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ROLE OF PHYSICS TEACHER FOR CONCEPTUAL DEVELOPMENT IN PHYSICS BY USING TECHNOLOGICAL DEVELOPMENTS

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ABSTRACT

The new pattern of science education (10+2+3) makes the students and parents to think about opportunities in career. The students are interested to go for the technological studies. Most of the technical courses like engineering, medical; diplomas etc. are offered after PUC/12th standard. It is found that the quality students goes for such courses or any other like courses and very few meritorious students remains for the graduation study. There are number of difficulties faced by the common students in studying the Physics.

KEYWORDS: *science education , technological studies.*

INTRODUCTION :

- The students suppose that the Laws & Principles are related to only the subject they do not apply it in various universal events.
- They do not acquire enough knowledge about the equipments and material used in practical.
- They could not find the applications of material/apparatus used in the experimental course.
- They have to learn three to four subjects and the corresponding practical course. So they could not slow clear interest in a particular subject.

Apart from these difficulties faced by the students, there are certain difficulties already raised due to insufficient infrastructure & lack of laboratory equipments in the department.

UNDERSTANDING THE STUDENTS

It is the duty of a teacher to create interest among the students for learning the subject and motivate them by creating proper atmosphere. A simple questionnaire can help to understand the students.

Questionnaire

a) What is Physics?
b) How do you feel about Physics theory & Practical course?
c) What are your interested topics in Physics?
d) Which topics you would not like? Why?
e) Could you give some natural events which tell the laws in general Physics?
f) Give some technological applications which can reveal Principles in Physics?
g) What is your impression about laboratory?
h) Do you like audio visual method of teaching?
i) Do you know the career related to Physics?
j) Do you prefer the Co-curricular activities in the department?

k) Do you have suggestions for improvement of the course?

Frequent feedback

The feedback can be taken frequently from the students by taking short. Objective tests, by giving problems, by giving short projects, by conducting group discussions, etc.

Healthy Interactions

There is need of some healthy practices which could make teacher student. Interaction. So that the students feel it free and open mind in front of the teacher and they can ask any question regarding the Physics. These interactions could takes place by arranging seminars group discussions, poster shows, local industrial visits, discussing about career and similar co-curricular activities.

Technology for conceptual developments

Einstein were noted the "Imagination is more important than knowledge." In Physics the concept can be build by imagination. It is now the role of physics teacher to guide the students for better imagination and understanding. While teaching the teacher should observe a students gestures, action, reaction and Mannerism, lack of concentration, attention and interest in the learning Physics.

"The process of Physics teaching is simply to rich too subtle and complicated to allow for easy packaging. A technique that works wonderfully for one student or instructor fails miserable with another" said the noted physicist David J Griffiths.

Today's world is rich with technological equipments. The present events could be observed anywhere and lively. Communication and availability of things are in hand. So every one is enjoying the fruitfulness of the technological facilities. This fact actually diverts the mind from imagination since the age old classroom teaching method of board & chock piece. Usual practical course could not alone able to build the powerful mind of the students. The availability of technological tools and utilities can be used for conceptual development and better imaginative power.

Computer and the software materials :

Laboratories are now equipped with computers. Computer is the tool for analyzing the results of an experiment. The various models, from atom to universe can be shown on computers. Theoretical ideas are stated with diagrams. Number of software packages and CD's are available which can simplify the subject. It is also desirable that a teacher can develop the software package by learning the computer language so that ideas can put with proper manner.

Audio Video cassettes

Audio video cassettes can be prepared at once and used for improving the weaker students.

Demonstration kit in classroom:

A simple demonstration kit which is related with the concerned topics can be build. As an example for studying Diodes and Transistors, one can show the various applications of these devices like rectifier, chipper, clampler, phase transition, amplification. For teaching electricity, the kit contains the Capacitors, Inductors, Resistors, D.C, A.C sources, meters etc; one can show the working of various component and Growth-decay of current in LCR circuit etc. (use LED's)

Laser:

With laser the optics could be made simple, the experiments on diffraction, total internal reflection, double refraction etc can be shown in classroom.

C.R.O. and frequency generator

These are used for the demonstration of electrical signals, to find velocity of sound, to study Doppler effect, Lissageous figures etc.

O.H.P.

The complicated diagrams, literary headings and notes, photocopies are shown on overhead projector. Newton's third law, Conservation of momentum, magnetic field lines etc. can be demonstrated.

Internet

It is an endless network where a huge amount of information is available. From Internet one can download reading materials and downloadable software for teaching and demonstration purpose. Some websites related with physics and education related material is given below :

i) http://www.go.com/webDir/science/physics-for-teachers
ii) http://www.tcd.ie/physics/pageos.html
iii) http://www.hpcc.astro.washington.edu/scid/physics.html
iv) http://www.sst.ph.ic.uk/angus/Lecures/comphys

The student wanted improvement in laboratory courses making them relevant to the theory courses and introduction of demonstration during theory lectures. Watching a demo in lecture is a wonderful experience for the student, which the student will never forget. Whenever one come across that topic, the demo will be remembered.

CONCLUSION :

In the age of modern technology the age old teaching methods are less effective. Understand the student becomes important since the surrounding atmosphere is improving by technological changes. The fruits of technology are due to subjects like physics. Take the advantage of new equipments, tools and make proper interaction with the students. This leads to develop the concepts in Physics.

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