

राष्ट्राय स्वाहा इदं न मम ।



# ELECTRICAL ENGINEERING DEPARTMENT

## ILLUMINATION

VOLUME-1, 2023-2024



**V.V.P.**

**ENGINEERING COLLEGE**

Approved by AICTE and affiliated to GTU

# Message from Trustee

- India's energy transition is in its own interest because, otherwise economic growth would not be sustainable and human security would be at stake, since millions of climate refugees are created due to the devastating consequences of climate change.
- The Prime Minister has committed to increase renewable energy and reach 500 GW target by 2030, which is only 100 GW in 2021.
- Our wind energy production is only 12.5% of the total potential and solar energy production is only 4.6 % of the total potential, a challenging task to tap unused resources.
- The Prime Minister has announced the launch of the National Hydrogen Energy mission.
- Green Hydrogen is a major component of renewable capacity of energy
- Engineering problems of cost, scale, adopting new technologies, working out distribution chains and storage of Hydrogen should be met by the government, bureaucracy, universities, engineers and technocrats by a coordinated policy and its implementation.





# Message from Principal



**Dr. Tejas Patalia**

Welcome to V.V.P. Engineering College, a world class center for excellence in technical education. We are a leading technological institute of India, a home to a wide range of academic departments, providing best education in the major areas of technology and services in the area of research and consultancy.

We are proud and distinct through our global technical perspective, cosmopolitan character and being deeply rooted in the high Indian traditional culture, heritage and values.

You would enjoy the challenges and opportunities we offer. We look forwards to welcoming the engineering aspirants to a place of genuine intellectual excellence for an unforgettable simulating experience in the world of existing and emerging technologies, Welcome back to Future....

Dr. Tejas Patalia

Principal,

PhD, M.E. (Computer Engineering), B.E. (Computer Engineering)

Specialisation: Computer Network, Information Security

Email: [principal@vvpedulink.ac.in](mailto:principal@vvpedulink.ac.in)

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# About V.V.P. Engineering College

- Vyavasayi Vidya Pratishtan is established by Rajkot Nagarik Sahakari Bank Ltd. to promote quality education in various technical fields. The trust was founded in 1996 with the, being objective of meeting technical educational needs of Gujarat.
- The trust prides itself of establishing the first engineering college in Rajkot, the central location of Saurashtra and Kutch region. V.V.P. Engineering College is a self-financed institution affiliated to Saurashtra University and Gujarat Technological University, recognized by All India Council for Technical Education (AICTE), New Delhi and the Government of Gujarat.
- It has a specially designed on 30 acres of land with spacious building providing an adequate infra-structural facility setup in beautiful natural surroundings. It is landscaped with enlivened architecture that creates conducive environment of learning. The campus is located 10 Km on Kalawad Road, the west of Rajkot, with transportation and conveyance facilities.
- VVP Engineering College is one of the best engineering college in India catering holistic growth to the students. It is providing state of the art facilities to the students. The institutes has many schemes and offers for well education of the students.

## VISION :

- To be an exemplary institute, transforming students into competent professionals with human values.

## MISSION :

- To provide a conducive academic environment for strengthening technical capabilities of the students.
- To strengthen linkage with industries, alumni and professional bodies.
- To organize various co-curricular and extra-curricular activities for overall development of the students.
- To practice good governance and conduct value- based activities for making students responsible citizens.

# Message from Head of Department



**Dr. Alpesh S. Adeshara**  
**Associate Professor**

- Electrical Engineering Department was established in 1996 having good infrastructure and facilities as well as an excellent atmosphere to provide technical exposure to the students like electrical machines, power system, control system, power electronics, renewable energy sources and emerging technologies to identify, formulate, design, and investigate complex electrical engineering problems through hardware and software.
- The department has well qualified and dedicated staff, and it works as a bridge between educational institute and industry, and play vital role in technical enhancement of the students that embarks them to pave the path of professional career. Our department believes in providing ample opportunities to the students for their overall growth, as well as, prepare them for industrial ready professional with human values. The department feels proud on our students for their illumine success in various field at national and international level.



# Electrical Engineering Department

## VISION:

- To illuminate as a Renowned Electrical Engineering Department transforming students into Proficient electrical engineers with human values.

## MISSION:

- To impart quality education for enhancing technical proficiency of the students.
- To make a strong bridge with industry and alumni for industrial exposure and better placement.
- To provide various platforms for inculcating values & overall grooming of the students.

## PROGRAM EDUCATIONAL OBJECTIVES (PEOs):

Graduates will be able to,

- Apply technical proficiency of electrical engineering in industries, government sectors, public sectors, academics and research organizations.
- Pursue a path of professional development through higher education or by becoming a successful entrepreneur.
- Exhibit Teamwork, Leadership Skills, Communication Skills, Lifelong Learning Attitude and Ethical Values in professional conduct.

## PROGRAM SPECIFIC OUTCOMES (PSOs):

Graduates will be able to:

- Apply the fundamental concepts of electrical machines, power system, control system, power electronics, Renewable Energy Sources and Emerging technologies to identify, formulate, design and investigate complex electrical engineering problems through hardware and software.
- Work professionally in a team as well as to lead a team in an organization.

# About Department

- Electricity is a vital form of energy, and is an inevitable part of our lives. To match steps with this ever expanding world of electricity and contribute to its betterment, we offer graduate level course in electrical engineering which deals with subjects like Fundamentals of Electrical Engineering, Electrical Machines and Design, Electrical Power Systems and Design, High Voltage Engineering, Electrical Measurements, Power Electronics and Drives, Microprocessors, Instrumentation and Control System, etc.
- The Department is enriched with 2 Doctorate personnel and 7 Master Degree holders having immense experience of teaching. The students are also enjoying high placement ratio.
- In order to strengthen the practical know-how for the theoretical background studied by the students various laboratories are available at their disposal. A fully equipped computer center with latest softwares.
- Being one of the best Electrical Engineering Departments, it provides all the facilities as well as personal mentoring to the students. It has always stood on top in the Gujarat Technological University(GTU) Results at zone as well as state level. The students have also shown their talent at state and national level in participating and winning various prizes and awards.

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**Editorial Team:**

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**Ms. Shruti Pitroda - Student Co-ordinator (Sem.-7)Mr**

**Mr. Mayatra Hemang (Sem-5)**

**Ms. Shah Nandini ()Sem-5)**



# Placement and Results

## Placement:



**V.V.P.**  
**ENGINEERING COLLEGE**  
AICTE Approved & Affiliated to GTU, Ahmedabad

**ELECTRICAL ENGINEERING DEPARTMENT**  
**PLACEMENT BATCH 2023**

NBA Accredited Electrical, Computer,  
Electronics & Communication, Civil Departments



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Optimized Solutions Limited



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EVOLUTION IS CONSTANT



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A MACHINE FOR MANKIND



Vivek Bhanderi



A MACHINE FOR MANKIND



Dhruv Kotak



transformers & rectifiers (india) ltd



Sagathiya Nikita



JYOTI



Dharmik Somaiya

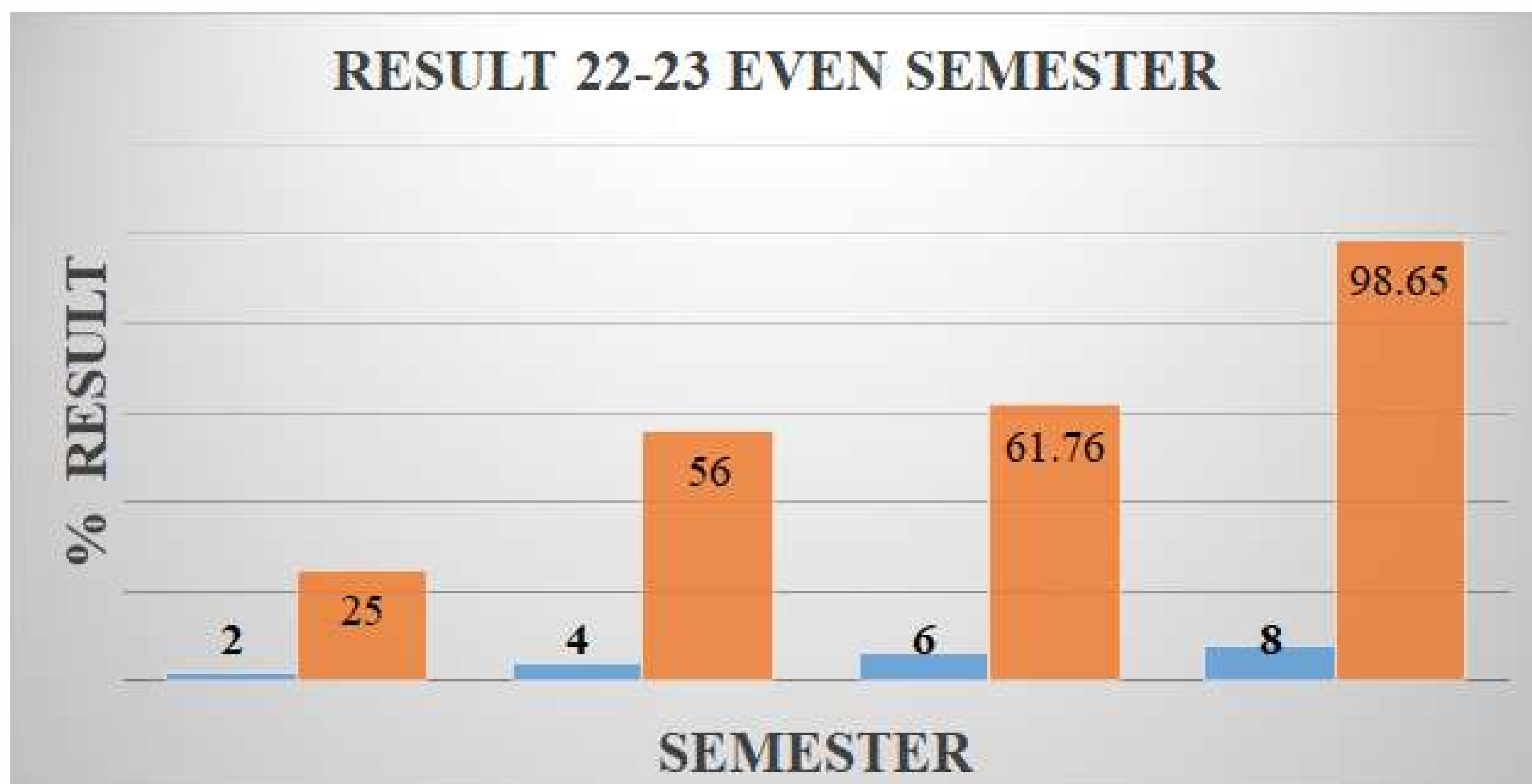


Right Decision - Bright Future



## Results :- Winter- 2023

<b>RESULT 22-23 EVEN</b>	
<b>SEMESTER</b>	<b>RESULT IN %</b>
<b>2</b>	<b>25</b>
<b>4</b>	<b>56</b>
<b>6</b>	<b>61.76</b>
<b>8</b>	<b>98.65</b>



# Student Participation in Various Activities

## "Ad - Mad Competition "

Ad - Mad Competition was organized by Standards Club of V V P Engineering College in collaboration with Bureau of Indian Standards (BIS) on 10th June of 2023.

Ad - Mad Competition was organized by Standards Club of V V P Engineering College in collaboration with Bureau of Indian Standards (BIS). In this competition team of students prepare presentation or poster to advertise particular standards like Indian standard on Fan, Mobile charger, LED light etc.

Based on the presentation and various criteria judges declare the top 10 teams and these teams were facilitated with attractive cash prize.

Students learnt about the various Standards of different equipment, importance of standards in day-to-day life and what is the role of BIS in standardization process etc.





# Student Participation in Various Activities

## Industrial Visit

Department arranged an Industrial Visit of “Drives and Control” on 18/9/223 for the 7th semester students.

Drives and Control is being recognized as one of the pioneers in power electronics-based solution provider domain in the region. It is a leading manufacturer and solution provider in the field of Motor control, Power Control and Automation. Students visited the company and have known about the various tasks carried out by the highly qualified and professional team. They have been shown the drive panel, auto-cad drawing and distribution panel and various auxiliary devices like MCB, MCCB etc.

The students came to know about the various testing conditions to test the variable frequency drive. They have also been shown the distribution panel having current carrying capacity of around 200 Amps





## Student Participation in Various Activities

### Industrial Visit

Department arranged an Industrial Visit of “132 kV Vajdi Substation, GETCO” on 24/8/2023 for the 5th semester students.

Deputy Engineer (Kishan Gami Sir) at 132 kV Vajdi SS explained all the equipment in a lucid manner. They explained the students about the outdoor substation equipment like LA, ABCB, Fuse, Transformers, CT, PT for measurement, need of power earthing etc.



They also explained the working of circuit breaker, various relays, working and setting of relays, various feeders in the substation.

## Student Participation in Various Activities

### Industrial Visit

Department arranged an Industrial Visit of "Khetan Industries," Gokuldham Ind. Area, Rajkot on 18/9/2023 for the 3rd semester students.

Induction motors and pumps are an integral part of our day-to-day life. Students of Sem 3 electrical engineering visited Khetan Industries, Gokuldham Ind. Area, Rajkot. Industry owner Mr. Chunibhai and Mr. Vijaybhai along with their staff members explained in detail, the construction and working of induction motor and pumps along with demonstration of all parts like stator, rotor, shaft, bushings, stampings, impeller and winding.

The students also came to know about the testing method of motors and pumps with their performance parameters.





# Student Participation in Various Activities

## Job Fair And Internship Interview

For the 7th sem. students, Department has arranged Job Fair and Internship Interview for the 7th semester students on 4/11/2023

·A total of 5 companies participated in this job fair event. Among them are Silver Pumps & Motors, Equinox Solar Pvt Ltd., Embicon Tech Hub, Onyx Corporation, and Superspecialist Technocrats LLP.

As per the student's area of interest, domain-wise companies were distributed. The all representatives of the companies were impressed by the technical knowledge and overall skill of the students.

All the students who participated in the Job Fair, were selected in the various companies.





## Student Participation in Various Activities

### Expert Lecture

Department has organized an Expert Lecture for the 5th sem and 7th sem students on the subject of “ Importance of fundamental knowledge in professional career” on 4/10/2023.

Mr. Ashvin Barad who is also alumni of the Electrical Department is currently working at Havells India Company came as expert.

He gave the important speech on the various factors like Different roles assigned to Electrical engineers in industry, Different areas in which Electrical engineer can work, Different types of software's used by electrical engineers, Importance of fundamental knowledge in the technical field.

He further said that along with technical knowledge company also looks for marketing skills in an engineer.

Students also got cleared many of their doubts regarding internship and placement in MNC's.





# Student Participation in Various Activities

## Expert Lecture

Department has organized an Expert Lecture for the 7th sem students on the Topic of "Role of Electrical Engineer in Industry" on 20/09/2023.

Mr. Rohan Dangar who is also alumni of the Electrical Department addressed the students on the above topic.

Sir started his presentation by giving a brief idea about role of Electrical engineer in industry. He explained in details about the Different roles assigned to Electrical engineers in industry, Different areas in which Electrical engineer can work effectively and efficiently.

He also gave important information about different types of software's used by electrical engineers, how to manage professional life and personal life in the stressful environment, what are the expectation of industry personals from electrical engineers etc. He also explained the importance of GD and how to prepare for the interview and competitive examinations.

There was Very interesting session of question and answer with the student.





# Student Participation in Various Activities

## Expert Lecture

Department has organized an Expert Lecture for the 7th sem students on the Topic of “ Design of Electrical Machine” on 23/08/2023.

Mr. Mendapara Keval who is also alumni of the Electrical Department and currently the owner of the Tulsi Motors which makes the different size of the 3 phase Induction motors has addressed the students on the above topic.

Sir Sir started by giving brief introduction about himself and his industry. He explained the students about the different types of electrical machines used in industries, different types of DC machines used in his industry, how to design the electrical machine and which factors are considered in the design. He also informed the various softwares required in the desging the machine.

He also said the importance of the market scenario and the market competition.

There was Very interesting session of question and answer with the studenst.





# Student Participation in Various Activities

## Expert Lecture

Department has organized an Expert Lecture for the 5th sem students on the Topic of “ Importance of Practical Knowledge” on 11/08/2023.

Ms. Nidhi Gosai who is also alumni of the Electrical Department has addressed the students on the above topic.

Mam started by giving her brief introduction and her journey at V.V.P. College. She explained the importance of the practical hours carried out in the laboratory. She said that the laboratory is only the place where you can test the theoretical knowledge by doing various experiments.

She explained the importance of project and internship in final year of engineering and also informed to students to participate in the various technical competitions.

She discussed about how to implement book knowledge in practical world.





## Student Participation in Various Activities

### Expert Lecture

Department has organized an Expert Lecture for the 5th sem students on the Topic of “ SSIP PROJECT -Interview skills, Journey at VVP Electrical” on 9/08/2023.

Mr. Vishvajeetsinh Jadeja who is also alumni of the Electrical Department has addressed the students on the above topic.

Sir started his speech by giving his brief introduction and her journey at V.V.P. College. He explained the Importance of project and SSIP, how to apply for the SSIP projects, what are factors to be considered while applying for the SSIP, selection of the project etc.

He also explained about the guideline how they provide the fund to various projects, Importance of funding agencies in engineering career and how to develop interview skills while preparing for competitive exams.





## Student Participation in Various Activities

### Expert Lecture

Department has organized an Expert Lecture for the 3rd sem students on the Topic of "Indian Constitution" on 30/09/2023.

Mr. Mr. Sanket Raghuvanshi has addressed the students on the above topic.

Sir started his lecture by giving his brief introduction and explored the various points like the need of constitution for nation. He also discussed the uniqueness of Indian constitution and various aspect of Indian democracy.

Further, he describe the role of government in administration at various stages like a national level, state level, and municipal corporation level. He also informed about the roles and responsibility of citizen in the development of nation.

At last. Expert discussed how to prepare an Indian constitution for various competitive exam aspect





## **Student Achievement**

Standard Club of V.V.P. Engineering college organized a Ad-Mad Competition in collaboration withj BIS Rajkot brnach, Purvesh Bapodra (220473109001), Shubham Gajera(, Param Jani, Dhyey Dave got a 3rd Rank. The event was totally co-ordinated by Hemang Mayatra, Nandini Shah and Ayush Sinha.

Library of V.V.P. Engineering College gives a “ Best User Award Library” every year. This award is given to those students who have used the library and its resources maximum during the year. This time following electrial students are selected for 3rd Rank.

**1st Rank- Ayush Sinha (5th electrical)**

**2nd Rank- Hemang Mayatra (5th electrical)**

Various types of activities are carrird out by the NCC group of the college. This year, Bhargav Chauhan got B grade- for varius NCC activities.

## **MOUs Done by Department**

**Total 28 nos MOUs are signed with varius companies with the Electrical Engineering Department.**



# Faculty Participation

## Hands on Workshop

A hands-on workshop was organized by VVP Electrical Engineering Department for 5th Students, of Electrical Engineering Department, AVPTI, Rajkot on the topic of "Solar Photovoltaics and Energy Audit " on 02/11/2023. Prof. Amit Pathak and Prof. Hardik Pandya were the experts.



Prof Amit R Pathak explained the student about the need of solar energy, current scenario of the energy, government policy and subsidy given by the government, roof top plant etc.. After it, he discussed about the energy audit, requirement, various equipment's used for audit etc.

Prof. H.M.Pandya explained the role of power electronics and various drives used in the market. He also informed to the student about the bright future of the power electronics.



# Faculty Participation

## Hands on Workshop

A hands-on workshop was organized by VVP Electrical Engineering Department for 5th Students, of Electrical Engineering Department, GP, Rajkot on the topic of "Solar Photovoltaics and Energy Audit " on 27/10/2023. Prof. Sachin Rajani, Shri D.B Raval and Shri Anil Vasani were the experts.




Prof Sachin Rajani explained the student about the need of solar energy, current scenario of the energy, government policy and subsidy given by the government, roof top plant etc.. After it, he discussed about the energy audit, requirement, various equipment's used for audit etc.

Then, in machine Lab. power analyzer was connected to the 3 phase IM and practical knowledge given to the students.

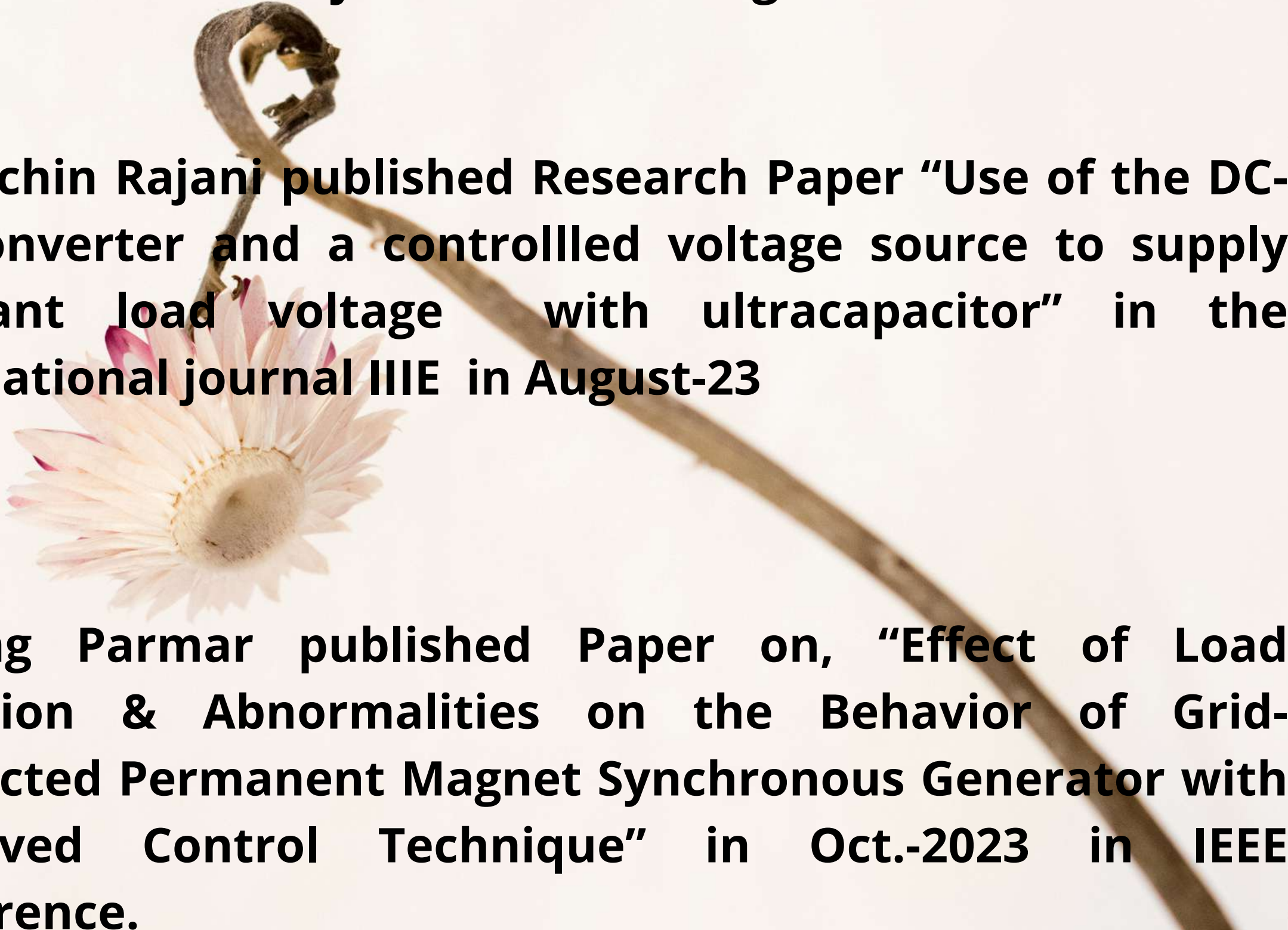


# Faculty Participation

- **Dr. Sachin V. Rajani** participated in FDP “ Research Potential in the Field of Solar Energy” organized by ISTE and B & B Polytechnic V.V. Nagar(online) in July-2023.
  - **Hardik M.Pandya** participated in STTP on the topic of “Control of Power Electronic Converters in Renewable and Transportation Applications” in Sept-2023 at SVNIT, Surat.
  - **Kujan B. Bhandari** participated in Swayam Course : “Brand Management” in Dec.-2023
  - **Devang B. Parmar** participated in STTP named “Sustainable Technologies & Energy Management of Hybrid Microgrid” in July-2023 organized by NIT Rurkela.
  - **Anoop H.Budhrani** participated in Workshop of “Publishing Ethics” Oct.-2023
- 



# Faculty Achievement

- **Dr. Sachin Rajani published Paper “Effect of Azimuth Angle on the Performance of Industrial Scale Solar Photovoltaic Power Plant – A Quantitative Approach” in the international journal IIE in July-23.**
  - **Dr. Sachin Rajani published Paper “Effect of tmeperature Variation on the Performance of a Solar Cell Power Curve” in the international journal IIE in August-23**
  - **Dr. Sachin Rajani published Research Paper “Use of the DC-DC Converter and a controlled voltage source to supply constant load voltage with ultracapacitor” in the international journal IIE in August-23**
  - **Devang Parmar published Paper on, “Effect of Load Variation & Abnormalities on the Behavior of Grid-connected Permanent Magnet Synchronous Generator with Improved Control Technique” in Oct.-2023 in IEEE Conference.**
- 



## Pros and Cons: 3-Phase Transformer Connections

Integrated by Dr. Sachin Rajani

The primary types of three-phase transformer connections are fundamental in achieving efficient power distribution that caters to diverse electrical needs. Each has advantages and disadvantages regarding conductor size, insulation requirements, and harmonic currents.

### Types of Transformer Connections:

The three windings of the transformer primary and the transformer secondary can be connected in a delta or wye to create a three-phase transformer. There are four types of three-phase transformer connections:

- Delta/delta
- Delta/wye
- Wye/delta
- Wye/wye

The standard is to list the H winding connections first, followed by the X winding connections. Each connection type can transform the same three-phase primary line voltage into the same three-phase secondary line voltage.

The phase voltages of the various connections will sometimes be different, however. For example, to transform 12,500 V to 480 V, one could use a delta/delta transformer connection with three 12,500 V – 480 V single-phase transformers, a wye/delta transformer connection with three 7,225 V – 480 V single-phase transformers, a delta/wye connection with three 12,500 V – 277 V single-phase transformers, or a wye/wye connection with three 7,225 V – 277 V single-phase transformers. Each has advantages and disadvantages.

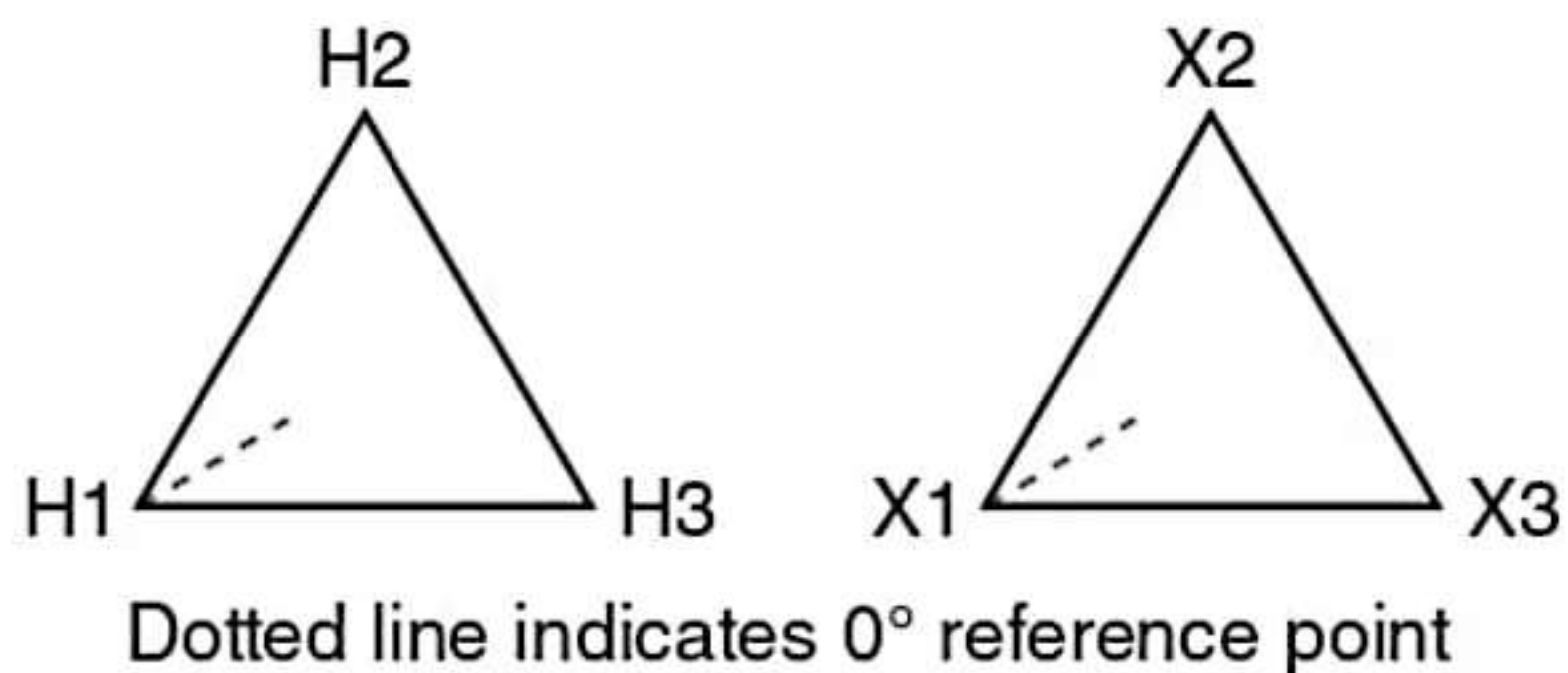


The diagrams of the transformer connections in this article will be for standard connections and will point out the angular displacement between the primary and secondary windings. Angular displacement measures how much one voltage is out of phase with another. Connecting three single-phase transformers in ways other than the standard connections shown here will result in transformer secondary line voltages that may have the same value but will be out of phase with the secondary voltages resulting from the standard connection. When the secondary voltages are out of phase, they cannot be paralleled.

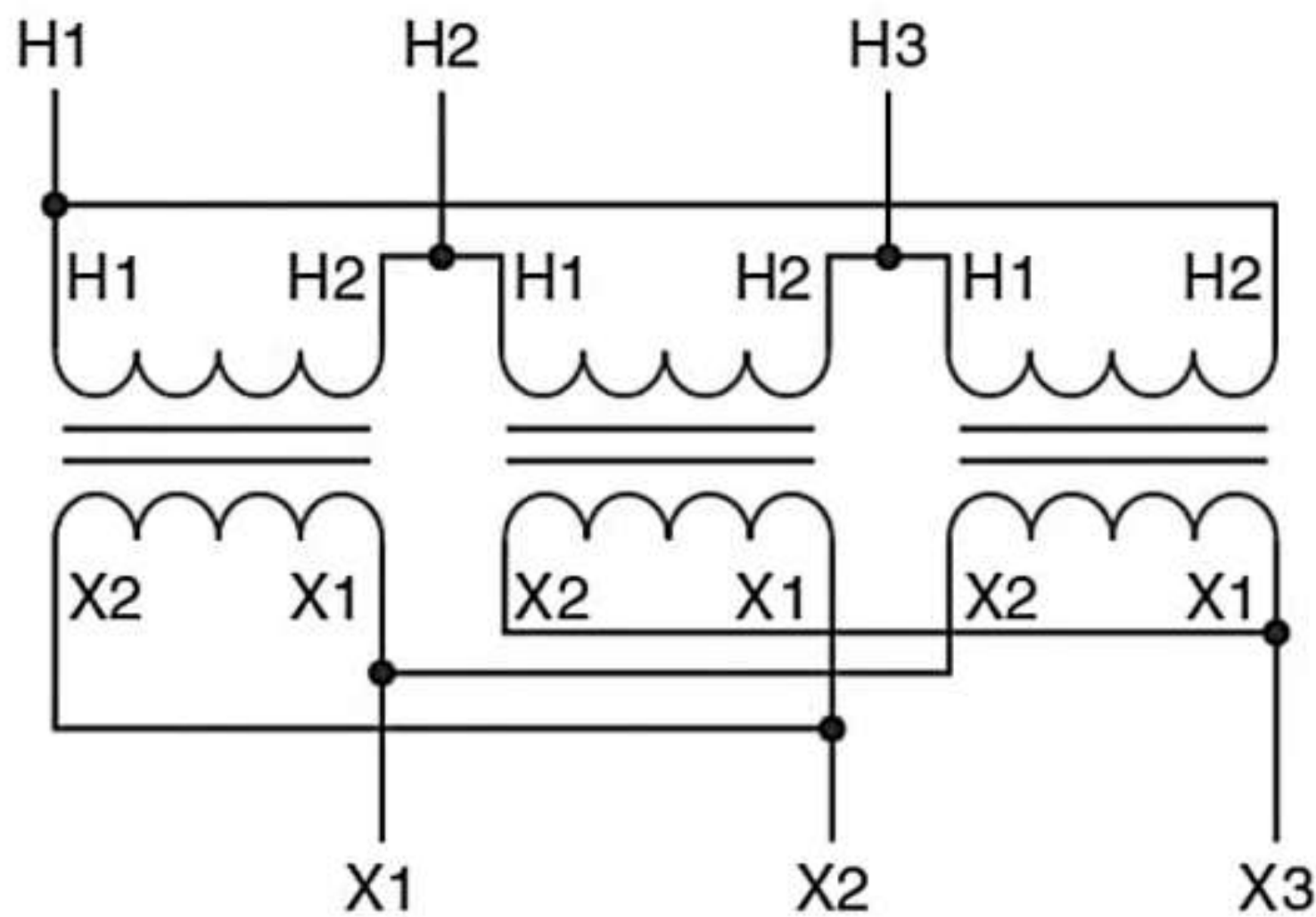
### Delta/Delta Connection:

The delta/delta connection, as shown in Figure 1, is used for applications where only one secondary voltage is required or where the majority of the load consists of three-phase equipment, such as factories that have large three-phase 480 V or 240 V motor loads and relatively small 120 V lighting and receptacle loads. The number of turns required for the primary and secondary windings is directly proportional to the primary and secondary voltage required. As a result, there is no advantage in using this transformer connection to transform voltages that differ greatly.

Symbol for a Delta/Delta transformer bank standard  
0° angular displacement







Connection diagram for a Delta/Delta transformer bank with standard  $0^\circ$  angular displacement

Figure 1

### Advantages:

- The fact that the phase current is only 57.8% of the line current means the conductors of each single-phase transformer do not have to be as large as the line conductors supplying the three-phase load.
- Harmonic currents tend to cancel out, and the transformer provides good isolation of electrical noise between the primary and secondary.
- The secondary voltage will fluctuate less with load.
- Three-phase voltage can still be supplied in the open delta if one of the three single-phase transformers fails, although at only 58% of the original capacity.

### Disadvantages :

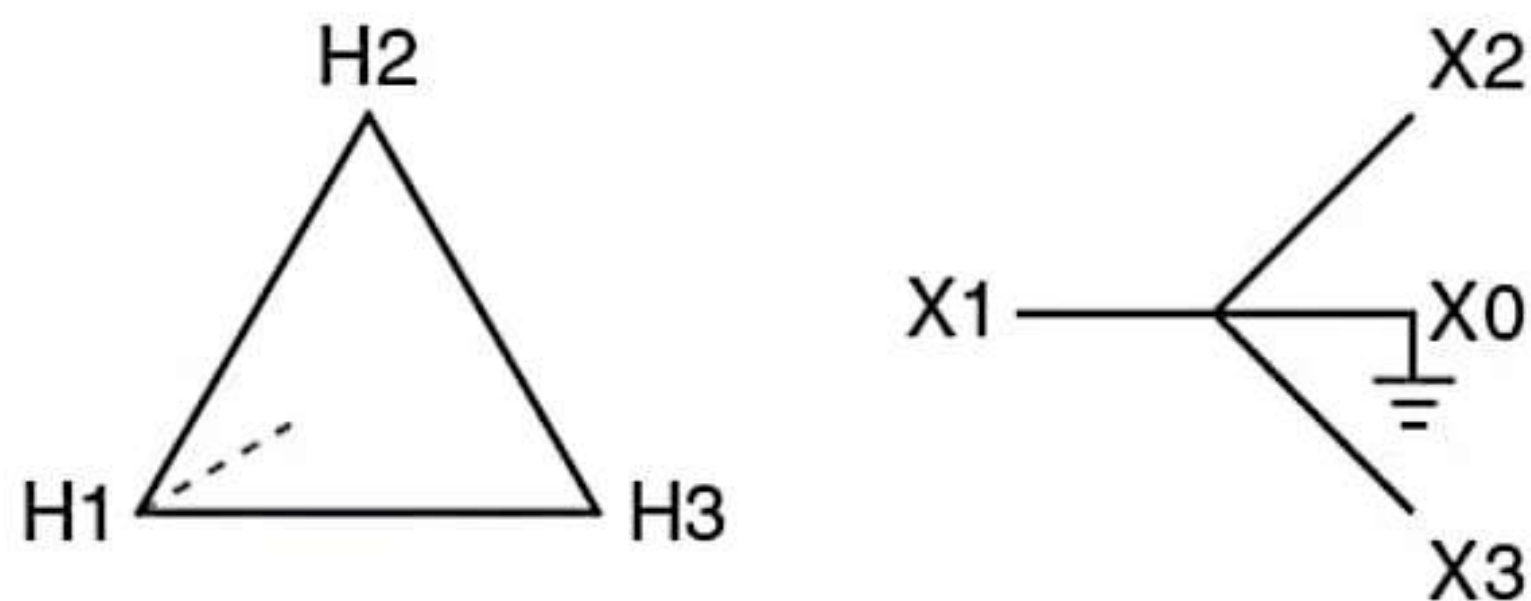
- The fact that there is only one voltage available from the secondary means there must be other transformers to supply the lighting, and receptacles may be required.
- The conductors of the primary winding must be insulated for the full primary voltage, which requires extra insulation for high primary voltages.
- No point on the secondary will provide a common ground. As a result, voltages to the ground can reach very high levels.



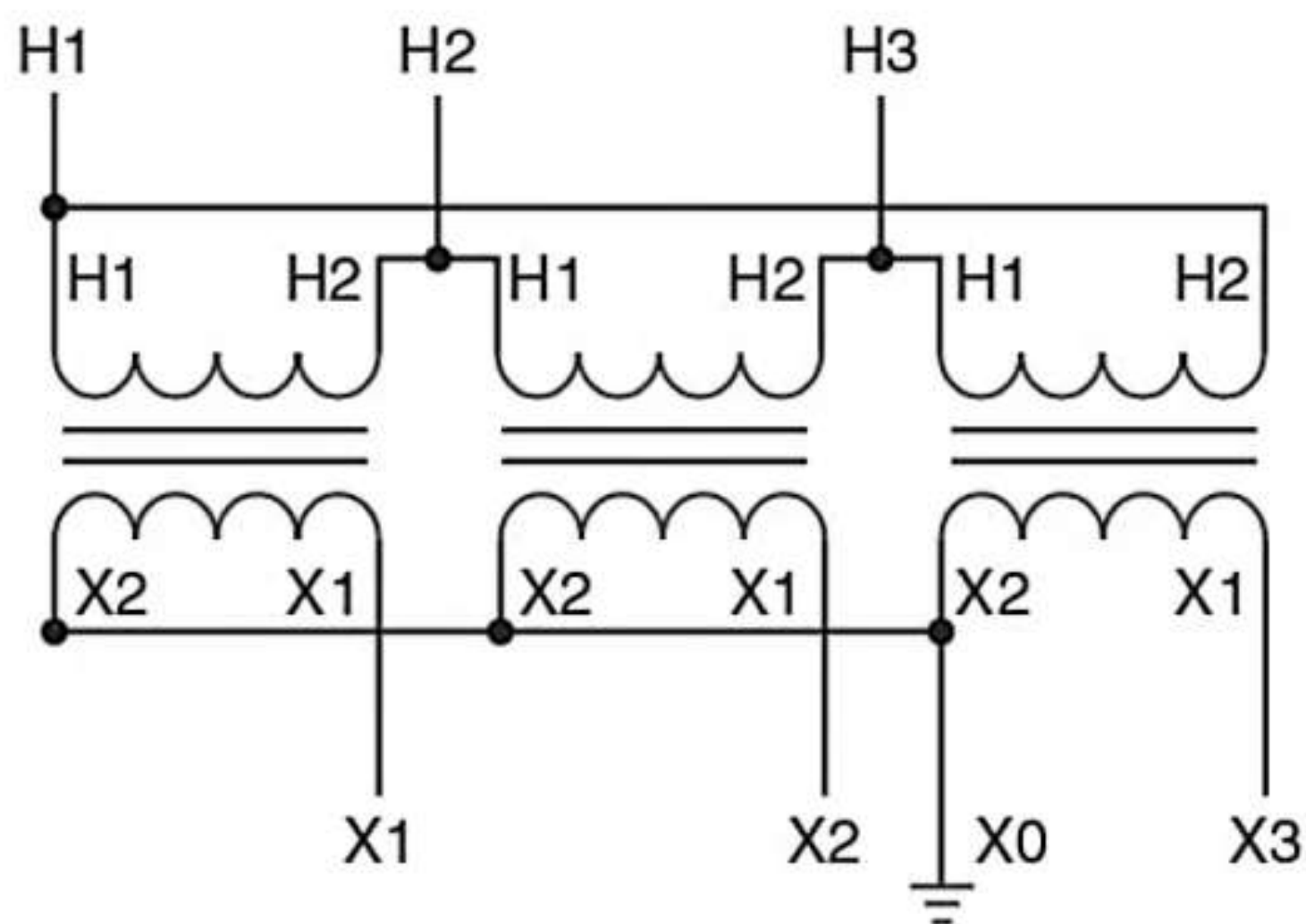
## Delta/Wye Connection:

This type of transformer connection, shown in Figure 2, is used when more than one voltage is required on the secondary, such as when three-phase, 208 V motor loads and 120 V lighting and receptacle loads are both required. The delta/wye connection is also common as a step-up transformer connection.

Symbol for a Delta/Wye transformer bank standard  
30° angular displacement



Dotted line indicates 0° reference point



Connection diagram for a Delta/Wye transformer bank  
with standard 30° angular displacement

Figure 2



### **Advantages:**

- The turns ratio is such that when the same number of turns is used on the primary and secondary windings of each single-phase transformer, the secondary line voltage will be 1.73 times greater because of the wye connection. This is an advantage when using this transformer as a step-up transformer.
- The conductors of the secondary windings will not have to be insulated for the full secondary line voltage, which requires less insulation when the transformer is used as a step-up transformer.
- Multiple voltages on the secondary could eliminate the need for extra transformers to supply 120 V loads in a three-phase system with a line voltage of 208 V.
- There is a common point on the secondary to ground the system, which limits the voltage potential to ground so it will not exceed the secondary-phase voltage.

### **Disadvantages:**

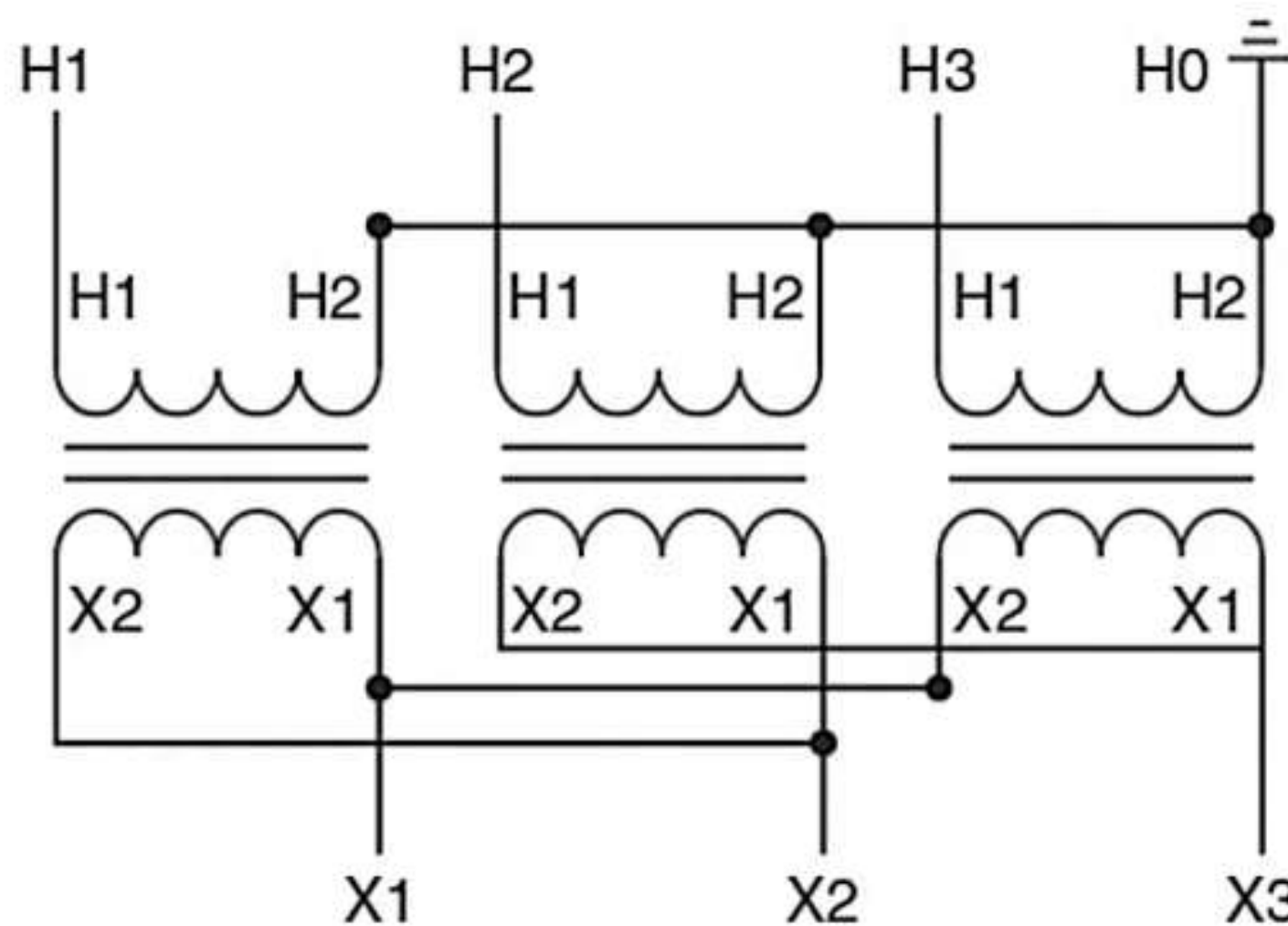
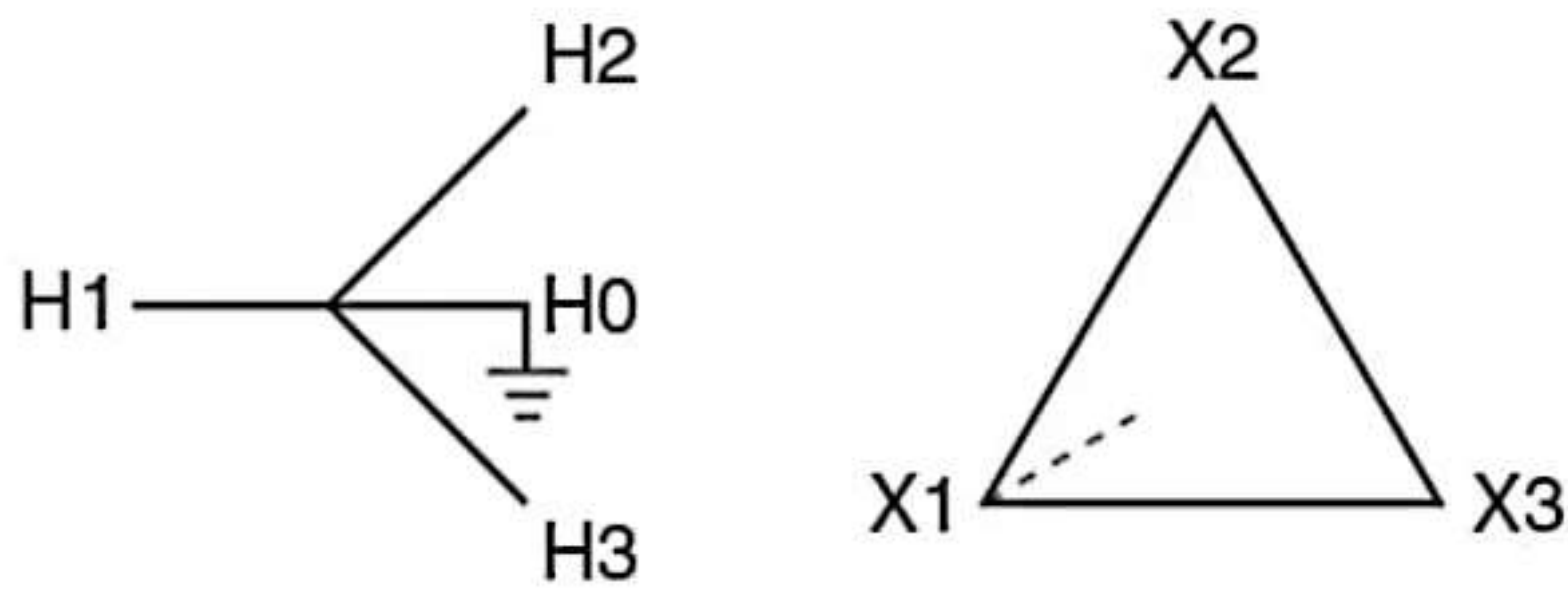
- The windings on the primary must be insulated for the full three-phase line voltage, which could require extra insulation when using this connection to step down high voltages.
- The secondary wye connection will not cancel out harmonic currents.
- The conductors of the secondary windings will carry the full three-phase line current and must, therefore, be larger than the conductors of a delta system of the same capacity.

### **Wye/Delta Connection:**

The wye/delta transformer connection, shown in Figure 3, is used when only one secondary voltage is required or where the majority of the load consists of three-phase equipment



Symbol for a Wye/Delta transformer bank standard  
30° angular displacement



Connection diagram for a Wye/Wye transformer bank  
with standard 30° angular displacement

**Figure 3**

### Advantages:

- The turns ratio is such that when the same number of turns is used on the primary and secondary windings of each single-phase transformer, the secondary line voltage will be less by a factor of 1.73 (57.8%) because of the wye connection. This is an advantage when using this transformer as a step-down transformer.
- In this transformer connection, secondary harmonic currents cancel out, and the transformer provides good noise isolation between the primary and secondary.



- The primary windings do not need to be insulated for the full three-phase line voltage, which may result in less insulation when stepping down from a high voltage.
- Three-phase voltage can still be supplied in the open delta if one of the three single-phase transformers fails, although at only 58% of the original capacity.

### **Disadvantages:**

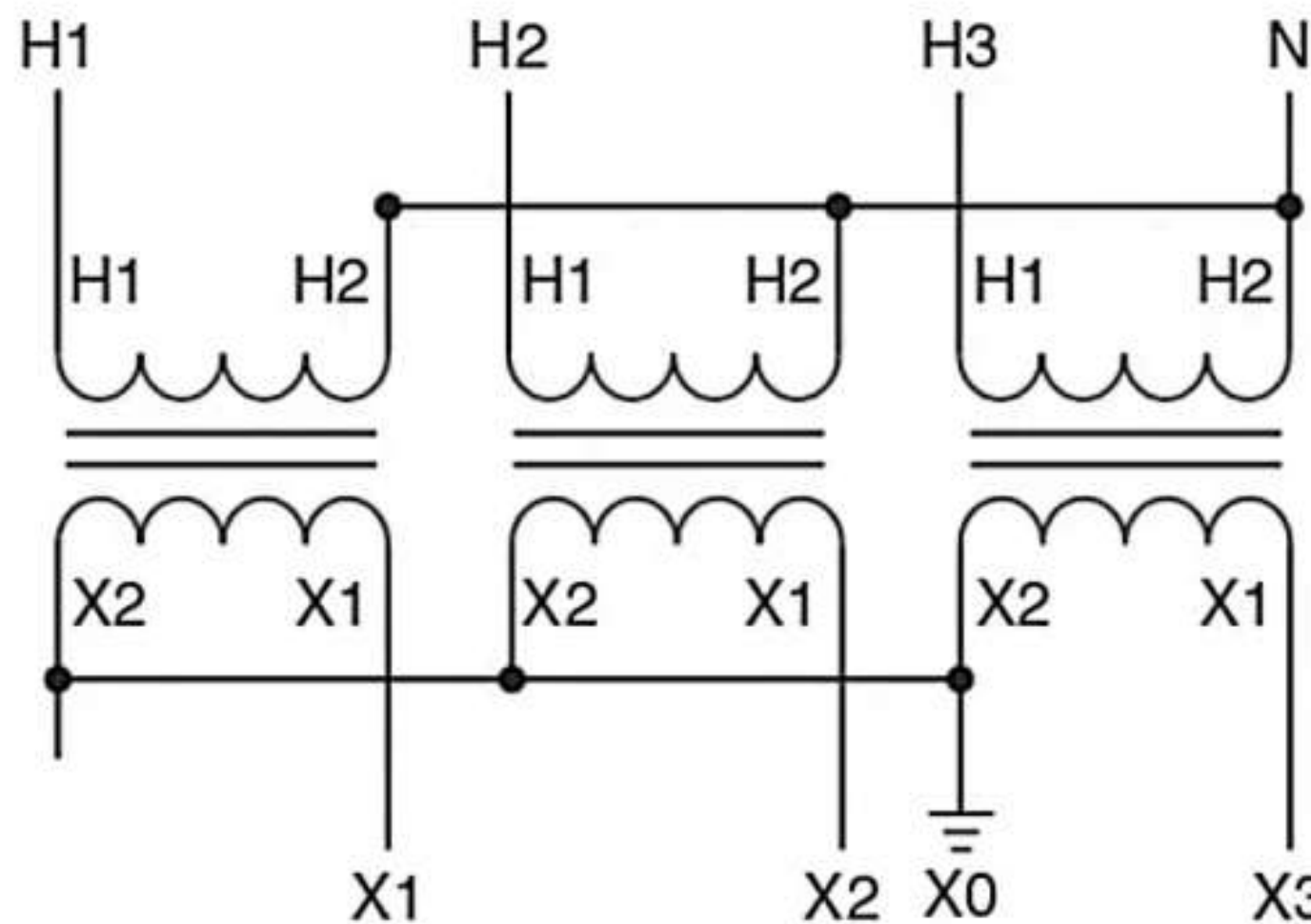
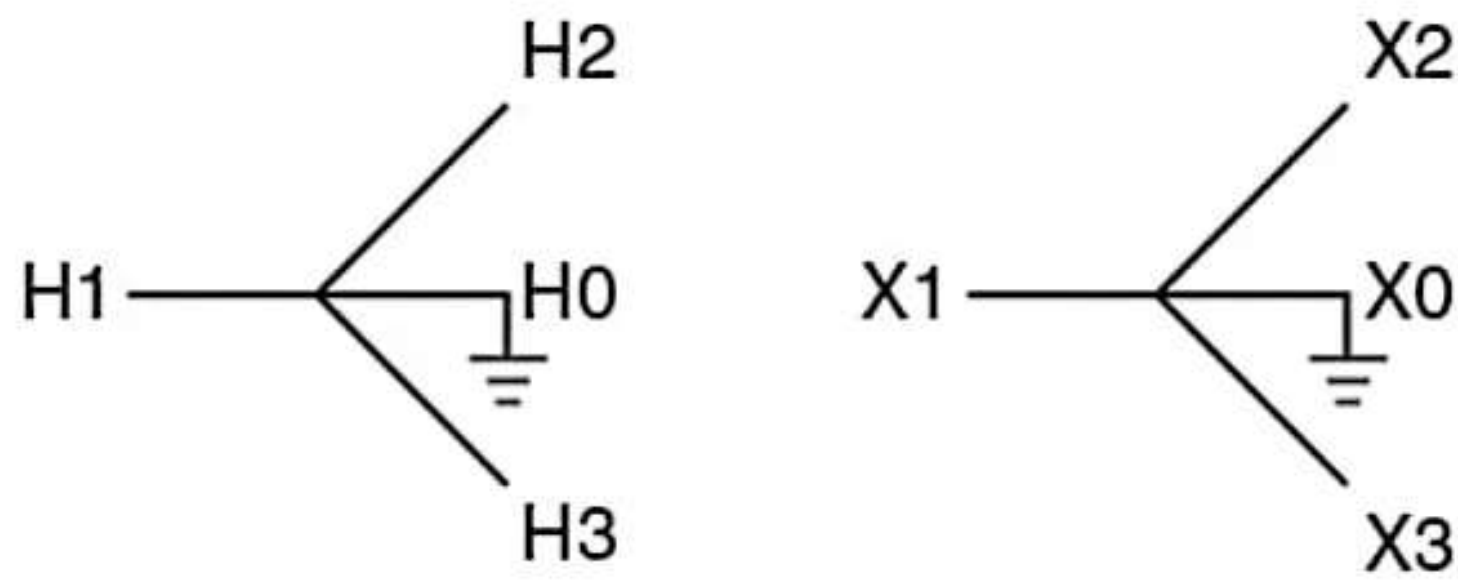
1. The fact that there is only one voltage available from the secondary means there must be other transformers to supply the lighting, and receptacles may be required.
2. As with the delta/delta, no point on the secondary will provide a common ground. As a result, voltages to the ground can reach very high levels.
3. The conductors of the primary windings must carry the full three-phase line current and would be larger than a delta-connected primary of the same capacity.
4. The common point of the wye primary windings should be connected to a system neutral, or there may be voltage fluctuations with unbalanced loads.

### **Wye/Wye Connection:**

The wye/wye transformer connection, shown in Figure 4, is seldom used. The common point of both primary and secondary windings is often connected ground. As a result, the noise from the primary is transferred to the secondary and vice versa. The system is also inherently subject to harmonics, not only from the loads but also from the magnetizing currents in the transformer core. The connection can also cause interference with communications. Unstable phase voltages are not uncommon.



Symbol for a Wye/Wye transformer bank standard  
0° angular displacement



Connection diagram for a Wye/Wye transformer bank  
with standard 0° angular displacement

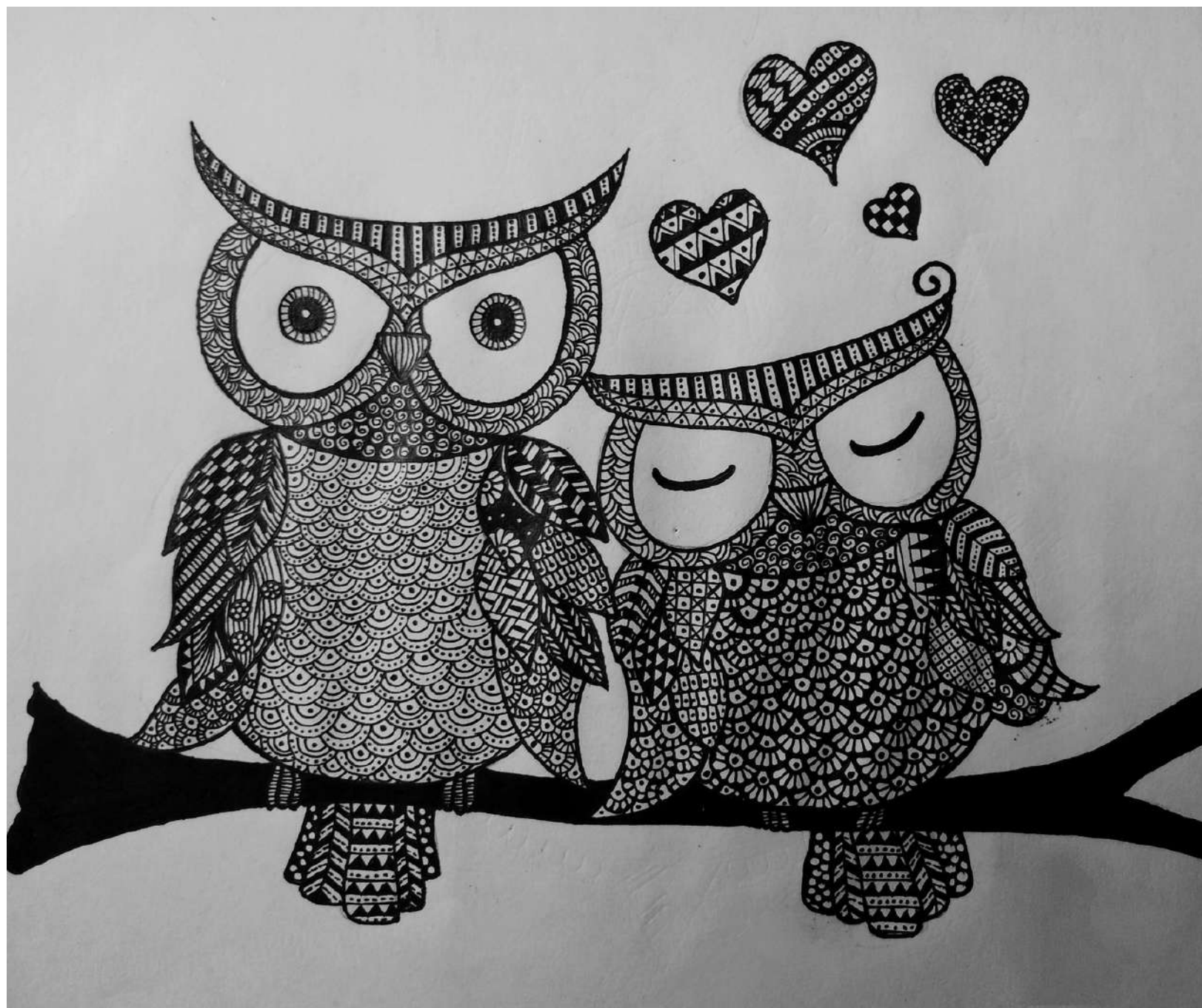
Figure 4

**Summary:**

A sound understanding of the various three-phase transformer connections is crucial for professionals working with power systems. The ability to select and configure the appropriate connection type—whether delta/delta, delta/wye, wye/delta, or wye/wye—allows efficient power distribution to meet specific electrical needs. Familiarity with the advantages and disadvantages of these connections helps ensure that transformers are configured to operate effectively, with considerations for conductor size, insulation requirements, and harmonic currents.



# Special Creation of Students



**Name: Prathna Parmar**  
**Enroll: 220473109013**

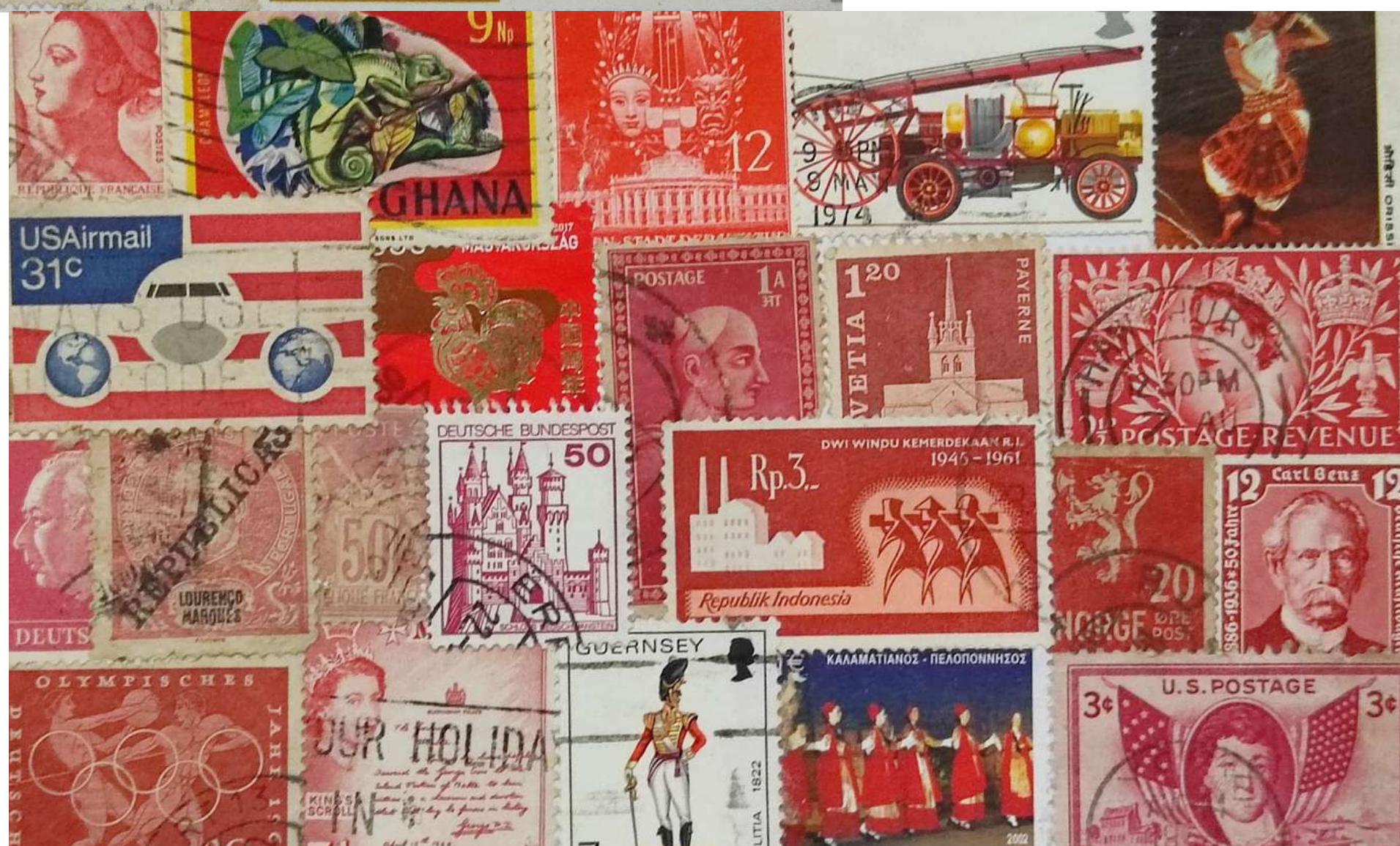


# Special Creation of Students



**Stamp  
Collection**

**Stamp  
Collection**



**Collage Work**



**Name: Mayatra Hemang  
Enroll: 210470109007**



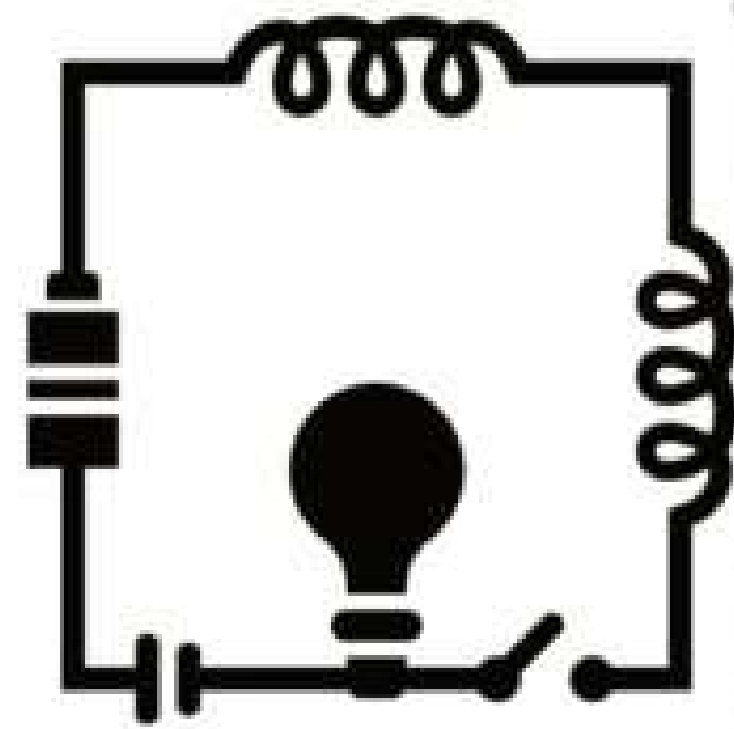


Scientists study the world as it is,  
engineers create the world that  
never has been.

— *Theodore von Kármán* —

AZ QUOTES

PEOPLE THINK IT'S  
MAGIC  
WE CALL IT



**ELECTRICAL**  
**ENGINEERING**







राष्ट्राय स्वाहा इदं न मम ।



## V.V.P. ENGINEERING COLLEGE

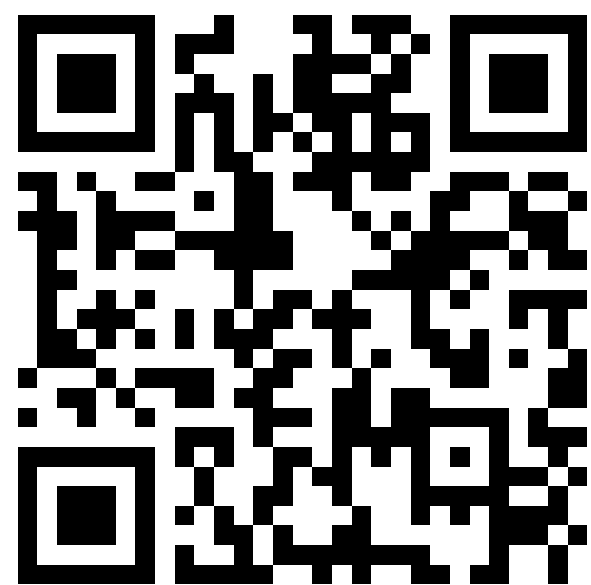
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