



VISHWANIKETAN'S
Institute of Management, Entrepreneurship and Engineering Technology [iMEET]
(Affiliated to Mumbai University)

Department of Electronics and Telecommunication Engineering

Course Level PBL in Subject : Linear Integrated Circuits[LIC]

Class : S.E. EXTC Semester : IV

Branch: ExTC Engineering

A.Y. : 2018-19

Couse Co-ordinator: Prof. Sandeep M. Kate

Course Contents

- 01 Introduction to operational amplifiers
- 02 Applications of operational amplifiers
- 03 Non-Linear Applications of Operational Amplifier
- 04 Analog to Digital and Digital to Analog Converters
- 05 Special Purpose Integrated Circuits
- 06 Voltage Regulators

Linear Integrated Circuits

(Abbreviated as L.I.C)

Introduction to operational amplifiers

1

Linear Application of Operational Amplifiers

2

Non-Linear Applications of Operational Amplifier

3

Analog to Digital and Digital to Analog Convertors

4

Special Purpose Integrated Circuits

5

Voltage Regulators

6

OP-AMP IC
741

TIMER
IC555

Regulator
LM317

ADC/
DAC

Special Purpose
IC's

Application of
Analog IC's

Modules to be Covered in PBL



← Operational Amplifiers: Fundamentals

← Linear and Non Linear Application of Operational Amplifiers

← Special Purpose Integrated Circuits

← Voltage Regulators

Innovative Projects based on LIC



1 Operational Amplifier 741 Tester

2 Speed Limit Vehicles

3 Mobile Phone Detector

4 Sound Pressure Meter

5 Sound Operated Intruder Alarm with Flash

6 Temperature Deviation Indicator Using OP-AMP 741

7 FM Receiver

Innovative Projects based on LIC

8

Automobile Brake Failure Indicator

9

CCTV Switcher Circuit using Timer IC 555

10

Sound Activated 0-30 Minutes Timer Circuit

11

IC 555 Based Automatic evening lamp

12

Auto Cut Circuit for Over and Under Voltage

13

**Adjustable Bipolar Voltage Regulator Circuit Using
LM337**

14

RJ45 Cable Tester Circuit

Problem Statements



1

Speed Indicator

While driving on highways, motorists should not exceed the maximum speed limit permitted for their vehicle. Project should not only should display the speed but also sound an alarm.

2

Mobile Phone Detector using Op-AMP:

This mobile phone detector can sense the presence of an activated mobile phone from a distance of four to five metres. So it can come handy in an examination hall or meetings where mobile phones are not permitted.

Problem Statements



3

Reverse Parking Sensor Circuit:

If you are a new driver then it is very difficult to judge the distance while parking the car. Reverse parking sensor circuit solves this problem by indicating the distance with the help of three LED's. We can easily arrange this system at the back side of the car. This system operates with 12V rechargeable battery. This article explains you how to design Reverse parking sensor.

4

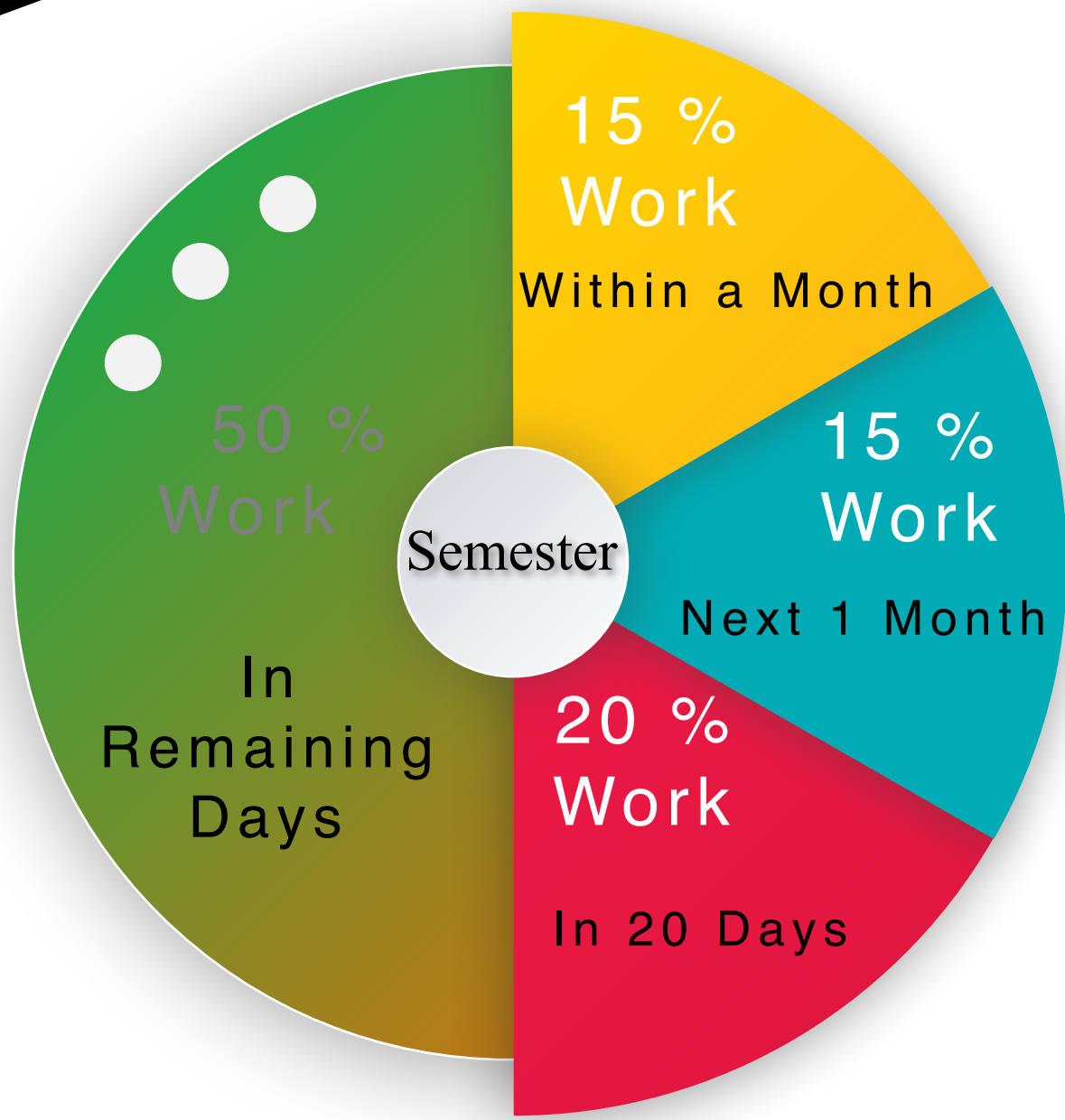
Dancing Bi - Colour LED Circuit:

Dancing LEDs circuit is used for decorative purpose and looks very good when these LEDs glow in sequential manner. We can create many kind of Dancing LEDs patterns for decoration. In this particular circuit, we have created a pattern in which 6 LEDs are illuminating in forward and reverse order.

Set of Activities

	1	Group Formation – 2 Weeks
Survey OR Field Work	2	Title Finalisation – 1 Week
	3	Literature Survey/ Field Work - 1 Week
Presentation and Real Time Application	4	Scheduled presentation on Finalised topic – 1 Week
	5	Simulation on any Software 3 Weeks
Simulation and Results	6	Actual Implementation- 3 Weeks
	7	Project Report - 1 Week

Duration
© Semester ©



Evaluation Rubrics

Parameter	A	B	C	D
Precise use of Analog IC's	02	03	04	05
	(30 Marks)	(15 Marks)	(05 Marks)	(00 Marks)
Helpful and Economical Model for Society	01	02	03	More Than 03
	(30 Marks)	(15 Marks)	(05 Marks)	(00 Marks)
Timely Submission	April. 1 st Week	April. 2 nd Week	April. 3 rd Week	April. 3 rd Week onwards
	(30 Marks)	(15 Marks)	(05 Marks)	(00 Marks)

Project Report

[5-Marks]



Study/Survey

[02-Marks]



**EVALUATION
SCHEME**

[25 Marks]



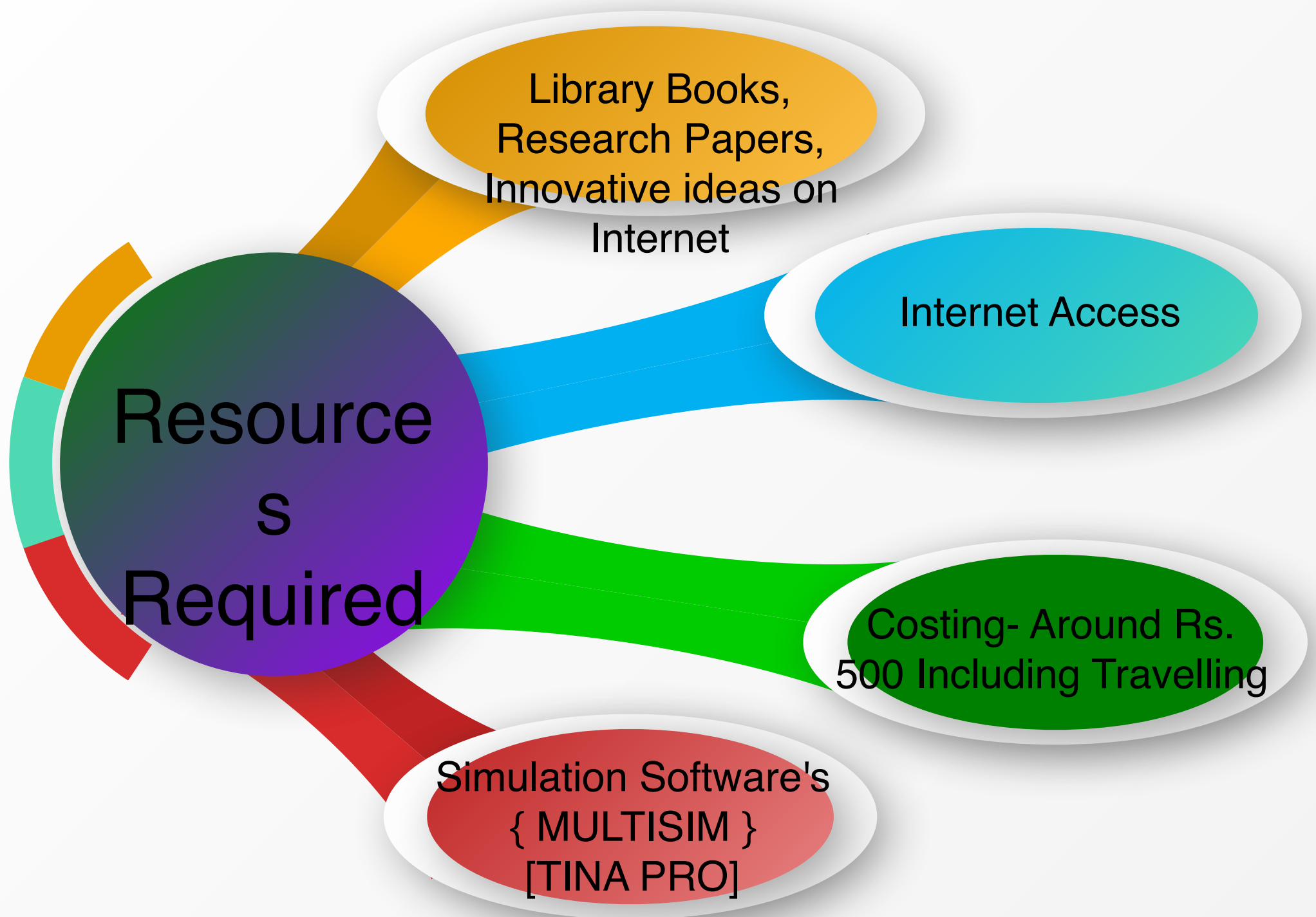
Working
Model
Implementation
[10-Marks]



Part
Selection and
Presentation
[05-Marks]

Design
Simulation
[05-Marks]





Library Books,
Research Papers,
Innovative ideas on
Internet

Internet Access

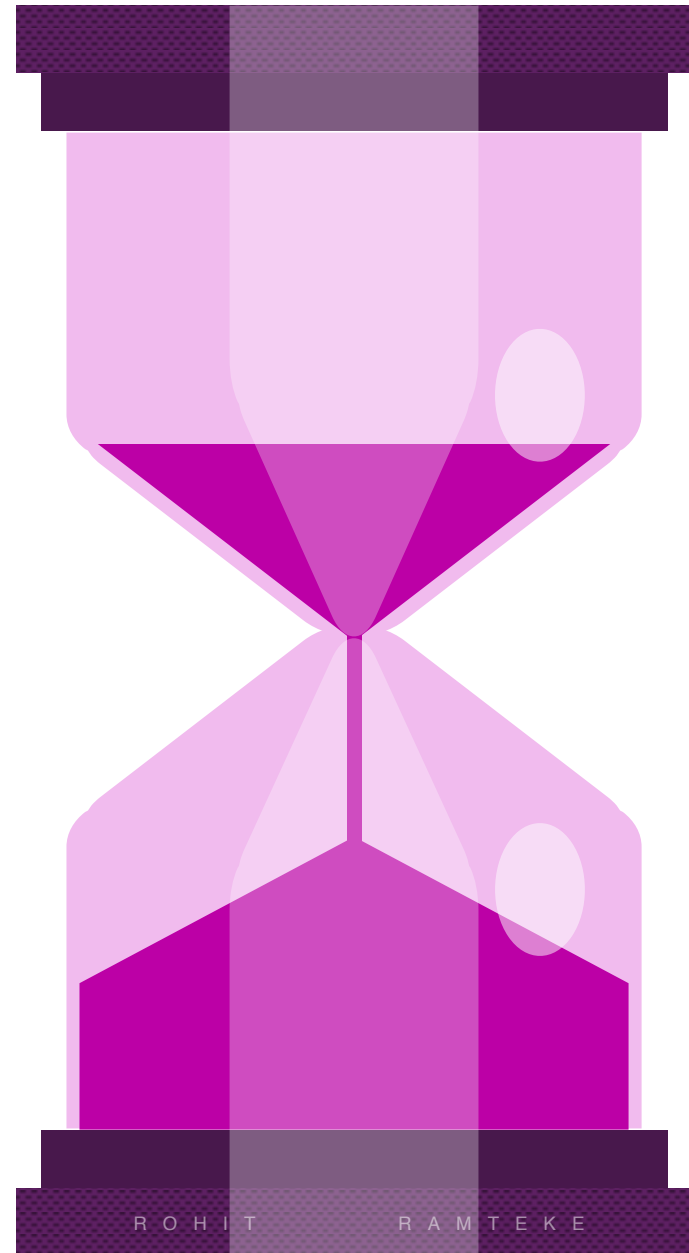
Costing- Around Rs.
500 Including Travelling

Simulation Software's
{ MULTISIM }
[TINA PRO]

Resources
Required

Time Management

6 Hours /
Week



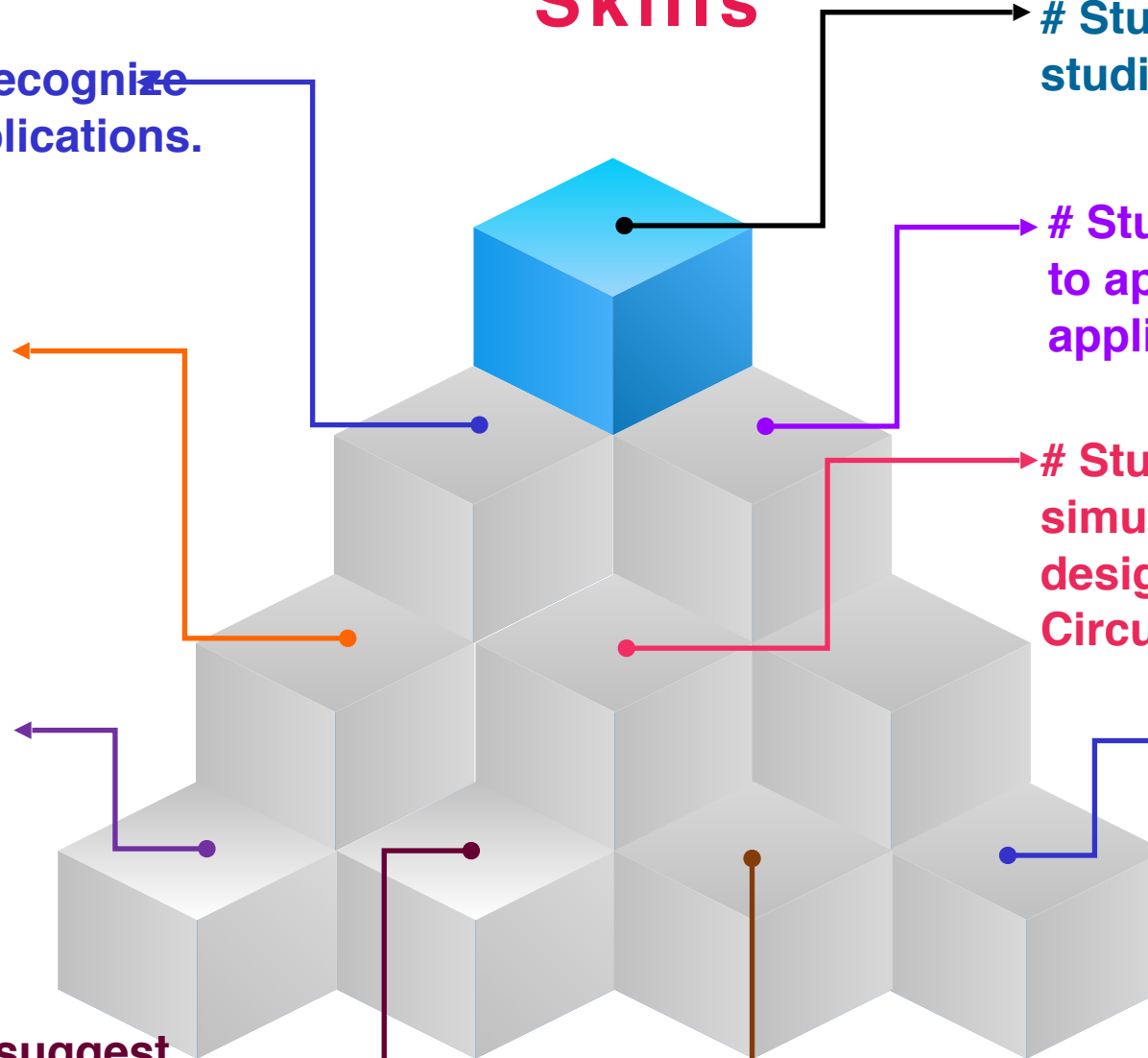
Mapping with CO's and Skills

Students will be able to recognize various ICs for various applications.

Students can improve problem solving ability

Students will be able to Identify, Formulate and Implement any application

Students will be able to suggest Proper and effective solution to mitigate the Problems



Students will experiment the studied IC for any application.

Students will have the confidence to apply engineering for real time application

Students will get command over simulation software's while designing various Electronics based Circuits

Students will be able to function effectively in disciplinary or multidisciplinary teams

Students can develop ability to work in Group and develop leadership qualities

Thank You