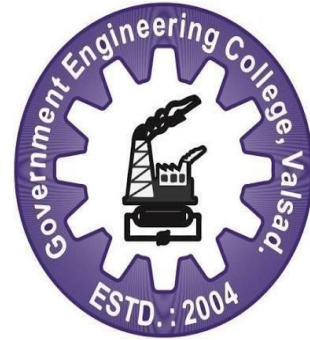


**GOVERNMENT ENGINEERING COLLEGE, VALSAD**  
**ELECTRICAL ENGINEERING DEPARTMENT**



**Report**  
**On**  
**Three Days Workshop**  
**On**  
**Innovative Circuit Design for Electrical &  
Electronics Application in Society and Industries**  
**For Electrical Engineering Students**

**By**  
**Mr. Hitesh Bhingradiya**

**Organised by**  
**Electrical Engineering Department, GEC Valsad**  
**RUSA Cell GEC Valsad**  
**Under RUSA Scheme**  
**Component 9 Equity Initiative, Supported by team**  
**SSIP2.0, IIC, G20, Azadi kaa Amrut Mahotsav**

## Event Details

❖ **Name of Workshop:** Innovative Circuit Design for Electrical & Electronics

Application in Society and Industries

❖ **Resource person:** Mr. Hitesh Bhingradiya

❖ **Date of Workshop:** 16, 17 & 18th March 2023

❖ **Number of Participants:** 50 Students + 03 Faculties

❖ **Department RUSA Coordinate:** Prof. J. D. Patel

❖ **Institute RUSA Coordinate:** Prof. D.N. Patel

❖ **Objectives of Workshop:**

The central government's contribution to realising the potential of India's state universities is the Rastriya Uchchar Shiksha Abhiyan. The future of the nation depends on providing these schools with the resources necessary to improve teaching, advance research, and foster innovation. RUSA, a programme supported by the government, is aware that some of life's most valuable lessons can be discovered outside of the classroom. This programme recognises that every institution has the potential to improve lives through world-class education, whether it is RUSA, SSIP, G20 or Azadi kaa Amrut Mahotsav or any Government Initiative, if the quality training is provided to the students in terms of practical applications to resolve the issues that enhances the nation's economy, Improves the Environmental conditions and leaving style, Enhances Atmanirbharta and fulfils Make in India and Skill India objective's then it will be most important contribution by University/Colleges to the country.

❖ **Outcome of Workshop:**

Students will be able to

- Gain a better understanding of circuit design principles and techniques.
- Learn how to use specific tools or software's for circuit design.
- Develop new circuit designs and receive feedback from other participants and instructors.
- To network with other professionals in the field and share knowledge and experiences.
- The workshop produces new research or insights on circuit design trouble shooting and maintenance that can be shared with the broader community.

## **About workshop:**

Innovation is essential to bring technologies to end users at affordable prices and acceptable power/performance levels. Easy availability of low-power and high-performance integrated circuits packed with more functionalities than ever before is inspiring innovators to explore novel applications or revisit known applications with a new outlook. This course is meant to provide you with basic information on the functions and configurations of industrial starter controls, its power circuit and control circuit build up, society and industrial application based innovative electronics projects and application of IoT and cloud based projects. In this workshop hands on training on development of circuit on the printed circuit board(PCB), its working and troubleshooting of different innovative society and industrial application based project is done by expert.

## **Topics covered in this Workshop:**

### **Day I : Industrial starter and its controls**

- Introduction to Industrial Starters: Understanding what industrial starters are, their types, and their application in industrial machinery.
- Types of Industrial Starters: Different types of industrial starters such as Direct On Line (DOL), Star Delta, Soft Starters, Variable Frequency Drives (VFD), etc.
- Operating Principles of Industrial Starters: How different types of starters operate and their effect on the motor and system they control.
- Industrial Starter Control Circuit: Understanding the components of an industrial starter control circuit and their functions.
- Protection and Safety Measures: Understanding the different types of protection and safety measures that need to be implemented for industrial starters.
- Maintenance and Troubleshooting: Maintenance procedures and troubleshooting techniques for industrial starters.
- Applications and Case Studies: Real-life applications and case studies that demonstrate the use of industrial starters and their controls in different industrial settings.

Overall, the session would aim to provide participants with a comprehensive understanding of industrial starters and their controls, enabling them to design, implement, maintain and troubleshoot such systems effectively in an industrial setting.

### **Day II : Society and Industrial Application based Innovative Electronics Projects**

- Introduction to Innovative Electronics Projects: Understanding the importance of electronics projects in modern society and industry.
- Industry Applications of Electronics Projects: Understanding the role of innovative electronics projects in various industrial applications such as automation, communication, power control, and more.

- **Social Applications of Electronics Projects:** Understanding the impact of electronics projects on society, such as health monitoring, environmental monitoring, traffic management, security, and more.
- **Project Design and Implementation:** Discussing the process of designing and implementing innovative electronics projects, including hardware and software design, component selection, testing, and optimization.
- **Project Management and Teamwork:** Strategies for managing electronics projects effectively, including project planning, resource allocation, task delegation, communication, and collaboration.
- **Emerging Technologies:** Discussion of emerging technologies such as the Internet of Things (IoT), Artificial Intelligence (AI), and their impact on innovative electronics projects.
- **Case Studies and Demonstrations:** Real-life examples of innovative electronics projects and their impact on society and industry, including demonstrations and presentations by project teams.

Overall, the session would aim to provide participants with a broad understanding of the importance of innovative electronics projects in society and industry, as well as the skills and knowledge necessary to design and implement such projects effectively.

### **Day III : Role of Microcontroller, IoT and cloud for Society and Industrial based Innovation**

- **Introduction to IoT and Cloud:** Understanding the basic concepts and principles of IoT and cloud computing and their role in modern society and industry.
- **Industrial IoT:** Understanding the use of IoT in industrial settings, including smart factories, predictive maintenance, and asset tracking.
- **Social IoT:** Understanding the use of IoT in social applications, including healthcare monitoring, environmental monitoring, and smart homes.
- **Cloud Computing:** Understanding cloud computing technologies and their role in IoT applications, including cloud-based data storage and processing, analytics, and machine learning.
- **IoT and Cloud Connectivity:** Understanding the different connectivity options for IoT devices and cloud services, including Wi-Fi, Bluetooth, cellular, and satellite.
- **IoT Security and Privacy:** Discussing the various security and privacy concerns associated with IoT and cloud computing, and strategies for addressing them.
- **Application Development:** Understanding the development process for IoT and cloud-based applications, including sensor integration, data analysis, and visualization.
- **Emerging Technologies:** Discussion of emerging technologies such as Edge Computing, Fog Computing, and Blockchain and their impact on IoT and cloud-based applications.
- **Case Studies and Demonstrations:** Real-life examples of IoT and cloud-based applications, including demonstrations and presentations by project teams.

Overall, the session would aim to provide participants with a broad understanding of the application of IoT and Cloud for Society and Industrial Based Innovation, as well as the skills and knowledge necessary to design and implement such applications effectively.

All Electrical department faculty members played a crucial role of Faculty Event Coordinator of handling theory and lab sessions on Industrial starter and controls, Power circuit and control circuit wiring, Trouble shooting and Maintenance of 3-phase motor and starter, Society and Industry based innovative projects making a demo, component selection, Demonstration of Arduino UNO/MEGA based projects and role of Microcontroller and automation for problem solving, Application of IOT and cloud for society and Industrial based innovation. The Event was complete team work with necessary inputs by Respected principal Dr V S Purani and Head of department Dr K L Mokariya, well performed by department staff and executed by Prof Dhaval D Patel and Prof John D Patel the coordinators of the Event.

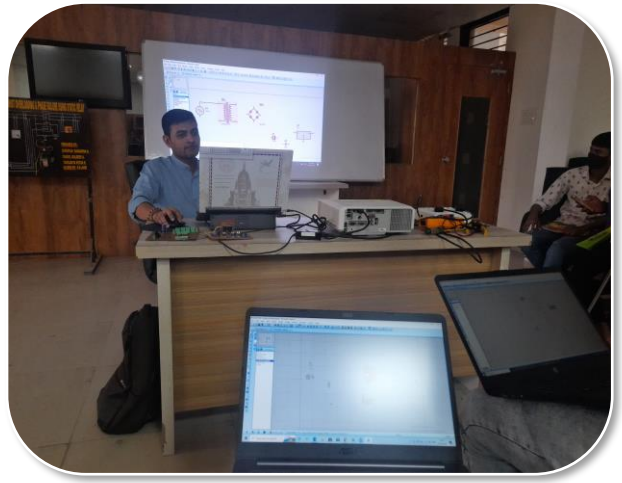
The brief Introduction about the trainer is as under.

Hitesh Bhingradiya is founder of NSG matic System done projects in various industries such as L&T, Essar Oil, Siemens India, Siemens Germany, Reliance, ONGC, ESIC, ABB, Nestle, Cadbury, HUL, ITC, Colortex, SRD, GSK, Torrent, Snowman, Ultratech, Welspun and many more. He holds Bachelor degree in Electronic Engineering from Srujan Institute, Maharashtra, Dec'12. He had an industrial Experience as a state In charge-Technical Engineering Services, DESIGNTECH SYSTEM LTD partnership with SIEMENS INDIA LTD, Surat, Executive Technical in SNOWMAN LOGISTICS LTD, Surat, Electrical & Automation Design Engineer in REM ELECTROMACH PVT LTD, Surat, Automation Design Engineer In AXTEL INDUSTRIES LIMITED, Vadodara, Automation Trainee Engineer in PROLIFIC SYSTEMS AND TECHNOLOGIES PVT LTD, Vadodara and Trainee Engineer, LARSEN AND TOUBRO LTD, Hazira. He has delivered Industry oriented technical trainings up to 2250 engineering students in various colleges, trained 137 professors for Industry ready programs in various colleges and Trained 28 new trainee in various programs. He has professional certification by Siemens Ltd, Mumbai, IASC (Skill Sector Council) Certified Assessor for Industrial Automation Specialist, New Delhi and Worldwide Siemens mechatronics certified level 1 and level 2 engineer from Berlin, Germany.

The glimpses of the Event including the Inaugural is shown with photographs as enclosed below.

## Glimpses of Workshop





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