

About RCASC

Dr. M S Ramaiah, a visionary and philanthropist established "Gokula Education Foundation (GEF)", in the year 1962, to deliver education and healthcare for the betterment of mankind. Under the tutelage of GEF, Ramaiah college of Arts, Science and Commerce (RCASC) was established in 1994. RCASC is Re-accredited with "A" Grade by NAAC, permanently affiliated to Bangalore University (BU) and Bengaluru Central University, and approved by AICTE.

About the Department

The department was conventional in the year 2008, now offering under graduate course BSc in Electronics. The has well established spacious laboratories with advanced Electronic calibration systems with qualified faculties to provide good lab facility. The course syllabus followed BOS Electronics prescribed by the Bengaluru City University. The Department was recognized under DBT Star college Scheme-2020, Under these scheme various training courses is engaging in every year to prepare individuals who are technically sound and capable of fitting into the modern IT and Electronics environment in the present industry scenario.

About Training Program

While most of the circuits you come across in your everyday life are in the form of Printed Circuit Boards (PCBs), every circuit starts off as an implementation on a breadboard. A breadboard is a prototyping board made of insulated material with a perforated top in which wires and components can be inserted. The perforations in the board are connected in a special manner through internal wiring at the bottom of the board. The fact that wires and components are inserted, and not soldered, a new PCB needs to be designed which incurs costs in terms of both time and resources.

This work shop will bring the idea about the Electronic circuit transform into the through hole PCB from the breadboard. Models brings the basic idea about assembling of components on a single board. The hand on experience creates a unique idea about soldering, assembling and disassembling of components in the circuit among the students.

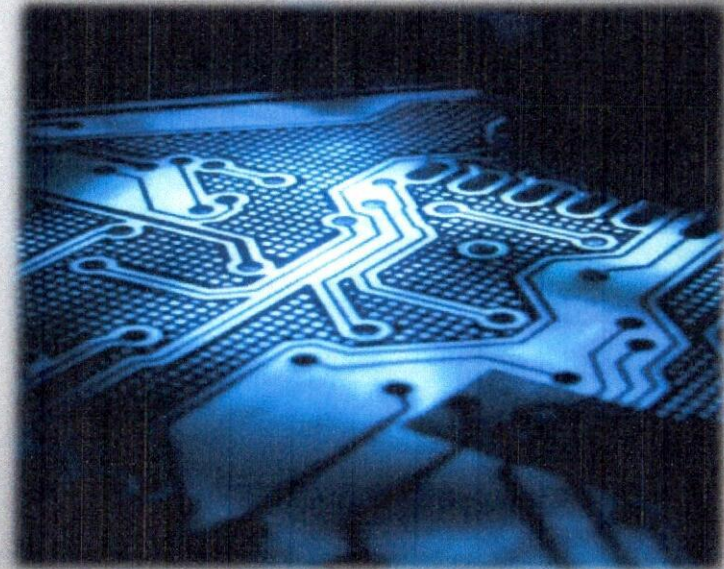


RAMAIAH
College of Arts, Science &
Commerce



(Under DBT Star College Scheme)

Student Training Programme On "Circuit Designing Active Learning Module CDALM-Phase-I 2022"



2nd February to 06th May 2022

Organized by:

**Department of Electronics
(Under DBT Star college scheme)**

M S Ramaiah college of Arts, Science and Commerce, Bangalore – 560054



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DBT Star College Scheme

MSRCASC/ELE_HT/2021-22/05

Date: 24/01/2022

CIRCULAR

The Department of Electronics is conducting program on **“Circuit Designing Active Learning Module CDALM-Phase-I 2022”** for all the First Year E&Cs students from 02.02.2022 to 06.04.2022. The interested candidates can register your name in the Electronics Department.


HOD

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Principal

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Department of Electronics

Report on "Circuit Designing Active Learning Module CDALM-Phase-I 2022"

Place: Electronics LAB

The Department of Electronics is conducting program from 02.02.2022 to 06.04.2022.

Faculty in charge:

Mrs. Asharani. R
Assistant professor
Department of Electronics
MSRCASC

Objective:

Analog Devices is as passionate about educating the next generation of young circuit design engineers as it is about pioneering the next technological breakthrough. The Department of Electronics, MSRCASC is providing an opportunity for the academic community in a way that is open and accessible to faculty and students in the form of analog design kits and analog components, teaching materials, online support, textbooks, reference designs and minor lab projects to enrich students' education about analog circuits and their application to core engineering and physical science curricula.

CDALM Phase-1

This course transforms the student knowledge on **breadboard Technology to through hole PCB**. Models brings the basic idea about assembling of components on a single board. The hand on experience creates a unique idea about soldering, assembling and disassembling of components in the circuit among the students.

General Lab materials

Background Lab Notes: Solder-less Breadboards

Background Lab Activity: Solder-less Breadboard Parasitic Capacitance

Background Lab Notes: Resistors (including colour code)

Background Lab Notes: Capacitors (including colour code)

Review Activity: Real voltage sources



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Electronics I-Experiment list

- An Ohm's Law Experiment
- Resonance in RLC Circuits
- Half wave rectifier
- Full wave rectifier
- Voltage doubler
- PN Diode I/V curves
- Zener diode regulator
- Clipper circuit
- Clamper circuit

The printed circuit board can be used for the actual electronic device. We can develop that into a printed circuit board after testing out the breadboard and finding the perfect design for our project. PCB is a permanent device in electronics as it needs to solder, so the board has been used in our electronic models.

soldering procedure and safety precautions taken while soldering the components on PCB board

- Ensure that the tip of the soldering iron is clean
- Heat the pad and the component end simultaneously, and take proper care that you do not burn the circuit board or any plastic matter.
- Once the pad and component ends have heated enough, take a solder strip of the required length and apply it at the proposed joint.
- Don't withdraw the iron until the solder is properly fixed. Next, ensure that the joint is proper and connects the right terminals without bridging any connections.
- Once done, place the soldering iron in its holder, and allow it to cool.
- Use Solder and Soldering Iron Safely
- Unplug the soldering iron after use.
- Do not touch the tip of the soldering iron, its temperature can be as high as 400°C and can cause severe burns.
- When soldering, always use clamps or tweezers to hold the solder metal or component ends to be heated.
- Keep the cleaning sponge wet when soldering. Dab the iron into the sponge occasionally if it is to be used for longer intervals.
- Use eye protection when soldering as solder can spit.
- In case, the soldering iron (hot) accidentally falls off your hand, don't try to catch it. Let it fall, and even break. Attempting to catch it may burn your hand, and you would anyway drop it.

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- Do not keep any object or substance that is highly flammable on your work bench.
- Keep a fire extinguisher handy, and use it if required.
- Do not solder live (electrically charged) circuits. Disconnect the circuit board from the power source before beginning to solder.
- Plug the soldering iron into a grounded socket in order to reduce the risk of electric shocks or short-circuits.
- While soldering an electronic gadget, ensure that the solder is correct before re-assembling it and powering it up. Wrong solders can lead to short-circuits.

Then each student need to construct the circuit on the bread board. The constructed circuits are tested before soldering. Once the circuit is tested then students started assemble the same circuit on through hole PCB then observation made and readings are recorded after completion of the model.

Extra stuff:

Learning to mathematically analyse circuits requires much study and practice. Typically, students practice by working through lots of sample problems and checking their answers against those provided by the textbook or the instructor. While this is good, there is a much better way. You will learn much more by actually building and analysing real circuits, letting your test equipment provide the "answers" instead of a book or another person. For successful circuit-building exercises, follow these steps:

1. Carefully measure and record all component values prior to circuit construction, choosing resistor values high enough to make damage to any active components unlikely.
2. Draw the schematic diagram for the circuit to be analysed. Or perhaps print out the schematics shown in these lab activities.
3. Carefully build this circuit on your breadboard.
4. Before applying power to your circuit check the accuracy of the circuit's construction, following each wire to each connection point, and verifying these elements one-by-one on the diagram.
5. Mathematically analyse the circuit, solving for all voltage and current values.
6. Carefully measure all voltages and currents, to verify the accuracy of your analysis.
7. If there are any substantial errors (greater than a few percent), carefully check your circuit's construction against the diagram, then carefully re-calculate the values and re-measure.

One way you can save time and reduce the possibility of error is to begin with a very simple circuit and incrementally add components to increase its complexity after each analysis, rather than building a whole new circuit for each practice activity. Another time-saving technique is to re-use the

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same components in a variety of different circuit configurations. This way, you won't have to measure any component's value more than once.

- **List of the model**

Sl.No	Name of the model	List of Group members
1	P-N Junction Diode Characteristics	1. GURUPREETH SINGH 2. ABDULLA FAHMI 3. BHARATH M S
2	Positive Clipper Circuit	1. ANANYA VALLABHA BG 2. VANDANA G A
3	Voltage Doubler	1. TANMAY M MALLIK 2. KAVERI SAHANI 3. KIRAN 4. VIRENDRA SONI
4	Half Wave Rectifier	1. SHREYA 2. GOUTHAM SINGH 3. HARSH PRIYAM 4. LOKESH M N
5	Full Wave- Bridge Rectifier	1. AMRUTHA 2. SUVEETHA 3. MUHAMMED ASKAR M
6	Positive Clamper circuit	1. SAHANA 2. YOSHNA SHETTY 3. ZUHA FATHIMA N
7	Negative Clipper Circuit	1. PREKSHITH H V
8	Negative Clamper circuit	2. ANOOP R 3. PANKAJ S

Outcome:

In this course, students constructed the various electronics circuits like Half wave rectifier, Full wave rectifier, clipper, Clamper and voltage multiplier etc. on the PCB board by soldering the circuit components. Making the model of Each circuit is nothing but a preparing the ideal working circuit for demonstration instead of constructing the discrete circuit.

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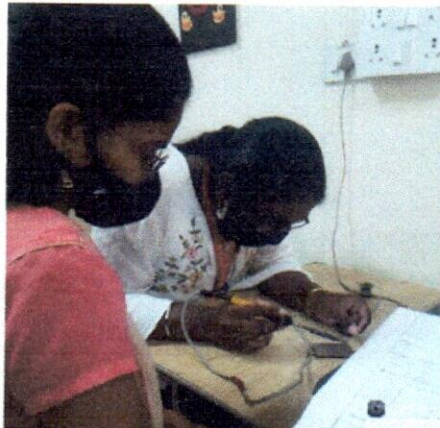
Department of Electronics

Photos of "Circuit Designing Active Learning Module CDALM-Phase-I 2022"



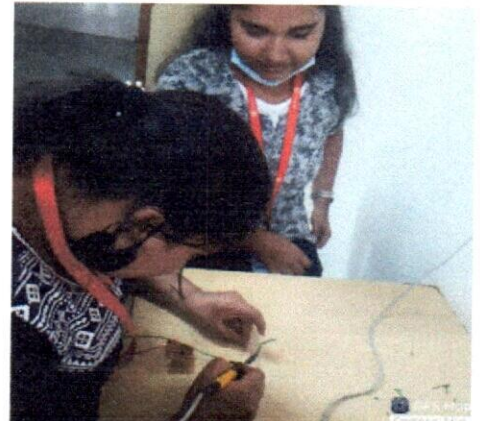
Shahi Darbar, M S Ramaiah Nagar, Mathikere, Bengaluru, Karnataka 560054, India

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GMT 10:48:48 AM Wednesday, 06-04-2022



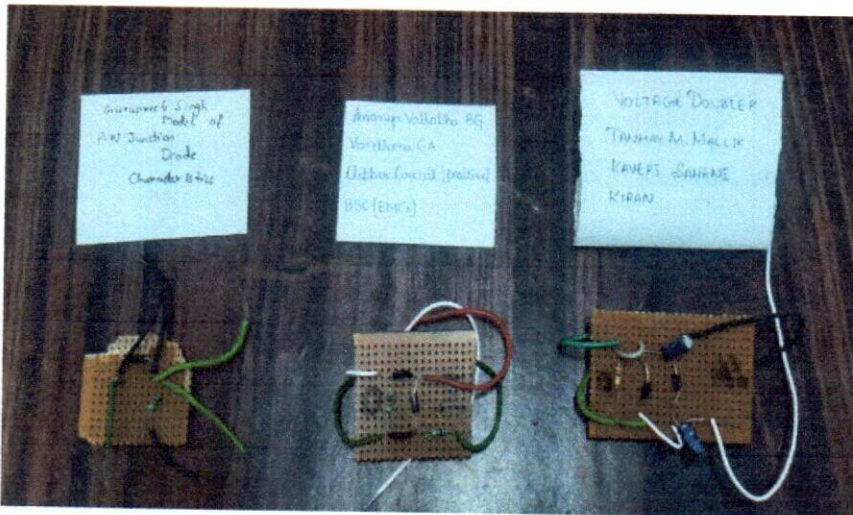
20, MSR Nagar Rd Ext, M S Ramaiah Nagar, Mathikere, Bengaluru, Karnataka 560054, India

Latitude: 13.0322103° Longitude: 77.5665675°
Local 01:20:53 PM Altitude 836.6 meters
GMT 07:50:53 AM Wednesday, 06-04-2022



20, MSR Nagar Rd Ext, M S Ramaiah Nagar, Mathikere, Bengaluru, Karnataka 560054, India

Latitude: 13.032216° Longitude: 77.5665637°
Local 03:45:00 PM Altitude 836.6 meters
GMT 10:15:00 AM Wednesday, 06-04-2022



20, MSR Nagar Rd Ext, M S Ramaiah Nagar, Mathikere, Bengaluru, Karnataka 560054, India

Latitude: 13.032216° Longitude: 77.5665637°
Local 04:18:13 PM Altitude 836.6 meters
GMT 10:48:13 AM Wednesday, 06-04-2022

Models of Electronic circuits constructed by using through hole PCB board

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HOD

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Department of Electronics

“Circuit Designing Active Learning Module CDALM-Phase-I 2022”

Attendance

Sl. no	NAME	3/2	4/2	22/2	23/2	24/2	10/3	10/3	17/3	24/3	6/4	Total
1.	ABDULLA FAHMI	A	A	A	1	2	3	4	5	6	6	6
2.	AMRITHA S	1	2	3	4	5	6	7	8	9	10	10
3.	ANANYA VALLABHA B G	1	2	3	4	5	6	7	8	9	10	10
4.	ANOOP R	1	2	3	4	5	6	7	8	9	10	10
5.	BHARATH M S	1	2	2	3	4	5	5	6	7	8	8
6.	GOUTHAM SINGH	1	2	3	4	5	5	6	7	7	7	7
7.	GURUPREET SINGH	1	2	3	4	5	6	7	8	9	10	10
8.	HARSH PRIYAM	1	2	2	2	3	4	4	4	5	6	6
9.	KAVERI SAHANI	1	2	3	4	5	6	7	8	9	10	10
10.	KIRAN M	1	2	3	3	4	5	6	7	8	9	9
11.	LOKESH M N	1	1	1	2	3	3	4	5	6	7	7
12.	MOHAMMED ASKAR	1	1	1	1	2	2	3	4	4	5	5
13.	PREKSHITH H V	1	2	3	4	5	6	7	8	9	10	10
14.	SAHANA BM	1	2	3	4	5	6	7	8	9	10	10
15.	SHREYA U	1	2	3	4	5	6	7	7	8	9	9
16.	SUPRIYA G	1	2	3	4	5	6	7	8	8	9	9
17.	SUVEETHA S B	1	2	3	4	5	6	7	8	9	10	10
18.	TANMAY M MALLIK	1	2	3	4	5	6	7	8	9	10	10
19.	VANDANA G A	1	2	3	4	5	6	7	8	9	10	10
20.	VIRENDRA SONI	1	2	2	2	2	2	3	4	5	6	6
21.	YOSHNA SHETTY	1	2	3	4	4	5	6	7	8	9	9
22.	ZUHA FATHIMA N	1	2	3	4	4	5	6	7	8	9	9

Faculty Incharge

(Mrs. ASHARANI R)

Asharani

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CERTIFICATE

DEPARTMENT OF ELECTRONICS

This is to certify that _____ of _____ had completed hands on training program on **“Circuit Designing Active Learning Module CDALM-Phase-I 2022”** from 02.02.2022 to 06.04.2022. Organized by the Department of Electronics (under DBT Star college scheme), M S Ramaiah college of Arts Science and Commerce Bengaluru -54.

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Mrs. Asharani. R
Program Co-ordinator,
MSRCASC

Dr. A Nagarathna
Principal, MSRCASC