

# ELECTRON ATOM

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"When dealing with people remember you are not dealing with creatures of logic, but creatures of emotion."

## From HOD'S Desk

It gives me immense pride and pleasure to lead the electrical and electronics engineering department of this esteemed institution.

The department encourages students to participate in cultural and co-curricular activities, sports, seminars, paper presentation etc. keeping in mind overall growth of the students.

To fill the gap between industry and the academics providing industrial visits and internships to the students are regular practice of the department, which assist the student in smooth transition from academic life to work life.

I wish the students make best use of the facilities provided by the department and work towards achieving excellence in the chosen field.

*FUZAIL BILAGI 8<sup>th</sup> sem*

## What's the role of CTs and VTs?

The cts (current transformers) and vts (voltage transformers) are provided in the plants to reduce and current values of the plant to values such as to be able to be detected by measurement devices.

They also make the secondary measurement and protection circuits galvanically independent in relation to the primary power circuit, at the same time guaranteeing greater safety for operators (a point of the secondary winding of the instrument transformer must always be connected to ground).

For correct identification and removal of the fault it is necessary for all the components to operate correctly

*NEELUBAI.M 8th sem*

## Electric motors & power factor influence

A low power factor causes poor system efficiency. The total apparent power must be supplied by the electric utility. With a low power factor, or a high-kilovar component, additional generating losses occur throughout the system.

**When the power factor is improved by installing power capacitors or synchronous motors, several savings are made:**

1. A high power factor eliminates the utility penalty charge. This charge may be a separate charge for a low power factor or an adjustment to the kilowatt demand charge.
2. A high power factor reduces the load on transformers and distribution equipment.
3. A high power factor decreases the  $I^2R$  losses in transformers, distribution cable, and other equipment, resulting in a direct saving of kilowatt-hour power consumption.
4. A high power factor helps stabilize the system voltage.

## Heat losses in switchgear

*MUKTAR 6<sup>th</sup> sem*

The calculation procedure for the evaluation of the upper temperature limit is very difficult and complicated. Proof of compliance can be shown with the use of special software and tables. Computer-based evaluation (without ventilation) is used to determine the characteristics of the air over-temperature in the housing/enclosure.

This is comprised of the ambient temperature of the switchgear combination (outside the housing) and the air over-temperature inside the housing

This determination concerns both the built-in switchgear and also the electrical connections, such as rails and isolated lines.

**In addition, the following conditions must also be fulfilled:**

1. The power losses must be approximately uniformly distributed within the housing.
2. The air circulation must not be impeded.
3. In a partially type-tested switchgear combination or in a field subdivided by partitions, there must be no more than three horizontal partitions.
4. For air ducts, the cross-section of the exhaust air ducts must be at least 10 % greater than the cross-section of the air intake ducts.
5. The built-in operational equipment is designed for DC and AC voltages up to 60 Hz and for a maximum power supply feeder current intensity of 3150 A.

One day colloquium on  
"Technical Innovation and  
optical Images" in S.I.E.T  
Vijayapur by Iven Jose, Christ  
University, Bangalore on  
21/02/2017.



Muntazir Alam 4<sup>th</sup> sem

## What are Optical fibres?

An optical fibre is a dielectric waveguide for the transmission of light, in the form of a thin filament of very transparent silica glass.

A typical fibre comprises a core, the cladding, a primary coating and sometimes a secondary coating or buffer. Within this basic construction, fibres are further categorized as multi-mode or single-mode fibres with a step or graded index.

In this type of fibre, the light rays can be envisaged as travelling along a zigzag path of straight lines, kept within the core by total reflection at the inner surface of the cladding.

Depending on the angle of the rays to the fibre axis, the path length will differ so that a narrow pulse of light entering the fibre will become broader as it travels. This sets a limit to the rate at which pulses can be transmitted without overlapping and hence a limit to the operating bandwidth

To minimize this effect, which is known as **mode dispersion**, fibres have been developed in which the homogeneous core is replaced by one in which the refractive index varies progressively from a maximum at the centre to a lower value at the interface with the cladding

One day colloquium on “Grid Technologies” in S.I.E.T Vijayapur by Dr. Vinod Kumar ,N.I.T Warangal 11/03/2017.



*Shantinath 8<sup>th</sup> sem*

## Why power correction?

All modern electronic devices are vulnerable to the poor power quality. But why? What can you do about it? This technical article describes 12 types of power correction devices (16 in total) that accept electrical power in whatever form it is available and modify the power to improve the quality or reliability required for electronic AC equipment.

These devices perform functions such as the **elimination of noise, change, or stabilization of voltage, frequency, and waveform.**

The power handling and performance requirements vary depending upon each application. A wide variety of power correction products are available that utilize a range of technologies and provide different degrees of protection to the connected load.

The job of selecting the appropriate power correction device is fairly straightforward when it powers a single load. The requirements of only one load need to be considered.

For larger systems that support many loads, the requirements of all loads need to be considered, as well as the potential interactions between them, to decide the appropriate enhancement equipment and system construction.

## Isolation transformers

Isolation transformers are one of the most widely used power correction devices. Figure 1 depicts the configuration of an isolation transformer. They incorporate separate primary (or input) and secondary (or output) windings.

Isolation transformers can be installed separately or with power distribution circuit breakers and monitoring circuits. Isolation transformers with distribution circuit breakers can be located near the critical load.

This configuration provides for short power feeders and branch circuits, thus limiting susceptibility to coupled noise. Isolation transformers incorporated into packaged power distribution units (PDUs) often include **additional noise and surge suppression, integral power distribution, monitoring,** and flexible output cables that provide for simpler rearrangement of the load equipment.

“You cannot shake hands with a clenched fist..”





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