

Jadavpur Central Road
Instrumentation Study Centre

Registration No: S/2L/4187

(A society for free training of needy students in the field of Electronics and Instrumentation)
50 B, Central Road, Jadavpur, Kolkata – 700 032

Different activities introduced by Instrumentation Study Centre

Since 2008, Instrumentation Study Centre has arranged a small training programme in the field of electronics and instrumentation for the children of ages around 10 to 18 years (from ~ Class 4 to Class 12 level). The main purpose of our activity is to encourage the young students and also to develop a general awareness in the field of technical education. One may kindly visit our website www.instrumentationstudy.org to find the objective, outcome, mode of operation etc. Through our centre we demonstrate different electronic models, working principles of different electronic items etc. By slide presentation we will tell the story of the development of technology, major scientific inventions and also about the inventors. We do not claim that it is a big ambitious programme. But we think this will be helpful for the young students. It is our belief and also found through observation that this is inspiring for the young students. We also guess that to have a little exposure in technical field at primary level involving the cooperation of their parents may trigger off their inner thinking to pursue the course in future. One may recollect the story of 'Apu-Durga' waiting eagerly for the train in 'Pather Panchali'. For some of the children it may appear as a discovery. This will be useful for us to remember and guide the children accordingly. The present activity is helpful to grow interest of young students in this field. So far our activity has been appreciated by many people. For us it is not possible to accommodate everyone. We request the parents and teachers to encourage their children/students in these activities. As a hobby they can demonstrate some model to their children. We think that in this age of machines every house may be considered as a miniaturized laboratory which is equipped with different electronic gadgets/items. The rejected and obsolete items, modified suitably may be used for the demonstration by the seniors of the family. If anyone contacts our centre, within our capacity we will help to monitor this process by sending our members if required. In some cases, we will provide some components and materials from our centre. After scrutiny we will issue the certificate of achievements of both the teachers and students. It will be appreciated if you kindly help us to continue this work. Interested persons/teachers may help us to organise course materials for this programme. We hope that any one will realize the importance of technical awareness from the primary level in our country. Considering the vastness of the work our approach may be taken as an initial endeavour in this direction. Apart from this present activity at the primary level, our other works may also be useful for the seniors. It will be appreciated if you kindly remark about the activities of our centre.

At present Different Programme taken up by Instrumentation study Centre

Presently the following specific programmes are being carried out by us.

1. Arrangement of different experiments suitable for the children : In our centre we devise many experiments suitable for the students at different levels. We have prepared the instruction sheet suitable for the juniors who are not at all familiar with electronics. We will send the instruction sheet along with the components needed to do the experiments. With the help of parents/seniors they will execute these experiments. To find one sample experiment please go to www.instrumentationstudy.org/coursematerials and then press the 'click here'. We call these works as a family project to work on together.

We have divided the course materials in different groups mentioned below.

Junior Level	Class	Classification
	IV-VI	JU-01
	VII-VIII	JU-02
	IX-X	JU-03
Intermediate	XI-XII	IM-01
	1 st year-2 nd year students.	IM-02
	Final year Engineering students	IM-03
Senior Level	Professional persons/Reseachers	SR

For last few years we are trying to run these experiments

Sl. No.	Topic	Duration (months)	Level	Sponsored	Number of students
1.	ON LED	06	IV-VI	Self	
		06	VII-VIII	Self	
		06	IX-X	Self	
		06	XI-XII	Self	
		1/2year	Seniors	Self	
2.	Solar Cell				
	List to be continued (~90) Different areas like electricity, magnet, heat, light, mechanical design are covered.				

2. Fabrication of different electronic kit for the children:

We have fabricated many mini electronic kits for the kids which will be inspiring. All the models are fabricated in a transparent plastic box so that all the components etc are visible to grow curiosity and interest among students. Name of few such items are given below.

Sl. No.	Item number	Model				Suitable for (mention level)
		01	02	03	04	
1.	Bulb Battery	01	02	03	04	JU-01
2.	LED					JU-01
3.	Electromagnet					JU-01
4.	List to be continued (upto 70). These models are really interesting and some of these models may be developed commercial way by any business persons.					

3. Arrangement of different talks :

We prepared different talks and lecture materials on different topic on electronics. Different works like solar cell, photodiode, optical fibre, remote control of electronic toys, electromagnet, mobile charger using mechanical energy by applying dynamo principle, measurement and control of light and temperature, will be enjoyable for children. They will also like our presentation of different discoveries that have changed our ideas about this world. Recently to make electronics popular and for general awareness along with existing conventional ideas we have incorporated few new topic like lighting technology, energy policy, electronics for automobiles, roads and traffic signaling etc.

Some of our lecture topic is mentioned below.

One may find few list of this talk.

Different write ups, talk, design available from this centre for different uses mentioned blow (~40)

Topic	Prepared by	Purpose	Suitable for
Basic idea of Temperature Measurement	N.B.Manik	Talk and Teaching	school children
Temperature Measurement and control system	...do...	Talk, Fabrication or commercial use	Senior students/- college, Universities
LED as light source	...do....	talk	Beginners
		Demonstration	Beginners
Robotics for home application	...do....	Fabrication	Industrial people
Electronic Hammerdo....	Fabrication	Scientific laboratory

Development of electronic industries ...Problem	...do...	talk	General audience
Looking for different business ideasdo....	Talk	Policy makers
Problem of to set up small industries	...do.....	Write ups	General audience

4. Collection or availability of different of components : We have collected many electronic components which may be used for the uses of the students. We have collected these components over the years from local markets, from the old and obsolete instruments. Recently through net we purchase through online. These components may be donated to others against a little price while designing or setting up laboratories. More than 2000 items on different materials including mechanical, electronic, optics and etc. are available from this centre.
5. Expertise and development of instruments:
Our main aim is to encourage the young students in the field of electronics. But over the years many instruments have been designed and developed at different time and occasion. List of few instruments are mentioned below.

- Continuous type temperature control system – Design of a bath type optical cryostat
- Level meter for liquid nitrogen
- Low Temperature Digital Thermometer Computer Controlled x – y Recorder and I – V Ploter
- Continuous Flow Type Optical Cryostat
- Bath type cryostat
- Design of different types cryogenic container for preservation of foods and others
- Cold Junction Compensation Technique for Thermocouple
- Continuous Liquid Level Meter by Using Opto – Sensor
- General Purpose Capacitance Null Detector
- Control of light intensity in a closed chamber
- Low intensity light source by using optical fibre
- Design of different educational electronic kits
- Photovoltaic Measurement System
- Construction and Calibration of a Low Temperature diode thermometer
- Diode Thermometer
- Calibration and display technique of a nonlinear signal and a computer based low temperature measurement system using thermocouple sensor

- Slow motion generation system
- Non linear motion generation
- Slow motion and small distance measurement system
- Interface electronics and charge controller devices for solar cell
- Slow motion generation system
- Control of robotic arms for performing different automatic action
- Electronic hammer
- Mobile charger without electricity (i.e by using mechanical energy)
- Connectivity of Desktop to laptop-notebook-mobile to mobile-tab and sharing of data from other memory devices
- Temperature measurement at remote distance through wireless communication : concept of instrumentation via Ethernet card for different laboratories – sensor
- Presently working on mobile operated sensors from remote distance
- Flexible electronics, use of touch screen techniques
- Idea of flexible solar cell

We have designed such instruments for the basic measurement of our laboratory . These instruments may also be used in different purposes.

Future Plan : At present we will go with the present activity. Apart from this we have plan to write few articles, books, and arrange few seminars and demonstration. We know there are different origination who are doing such works. In such cases we like to encourage their activities. We have also plan to carry out some R&D programme in future. We are doing all these since 2008. These are the activities introduced by our centre.

Though we have mentioned different activities, our main activities is to grow interest among the young students. Being associated to our regular professions it will not be possible to continue this work in a bigger way. But we feel sincerely that attempt to provide some technical exposure to the young generation from their primary level will be meaningful. The budget of this programme is about Rs.25.00 lakh. This programme is basically self sponsored and we do not take fees from the students. It will be appreciated if any organisation or institute come and put some budget to continue this work in a bigger way. We hope they will also be benefitted. They can also exploit different market possibilities of this progammme. It will also be useful for the young students. In course of time we will also try to explain the importance of taking of this programme considering the present situation.