

Information Centre of Electrical Accessories

Abhishek Chandrashekhkar Sawant^{1*}, Rohit Vijay Lohar², Ratnakar Sanjay Narvekar³,

Gourish Kamalakant Kubal⁴, Bhagyesh Anand Salgaonkar⁵, Balasaheb Patil⁶, Dipak Patil⁷

^{1,2,3,4,5}Student, Department of Electrical Engineering, Yashwantrao Bhonsale Polytechnic, Sawantwadi, India

⁶Lecturer, Department of Electrical Engineering, Yashwantrao Bhonsale Polytechnic, Sawantwadi, India

⁷Professor & HoD, Department of Electrical Engineering, Yashwantrao Bhonsale Polytechnic, Sawantwadi, India

Abstract: There are no any particular project and any information centre where all electrical accessories and material were fitted or assembled in our college. To overcome with this problem, we decided to make a project that will contain all electrical accessories and material. There are several waste electrical materials which can be used as to get practical knowledge. Therefore, the waste material can be also used in this project so it will have great impact on the project as well as on Nature. By this project the student can get theoretical as well as practical knowledge by observing and handling the accessories and components. This project contains some part from all subject that we have learned in the electrical engineering. Which will have great impact on the project and knowledge.

Keywords: Luminaries, Equipment, Museum, LED.

1. Introduction

The information centre of electrical accessories and components experiences for audience of all age. It is collection and representation of electrical accessories and components or we can say equipment's. This information centre can be also called as Museum. The museum is the center of education and enlightenment. It's a place where students can get charged about science and discovery while surrounded by one of the most significant and complete collection of electrical accessories. This information centre offers visitors a first-hand introduction to the wonderful world of electricity and provide opportunities to discover, test and to observe the accessories and equipment's from the museum. This project contains different types of lamps which are used in different places. There will be different wattage of lamp of each type to understand how much the lumen given out by the lamp or amount of Energy is used by the lamp. So, the visitor or students can get knowledge about different types of luminaries and also, they can get knowledge about working and construction of the luminaries. There will be all electrical accessories and tools which are used while wiring installation. Thereby the students can gain knowledge about the wiring accessories and tools. The protective devices which are used in Electrical System to protect the system from any fault for example short circuit and overload those protective devices also been shown in this project to identify which protective device is used at different system. As the maximum progressive lighting fixtures source,

LED has attracted increasingly more interest for its advantages of surroundings friendly, excessive efficiency, lengthy life, and so on. With this lamp extensively utilized in diverse areas, The observe at the reliability of LED will become extra and extra important, and the evaluation of LED's reliability has emerged as a warm subject matter at present. [2]

2. Methodology

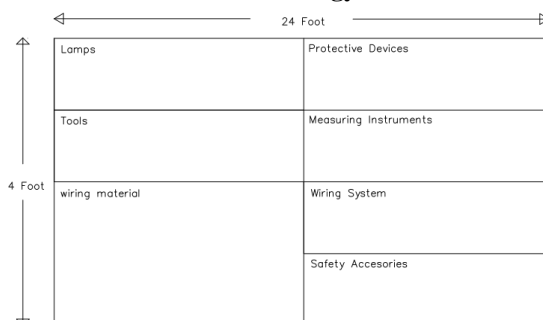


Fig. 1. General layout

There will seven different compartments which can have different materials and accessories in every of the compartment. The first compartment has different types of lamps with different wattage. There are numerous types of luminaries are available in the market. Various types lamps are used to know which lamp consumes more power and which gives more lumen with using low power.

In ordinal compartment there'll be protecting device are be shown, Protection devices for electrical circuits accomplish two main functions specifically consistency as well as protection. Protection is assured when fault current or over current passes through the system, to protect the system from these types of hazards protection devices are used which removes hazards and electrocution. In third compartment, tools are shown which are used during doing any Electrical Work. The tools are important to done work easy, safe and quite fast. Tools are used for wiring installation. In fourth compartment there are measuring devices. The menstruation instrument that are utilized in measure electrical quantities.

The ability to measure physical properties accurately has tremendous survival value that gives humans an adaptive, evolutionary advantage honed through many years of natural

*Corresponding author: absawant668@gmail.com

selection. This contain measuring devices which are used to measure electrical quantities.

Fifth compartment consist of all wiring material which is used for wiring installation. There are several types of material is available. This project contains all wiring material which is used for wiring installation. The purpose of using this material to give practical knowledge about it. The sixth compartment consists of various wiring system which is used doing wiring installation. Wiring is subject to safety standards for design and installation. Electrical wiring is an electrical installation of cabling and associated devices such as switches, distribution boards, sockets, and light fittings in a structure.

3. Components

1) Lamps



Fig. 2. Types of lamps

Various varieties of lamps are available in the market. These lamps have difference in their operation principle, materials used, and significantly – their energy efficiency. That of them are some economical and some a lot of power consuming. This project contains differing kinds of luminaries with different wattage. There are fluorescent lamp, CFL, Incandescent lamp, Halogen, LED are used the project. With the various wattage lamps are assembled on the board with operating condition. Which can be useful to get information about different lamps at one place.

Table 1
Lamps with specifications

Lamps	Luminous Efficiency (Lumen/Watt)	CRI	Burning Hour
Incandescent	8-20	100	800-1000
Halogen	20-25	100	1200-1500
CFL	60-80	60-90	6000-15000
Fluorescent	50-70	60-90	6000-15000
LED	180-200	60-90	50000

2) Protective devices

Protection devices for electrical circuits undertake two main concepts as consistency and protection. In this, Protection is assured via different power supply, and it's the overcurrent protection. To purpose out, varied protection devices act as a protection agent and protect us from several electrical damages. Generally, these devices take away fireplace hazards and

electrocution.

Protection devices are helpful for the protection of circuits. Usually, this protect from excessive voltage or current. To mention, circuit protections are the device that stops the devices from the flow of excessive currents further because the short currents. This project contain some of the protecting devices. As MCB, Isolator, fuses with different ratings or capacity.



Fig. 3. Protection devices

3) Wiring material

Electrical wiring is associate with electrical installation of cabling and associated devices comparable to switches, distribution boards, sockets, and light-weight fittings in an exceedingly structure. Wiring is subject to safety standards for style and installation.



Fig. 4. Wiring accessories

Allowable wire and cable sorts and sizes are specified in step with the circuit in operation voltage and electrical phenomenon capability, with any restrictions on the environmental conditions, such as close temperature range, wetness levels, and exposure to daylight and chemicals. The wiring material such as modular box, switches, plugs, holders, pin, ground plate, ceiling rose, dimmer, regulator, wires, cables, Junction box, conduit.

4) *Tools*



Fig. 5. Tools

Electrical tools are used to work on an electrical system. Electrical tools are tools used to work on an electrical system. These can include a wide range of tools such as wire and cable cutters, wire strippers, coaxial compression tools, telephony tools, wire cutter/strippers, cable tie tools, accessories and even more. We all know that the right tool can make all the difference when it comes to completing a project. They make the difference between done and done right. The bottom line is, the better the tool, the better the outcome. We stock the best brand electrical tools in the industry at the best prices. This way you can get to work and get the job done correctly. The first step in determining the electrical tools you will need is to determine what task needs to be completed. Not every job will require specialty tools but using the right tool for the job will make all the difference.

5) *Wiring installation types*

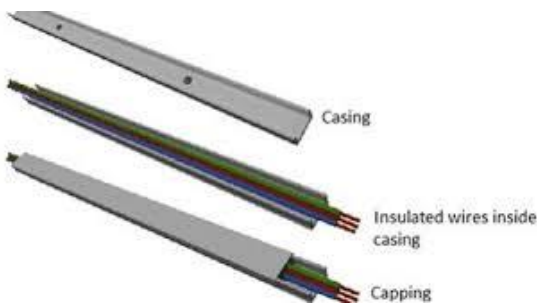


Fig. 6. Wiring system

Electrical Wiring is a process of connecting cables and wires to the associated gadgets including fuse, switches, sockets, lights, lovers and so forth to the primary distribution board is a selected shape to the software pole for maintains electricity supply. When the wiring isn't performed well or isn't maintained well, it is able to cause risky conditions including electric fires. Therefore, it's miles essential which you take a number of care even as putting in electric wires and cables. If you're thinking which electric wiring to put in at your home, name us at D&F Liquidators, Inc. There are different methods for wiring installation as Cleat wiring, Casing Capping, Conduit wiring. The most common wiring system used for wiring installation in India is Casing Capping because it is simple,

reliable and economical.

This four-wiring system are used in the project to get knowledge about different types of wiring installation.

6) *Measuring instruments*



Fig. 7. Measuring instruments

Electrical instruments measure the numerous electric quantities like electric power factor, power, voltage and current etc. All analog electric instruments use mechanical gadget for the dimension of numerous electric quantities however that the all-mechanical gadget has a few inertia consequently electric instruments have a limited time response.

The most common instruments used to measure electrical quantities are Ammeter, Voltmeter, Wattmeter, Multimeter, Luxmeter, Megger.

7) *Safety accessories*



Fig. 8. Safety accessories

The possibilities of occurrences of risks on the paintings area can't be ignored. So, every worker has to be furnished with Personal protective equipment (PPE) as in line with Section 19 of the Constitutional Safety and Health Act 1984. Categories of Personal Protective Equipment Personal Protective Equipment may be taken into consideration with the following extraordinary categories.

Chemicals, dirt can enter inside the body via respiratory thereby inflicting chest pain, headache and different signs and symptoms associated with respiratory problems. Therefore, breathing protection system like disposable filtering half mask, half mask, complete face mask, etc. are necessary.

Hearing safety equipment are important to shield the eardrums if the noise or sound level exceeds eighty-five decibels. For the safety, equipment like earplugs, semi-insert

ear plugs and ear muffs can be used.

Harmful substances and chemicals can get absorbed into the skin thereby causing bruises, cuts, abrasion, etc. To avoid these, hand safety equipment can be used such as gloves, finger guards and arm coverings.

In plant areas, falling from height, rolling down, crushing or penetrating pointed material are extra common. To protect the foot from all these, personnel want the following – Safety toe shoe Metatarsal guards Toe guards Leggings Studded treads,

For the eye safety: Safety glasses, Eye, shields, Goggles, Face shields are used.

4. Conclusion

The reason of this undertaking is to Display or Assemble the electrical accessories and equipment's. We would really like to finish that, its miles giant getting to know experience even as making ready the undertaking. This project incorporates all topics which can be accompanied in electrical engineering. We can study wiring set up even as assembling the lamps in operating condition. We discovered approximately time control even as operating in this project. At the time of completion, we've learnt many classes such as Teamwork, Tolerance, Consistency, Co-operation, staying power and Communication.

We study plenty of factors even as doing this undertaking and additionally we speak with our respective undertaking guide.

Acknowledgment

On completion of this research, we would like to acknowledge efforts of our respected faculty member Mr. B. M. Patil, HOD Mr. D. D. Patil, Principal Mr. G. A. Bhosale for their support for conducting research and practical implementation of the project.

References

- [1] Norimitsu Ichikawa Hajime Tomita "Basic facts about electric shocks and fatal accident statistics for the last 30 years" Safety Document of National Institute of Occupational Safety and Health JNIOOSH-SD-NO. 25, pp. 1-69 2009.
- [2] Xiaojun Wang, Jinsong Xie, Accelerated Life Test Design for the Reliability Assessment of LED's, Dianzi Chanpin Kekaoxing Yu Huanjing Shiyuan, vol. 27, no. 3 Jun, 2009.
- [3] E. Acha, N. P. Johnson, L. L. Loh and P. Miller, "The impact of energy saving apparatus on power quality," 8th International Conference on Harmonics and Quality of Power. Proceedings (Cat. No.98EX227), 1998, pp. 36-41 vol. 1.
- [4] R. A. Jabbar, M. Al-Dabbagh, A. Muhammad, R. H. Khawaja, M. Akmal and M. R. Arif, "Impact of compact fluorescent lamp on power quality," 2008 Australasian Universities Power Engineering Conference, 2008, pp. 1-5.