. 2019-20

CLASS: F.E.

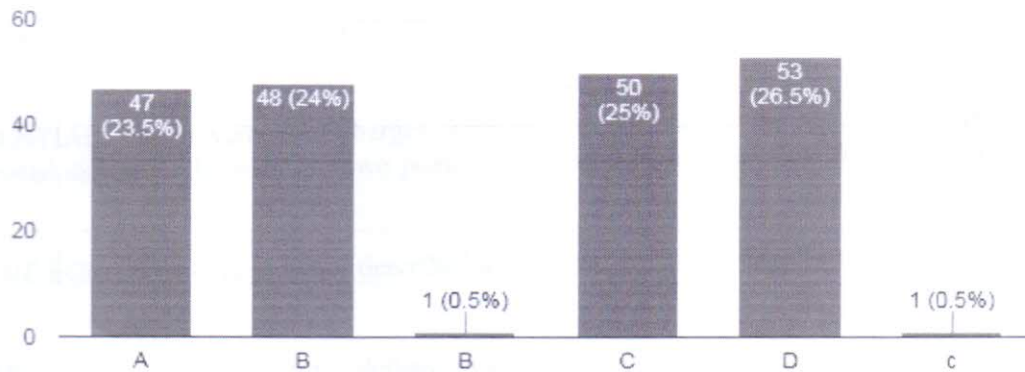
SEMESTER: I

SUBJECT: BASIC ELECTRICAL ENGINEERING

Bridge Course Activity: B.E.E. QUIZ F.E. SEM-I (2019-20)

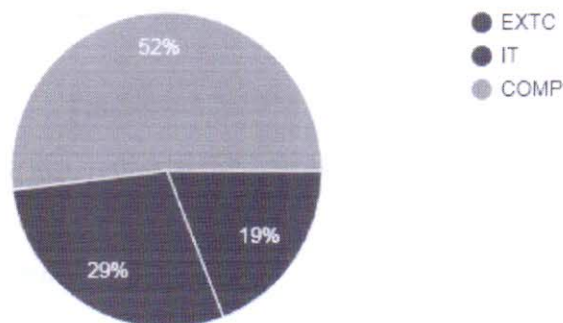
Division

200 responses



Branch

200 responses



<https://docs.google.com/forms/d/1ujcf6iNEXWI3Z5R6j1EkW2FDNguhY-ru4CWMtB97xTs/viewanalytics>



Excelssior Education Society's
K. C. College of Engineering and Management Studies and Research
(Affiliated to University of Mumbai)
MithBunder Road, Near Hume Pipe, Kopri, Thane (E)- 400603.
NAAC Accredited with B++ Grade

Department of Humanities and Applied Sciences
A.Y. 2019-20

CLASS: F.E.

SEMESTER: I

SUBJECT: BASIC ELECTRICAL ENGINEERING

AIM-SPICE CIRCUIT SIMULATION FOR D.C. CIRCUITS

Experiment No. 1.1

Aim: Verification of Kirchhoff's Laws using simulation.

Software Used: Aim-Spice Circuit Simulator

Circuit Diagram:

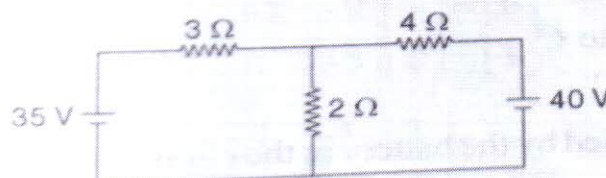


Fig. Circuit Diagram

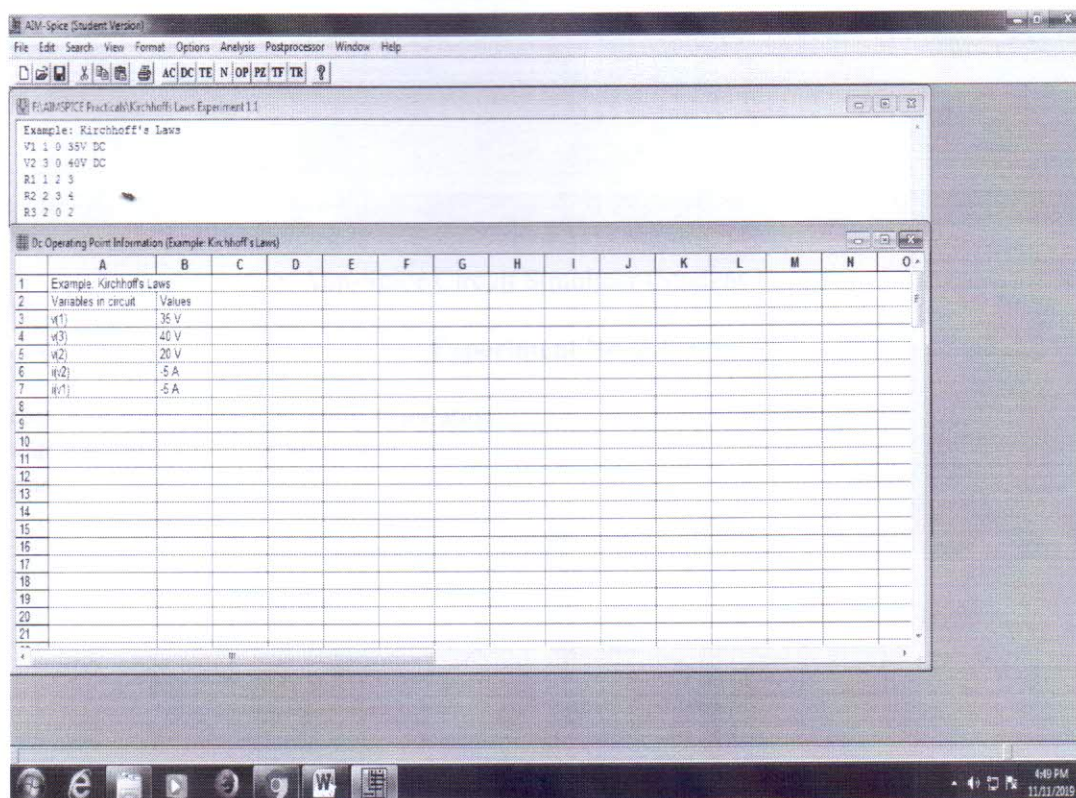


Fig. Aim-Spice Circuit Simulator (Student Version)

Experiment No. 1.2

Aim: Verification of Kirchhoff's Laws using simulation.

Software Used: Aim-Spice Circuit Simulator

Circuit Diagram:

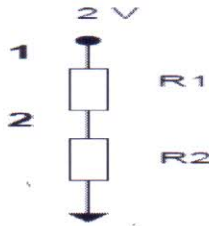


Fig. Circuit Diagram

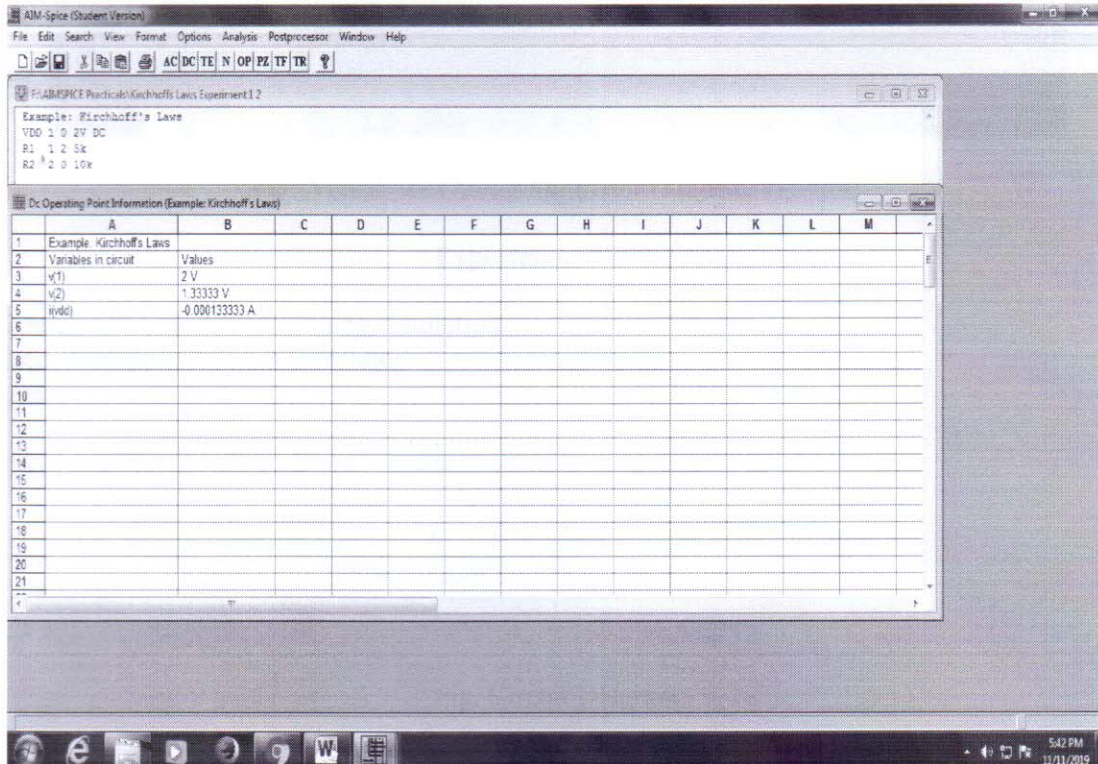


Fig. Aim-Spice Circuit Simulator (Student Version)

Experiment No. 2.1

Aim: Verification of Mesh Analysis using simulation.

Software Used: Aim-Spice Circuit Simulator

Circuit Diagram:

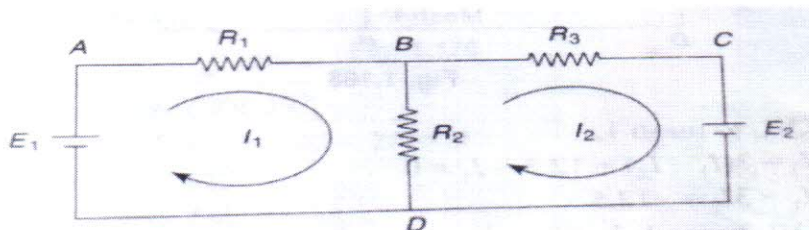


Fig. Circuit Diagram

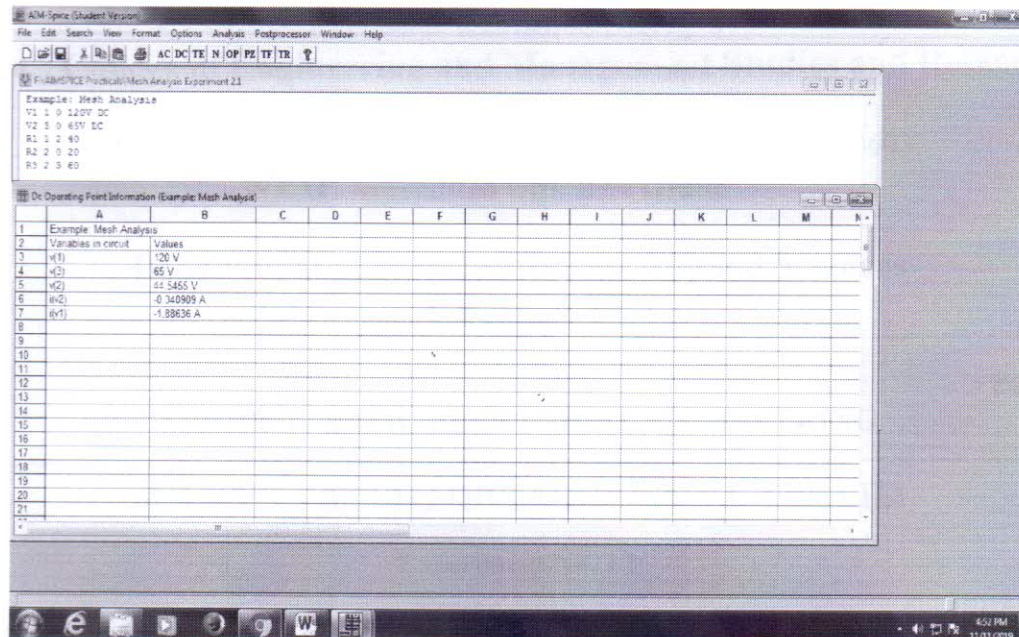


Fig. Aim-Spice Circuit Simulator (Student Version)

Experiment No. 2.2

Aim: Verification of Mesh Analysis using simulation.

Software Used: Aim-Spice Circuit Simulator

Circuit Diagram:

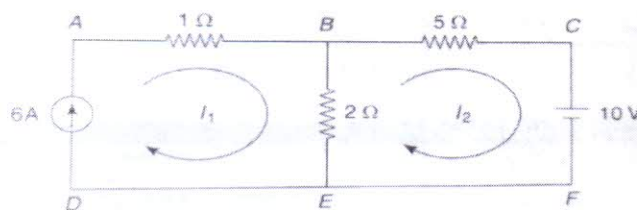


Fig. Circuit Diagram

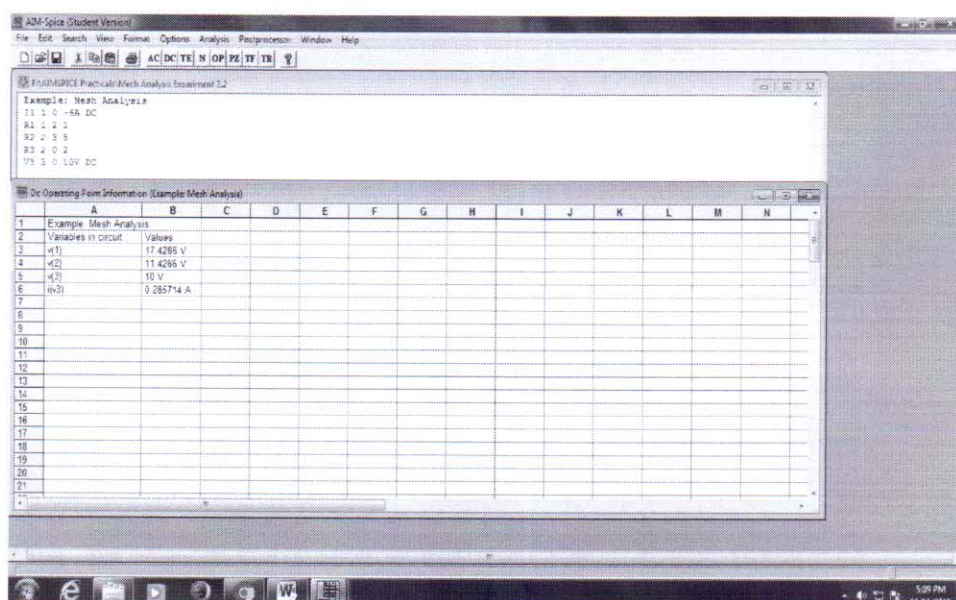


Fig. Aim-Spice Circuit Simulator (Student Version)



EXCELSSIOR EDUCATION SOCIETY'S

K. C. College of Engineering & Management Studies & Research

Mith Bunder Road, Kopri, Thane (E)

Department of Humanities and Applied Sciences

A.Y.2019-20

CLASS: F.E. A , B, C, D

SEMESTER: I

SUBJECT: ENGINEERING MECHANICS (FEC104)

ACTIVITY: DESIGN OF EXPERIMENT

ACTIVITY REPORT: Experiment is designed on Projectile Motion for identification of initial velocity. Students of all divisions of first year performed the experiment.

OUT COME: Students were able to understand the topic very clearly.

Handwritten signature

EXPERIMENT NO. :- 05

AIM :- To determine the initial velocity of Projectile.

APPARATUS :- Spring gun, ball, incline plane, meter scale, stop watch etc.

THEORY :-

The system can be investigated on two directions of x and y. Just as the horizontal motion is represented by the function of x, the vertical motion is represented by the function of y in this system. This situation is given in Fig. 1.

Whereas the vertical motion (y axis motion) is under the effect of gravitational acceleration, the horizontal motion (x axis motion) is not under any acceleration. It is only under the effect of the x axis component of the velocity which is a constant speed.

There are several formulas which are very important for some calculations. Since in this experiment the main aim is to calculate the initial velocity of projectile, the formulas of initial velocity should be defined.

Consider, Horizontal Motion from A to C i.e. Constant velocity motion in x direction

Displacement (S) = Observed Range (R)

Initial velocity (u) = $u \cos \alpha$

$$\text{Velocity} = \frac{\text{Displacement (S)}}{\text{Time(t)}}$$

$$u \cos \alpha = \frac{R}{t}$$

$$t = \frac{R}{u \cos \alpha} \text{-----Eq. (1)}$$

Consider, Vertical Motion from A to C i.e. constant acceleration motion in y direction

Displacement (S) = 0

Initial velocity (u) $\Rightarrow u \sin \alpha$

Acceleration (a) = Acceleration due to gravity ($g = -9.81 \text{ m/s}^2$)

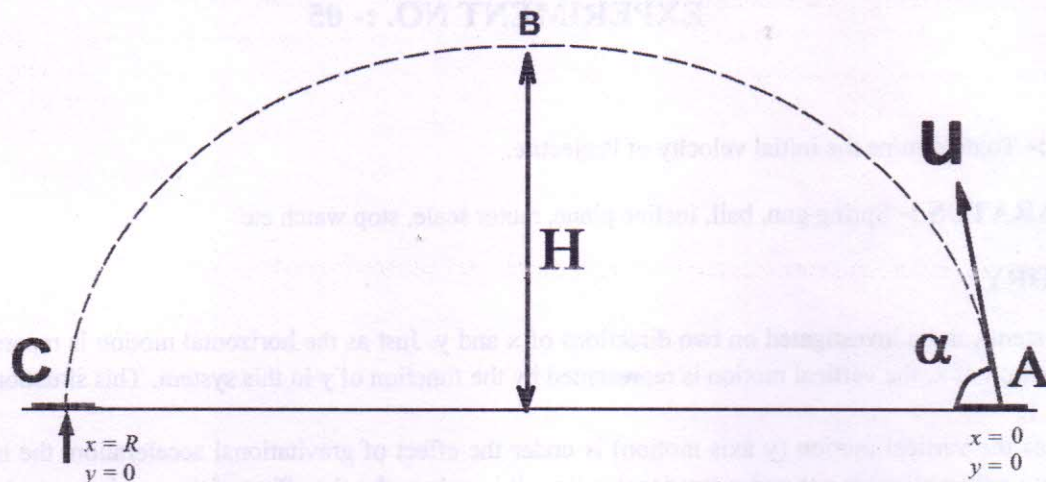
$$S = ut + \frac{1}{2}at^2$$

$$\therefore 0 = u \sin \alpha \times t - \frac{1}{2} \times 9.81 \times t^2$$

$$u \sin \alpha = \frac{1}{2} \times 9.81 \times t$$

Put Eq. (1) in above equation,

$$u^2 = \frac{1}{2} \times 9.81 \times \frac{R}{\cos \alpha \sin \alpha}$$



For Maximum Height (H) Calculation,

Consider vertical motion from A-B,

Final velocity (v) = 0

Initial velocity (u) = $u \sin \alpha$

Displacement (s) = H

Acceleration (a) = -9.80 m/s^2

Using relation,

$$v^2 = u^2 + 2as$$

$$\therefore H = \frac{(u \sin \alpha)^2}{2 \times 9.81}$$

PROCEDURE :-

1. Level the inclined plane at required angle (α). Set the spring gun on the inclined plane.
2. Fire the projectile ball. Determine the approximate range of the ball by firing the gun couple of times.
3. In order to measure the position, at which the ball strikes the floor, put a mark on the floor. Fire at least ten shots; circle and number the impact positions on the floor.
4. If the positions are spread so much that they do not hit the mark, check that everything is tight and that each time you use the same technique to project the ball.
5. Determine the range, R , by measuring the distance from the spot under the gun to the mark on the floor.
6. Measure and record the time of flight with stopwatch.
7. Measure the approximate maximum height. (Use video recording)
8. Also, find analytically the time of flight and maximum height and compare the results with observed time of flight and maximum height

OBSERVATION TABLE :-

Sr no.	Angle of Projection	Measured Range (R), m	Initial velocity (u), m/s	Observed		Calculated	
				Time of flight, sec	Maximum height, m	Time of flight, sec	Maximum height, m
1							
2							
3							
4							
5							
6							
7							
8							
9							

RESULT :-

EXPERIMENT NO. : 05

CONCLUSION :-