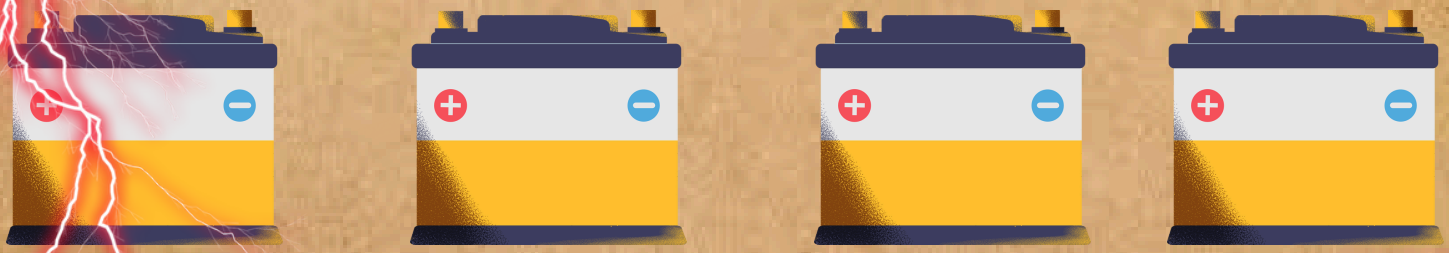
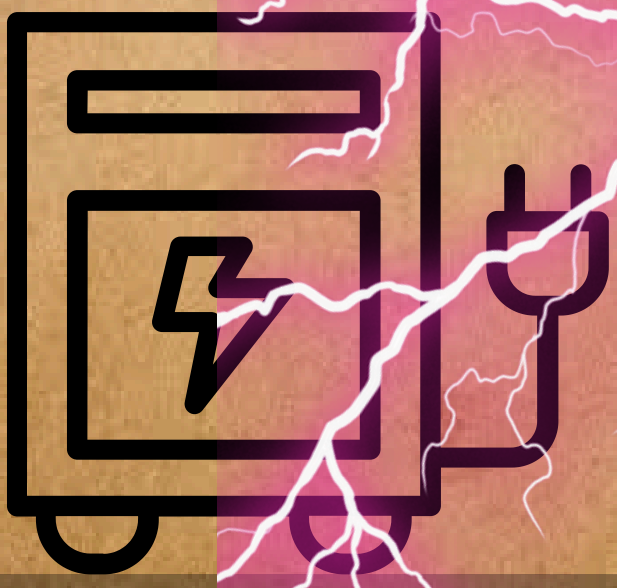
URJA MAGAZINE

POWER VAULT

INNOVATION IN ENERGY STORAGE TECHNOLOGIES AND APPLICATIONS”

VOL 4 , ISSUE 4





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QUALIFIES AND GLOBAL STANDARD SYSTEM, HIGHLY QUALIFIED WELL EXPERINCED FACULTY MEMBER, EXCELLENT PLACEMENT RECORD, DEPARTMENT ENTAL E-MAGAZINE URJA

HIGHLIGHTS OF DEPARTMENT

PROJECT BASED LEARNING

GUEST LECTURES

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INDUSTRIAL VISIT

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VISION OF INSTITUTE

BRING TOGETHER RURAL AND URBAN STUDENTS PROVIDING THEM QUALITY EDUCATION TO BECOME COMPLETE PROFESSIONAL S

MISSION OF INSTITUTE

M1. TO INCULATE PROFESSIONAL EXCELLENCE IN STUDENTS WITH ETHIICAL AND MORAL VALUES

M2. TO ARRANGE AND MAINTAIN STATE OF THE ART INFRASTRUCTURE TO EXCEL IN STUDIES .

M3. TO NURTURE ACADEMIC ATMOSPHERE TO CATER THE NEEDS OF ACADEMICS FRATERNITY.

M4. TO ENHANCE INDUSTRY INSTITUTE INTERACTION WITH CLOSE RELATIONSHIP WITH ALUMNUS

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M1. TO IMPACT QUALITY EDUCATION WITH PRACTICAL KNOWLEDGE IN THE FIELD OF ELECTRICAL AND ELECTRONICS ENGINEERING. ELECTRICAL AND ELECTRONICS ENGINEERING.

M2. TO ENSURE TECHNICALLY SKILLED ENGINEERS WHO SERVE FUTURE REQUIREMENTS OF POWER SECTOR AND SEMICONDUCTOR INDUSTRY, WITH ETHICAL AND MORAL VALUE.

M3. TO EMPOWER EVERY STUDENTS BY EXPOSING THEM A STRONG AND POSITIVE LEARNING ENVIRONMENT BY INDUSTRY, ACADEMIA AND ALUMNI INTERACTION.

MESSAGE FROM CHAIRMAN'S DESK'S
ER. MAHESH GOEL
(CHAIRMAN)

WITH THE GRACE OF GOD & THE BLESSINGS OF OUR VISIONARY GRANDPARENTS SRI ROOP CHAND AGARWAL & OUR FATHER SHRI RAMJI LAL AGARWAL, WE FORMED A TRUST SRI ROOP CHAND RAMJI LAL EDUCATIONAL TRUST (RCRL) WITH A VISION TO EDUCATE YOUTH FROM ALL WALKS OF LIFE. AT PRESENT RCRL TRUST ENCOMPASSES FOUR COLLEGES GITM, GIPS, OFFERING EDUCATION IN ALL FIELDS OF ENGINEERING (DIPLOMA, B.TECH & M.TECH), PHARMACY (D.PHARMA, B.PHARMA & M.PHARMA).

BE ALL THE COLLEGES ARE EQUIPPED WITH EXPERIENCED AND ENTHUSIASTIC AND EXTREMELY SUPPORTIVE STAFF , INFRASTRUCTURE, LATEST GADGETS OF TEACHING-LEARNING PROCESS & BEST INTERNET CONNECTIVITY. OUR AIM IS TO TRAIN THE STUDENTS EFFICIENTLY & EFFECTIVELY ACROSS PROFESSIONAL BOUNDARIES SO THAT THEY ENCOURAGE AS LEADERS & INNOVATORS IN THEIR CHOSEN PROFESSIONS. AT GGI, THOUGH STUDENTS COME FROM DIFFERENT BACKGROUNDS THEY ARE TRAINED TO BE COMPLETE PROFESSIONAL & WEALTH CREATORS FOR SELF & COUNTRY AT LARGE. I WELCOME YOU TO BE PART O F OUR JOURNEY TO ACQUIRE KNOWLEDGE THAT PROVIDES BENEFITS TO BOTH SELF & MANKIND...

MESSAGE FROM VICE CHAIRMAN'S DESK'S
MR. MURALI LAL
(VICE-CHAIRMAN)

IN AN ERA OF GLOBALIZATION, A WELL PLANNED INFRASTRUCTURE AND FACULTY IS A XAMUST FOR A CONDUCIVE TEACHING-LEARNING PROCESS IN THE CAMPUS AND A GOOD CONNECTIVITY TO THE COUNTRIES AT LARGE. I HOPE THAT MY THIRTY YEARS EXPERIENCE OF CONSTRUCTION MARVELOUS BUILDINGS WILL FULFILL A DREAM OF MY ANCESTORS, MY FATHER LATE SRI RAMJI LAL AGARWAL AND GRANDFATHER, LATE SRI ROOP CHAND AGARWAL, TO PROVIDE GRAND BUILDING AND WORLD CLASS INFRASTRUCTURE WHICH ENHANCES THE MORAL AND CONFIDENCE OF OUR STUDENTS TO FACE THE CHALLENGES IN CORPORATE AND PROFESSIONAL WORLD. I HOPE THAT WILL ALSO CREATE THE LANDSCAPE OF MY CAMPUS WHICH IS LUSH GREEN, SPRAWLING AND ECO FRIENDLY. IN THE END I WOULD LIKE T SAY THAT EXCELLENCE IS NEVER AN ACCIDENT, IT IS THE RESULT OF COMMITMENT, METICULOUS PLANNING, FIRM DETERMINATION AN CEASELESS EFFORT. I HOPE THAT WE NURTURE SENSE OF EXCELLENCE IN ALL OUR STUDENTS AND STAFFS.

MESSAGE FROM DIRECTOR DESK'S

DR. RISHI ASTHANA
(DIRECTOR- GITM)

IT IS A NOBLE TASK ON THE PART OF THE DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING TO ONCE AGAIN MAKE IT WITH THEIR FREQUENT ISSUES "URJA "ACCOMPLISHED WITH LATEST VOLUME " POWER VAULT ". I WISH THAT THIS "POWER VOLTA " ESTABLISHES TO BE A FLINT TO FIRE THE ENTHUSIASM AND EXCITE THEIR MINDS FOR MANY INTRUSIVE INNOVATIONS AMONG THE STUDENTS AND INSPIRE PASSION AMONG THE MEMBERS OF THE FACULTY AND STUDENTS OF ELECTRICAL AND ELECTRONICS COMMITTEE. MY GREETING TO THE EDITORIAL BOARD TO KEEP THE GOOD WORK.

MESSAGE FROM DIRECTOR OF COORDINATION & PLANNING DESK'S (DR. ALOK JAIN)

AS WE EMBARK ON THIS JOURNEY, I ENCOURAGE EACH OF YOU TO EXPLORE THE ARTICLES AND FEATURES IN THIS MAGAZINE THAT DELVE INTO THE INTRICACIES OF POWER VAULT. THIS INITIATIVE IS NOT JUST A PROGRAM; IT IS A COMMITMENT TO EXCELLENCE, A TESTAMENT TO OUR DEDICATION TO PROVIDING A WORLD-CLASS EDUCATION THAT PREPARES OUR STUDENTS FOR THE CHALLENGES AND OPPORTUNITIES THAT LIE AHEAD.

I EXTEND MY HEARTFELT GRATITUDE TO THE FACULTY, STAFF, AND STUDENTS WHOSE COLLECTIVE EFFORTS HAVE BROUGHT E-MAGAZINE URJA TO LIFE. TOGETHER, LET US CELEBRATE INNOVATION, EMBRACE CHANGE, AND CONTINUE TO STRIVE FOR EXCELLENCE IN ENGINEERING EDUCATION.

MESSAGE FROM DEAN'S DESK'S
DR. DEVENDRA AGRAWAL
DEAN ACADEMICS

IT IS A BEAUTIFUL MEDIUM OF STUDENT'S EXPRESSION BECAUSE STUDENTS CAN DISPLAY THEIR ARTISTIC WORKS, ANY PIECE OF INTERESTING AND INFORMATIVE NEWS OR ANYTHING THEY WANT TO SHARE WITH THEIR FELLOW STUDENTS IN THE WALL MAGAZINE.

WALL MAGAZINE NAMED "URJA", WILL ENABLE US IN ENCOMPASSING NOT ONLY THE PRESENT-DAY CURRICULUM'S NON-SCHOLASTIC ASPECT BUT ALSO HAS ITS EMPHASIS ON THE DEVELOPMENT OF THE LEARNERS.

HEAD OF ELECTRICAL AND ELECTRONICS DEPARTMENT HAS LAID AN EFFORT UPON THE DEVELOPMENT OF ALL POSSIBLE NON-SCHOLASTIC ASPECTS. AS A RESULT OF WHICH THE WALL MAGAZINE HAS BEEN PUBLISHED.

IT IS AN ATTEMPT MADE WHERE AN OPPORTUNITY IS PROVIDED FOR THE UPLIFTMENT, RECOGNITION, AND INSPIRATIONAL MOTIVATION TO THE STUDENTS IN LITERARY DEVELOPMENT

MESSAGE FROM HOD'S DESK'S
DR. PRIYANKA JAISWAL
H.O.D (EC/EE)

IN THE DYNAMIC REALM OF TECHNOLOGY, WE ARE THRILLED TO PRESENT THE LATEST EDITION OF THE DEPARTMENTAL QUARTERLY MAGAZINE URJA TITLED POWER-VAULT, A CHRONICLE THAT DELVES INTO THE FRONTIERS OF INNOVATION AND THE EVER-EVOLVING LANDSCAPE OF ENERGY STORAGE REQUIRED IN ELECTRICAL & ELECTRONICS ENGINEERING. THIS MAGAZINE SHOWCASES THE JOURNEY FROM GROUNDBREAKING RESEARCH, VISIONARY INSIGHTS & TRANSFORMATIVE POWER OF TECHNOLOGY. WITHIN THESE PAGES, YOU WILL ENCOUNTER THE SPIRIT OF DISCOVERY THAT CHARACTERIZES THE POWER VOLTA INITIATIVE.

THE E-VOLTA MAGAZINE IS NOT JUST A COMPILATION OF ARTICLES; IT'S A TESTAMENT TO THE COLLECTIVE DEDICATION OF OUR YOUNG INNOVATORS TO PUSH THE BOUNDARIES OF WHAT IS POSSIBLE.

WELCOME TO A WORLD WHERE INNOVATION KNOWS NO BOUNDS.

HAPPY READING!

GOEL
INSTITUTE OF TECHNOLOGY & MANAGEMENT
LUCKNOW

FACULTY MEMBERS OF DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

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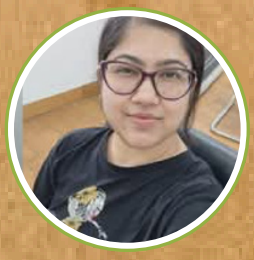

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(ASST. PROFESSOR)

MR. ABHISHEK
(ASST. PROFESSOR)

MESSAGE FROM EDITORIAL BOARD

MOHD SHARIQ ANSARI
CHIEF- EDITOR

MRS. SABAH KAHAN
EDITOR

MS. ANCHAL YADAV
EDITOR

DEAR READERS,

WELCOME TO THE LATEST EDITION OF URJA, THEOFFICIAL MAGAZINE OF THE DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING AT GOEL INSTITUTE OF TECHNOLOGY AND MANAGEMENT. THIS TIME THEME, "POWER VOULTA," CELEBRATES THE DYNAMIC INNOVATIONS AND TRANSFORMATIVE ADVANCEMENTS IN THE FIELD OF POWER AND ENERGY.
THROUGH THIS MAGAZINE, WE AIM TO SPARK CURIOSITY, IGNITE PASSION, AND EMPOWER MINDS BY SHOWCASING INSIGHTFUL ARTICLES, GROUNDBREAKING RESEARCH, AND THE ACHIEVEMENTS OF OUR VIBRANT ACADEMIC COMMUNITY. WE HOPE URJA INSPIRES YOU TO EXPLORE THE LIMITLESS POTENTIAL OF ELECTRICAL AND ELECTRONICS ENGINEERING.
STAY CHARGED AND KEEP INNOVATING

WARM REGARDS,
THE EDITORIAL TEAM!

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1. UNRAVELING THE SECRETS OF BATTERY PERFORMANCE THE ROLE OF MODELING AND SIMULATION

Introduction:-

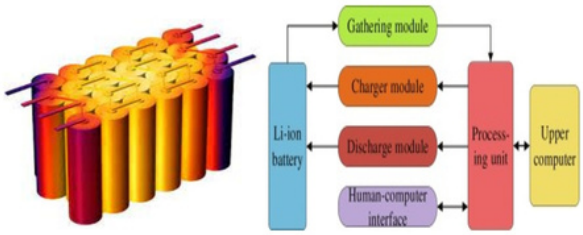
Batteries are an essential component of modern technology. It powers everything from smartphones to electric cars. As the demand for batteries increases It is therefore important to develop accurate models and simulations to predict performance. Service life and safety. In this article, we'll dive into the world of battery modeling and simulation. Explores importance, techniques, and applications.Why is battery modeling and simulation important:-

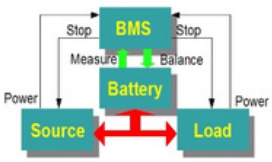
1. Improved Performance: Accurate models and simulations optimize battery design, materials, and operating conditions. To increase efficiency, efficiency and lifespan...
2. Reduce costs: by simulating different situations. Manufacturers can reduce the need to create physical prototypes, saving time, resources and costs.
3. Advanced Safety: Modeling and simulation helps identify potential safety risks, such as thermal runaway. and enable the development of safe battery design and management systems.
4. Increased sustainability: by increasing performance and battery life. Modeling and simulation can lead to a more sustainable energy future

Battery modeling and simulation techniques:-
1. Equivalent Circuit Model (ECM): A simple model that shows a battery as a network of resistors, capacitors, and voltage sources.
2. Electrochemical model: A detailed model that simulates the electrochemical reactions that occur within a battery.

Batteries are an essential component
. Multiphysics model: A comprehensive model that combines electrochemical, thermal, and mechanical simulations to predict battery behavior.
4. Machine Learning (ML) and Artificial Intelligence (AI) Techniques: Data-Driven ApproachBattery management systems (BMS) :-

Battery management systems (BMS) are a critical component in modern electrical systems. They monitor, control and optimize batteries.To ensure safe and efficient operation, BMS functions include cell tracking. Estimating the state of charge and temperature management Used in electric vehicles renewable energy system And BMS electronics help improve safety, efficiency, and battery life. By increasing battery efficiency, a BMS reduces power loss and extends battery life. An efficient BMS is essential for a reliable power system.





SHIVAM GUPTA
(EE-2)

PRAVESH
(EE-2)

2. ARGUS BATTERY MATERIALS
EXPLORE BATTERY MATERIAL PRICE ASSESSMENTS SUPPORTED BY DAILY MARKET ANALYSIS, FORECASTS AND POWERFUL TOOLS

Overview

Argus Battery Materials is the definitive resource for miners, refiners and consumers of battery materials – Delivering over 130 price battery price assessments, decades of historical data, forecasts for key battery metals and chemicals (including a 10-year demand outlook for the EV industry) and grants access to our bespoke Argus Metals platform with dedicated tools to optimise daily workflows.

As battery materials mature into a liquid market, even financial players can future-proof their business by leaning on decades of historical data and demand outlooks for EVs and consumer electronics to make substantiated hedges against the LME and other indexes.

Argus already supports organisations across the breadth of the global metals supply chain, from miners, chemical producers, cell/battery manufacturers, EV/automotive OEMs to utilities and financial groups.

Customers that benefit

- Strategy leaders at battery material producers and refiners

Rely on Argus Battery Materials to gain a broad understanding of market fundaments, including plant-by-plant capacity updates, investment opportunities and top-level trends across the global battery industry.

- Purchasing and procurement at cell, pack and EV manufacturers

Need to track price point fluctuations across battery raw materials and cell components to plan future contracts and negotiate escalation clauses from a position of strength. Also require timely market updates on materials that might threaten production, including lithium (carbonate and hydroxide), cobalt, manganese, graphite, nickel and more.

- Financial markets

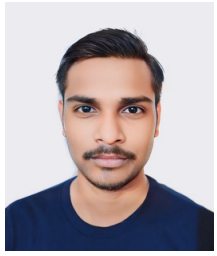
Investors require historical data and outlooks to invest in lithium mines, especially since lithium is not traded as a commodity. As the market becomes more liquid, Argus provides the data and tools needed to make informed hedges against the LME and other indexes. May need to consider Cash/Opex, capital charges, taxes and royalties involved in mine planning.

- Analysts and researchers

Leverage Argus data and tools to perform effective medium-to-long term commodity analysis, including supply/demand, capacity, cost and more. Use our cost breakdown of battery cells across different chemistries to better understand competing trends and drivers from PHEV, BEV, ESS and consumer electronics.

Aditiya kumar Mishra
EE2

Ritik Kumar Gond
EE2



Shivam Verma
EE2

3. COMPRESSED AIR ENERGY STORAGE (CAES): A PROMISING SOLUTION FOR RENEWABLE ENERGY INTEGRATION.

- As renewable energy sources like wind and solar power become increasingly prevalent, the need for efficient and reliable energy storage systems is more critical than ever.
- CAES offers a unique and innovative approach to storing energy, addressing the intermittent nature of renewable energy production and contributing to a more stable and resilient power grid.

How CAES Works?

- The basic principle of CAES involves using electricity to compress air and store it in large underground caverns or above-ground storage tanks.
- During periods of high electricity demand, the stored compressed air is released, heated, and expanded through a turbine to generate electricity. This process effectively allows excess energy produced during low-demand periods to be stored and used when it is needed most.

Key Components of CAES Systems:

*ompression Stage: During this stage, electricity is used to drive compressors that pressurize the air. The compressed air is then stored in suitable geological formations or specially designed tanks.

*Sorage Stage: The compressed air is stored until it is needed. Underground caverns, such as salt domes or depleted gas fields, are often used for large-scale storage due to their ability to withstand high pressures.

*Expansion Stage: When there is a need for electricity, the compressed air is released and heated (often using a portion of the stored energy or a supplemental fuel). The heated air expands through a turbine, generating electricity that can be fed back into the grid.

Advantages of CAES :

1. High Efficiency
2. Large Storage Capacity
3. Long-Term Storage
4. Cost Effective.

Current and Future Applications :

- CAES technology has already been implemented in several locations worldwide, including the Huntorf plant in Germany and the McIntosh plant in the United States.
- These facilities have demonstrated the viability and reliability of CAES in real-world applications. As the demand for renewable energy integration grows, CAES is expected to play a crucial role in balancing supply and demand, supporting grid stability, and reducing greenhouse gas emissions.

Innovations in CAES :

- Innovations such as Adiabatic CAES (ACAES), which captures and reuses the heat generated during compression, and hybrid CAES systems, which combine compressed air with other energy storage methods, hold great promise for enhancing the efficiency and versatility of CAES.
- As we continue to innovate and improve upon this technology, CAES will undoubtedly play an integral role in the transition to a cleaner and more sustainable energy future.

Alok Kumar Verma
EE 3

Akash Singh
EE2

4. ECONOMIC ASPECT OF INNOVATION IN ENERGY STORAGE

INTRODUCTION

• From an economist's point of view, the value obtained from storing cheap or free energy obtained from renewable sources during off peak or low demand periods which could be sold during peak hours which are mostly in the afternoon can be calculated by simply taking the market price difference between the time periods. Thus, energy stored in batteries from renewable sources such as wind turbines during off peak periods could be discharged during peak periods are opposed to running non-renewable sources such as natural gas turbines which are more expensive. For a complete view of the impact on using such technologies, it would be necessary to consider the negative impact of pollution towards the environment in obtaining a clear analysis. It may be that despite the environmental advantage brought about by storage

BATTERY ENERGY STORAGE SYSTEM

•In this technique, a set or various sets of multiple cells are interconnected in series, parallel or in both sequences in a bid to acquire some value of voltage Or capacity. This energy is stored in the form of electromechanical energy. Electrodes which are usually made of conducting materials are put in an electrolyte contained in a special, sealed container thus supplying an external load Through the electrolyte, exchange of ions occurs between the electrodes while electrons flow through the external circuit. This method incorporate using power battery modules which produce lower voltage which after being connected in a series, parallel or both sequences, achieve the desired electrical output and behaviour

ECONOMIC IMPLICATIONS OF ENERGY STORAGE

•Energy storage is a favoured applied science of the future for great purposes (Ciamician, 2012). Multiple individuals perceive affordable storage as the lacking connection between alternate renewable energy, such as the wind and solar and daily dependability.

Business, both in Poland and worldwide, are interested in the possibility for storage to satisfy other demands such as reducing gridlock and ironing out the fluctuations in power that happen independently of renewable-energy production.

Significant mechanical businesses acknowledge storage an applied science that could change cars, customer automatic.

It that follows shows the energy storage installations and project for the top 10 countries. It becomes apparent that although China has the most of the installed capacity, it tails the United States and Japan in the number of project (DOE Global Energy Storage Database, 2016)

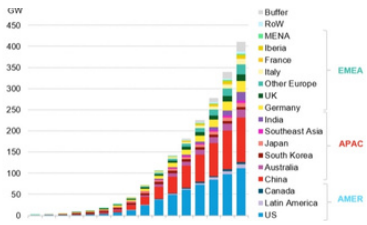
CONCLUSIONS AND DISCUSSIONS

•In conclusion, it becomes apparent that there are several significant findings from the above discussion.

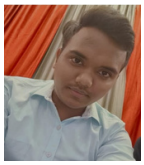
First, power storage now makes an economic reason for specific utilisation. This point is sometimes ignored given the importance on charges, for the sometime ignore the importance of charges , payment for some storage

Second, market shareholders need to obtain the complete data that could enable them to distinguish and prioritise those consumers for whom storage is helpful.

Third, storage providers need to be open-minded in their picture of energy-storage policies, determining if lead-acid, Li-ion, flow-cell, or some other technology will present the greatest value. An approach that uses various techniques may carry incremental expenses, but it may also guard against unexpected price increases.



Kajal Verma EE4



Akash Singh
EE2

7.PUMPED HYDROPWER

Pumped Hydro Power (PHP) is a fascinating renewable energy technology. Here's a concise overview:

Pumped Hydro Power is a type of energy storage that uses excess energy to pump water from a lower reservoir to an upper reservoir. During peak demand, the water is released back to the lower reservoir, generating electricity through hydroelectric turbines.

Working :- 1. Excess Energy: During off-peak hours, excess energy from the grid (e.g., solar, wind) is used to pump water from the lower reservoir to the upper reservoir.

2. Energy Storage: The water in the upper reservoir stores potential energy.

3. Peak Demand: During peak demand, the water is released back to the lower reservoir, passing through hydroelectric turbines, which generate electricity.

Benefits:

1. Renewable Energy Storage: PHP enables the storage of excess renewable energy, reducing curtailment and increasing grid stability.

2. Flexibility: PHP can respond quickly to changes in energy demand, providing a reliable source of power.

3. Low Operating Costs: PHP has relatively low operating costs to other energy

3. Low Operating Costs: PHP has relatively low operating costs to other energy storage technologies.

4. Long Lifespan: PHP facilities can operate for 50 years or more.

Challenges and Limitations

1. Geographical Constraints: PHP requires suitable geography, with a significant elevation difference between the two reservoirs.

2. High Upfront Costs: Building a PHP facility can be expensive, although costs are decreasing over time.

3. Environmental Concerns: PHP facilities can have environmental impacts, such as altering ecosystems and affecting aquatic life

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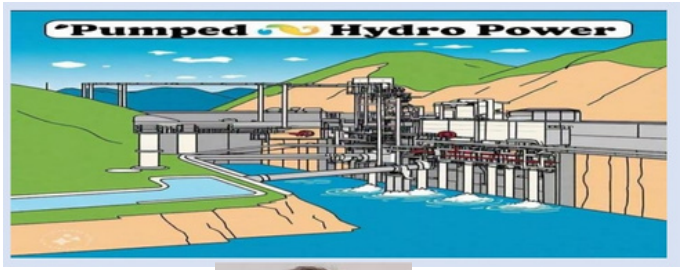
1. Australia's Tumut 3 Power Station: A 1,500 MW PHP facility in New South Wales, Australia.

2. USA's Ludington Pumped Storage Plant: A 2,172 MW PHP facility in Michigan, USA.

Pumped Hydro Power is a reliable, renewable energy storage technology that can help stabilize the grid and support the integration of variable renewable energy source.



SACHIN SHULLA (EE2)

PANKAJ KUMAR YADAV (EE2)

8.INNOVATION IN ENERGY STORAGE TECHNOLOGIES (ADVANCE LITHIUM BATTERIES)

Introduction

Advanced lithium-ion batteries have evolved from traditional designs to incorporate new materials, structures, and technologies to improve performance, lifespan, safety, and environmental impact. Here's a detailed explanation:

Key Features of Advanced Lithium-Ion Batteries:

1. Use of advanced cathode materials like nickel-rich NMC (NickelManganese-Cobalt) or solid-state electrolytes.

2. Development of silicon anodes or lithium-metal anodes for higher charge capacity.

3. Enhanced electrolyte formulations that support rapid ion transport.

4. Introduction of solid-state electrolytes to eliminate risks of leakage and flammability.

5. Diagram of Advanced Lithium-Ion Battery Advanced thermal management systems to avoid overheating.

6.Use of high-performance materials with better structural integrity.

7. Coatings on electrodes to reduce degradation during cycling.

8. Liquid electrolytes are being replaced by solid electrolytes in solidstate batteries.

9. Ultra-thin and heat-resistant materials to enhance safety.

10. Typically copper (anode) and aluminum (cathode), with thinner designs to reduce weight.

11. High Energy Density: High capacity relative to size and weight.

12. Long Cycle Life: Can be charged and discharged many times.

13. Low Self-Discharge: Loses charge relatively slowly when not in use.

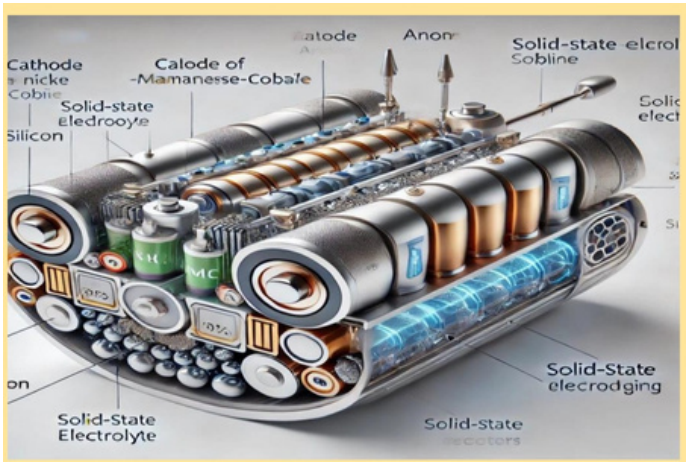
Working Principle:During charging, lithium ions migrate from the cathode to the anode through the electrolyte, while electrons flow through the external circuit.

The anode material (such as silicon or lithium metal in advanced batteries) stores lithium ions in its structure.

Applications:

Electric vehicles (EVs) Renewable energy storage Consumer electronics Aerospace and medical devices

Sachin Shukla Satyendra Kumar Shukla



SONU SINGH (EE2)

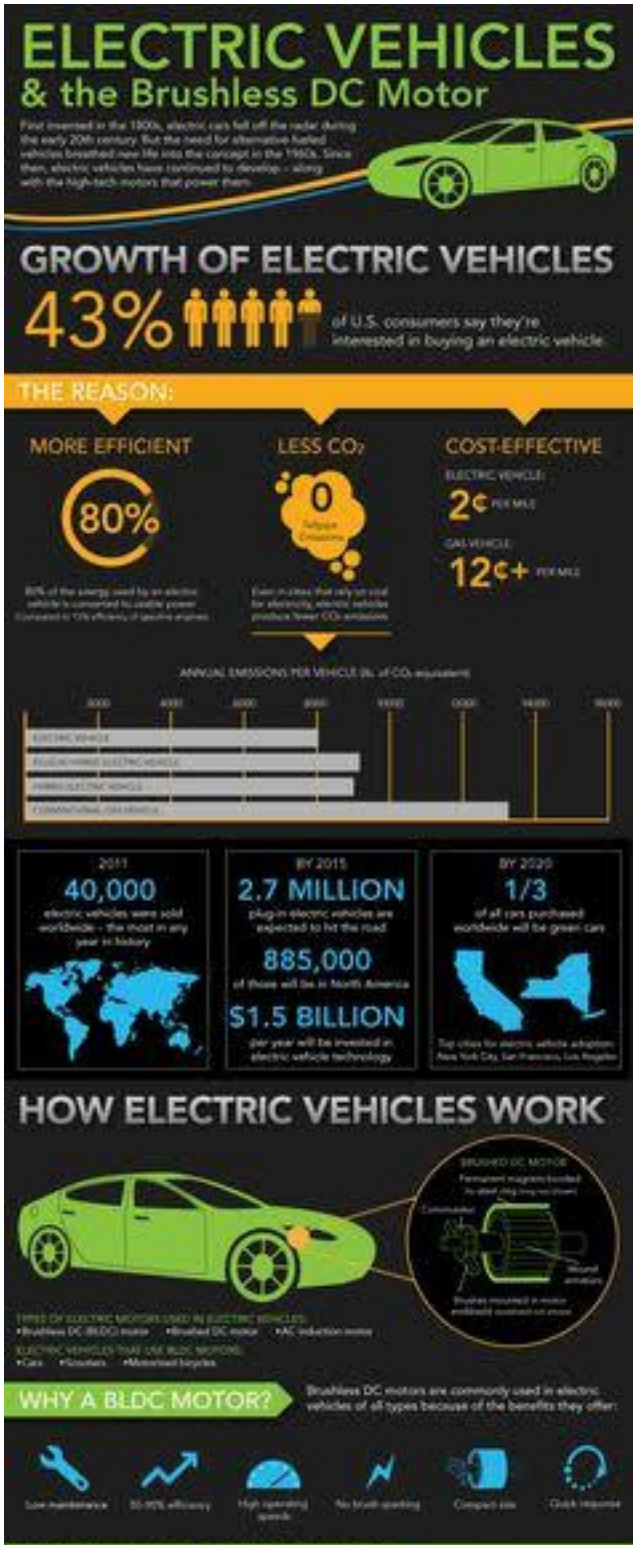
SATEYENDRA KUMAR SHUKLA (EE2)

6. ENERGY STORAGE IN ELECTRIC VEHICLES

Electric Vehicles (EVs) and their energy storage system. The size, capacity and the cost are the primary factors used for the selection of EVs energy storage system.
Thus, batteries used for the energy storage systems have been discussed in the topic. The desirable characteristics of the energy storage system are environmental, economic and user friendly. So the combination of various energy storage systems

is suggested in EVs to present day transportation. Apart from the selection of an energy storage system, another major part to enhance the EV is its charging. The fast charging schemes save battery charging time and reduce the battery size. The recent growth in power semiconductor, topology and intelligent charging control techniques reduce the expenditure of fast charging. In addition to the types electric vehicles and classification of energy storage systems, other topics such as charging schemes, issues and challenges and recent advancements of the energy storage system of electric vehicle applications have also been discussedHow it Works ?

Electricity is transferred from a battery to a controller. The controller then sends the electricity to the electric motors when needed. The accelerator is connected to a variable switch which tells the controller how much power to send to the electric motors. Power output can vary from zero to full as needed.



Deepak Kumar
EC -2nd year

9. INNOVATION IN ENERGY STORAGE TECHNOLOGIES

As the world shifts toward renewable energy sources like solar and wind, one of the most pressing challenges is how to store energy efficiently. These renewable sources are intermittent—solar power only works when the sun is shining, and wind power only when the wind is blowing. Energy storage technologies are the key to unlocking the full potential of these resources, ensuring a stable and reliable energy supply.

Among the most common energy storage solutions are batteries. Lithium-ion batteries, the workhorse of modern energy storage, power everything from electric vehicles to grid-scale systems. They offer high energy density, long lifespan, and efficiency, but the cost and environmental impact of sourcing materials like lithium and cobalt remain challenges. In response, sodium-ion batteries, a more affordable and abundant alternative, are gaining attention, although their energy density is still lower.

Another proven technology is pumped hydro storage (PHS), where excess energy is used to pump water to an elevated reservoir. When demand rises, the water is released to generate electricity. This reliable method is highly efficient but requires specific geographic conditions.

For larger-scale storage, compressed air energy storage (CAES) is gaining traction. CAES works by compressing air and storing it in underground caverns. When energy is needed, the air is released to generate power. While still in development, CAES offers great promise for large-scale energy storage.

Hydrogen storage is also emerging as a transformative technology. By using electricity to split water into hydrogen, which can then be stored and converted back into energy, hydrogen could revolutionize energy storage, especially for sectors like transportation and industry. Additionally, thermal energy storage (TES) stores excess energy as heat, which can be released when needed. Flywheels provide rapid bursts of power by storing energy in rotating disks, ideal for short-term energy stabilization. As technology evolves, energy storage will play an essential role in building a cleaner, more sustainable energy future.

AREEBA AHMAD (EC 3)

PANKAJ PANDEY

INNOVATIVE BATTERY TECHNOLOGIES FOR ENERGY STORAGE"

1. Solid-State Batteriesp What's unique?
Solid-state batteries replace the liquid or gel electrolytes found in traditional lithium-ion batteries with solid materials. This results in higher energy density, faster charging, and improved safety (reducing the risk of fires).
Applications: Electric vehicles (EVs), consumer electronics, and grid storage.

2. Sodium-Ion Batteries What's unique?
These batteries use sodium instead of lithium, which is cheaper and more abundant. While slightly less energy-dense than lithium-ion, they are ideal for large-scale applications.
Applications: Renewable energy storage and low-cost consumer devices.

3. Lithium-Sulfur Batteries What's unique?
Lithium-sulfur batteries have a much higher energy capacity compared to lithium-ion batteries. They also use sulfur, which is abundant and eco-friendly.
Challenges: Issues with cycle life and stability are being addressed with advanced nanomaterials.
Applications: High-performance drones, aerospace, and EVs.

4. Battery Recycling and Second-Life Applications What's unique?
Technologies are being developed to recycle batteries e ectively, recovering materials like lithium, cobalt, and nickel for reuse. Second-life applications give used EV batteries a new life in stationary storage systems.
Applications: Circular economy models and sustainable energy solutions.

5. Graphene-Based Batteries What's unique?
Graphene batteries are ultra-light, durable, and capable of rapid charging. They also have a higher energy capacity and longer life spans.
Applications: Smartphones, wearables, and advanced EVs.

6. Aluminum-Air Batteries What's unique?
These batteries generate electricity by reacting aluminum with air. They are lightweight and capable of extremely high energy densities, but are single-use and must be recycled after discharge.
Applications: Long-range EVs and backup power systems.

7. Self-Healing Batteries What's unique?
Self-healing materials are used in batteries to repair damage caused by charging cycles, increasing their lifespan and reliability.
Applications: Consumer electronics and medical implants.

8. Wireless Charging and Energy Harvesting What's unique?
Integrating energy harvesting systems like piezoelectric or thermoelectric materials allows batteries to recharge from ambient energy sources like motion, heat, or light.
Applications: Wearables, IoT devices, and smart sensors.

9. Flow Batteries What's unique?
Flow batteries use liquid electrolytes stored in external tanks, o ering scalable storage capacities. They have long cycle lives and are ideal for renewable energy storage.
Applications: Grid-scale storage for solar and wind energy.

10. 3D-Printed Batteries What's unique?
3D printing allows the creation of custom battery shapes and designs with optimized performance for specific applications.
Applications: Flexible electronics, medical devices, and drones.

Would you like to explore any of these ideas in more detail or brainstorm unique applications?

NITISH KUMAR EE2

SHIVANSH EE2

VISHAL EE2

INNOVATIVE BATTERY TECHNOLOGIES FOR ENERGY STORAGE"

SUPER CAPACITOR ENERGY STORAGE*

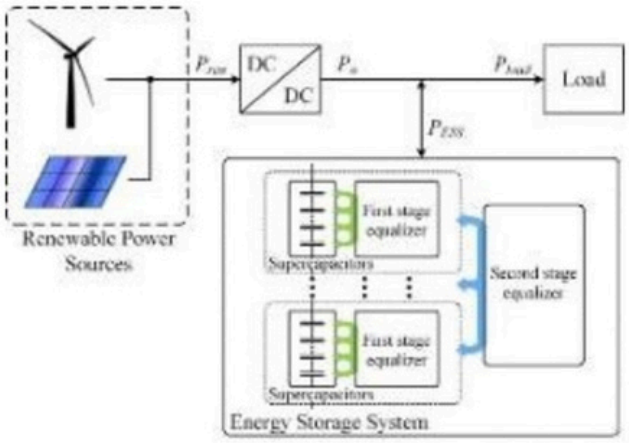
SUPER CAPACITORS, ALSO KNOWN AS ULTRA CAPACITORS OR ELECTROCHEMICAL CAPACITORS, ARE A TYPE OF ENERGY STORAGE DEVICE THAT STORES ELECTRICAL ENERGY THROUGH ELECTROSTATIC DOUBLE-LAYER CAPACITANCE AND ELECTROCHEMICAL PSEUDO CAPACITANCE.

PRINCIPLE OF OPERATION

SUPER CAPACITORS CONSIST OF TWO ELECTRODES, TYPICALLY MADE OF ACTIVATED CARBON, SEPARATED BY AN ELECTROLYTE. WHEN A VOLTAGE IS APPLIED, IONS IN THE ELECTROLYTE MIGRATE TO THE ELECTRODES, CREATING AN ELECTROSTATIC DOUBLE LAYER. THIS DOUBLE LAYER ACTS AS A CAPACITOR, STORING ELECTRICAL ENERGY.

APPLICATIONS*

1. *RENEWABLE ENERGY SYSTEMS
2. *ELECTRIC VEHICLES



RIYA MISHRA EC2

RAJAT YADAV EC 2

LAXMIKANT EC 2

FACULTIES ARTICLES AND ACHIEVEMENTS

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1. INNOVATIONS IN ENERGY STORAGE: A GAME-CHANGER FOR A SUSTAINABLE FUTURE

Energy storage has emerged as one of the most critical areas of innovation in the quest for a sustainable energy future. As renewable energy sources like solar and wind dominate the power landscape, the need for efficient, cost-effective, and scalable energy storage solutions becomes increasingly urgent. Recent advancements in this field promise to revolutionize the way we store and utilize energy, addressing key challenges of intermittency and grid reliability.Next-Generation Battery Technologies

Lithium-ion batteries have long dominated the energy storage sector, but their limitations, including resource scarcity and environmental concerns, are driving researchers toward alternatives. Solid-state batteries, which replace liquid electrolytes with solid ones, offer higher energy densities, faster charging, and improved safety. Companies like Toyota and QuantumScape are leading the charge in making these commercially viable. Meanwhile, sodium-ion batteries are gaining traction as a cost-effective, abundant alternative to lithium, with significant advancements in their performance metrics.

Flow Batteries for Grid-Scale Storage

Flow batteries, such as vanadium redox flow systems, are another breakthrough. Unlike conventional batteries, flow batteries store energy in liquid electrolytes contained in external tanks. This design allows for scalability and long-duration energy storage, making them ideal for balancing grid supply and demand over extended periods. Startups like ESS Inc. are developing iron-flow batteries, a more sustainable option that avoids reliance on rare materials.

Hydrogen and Thermal Storage

Hydrogen, often dubbed the "fuel of the future," is becoming a critical player in long-duration energy storage. Innovations in electrolyzer efficiency and hydrogen storage technologies are making green hydrogen a viable solution for sectors like heavy industry and transportation. Additionally, thermal storage systems, which capture and store heat for later use, are advancing. Companies like Malta Inc. are working on storing renewable energy as high-temperature molten salt, offering a low-cost, sustainable solution for large-scale energy needs.AI and Smart Energy Storage Systems

Artificial intelligence (AI) is playing a transformative role in optimizing energy storage. Advanced algorithms can predict energy demand and supply fluctuations, ensuring efficient battery usage and prolonging lifespan. Smart grids equipped with AI-driven storage solutions are helping utilities manage distributed energy resources, reduce costs, and enhance grid resilience.

Conclusion

The future of energy storage lies in a diverse mix of technologies tailored to specific applications, from portable electronics to grid-scale storage. These innovations not only promise to enhance the reliability and efficiency of renewable energy systems but also pave the way for a cleaner, more sustainable planet. As investments and research in energy storage continue to grow, the coming decade is poised to witness transformative breakthroughs that will reshape the global energy landscape.

Mohd Shariq Ansari
(Assistant professor)

2. THE FUTURE OF OPTICAL STORAGE: INNOVATIONS AND EMERGING TECHNOLOGIES

Optical storage, a technology that utilizes light to record and retrieve data, has been a cornerstone of modern computing. From CDs and DVDs to Blu-ray discs, optical storage has evolved significantly, offering increasing storage capacity and data transfer speeds. However, recent years have witnessed a surge in innovative approaches that promise to revolutionize optical storage once again.

Key Innovations

Holographic Data Storage

Holographic data storage is a groundbreaking technology that stores data in three dimensions within a crystal, allowing for significantly higher storage density compared to traditional two-dimensional methods. By using lasers to create interference patterns, data can be encoded and retrieved in multiple layers, leading to massive storage capacities.

DNA-Based Data Storage

While not strictly optical, DNA-based data storage is an emerging technology that leverages the immense data storage capacity of DNA molecules. By encoding digital data into the sequence of DNA bases, researchers have achieved unprecedented storage densities. Although not yet commercially viable, DNA-based storage holds immense potential for long-term archival storage.

Quantum Dot-Based Storage

Quantum dots, tiny semiconductor particles, can be used to store data by manipulating their electronic states. This approach offers the potential for faster data access and higher storage density compared to traditional optical storage methods.

Metamaterial-Based Storage

Metamaterials are engineered materials with properties not found in nature that can be designed to manipulate light in unique ways. By incorporating metamaterials into optical storage devices, researchers aim to overcome the limitations of conventional diffraction-limited optics, enabling even higher storage densities.

Potential Applications

Optical storage innovations have a wide range of applications across various fields:

Data Centers: Optical storage can address the ever-growing demand for data storage in data centers, providing high-capacity, energy-efficient solutions for archiving and retrieving vast amounts of data.

Autonomous Vehicles: Self-driving cars require massive amounts of data for real-time decision-making and navigation. Optical storage can provide the necessary storage capacity for high-resolution maps, sensor data, and AI models.

Scientific Research: Optical storage can facilitate the storage and analysis of large datasets generated by scientific experiments, such as those in genomics, astronomy, and climate research.

Media and Entertainment: High-capacity optical storage can enable the distribution of high-resolution video content, virtual reality experiences, and interactive multimedia applications.

Challenges and Future Directions

Despite the promising potential, several challenges remain in the development of practical optical storage systems:

Cost: The high cost of manufacturing and integrating advanced optical components can limit their widespread adoption.

Complexity: Designing and implementing complex optical systems can be challenging.

Integration: Integrating optical components with existing electronic systems can be difficult.

Researchers are actively working to address these challenges by exploring new materials, developing innovative device architectures, and optimizing existing technologies. Continued research and development in this area will be crucial for realizing the full potential of optical storage technologies and creating a more efficient and technologically advanced future.

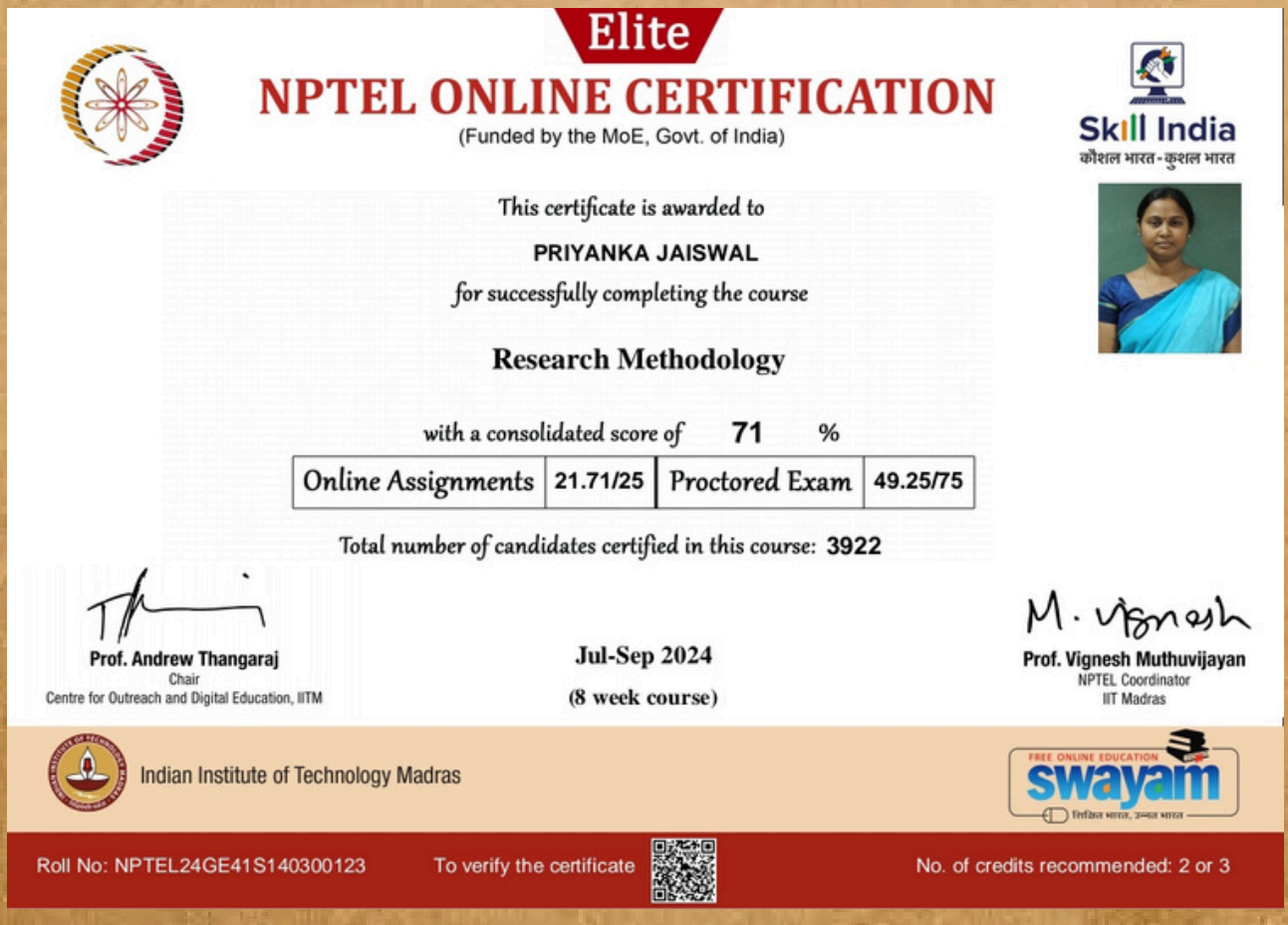
Sabah Khan
(Assistant professor)

FACULTY ACHIEVEMENTS

WE ARE DELIGHTED TO SHARE THAT

DR. PRIYANKA JAISWAL FROM THE DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING,HAS SUCCESSFULLY COMPLETED RESEARCH METHODOLOGY MOOC COURSE OFFERED BY NPTEL WITH ELITE CERTIFICATION. THIS ACCOMPLISHMENT REFLECTS THEIR COMMITMENT TO CONTINUOUS LEARNING AND ACADEMIC EXCELLENCE.

CONGRATULATIONS TO DR. PRIYANKA JAISWAL



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Research Methodology

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Online Assignments	21.71/25	Proctored Exam	49.25/75

Total number of candidates certified in this course: 3922

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Centre for Outreach and Digital Education, IITM

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MR. MOHD SHARIQ ANSARI PUBLISHES RESEARCH PAPER IN SCOPUS-INDEXED JOURNAL

WE ARE PROUD TO ANNOUNCE THAT MR. MOHD SHARIQ ANSARI HAS SUCCESSFULLY PUBLISHED HIS RESEARCH PAPER IN A SCOPUS-INDEXED JOURNAL UNDER THE ESTEEMED GUIDANCE OF DR. RISHI ASTHANA, DIRECTOR, GITM.

[1]Mohd Shariq Ansari
[2]Dr. M.A. Mallick
[3]Dr. Rishi Asthana

A Design and Optimization of A Renewable EnergyBased Smart Microgrid for Rural Electrification: Analysis of the Simulink Model for Different Loads

JES Journal of Electrical Systems

Abstract: - The rapid growth of renewable energy technologies has provided an opportunity to address the electrification challenges faced by rural communities. This research paper presents the design and optimization far smart micro grid system that integrates renewable energy sources to provide reliable and sustainable electricity to rural areas. The objective is to analyze the performance of the Simulink model under different load conditions, considering the system's stability, efficiency, and economic viability.
Keywords- Design, optimization, renewable energy, smart microgrid, rural electrification, Simulink model, analysis, load, stability, efficiency, economic viability.

I. INTRODUCTION

Access to electricity is a fundamental necessity for socio-economic development and improved living standards. However, many rural areas around the world still lack reliable and affordable electricity infrastructure. According to the International Energy Agency (IEA), approximately 789 million people worldwide were without electricity in 2018 (IEA, 2019). Traditional grid extension to these remote areas is often challenging and economically unviable due to the high costs of infrastructure installation and maintenance. Moreover, there liance on fossil fuels for electricity generation contributes to environmental pollution and climate change. In this context, renewable energy sources offer a promising solution for rural electrification. Technologies such as solar photovoltaic (PV) systems, wind turbines, and biomass generators can harness the abundant natural resources available in rural areas to generate clean and sustainable electricity. Ensuring a dependable and effective power supply has led to a notable focus on incorporating renewable energy sources into microgrid systems. A microgrid is a decentralized electricity distribution network capable of functioning autonomously or in coordination with the central power grid. It enables the efficient utilization of locally available renewable resources, energy storage systems, and demand management techniques (Farrokhabadi et al., 2018). Designing and optimizing a smart microgrid for rural electrification involves various challenges, including load fluctuations, system stability, and economic viability. Therefore, this research aims toanalyzetheSimulinkmodelofarenewableenergybasedsmartmicrogridunderdifferent load conditions to assess its performance, stability, efficiency, and economic feasibility. Motivation The motivation behind this research is driven by the need to address the energy poverty prevalent in rural areas and the potential of renewable energy sources to provide sustainable solutions. The absence of consistent electricity access in rural communities impedes economic progress, constrains educational prospects, and impacts the overall standard of living. By developing and enhancing a smart microgrid powered by renewable energy for rural electrification, this research aims to contribute to the improvement of living conditions and promote sustainable development in these underserved areas.

The integration of renewable energy sources and smart grid technologies in microgrid systems offers numerous benefits, including reduced greenhouse gas emissions, increased energy efficiency, and enhanced grid resilience. Exploring the performance of such a system using Simulink modeling provides valuable insights into its functionality, stability, and economic viability Through this research, we seek to provide evidence-based findings and recommendations that can inform policymakers, energy planners, and stakeholders involved in rural electrification initiatives. The outcomes of this study can support the development of effective strategies for implementing renewable energy-based microgrid systems, ensuring reliable and sustainable electricity supply to rural communities worldwide. The objectives of this research are:

- To develop a smart microgrid system based on renewable energy that is especially intended for rural electrification.
- To optimize the system's performance under different load conditions using Simulink modeling.
- To analyze the stability and efficiency of the microgrid system and assess its suitability for rural electrification

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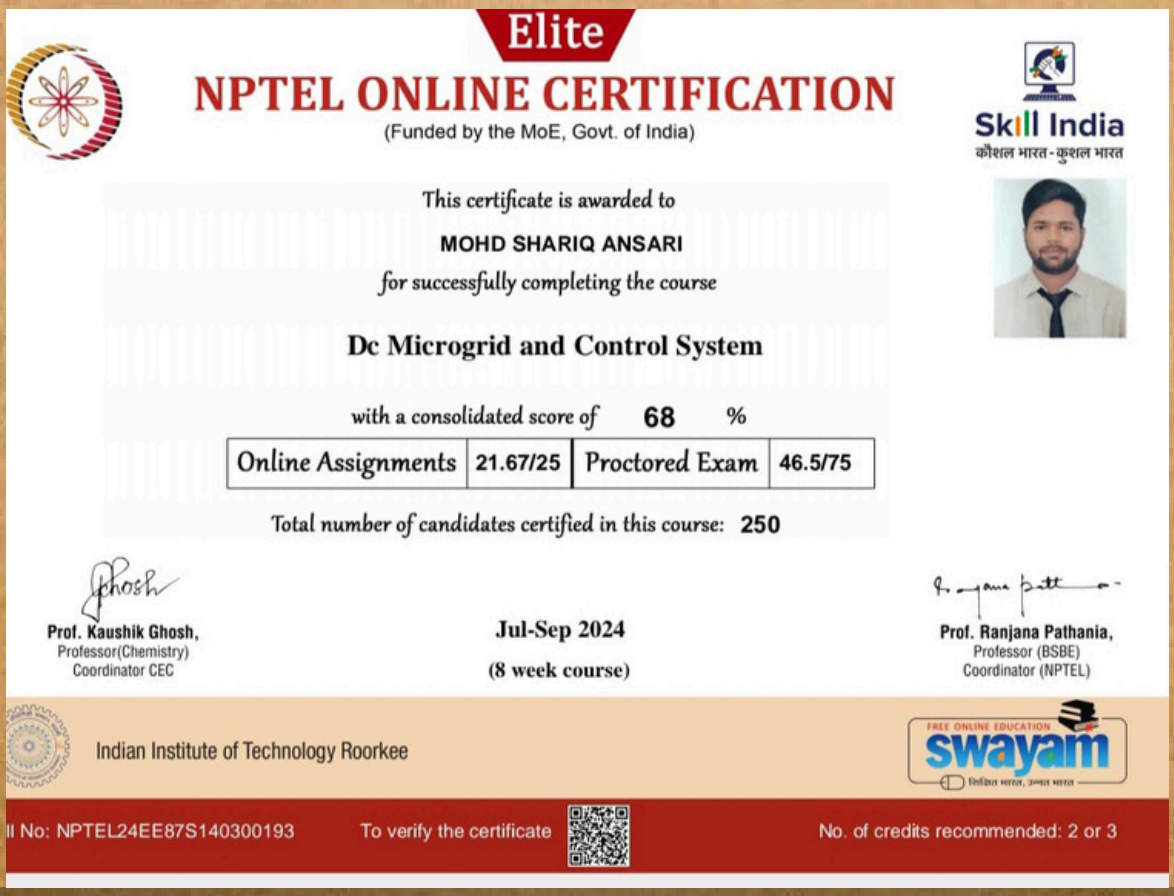

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Dc Microgrid and Control System

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Online Assignments	21.67/25	Proctored Exam	46.5/75

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Prof. Kaushik Ghosh,
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Coordinator CEC

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Prof. Ranjana Pathania,
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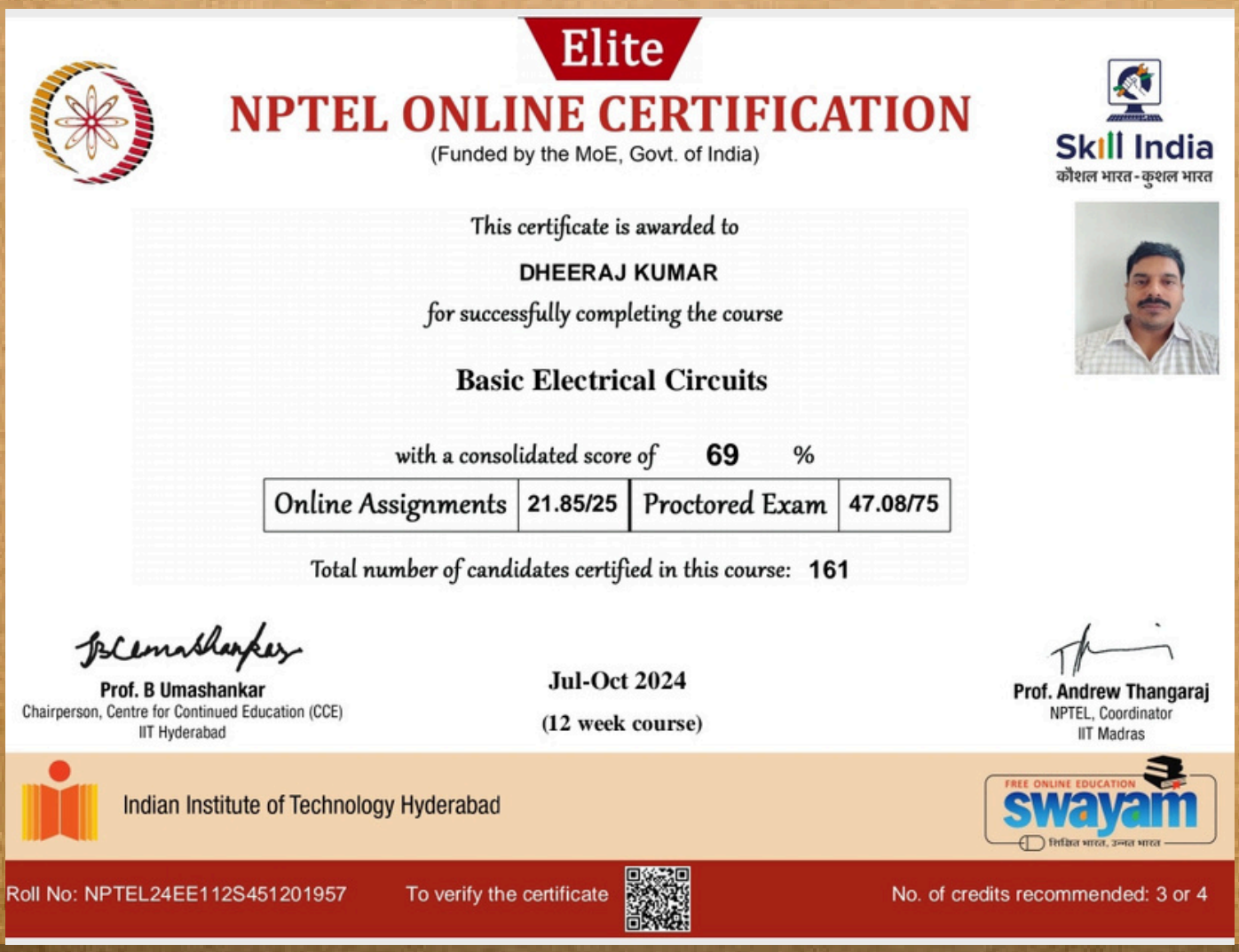

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Basic Electrical Circuits

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Online Assignments	21.85/25	Proctored Exam	47.08/75

Total number of candidates certified in this course: 161

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IIT Madras

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CONGRATULATIONS TO MR. NADEEM AHMAD

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Research Methodology

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Online Assignments	21.08/25	Proctored Exam	47/75

Total number of candidates certified in this course: 3922

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IIT Madras

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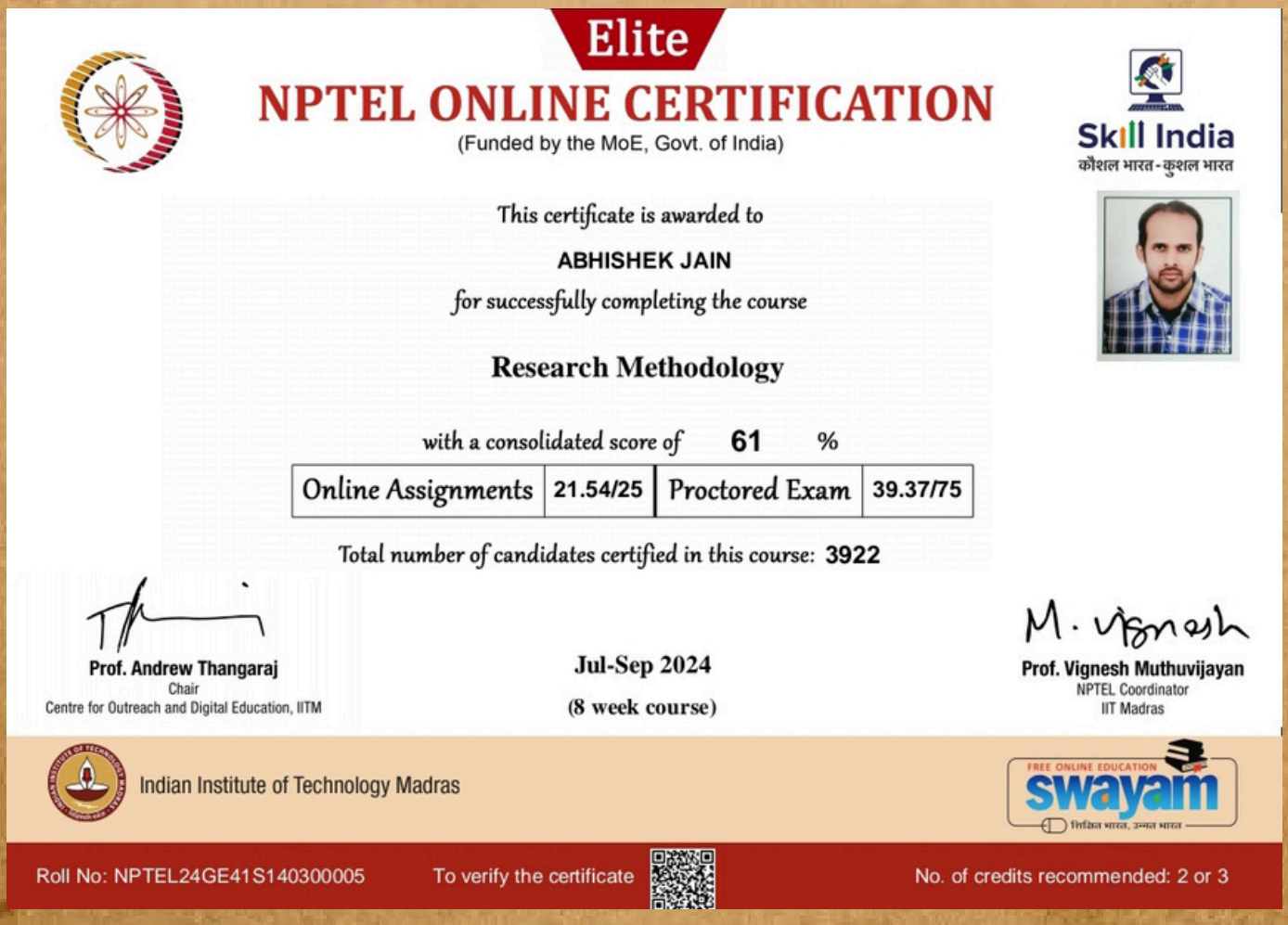

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Research Methodology

with a consolidated score of 61 %

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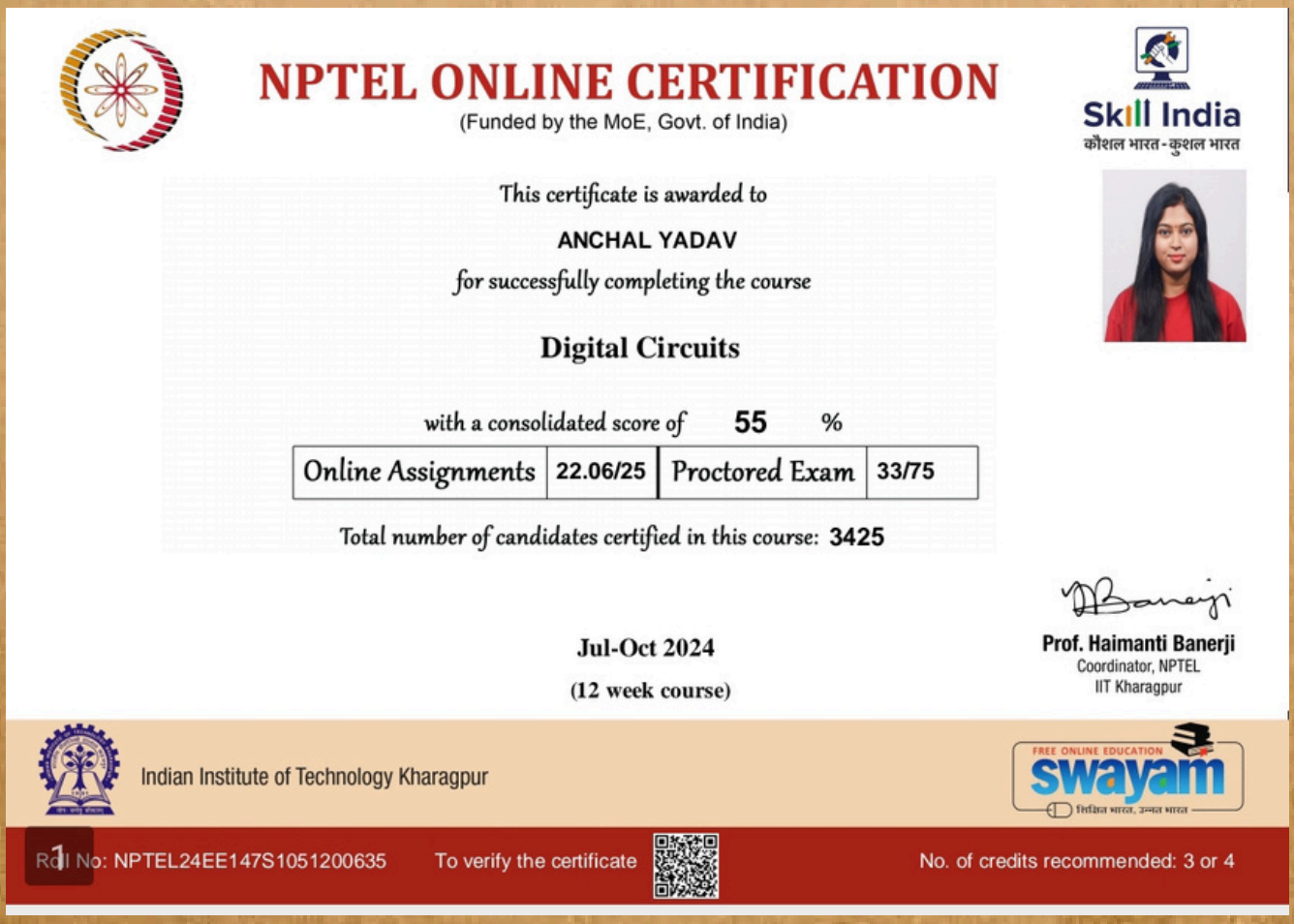
CONGRATULATIONS TO MRS. ANCHAL YADAV



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Total number of candidates certified in this course: 3425

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IIT Kharagpur

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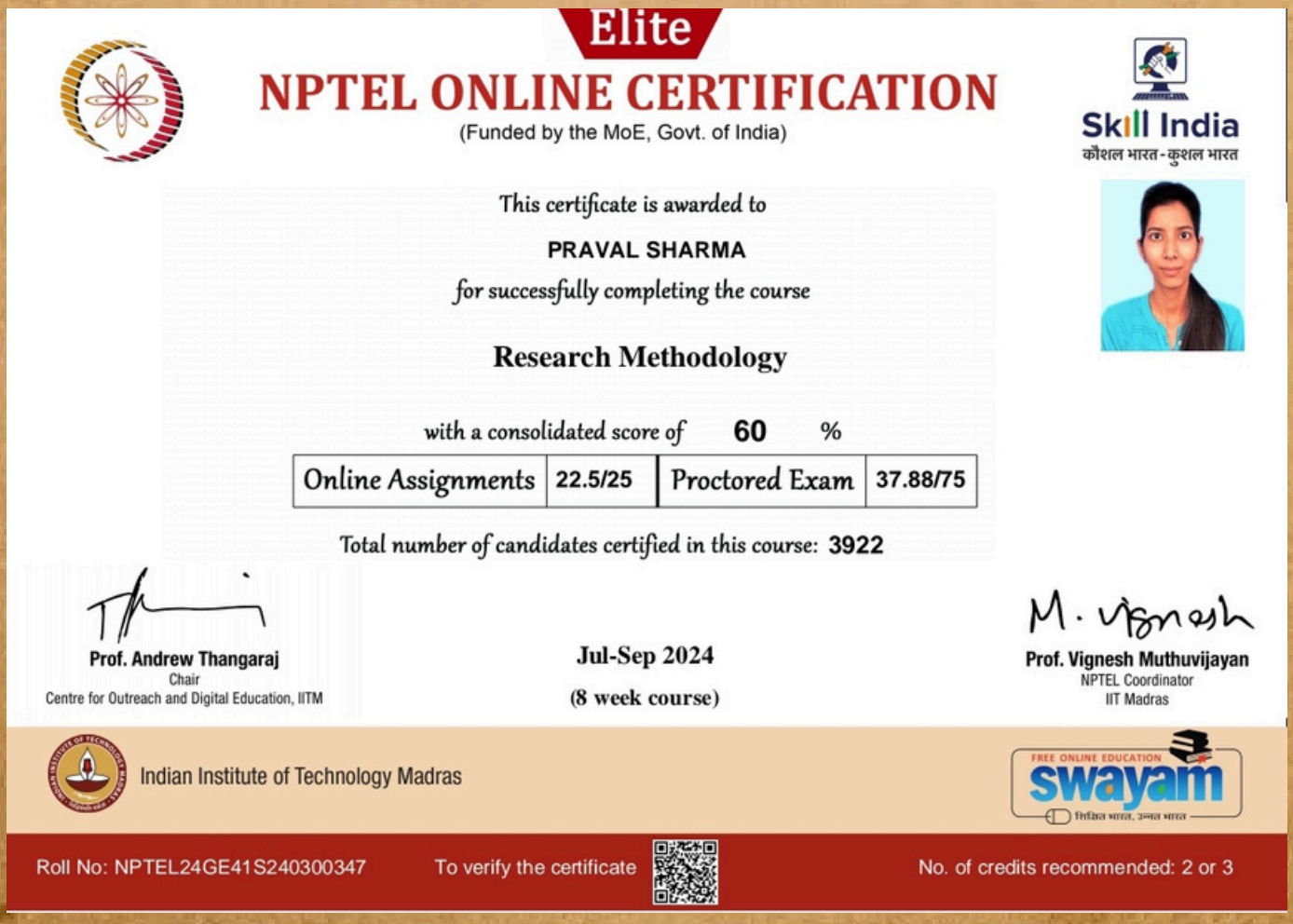

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Research Methodology

with a consolidated score of 60 %

Online Assignments	22.5/25	Proctored Exam	37.88/75

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NPTEL Coordinator
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Roll No: NPTEL24GE41S240300347 To verify the certificate No. of credits recommended: 2 or 3

FACULTY ACHIEVEMENTS

WE ARE DELIGHTED TO SHARE THAT MR MOHD SHARIQ ANSARI FROM THE DEPARTMENT OF ELECTRICAL ENGINEERING,HAS SUCCESSFULLY COMPLETED FDP ON ROLE OF IPR IN LIBRARY SCIENCE L. WHICH IS ORGANIZED BY NITTR CHANDIGARH.THIS ACCOMPLISHMENT REFLECTS THEIR COMMITMENT TO CONTINUOUS LEARNING AND ACADEMIC EXCELLENCE. CONGRATULATIONS TO MR. MOHD SHARIQ ANSARI

Certificate No: ICT-7453/24

National Institute of
Technical Teachers Training and Research
Chandigarh

MINISTRY OF EDUCATION, GOVERNMENT OF INDIA

Certificate

This is to certify that

MOHD SHARIQ ANSARI

GOEL INSTITUTE OF TECHNOLOGY AND MANAGEMENT LUCKNOW, LUCKNOW UTTAR PRADESH

Participated in the AICTE Recognized Faculty Development Programme

on

Role of IPR in Library Sciences

Conducted by

Entrepreneurship Development and Industrial Coordination Department

from

08/07/2024 to 12/07/2024 (One Week)

at

NITTTR, Chandigarh

CHANDIGARH

Coordinator

Director

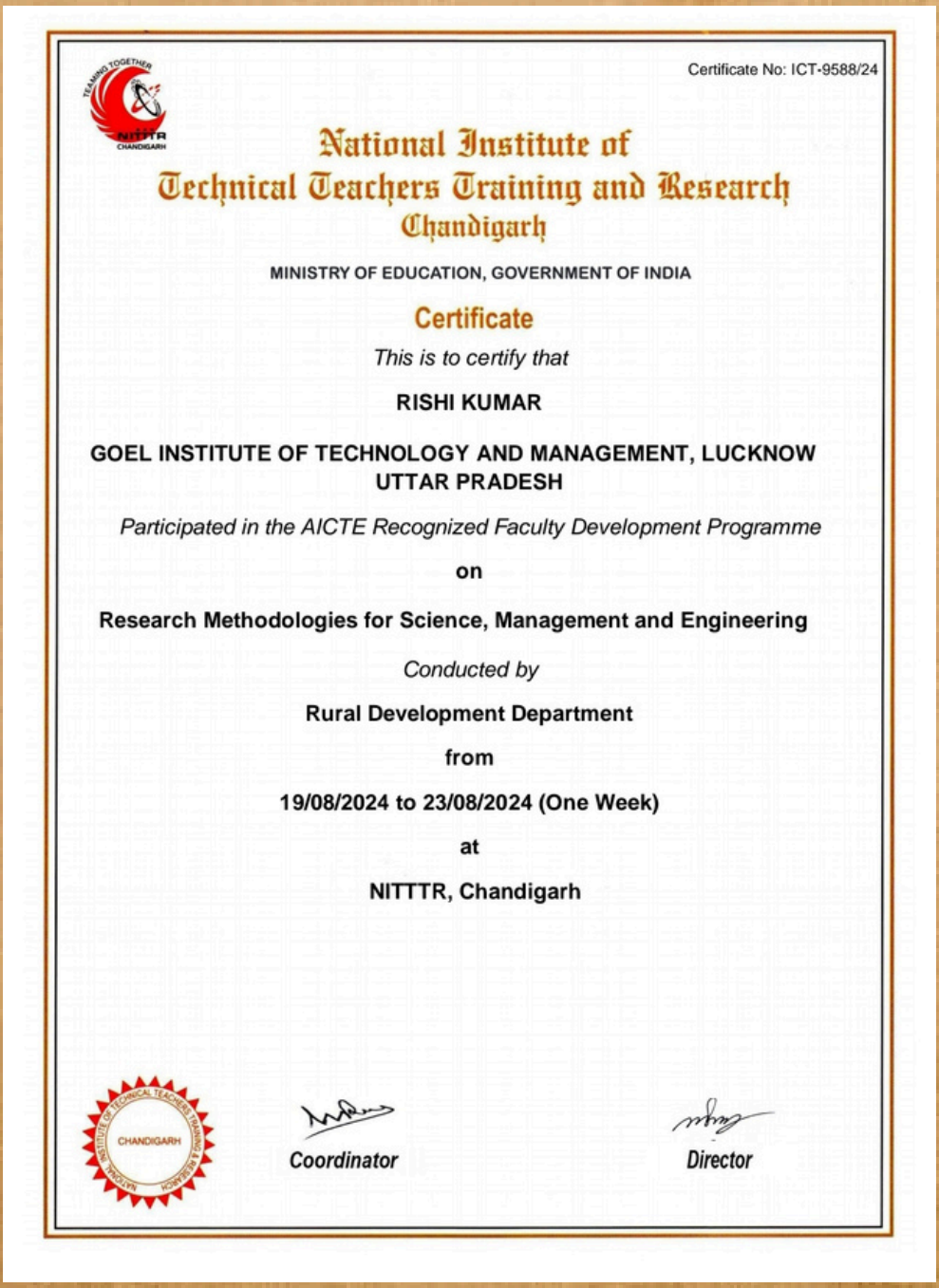
GOEL INSTITUTE OF TECHNOLOGY AND MANAGEMENT LUCKNOW
GITM.GOEL.EDU.IN

FACULTY ACHIEVEMENTS

WE ARE DELIGHTED TO SHARE THAT MR. RISHI KUMAR FROM THE DEPARTMENT OF ELECTRICAL ENGINEERING,HAS SUCCESSFULLY COMPLETED FDP ON RESEARCH METHODOLOGY FOR SCIENCE MANAGEMENT AND ENGINEERING, WHICH IS ORGANIZED BY NITTR CHANDIGARH.THIS ACCOMPLISHMENT REFLECTS THEIR COMMITMENT TO CONTINUOUS LEARNING AND ACADEMIC EXCELLENCE.

CONGRATULATIONS TO

MR. RISHI KUMAR



Certificate No: ICT-9588/24

National Institute of
Technical Teachers Training and Research
Chandigarh

MINISTRY OF EDUCATION, GOVERNMENT OF INDIA

Certificate

This is to certify that

RISHI KUMAR

GOEL INSTITUTE OF TECHNOLOGY AND MANAGEMENT, LUCKNOW
UTTAR PRADESH

Participated in the AICTE Recognized Faculty Development Programme

on

Research Methodologies for Science, Management and Engineering

Conducted by

Rural Development Department

from

19/08/2024 to 23/08/2024 (One Week)

at

NITTTR, Chandigarh

CHANDIGARH

Coordinator

Director

FACULTY ACHIEVEMENTS

WE ARE DELIGHTED TO SHARE THAT MR. PRADEEP KUMAR FROM THE DEPARTMENT OF ELECTRICAL ENGINEERING,HAS SUCCESSFULLY COMPLETED FDP ON RESEARCH METHODOLOGY FOR SCIENCE MANAGEMENT AND ENGINEERING, WHICH IS ORGANIZED BY NITTR CHANDIGARH.THIS ACCOMPLISHMENT REFLECTS THEIR COMMITMENT TO CONTINUOUS LEARNING AND ACADEMIC EXCELLENCE.

CONGRATULATIONS TO

MR. PRADEEP KUMAR

Certificate No: ICT-9594/24

National Institute of
Technical Teachers Training and Research
Chandigarh

MINISTRY OF EDUCATION, GOVERNMENT OF INDIA

Certificate

This is to certify that

PRADEEP KUMAR

GOEL INSTITUTE OF TECHNOLOGY AND MANAGEMENT, LUCKNOW
UTTAR PRADESH

Participated in the AICTE Recognized Faculty Development Programme

on

Research Methodologies for Science, Management and Engineering

Conducted by

Rural Development Department

from

19/08/2024 to 23/08/2024 (One Week)

at

NITTTR, Chandigarh

CHANDIGARH

Coordinator

Director

GOEL INSTITUTE OF TECHNOLOGY AND MANAGEMENT LUCKNOW
GITM.GOEL.EDU.IN

FACULTY ACHIEVEMENTS

WE ARE DELIGHTED TO SHARE THAT MR. RISHI KUMAR

FROM THE DEPARTMENT OF ELECTRICAL ENGINEERING,HAS SUCCESSFULLY PRESENT

PAPER TITLED AN INNOVATIVE INTEGRATION OF IOT AND INSTRUMENTATION FOR REAL

TIME MONITORING PV ARRAY CELL IN SOLAR SYSTEM

THIS ACCOMPLISHMENT REFLECTS THEIR COMMITMENT TO CONTINUOUS LEARNING AND

ACADEMIC EXCELLENCE. CONGRATULATIONS TO

MR. RISHI KUMAR

Madan Mohan Malaviya University of Technology, Gorakhpur, (U.P.), India | Asian Institute of Technology, Bangkok, Thailand.

ICETIGT-2024

Certificate No. : ICETIGT-2024/PP18

International Conference on Energy Transition and Innovations in Green Technology

Certificate of Participation

This is to certify that Mr. RISHI KUMAR from MMMUT Gorakhpur has presented a research paper titled An Innovative Integration of IoT and Instrumentation for Real-Time Monitoring of PV Array Cells in Solar Systems (Paper ID: 48) in **ICETIGT-2024**, jointly organized by **Madan Mohan Malaviya University of Technology, Gorakhpur, (U.P.), India** and **Asian Institute of Technology, Bangkok, Thailand,** held during September 27-28, 2024 at MMMUT, Gorakhpur .

Prof. S. K. Srivastava
General Chair, ICETIGT-2024

Prof. Jai Govind Singh
General Chair, ICETIGT-2024

Prof. V. K. Giri
Chairman, ICETIGT-2024

FACULTY ACHIEVEMENTS

WE ARE DELIGHTED TO SHARE THAT MR. NADEEM AHMAD

FROM THE DEPARTMENT OF ELECTRONICA AND COMMUNICATION ENGINEERING,HAS

SUCCESSFULLY PRESENT PAPER TITLE IOT BASED TRUCK WHEEL TEMPARARURE

MONITORING SYSTEM USING ARDUINO UNO BASED

THIS ACCOMPLISHMENT REFLECTS THEIR COMMITMENT TO CONTINUOUS LEARNING AND

ACADEMIC EXCELLENCE. CONGRATULATIONS TO

MR. NADEEM AHMAD

DR. T. THIMMAIAH INSTITUTE OF TECHNOLOGY
Accredited by NBA & NAAC with 'A' Grade
Oorgaum, Kolar Gold Fields, Karnataka - 563120
Affiliated to Visvesvaraya Technological University, Belagavi
Approved by AICTE - New Delhi,
ISO 21001:2018 Certified

CERTIFICATE

IEEE

This is to certify that
Dr./Prof./Mr./Ms. Nadeem Ahmad
has presented paper entitled
IoT based Truck Wheel Temperature Monitoring System using Arduino Uno Board
in 2024 Asian Conference on Intelligent Technologies (ACOIT) organized by Dr. T. Thimmaiah Institute of Technology, Kolar from 6th September 2024 to 7th September 2024.

Dr Syed Ariff
General Chair, ACOIT 2024

Dr Vijaya Geetha R
Convener, ACOIT 2024

FACULTY ACHIEVEMENTS

WE ARE DELIGHTED TO SHARE THAT MR. MOHD SHARIQ ANSARI CONTRIBUTEDB AS REVIEWER IN 2ND IEEE INTERNATIONAL CONFRENCE ON COMPUTATIONAL AND CHARQCTERIZATION TECHNIQUE S IN ENGINEERING AND SCIENCE THIS ACCOMPLISHMENT REFLECTS THEIR COMMITMENT TO CONTINUOUS LEARNING AND ACADEMIC EXCELLENCE. CONGRATULATIONS TO MR. MOHD SHARIQ ANSARI

INTEGRAL UNIVERSITY
LUCKNOW - INDIA
A+ ACCREDITED BY NAAC

IEEE
UP SECTION (INDIA)

CERTIFICATE OF APPRECIATION

This is to certify that Mohd shariq Ansari Ansari, Goel Institute of technology and management lucknow has contributed as Reviewer in 2nd IEEE International Conference on Computational and Characterization Techniques in Engineering and Sciences (CCTES-24) organized by Department of Electrical Engineering and Electronics & Communication Engineering on 15-16, November 2024.

Dr. M. Atif Siddiqui	Prof. N. R. Kidwai	Dr. Imran Ullah Khan	Dr. Ahmad Faiz Minai
Conference Convener	Conference Convener	General Chair	Organizing Secretary

FACULTY ACHIEVEMENTS

WE ARE DELIGHTED TO SHARE THAT MRS. SABAH KHAN

SUCCESSFUL PARTICIPATION AND COMPLETION ONE WEEK NATIONAL LEVEL FDP

PROGRAMME ON RECENT ADVANCEMENT IN AI AND IOT- INDUSTRY PROSPECTIVE

THIS ACCOMPLISHMENT REFLECTS THEIR COMMITMENT TO CONTINUOUS LEARNING AND

ACADEMIC EXCELLENCE. CONGRATULATIONS TO

MRS. SABAH KHAN

Periyar Maniammai Institute of Science & Technology
(Deemed to be university) , Vallam , Thanjavur

Pantech e Learning
DIGITAL LEARNING SIMPLIFIED

CERTIFICATE OF COMPLETION

Cert No PMPSFDP1533

FACULTY DEVELOPMENT PROGRAMME

proudly presented to

Mrs.Sabah khan

GOEL INSTITUTE OF TECHNOLOGY AND MANAGEMENT

for successful participation and completion of

ONE WEEK NATIONAL LEVEL FACULTY DEVELOPMENT PROGRAMME on

RECENT ADVANCEMENTS IN AI & IOT - INDUSTRY PERSPECTIVE

organised by Department of Computer Applications ,

Periyar Maniammai Institute of Science & Technology (PMIST), Vallam,

Thanjavur in association with Pantech Solutions

during the Period 25/11/2024 - 30/11/2024.

Dr. G. Preethi	Mr. M. Anand	Dr. D. Ruby	Dr. D. Maghesh Kumar	Mr.Senthilkumar.M R
Co- Convenor, AP(SG) , PMIST	Co- Convenor, AP(SG) , PMIST	HoD/CA, PMIST	Dean / FCSA, PMIST	Director - Technical , Pantech Group

FACULTY ACHIEVEMENTS

MR. RISHI KUMAR, ASSISTANT PROFESSOR OF GOEL INSTITUTE OF TECHNOLOGY AND MANAGEMENT LUCKNOW HAS SUCCESSFULLY PARTICIPATED & COMPLETED AICTE TRAINING AND LEARNING (ATAL) ACADEMY FACULTY DEVELOPMENT PROGRAM ON CHALLENGES OF AUTONOMOUS, AND ELECTRIC VEHICLE AT MADAN MOHAN MALAVIYA UNIVERSITY OF TECHNOLOGY FROM 27/01/2025 TO 01/02/2025.

ATAL/2024/1735038452

Skill India
कौशल भारत - कुशल भारत

ATAL

ALL INDIA COUNCIL FOR TECHNICAL EDUCATION

Nelson Mandela Marg, Vasant Kunj, New Delhi -110070

AICTE Training and Learning (ATAL) Academy

Certificate

It is certified that ***Mr. Rishi Kumar, Assistant Professor*** *of* ***Goel Institute Of Technology and Management Lucknow*** *has successfully participated & completed AICTE Training And Learning (ATAL) Academy Faculty Development Program on* ***Challenges of Autonomous, and Electric Vehicle*** *at* ***MADAN MOHAN MALAVIYA UNIVERSITY OF TECHNOLOGY*** *from* ***27/01/2025*** *to* ***01/02/2025.***

AMAR NATH TIWARI
Professor Level (AICTE Institute), Coordinator
MADAN MOHAN MALAVIYA UNIVERSITY OF TECHNOLOGY

Dr. Sunil Luthra
Director & Bureau Head
Training and Learning Bureau, AICTE

FACULTY ACHIEVEMENTS

WE ARE DELIGHTED TO SHARE THAT MR. MOHD SHARIQ ANSARI FROM THE DEPARTMENT OF ELECTRICAL ENGINEERING,HAS SUCCESSFULLY COMPLETED IA TRAINNING RESKILLING LEVEL .THIS ACCOMPLISHMENT REFLECTS THEIR COMMITMENT TO CONTINUOUS LEARNING AND ACADEMIC EXCELLENCE.

CONGRATULATIONS TO

MR. MOHD SHARIQ

Ministry of Education
Government of India

MoE's INNOVATION CELL
(GOVERNMENT OF INDIA)

innovative bharat

INSTITUTION'S INNOVATION COUNCIL

This is to certify that

Md.Shariq Ansari

of

GOEL INSTITUTE OF TECHNOLOGY AND MANAGEMENT, Uttar Pradesh

has undergone Innovation Ambassador (IA) training 'Reskilling'
(Total 21 Sessions of 21 contact hours) conducted in online mode
by MoE's Innovation Cell & AICTE during the IIC calendar year 2023-24

Dr. Abhay Jere
Chief Innovation Officer
MoE's Innovation Cell

Mr. Dipan Sahu
Assistant Innovation Director
MoE's Innovation Cell

Date of Issue: 31-08-2024

E-certificate No: IA/Re-skilling/1013303

IIC ID: IC202014443

FACULTY ACHIEVEMENTS

DEAR MR. ABHISHEK JAISWAL,

HEARTIEST CONGRATULATIONS ON YOUR PATENT, "AUTOMATIC DRUG DELIVERY SYSTEM FOR ARTERIAL BLOOD PRESSURE CONTROL."

THIS REMARKABLE ACHIEVEMENT IS A TESTAMENT TO YOUR INNOVATION, DEDICATION, AND EXPERTISE IN ADVANCING MEDICAL TECHNOLOGY. YOUR CONTRIBUTION HAS THE POTENTIAL TO MAKE A SIGNIFICANT IMPACT IN THE FIELD OF HEALTHCARE, IMPROVING PATIENT CARE AND TREATMENT EFFICIENCY.

WISHING YOU CONTINUED SUCCESS IN YOUR FUTURE ENDEAVORS!

Patent Search

Invention Title	AUTOMATIC DRUG DELIVERY SYSTEM FOR MEAN ARTERIAL BLOOD PRESSURE CONTROL
Publication Number	19/2024
Publication Date	10/05/2024
Publication Type	INA
Application Number	202411022105
Application Filing Date	22/03/2024
Priority Number	
Priority Country	
Priority Date	
Field Of Invention	BIO-MEDICAL ENGINEERING
Classification (IPC)	A61B5/02, A61M5/142, A61M5/168, A61M5/172, A61M60/531, G16H20/10

Inventor

Name	Address	Country	Nation
Dr. Mohammad Atif Siddiqui	Electrical Engineering Department, Integral University, Lucknow	India	India
Abhishek Jain	Electrical Engineering Department, Integral University, Lucknow	India	India

Applicant

Name	Address	Country	Nationality
INTEGRAL UNIVERSITY	Kursi Road, Dasulli, Lucknow	India	India

Abstract:

Maintaining optimal blood pressureis crucial for the human body [1], particularly during critical situations such as hypertensive crises, where elevated blood pressure c significantly impact surgeries and the heart's ability to pump blood effectively. The manual management of Mean Arterial Blood Pressure (MABP) can be arduous and i infusion of Sodium Nitroprusside [1] (a commonly used medication) may lead to undesirable fluctuations. Therefore, in this work an automatic drug delivery system for arterial blood pressure control has been proposed, where the PID controller [3, 4] have been selected in closed-loop drug delivery systems due to its ease of implemen integration of this technique enhances the precision and stability of the system and provides a reliable and efficient means to regulate blood pressure, ensuring optima care during medical procedures. Here, the controller is also designed considering system dynamicsthataimed at precisely regulating the Mean Arterial Blood Pressure (motive of this study is to develop an automated drug delivery framework capable of fine-tuning of mean arterial blood pressure (MABP) of the patient within the specif in a single feedback configuration to achieve enhanced load disturbance rejection The study underscores that the proposed system effectively contributes to maintaini blood pressure (BP) of the patient at the desired level in optimal timeframe.The paramount importance is the recognition of the need for precise drug delivery through the operation and post-operation periods. The administration of an accurate drug dosage is pivotal for ensuring the patient's well-being and facilitating a smooth recov and after medical procedures. The presented automated PID control systememerges as a promising tool for achieving these objectives.

Complete Specification

Description:Technical Invention Field and Implementation of Invention
The implementation of the invention is directed towards the patients experiencing hypertensive crises. To facilitate a comprehensivecomparison, three distinct types patients have been considered, namely: nominal, sensitive and insensitive. The random disparities and the patient's spontaneous response due to hypotension are th main cause of disturbances which are in two folds: (1) disturbances due to arbitrary action and respiratory action, and (2) sudden drop in blood pressure triggering pa reaction leading to disturbance.

The primary goal of this study is to develop an automatic drug delivery framework with a feedback system, enabling precise control of the patient's blood pressure. Numerous researchers have devised controllers aimed at stabilizing the MABP,such approach may result in degradation of the servo as well as regulatory performanc Hence, this work proposes an alternative approach that is applicable directly to the actual MABP model and demonstrates effective load disturbance rejection. This n methodology is designed to enhance the precision and stability of blood pressure regulation, providing a more robust solution for patients experiencing hypertensive crises. The expected outcome is an improved controller capable of effectively handling external disturbances in the intricate landscape of medical procedures.
Brief Description of Drawings
Fig.1 The Closed Loop Block Diagram of a MABP system

FACULTY ACHIEVEMENTS

CONGRATULATIONS TO NANCY SRIVASTAVA TO

SUCCESSFULLY DONE 1 WEEK INDUSTRIAL TECHNICAL

TRAINING ON BUSINESS INTELLIGENCE

ORGANIZED BBY PANTECH E LEARNNING PVT LIMITED

<Future> FORGE

INDUSTRIAL TECHNICAL TRAINING 2025

Pantech e Learning
DIGITAL LEARNING SIMPLIFIED

Cert.No: PEL_BITT_392

CERTIFICATE

OF PARTICIPATION

This Certificate Awarded to

NANCY SRIVASTAVA

GITM, Lucknow

Has Successfully Participated **One Week** Industrial Technical Training on **Business Intelligence**, Organized by Pantech E-Learning Pvt Ltd

Date: 27.01.2025 - 01.02.2025

SENTHIL KUMAR M.R
Director of Pantech e Learning Pvt Ltd

STUDENTS ACHIEVEMENTS

WE ARE DELIGHTED TO SHARE THAT MR. ALOK KUMAR

FROM THE DEPARTMENT OF ELECTRICAL ENGINEERING,HAS SUCCESSFULLY

COMPLETED IA TRAINNING FOUNDATION LEVEL .THIS ACCOMPLISHMENT REFLECTS THEIR

COMMITMENT TO CONTINUOUS LEARNING AND ACADEMIC EXCELLENCE.

CONGRATULATIONS TO

MR. ALOK KUMAR

Ministry of Education
Government of India

MoE's INNOVATION CELL
(GOVERNMENT OF INDIA)

innovative bharat

INSTITUTION'S INNOVATION COUNCIL

This is to certify that

Alok Kumar Verma

of

GOEL INSTITUTE OF TECHNOLOGY AND MANAGEMENT, Uttar Pradesh

has undergone Innovation Ambassador (IA) training 'Foundation Level'
(Total 16 Sessions of 30 contact hours) conducted in online mode by MoE's
Innovation Cell & AICTE during the IIC calendar year 2023-24

Dr. Abhay Jere
Chief Innovation Officer
MoE's Innovation Cell

Mr. Dipan Sahu
Assistant Innovation Director
MoE's Innovation Cell

Date: 29-09-2024

E-certificate No: IA/Foundation/1043762

IIC ID: IC202014443

STUDENTS ACHIEVEMENTS

WE ARE DELIGHTED TO SHARE THAT MISS. AREEBA AHMAD

FROM THE DEPARTMENT OF ELECTRICAL ENGINEERING,HAS SUCCESSFULLY

COMPLETED IA TRAINNING FOUNDATION LEVEL .THIS ACCOMPLISHMENT REFLECTS THEIR

COMMITMENT TO CONTINUOUS LEARNING AND ACADEMIC EXCELLENCE.

CONGRATULATIONS TO

MISS. AREEBA AHMAD

Ministry of Education
Government of India

MoE's INNOVATION CELL
(GOVERNMENT OF INDIA)

innovative bharat

INSTITUTION'S INNOVATION COUNCIL

This is to certify that

Areeba Ahmad

of

GOEL INSTITUTE OF TECHNOLOGY AND MANAGEMENT, Uttar Pradesh

has undergone Innovation Ambassador (IA) training 'Foundation Level'
(Total 16 Sessions of 30 contact hours) conducted in online mode by MoE's
Innovation Cell & AICTE during the IIC calendar year 2023-24

Dr. Abhay Jere
Chief Innovation Officer
MoE's Innovation Cell

Mr. Dipan Sahu
Assistant Innovation Director
MoE's Innovation Cell

Date: 29-09-2024

E-certificate No: IA/Foundation/1043763

IIC ID: IC202014443

STUDENTS ACHIEVEMENTS

WE ARE DELIGHTED TO SHARE THAT MR. PANKAJ PANDEY FROM THE DEPARTMENT OF ELECTRICAL ENGINEERING,HAS SUCCESSFULLY COMPLETED IA TRAINNING FOUNDATION LEVEL .THIS ACCOMPLISHMENT REFLECTS THEIR COMMITMENT TO CONTINUOUS LEARNING AND ACADEMIC EXCELLENCE.

CONGRATULATIONS TO

MR. PANKAJ PANDEY

Ministry of Education
Government of India

MoE's INNOVATION CELL
(GOVERNMENT OF INDIA)

innovative bharat

INSTITUTION'S INNOVATION COUNCIL

This is to certify that

Pankaj pandey

of

GOEL INSTITUTE OF TECHNOLOGY AND MANAGEMENT, Uttar Pradesh

has undergone Innovation Ambassador (IA) training 'Foundation Level'
(Total 16 Sessions of 30 contact hours) conducted in online mode by MoE's
Innovation Cell & AICTE during the IIC calendar year 2023-24

Dr. Abhay Jere
Chief Innovation Officer
MoE's Innovation Cell

Mr. Dipan Sahu
Assistant Innovation Director
MoE's Innovation Cell

Date: 28-09-2024

E-certificate No: IA/Foundation/1043764

IIC ID: IC202014443

STUDENTS ACHIEVEMENTS

WE ARE DELIGHTED TO SHARE THAT MR. AKASH SINGH

FROM THE DEPARTMENT OF ELECTRICAL ENGINEERING,HAS SUCCESSFULLY

COMPLETED IA TRAINNING FOUNDATION LEVEL .THIS ACCOMPLISHMENT REFLECTS THEIR

COMMITMENT TO CONTINUOUS LEARNING AND ACADEMIC EXCELLENCE.

CONGRATULATIONS TO

MR. AKASH SINGH

Ministry of Education
Government of India

MoE's INNOVATION CELL
(GOVERNMENT OF INDIA)

innovative bharat

INSTITUTION'S INNOVATION COUNCIL

This is to certify that

Akash Singh

of

GOEL INSTITUTE OF TECHNOLOGY AND MANAGEMENT, Uttar Pradesh

has undergone Innovation Ambassador (IA) training 'Foundation Level'
(Total 16 Sessions of 30 contact hours) conducted in online mode by MoE's
Innovation Cell & AICTE during the IIC calendar year 2024-25

Dr. Abhay Jere
Chief Innovation Officer
MoE's Innovation Cell

Mr. Dipan Sahu
Assistant Innovation Director
MoE's Innovation Cell

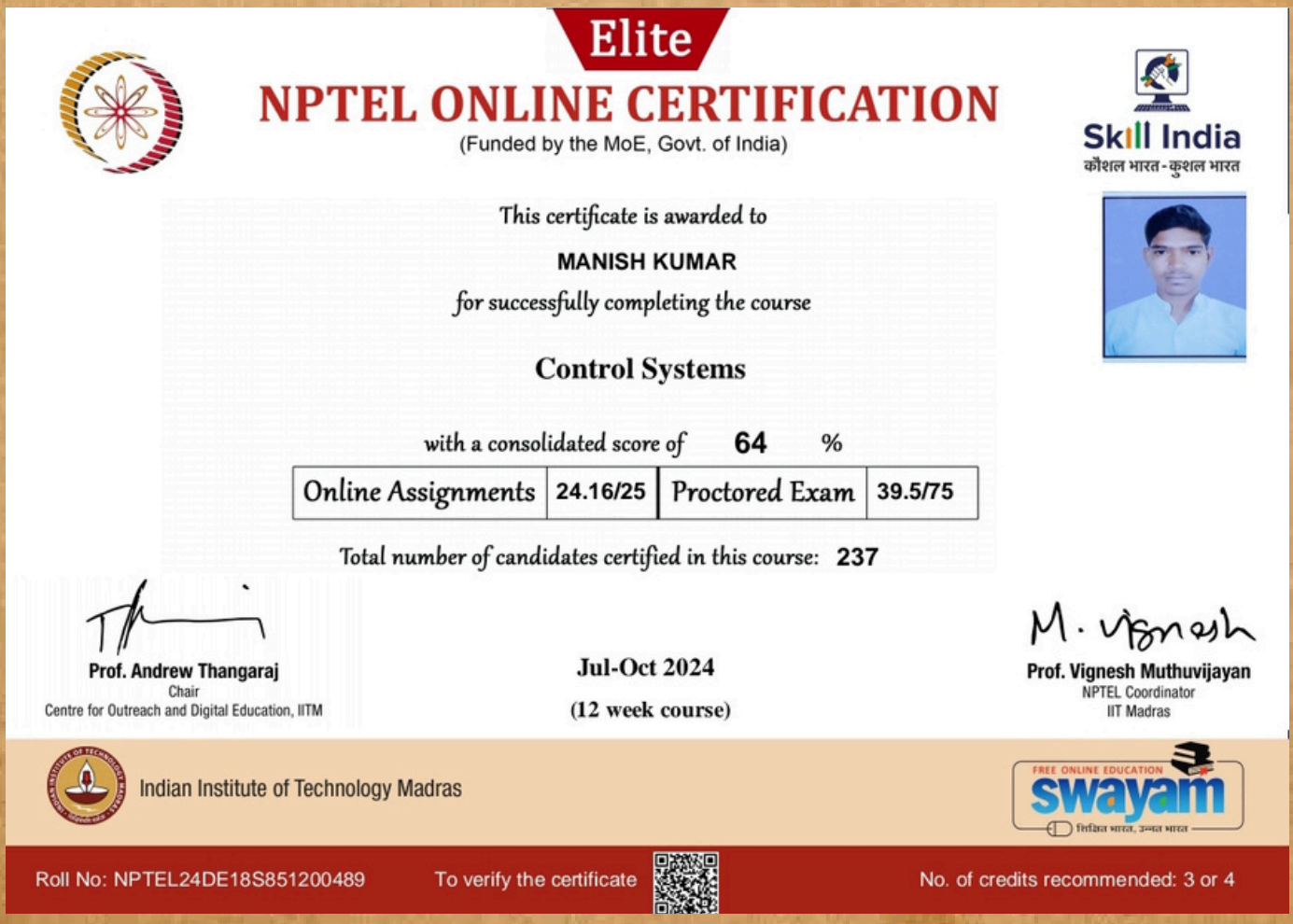
Date: 29-09-2024

E-certificate No: IA/Foundation/1043765

IIC ID: IC202014443

STUDENTS ACHIEVEMENTS

WE ARE DELIGHTED TO SHARE THAT MR. MANISH KUMAR FROM THE DEPARTMENT OF ELECTRICAL ENGINEERING,HAS SUCCESSFULLY COMPLETED CONTROO SYSTEM MOOC COURSE OFFERED BY NPTEL WITH ELITE CERTIFICATION. THIS ACCOMPLISHMENT REFLECTS THEIR COMMITMENT TO CONTINUOUS LEARNING AND ACADEMIC EXCELLENCE. CONGRATULATIONS TO MR. MANISH KUMAR



Elite

NPTEL ONLINE CERTIFICATION

(Funded by the MoE, Govt. of India)

Skill India
कौशल भारत-कुशल भारत

This certificate is awarded to

MANISH KUMAR

for successfully completing the course

Control Systems

with a consolidated score of 64 %

Online Assignments	24.16/25	Proctored Exam	39.5/75

Total number of candidates certified in this course: 237

Prof. Andrew Thangaraj
Chair
Centre for Outreach and Digital Education, IITM

Jul-Oct 2024
(12 week course)

Prof. Vignesh Muthuvijayan
NPTEL Coordinator
IIT Madras

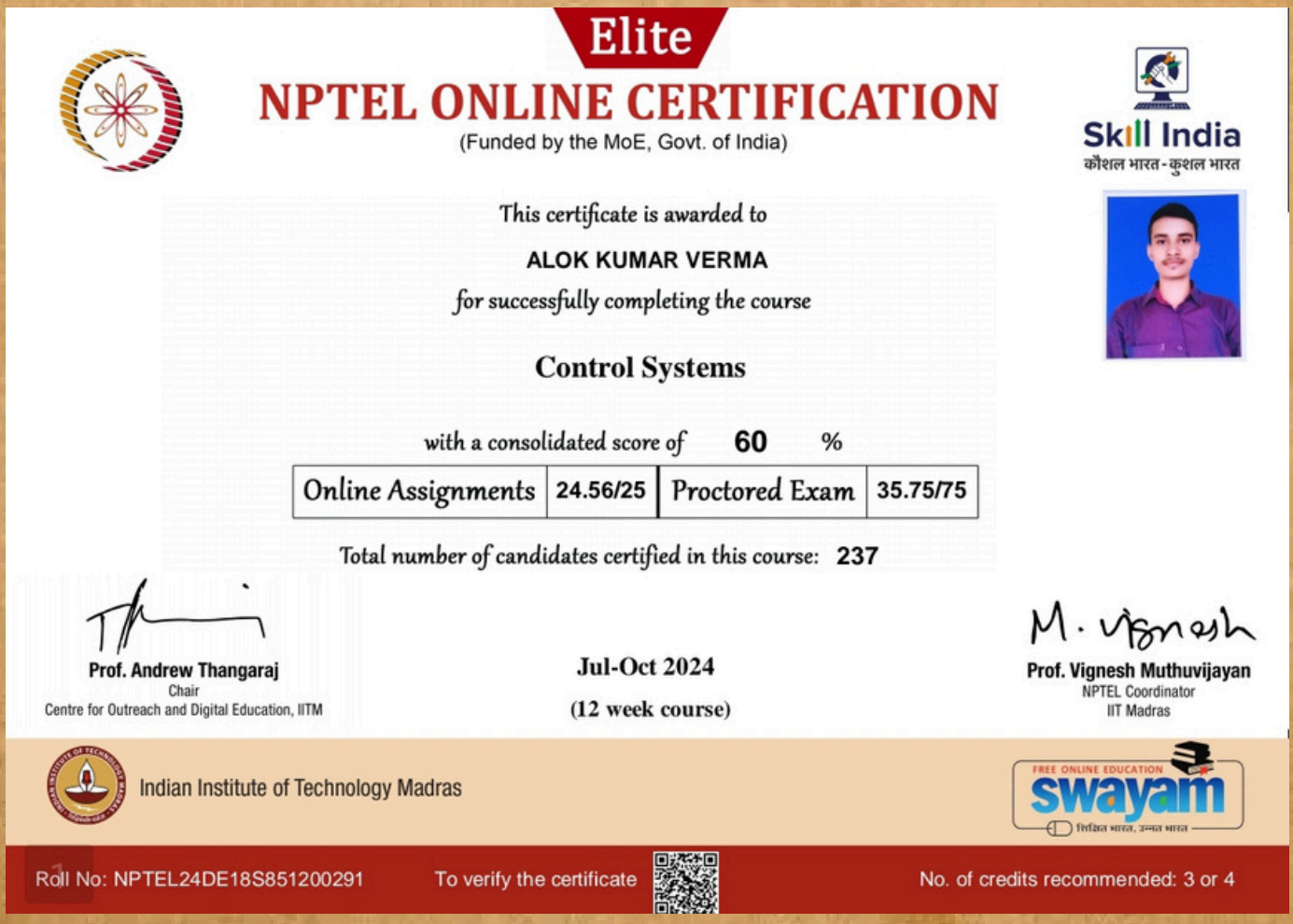
Indian Institute of Technology Madras

FREE ONLINE EDUCATION swayam

Roll No: NPTEL24DE18S851200489 To verify the certificate No. of credits recommended: 3 or 4

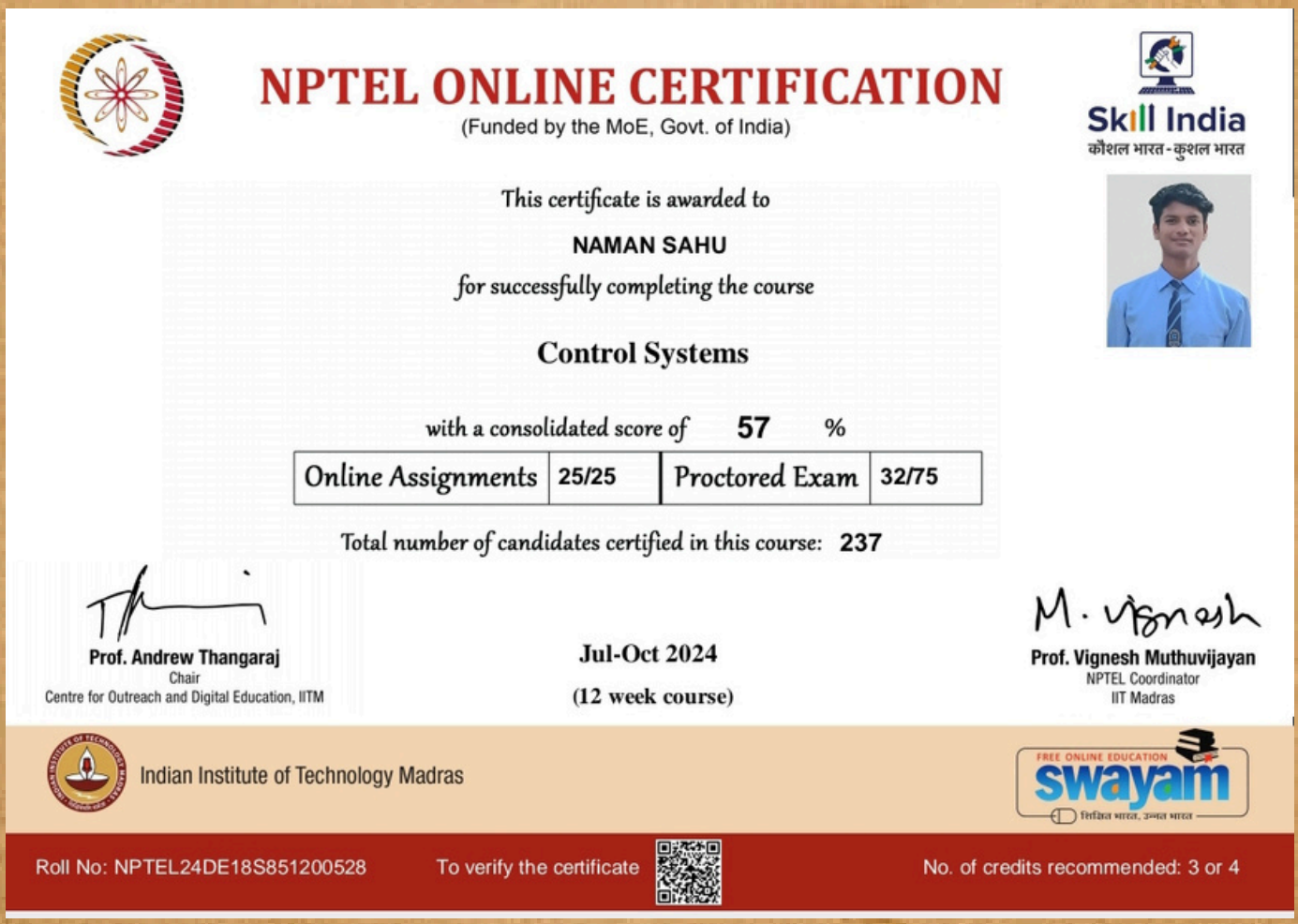
STUDENTS ACHIEVEMENTS

WE ARE DELIGHTED TO SHARE THAT MR. ALOK KUMAR VERMA FROM THE DEPARTMENT OF ELECTRICAL ENGINEERING,HAS SUCCESSFULLY COMPLETED CONTROO SYSTEM MOOC COURSE OFFERED BY NPTEL WITH ELITE CERTIFICATION. THIS ACCOMPLISHMENT REFLECTS THEIR COMMITMENT TO CONTINUOUS LEARNING AND ACADEMIC EXCELLENCE. CONGRATULATIONS TO MR. ALOK KUMAR VERMA



STUDENTS ACHIEVEMENTS

WE ARE DELIGHTED TO SHARE THAT MR. NAMAN SAHU FROM THE DEPARTMENT OF ELECTRICAL ENGINEERING,HAS SUCCESSFULLY COMPLETED CONTROO SYSTEM MOOC COURSE OFFERED BY NPTEL WITH ELITE CERTIFICATION. THIS ACCOMPLISHMENT REFLECTS THEIR COMMITMENT TO CONTINUOUS LEARNING AND ACADEMIC EXCELLENCE. CONGRATULATIONS TO MR. NAMAN SAHU



NPTEL ONLINE CERTIFICATION

(Funded by the MoE, Govt. of India)

Skill India
कौशल भारत-कुशल भारत

This certificate is awarded to

NAMAN SAHU

for successfully completing the course

Control Systems

with a consolidated score of 57 %

Online Assignments	25/25	Proctored Exam	32/75

Total number of candidates certified in this course: 237

Prof. Andrew Thangaraj
Chair
Centre for Outreach and Digital Education, IITM

Jul-Oct 2024
(12 week course)

Prof. Vignesh Muthuvijayan
NPTEL Coordinator
IIT Madras

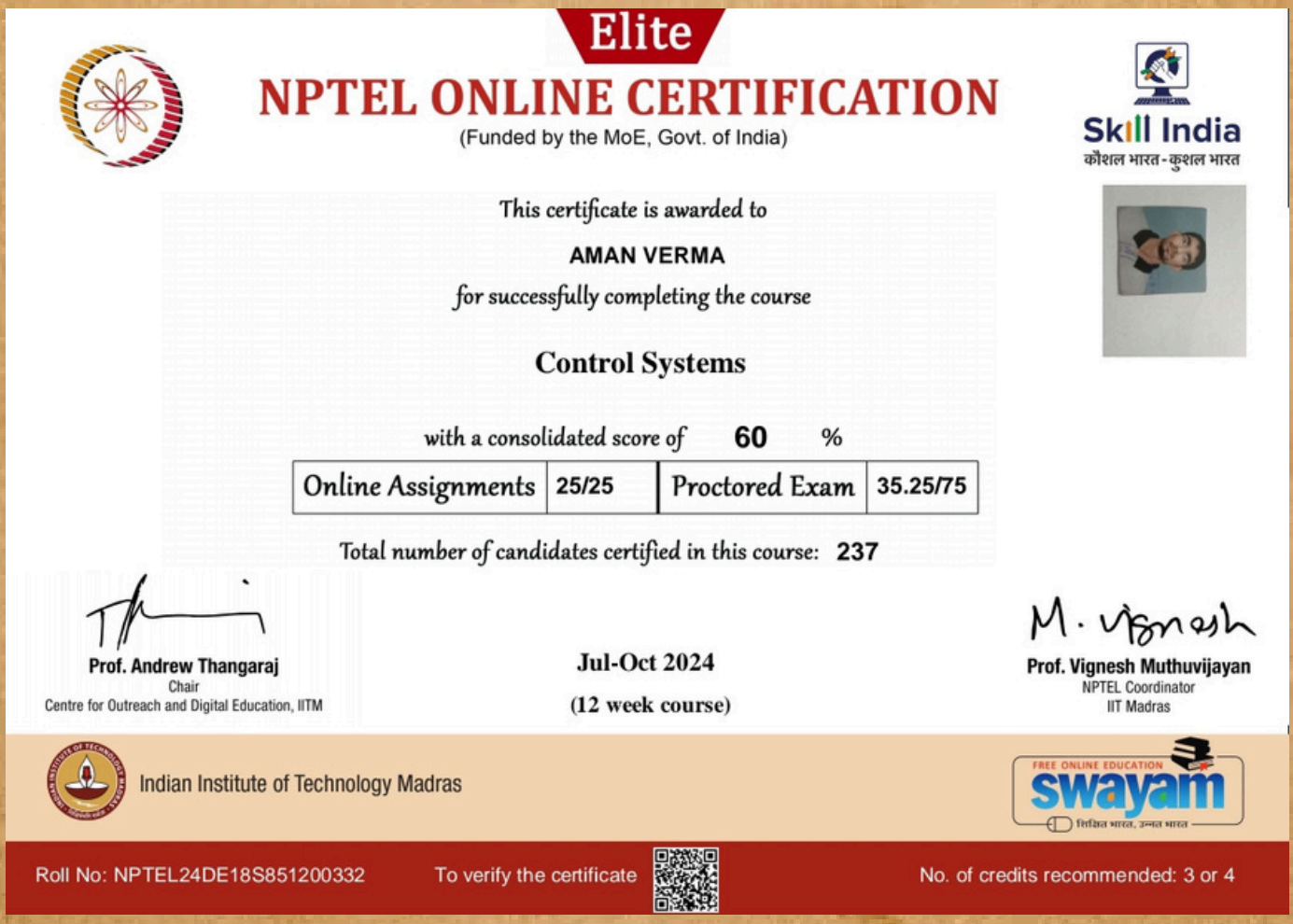
Indian Institute of Technology Madras

FREE ONLINE EDUCATION swayam

Roll No: NPTEL24DE18S851200528 To verify the certificate No. of credits recommended: 3 or 4

STUDENTS ACHIEVEMENTS

WE ARE DELIGHTED TO SHARE THAT MR. AMAN VERMA FROM THE DEPARTMENT OF ELECTRICAL ENGINEERING,HAS SUCCESSFULLY COMPLETED CONTROO SYSTEM MOOC COURSE OFFERED BY NPTEL WITH ELITE CERTIFICATION. THIS ACCOMPLISHMENT REFLECTS THEIR COMMITMENT TO CONTINUOUS LEARNING AND ACADEMIC EXCELLENCE. CONGRATULATIONS TO MR. AMAN VERMA



Elite

NPTEL ONLINE CERTIFICATION

(Funded by the MoE, Govt. of India)

Skill India
कौशल भारत-कुशल भारत

This certificate is awarded to

AMAN VERMA

for successfully completing the course

Control Systems

with a consolidated score of 60 %

Online Assignments	25/25	Proctored Exam	35.25/75

Total number of candidates certified in this course: 237

Prof. Andrew Thangaraj
Chair
Centre for Outreach and Digital Education, IITM

Jul-Oct 2024
(12 week course)

Prof. Vignesh Muthuvijayan
NPTEL Coordinator
IIT Madras

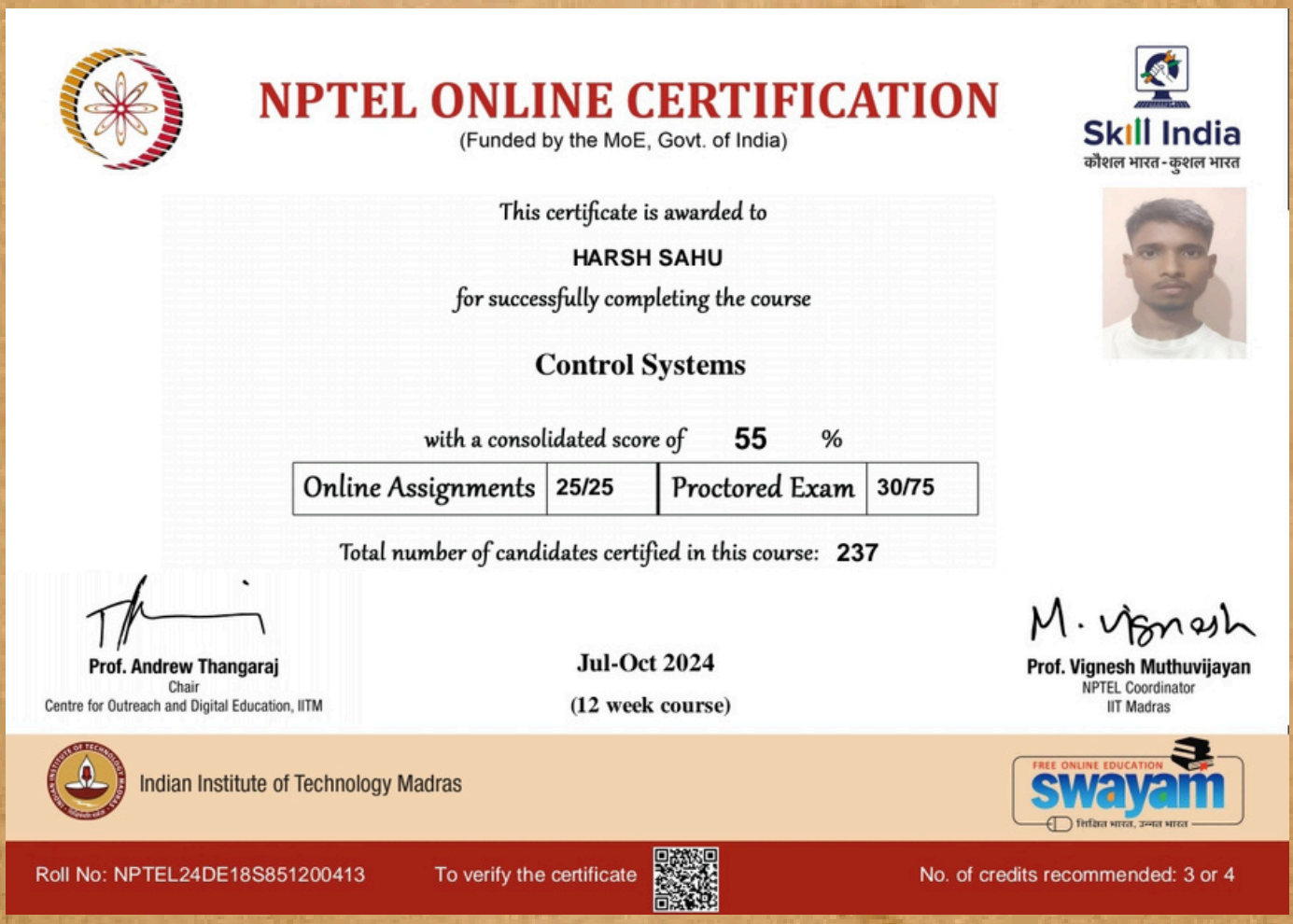
Indian Institute of Technology Madras

FREE ONLINE EDUCATION swayam

Roll No: NPTEL24DE18S851200332 To verify the certificate No. of credits recommended: 3 or 4

STUDENTS ACHIEVEMENTS

WE ARE DELIGHTED TO SHARE THAT MR. HARSH SAHU FROM THE DEPARTMENT OF ELECTRICAL ENGINEERING,HAS SUCCESSFULLY COMPLETED CONTROO SYSTEM MOOC COURSE OFFERED BY NPTEL WITH ELITE CERTIFICATION. THIS ACCOMPLISHMENT REFLECTS THEIR COMMITMENT TO CONTINUOUS LEARNING AND ACADEMIC EXCELLENCE. CONGRATULATIONS TO MR. HARSH SAHU



NPTEL ONLINE CERTIFICATION

(Funded by the MoE, Govt. of India)

Skill India
कौशल भारत-कुशल भारत

This certificate is awarded to

HARSH SAHU

for successfully completing the course

Control Systems

with a consolidated score of 55 %

Online Assignments	25/25	Proctored Exam	30/75

Total number of candidates certified in this course: 237

Prof. Andrew Thangaraj
Chair
Centre for Outreach and Digital Education, IITM

Jul-Oct 2024
(12 week course)

Prof. Vignesh Muthuvijayan
NPTEL Coordinator
IIT Madras

Indian Institute of Technology Madras

FREE ONLINE EDUCATION swayam

Roll No: NPTEL24DE18S851200413 To verify the certificate No. of credits recommended: 3 or 4

STUDENTS ACHIEVEMENTS

THE CONVOCATION CEREMONY OF AKTU UNIVERSITY ON 13TH AUGUST 2024 WAS A MOMENT OF PRIDE FOR GOEL INSTITUTE OF TECHNOLOGY AND MANAGEMENT . OUR STUDENT INCLUDING MR. ARYAN MAURYA FOR SECURING TOP RANKS. THEIR HARD WORK AND DEDICATION HAVE BROUGHT IMMENSE PRIDE TO OUR INSTITUTION. WE WISH YOU CONTINUED SUCCESS IN THEIR FUTURE ENDEAVORS.

Aryan Mourya

Btech. Electrical Engineering
Roll NNo. 2003600200008
01 CCGPA: 8.86
AKTU RRANK 05

STUDENTS ACHIEVEMENTS

PROUD MOMENT !

BIG CONGRATULATIONS!

THE STUDENTS OF GOEL INSTITUTE OF TECHNOLOGY AND MANAGEMENT (GITM), LUCKNOW, SHOWCASED THEIR EXCEPTIONAL TALENT AND MADE THE INSTITUTION PROUD WITH THEIR ACHIEVEMENTS AT THE AKTU TECHNICAL, LITERARY, AND MANAGEMENT ZONAL FEST-2024 HELD ON 28/11/2024 AND 29/11/2024 UNDER LUCKNOW ZONE, COMPETING WITH PARTICIPANTS FROM PRESTIGIOUS INSTITUTES, GITM STUDENTS SECURED TOP POSITIONS IN SEVEN OUT OF 13 EVENTS. THEIR REMARKABLE PERFORMANCES REFLECTED INNOVATION, HARD WORK, AND COMPETITIVE SPIRIT. THE STUDENTS WERE FELICITATED WITH MEDALS AND CERTIFICATES FOR THEIR ACHIEVEMENTS. HERE ARE THE HIGHLIGHTS OF THEIR ACCOMPLISHMENTS: • ROBOWAR – 3RD POSITION • INNOQUEST – 3RD POSITION • ROBORACE – 2ND POSITION • ROBOSUMO CHALLENGE – 2ND POSITION • DECLAMATION COMPETITION – 2ND POSITION • INNOSHOW CASE – 3RD POSITION • JUNKYARD – 3RD POSITION CONGRATULATIONS TO ALL THE PARTICIPANTS FOR THEIR EXCEPTIONAL EFFORTS AND FOR BRINGING LAURELS TO THE INSTITUTION!

STUDENTS ACHIEVEMENTS

PROUD MOMENT TEAM "GOEL INSTITUTE OF TECHNOLOGY AND MANAGEMENT" ,WON SECOND POSITION (SILVER MEDAL) IN "VOLLEYBALL" AND SECURED THIRD POSITION IN KABADDI AT AKTU ZONAL SPORTS FEST -2024-25

THE AKTU ZONAL SPORTS FEST WAS ORGANISED ON 24TH AND 25TH OCTOBER IN WHICH 50 INSTITUTIONS OF LUCKNOW AND KANPUR ZONE PARTICIPATED

A BIG CONGRATULATIONS TO STUDENTS AND FACULTY MENTORS

INDUSTERIAL VISIT , SEMINAR, & WORKSHOP

THE DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING AT GOEL INSTITUTE OF TECHNOLOGY AND MANAGEMENT (GITM), LUCKNOW, SUCCESSFULLY ORGANIZED A WORKSHOP TITLED "EMPOWERING STARTUPS THROUGH IOT INNOVATIONS" ON 21ST NOVEMBER 2024, UNDER THE BANNER OF THE INNOVATION CELL, GITM.

THE WORKSHOP FEATURED MR. SANDEEP KUMAR, AN ACCOMPLISHED EMBEDDED ENGINEER FROM SCORTEK INDIA PVT. LTD., AS THE RESOURCE PERSON. HIS INSIGHTS INTO IOT-DRIVEN SOLUTIONS FOR STARTUPS CAPTIVATED THE AUDIENCE AND PROVIDED PRACTICAL KNOWLEDGE ABOUT LEVERAGING IOT FOR ENTREPRENEURIAL SUCCESS.

THE EVENT WITNESSED ACTIVE PARTICIPATION, WITH OVER 80 STUDENTS FROM ELECTRICAL ENGINEERING AND ELECTRONICS ENGINEERING DISCIPLINES ATTENDING AND GAINING VALUABLE KNOWLEDGE TO SUPPORT THEIR INNOVATION AND ENTREPRENEURIAL ASPIRATIONS.

INDUSTERIAL VISIT , SEMINAR, & WORKSHOP

THE DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING, GOEL INSTITUTE OF TECHNOLOGY AND MANAGEMENT, LUCKNOW ORGANIZED A CAPTIVATING INDUSTRIAL VISIT TO THE 765 KV SUBSTATION IN DAHI CHOWKI, UNNAO, FOR ENGINEERING STUDENTS UNDER THE FLAGSHIP OF INNOVATION CELL, GITM ON 8TH NOVEMBER, 2024. MORE THAN 50 STUDENTS WITH FACULTY COORDINATOR VISITED AND BENEFITTED.

THIS IMMERSIVE EXPERIENCE PROVIDED VALUABLE INSIGHTS INTO THE PRACTICAL APPLICATIONS OF CUTTING-EDGE EQUIPMENT AND THE SCADA SOFTWARE SYSTEM, INTEGRAL FOR AUTOMATIC CONTROL, MONITORING, AND DATA COMMUNICATION WITHIN THE SUBSTATION.

STUDENTS EXPLORED THE INTRICATE CONNECTIONS OF TRANSMISSION LINES AND VARIOUS INSTRUMENTS, INCLUDING POWER TRANSFORMERS, NEUTRAL GROUNDING RESISTORS (NGR), VOLTAGE REACTORS, CURRENT TRANSFORMERS (CT), POTENTIAL TRANSFORMERS (PT), ISOLATORS, BUS BARS, LIGHTENING ARRESTERS (LA), INSTRUMENT TRANSFORMERS (ICT), WAVE TRAPS, AND MORE.

THE VISIT HIGHLIGHTED THE CRUCIAL ROLE OF SENSING, MEASURING, AND CONTROL DEVICES IN THE CONTINUAL ANALYSIS OF LINE EQUIPMENT.

INDUSTERIAL VISIT , SEMINAR, & WORKSHOP

THE POWERPOINT PRESENTATION COMPETITION ON "INNOVATIVE IDEAS FOR MODERN TECHNOLOGIES" WAS ORGANIZED BY DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING UNDER THE FLAGSHIP OF INNOVATION CELL, GITM ON 3RD OCTOBER, 2024 IN OFFLINE MODE. IN THIS EVENT THE MORE THAN 60 STUDENTS SHOWCASED THEIR CREATIVITY AND PROBLEM-SOLVING SKILLS BY PRESENTING GROUNDBREAKING IDEAS IN THE FIELDS OF ELECTRICAL ENGINEERING AND ELECTRONICS & COMMUNICATION. THIS COMPETITION OFFERED A PLATFORM FOR STUDENTS TO EXPLORE EMERGING TECHNOLOGIES SUCH AS SMART GRIDS, RENEWABLE ENERGY SYSTEMS, IOT, AND ENERGY-EFFICIENT INNOVATIONS. AND GOT THE OPPORTUNITY TO PROPOSE SOLUTIONS THAT ADDRESS REAL-WORLD CHALLENGES, IMPROVE EXISTING SYSTEMS, OR CREATE ENTIRELY NEW APPLICATIONS. THROUGH THIS COMPETITION, STUDENTS ENHANCED THEIR PRESENTATION SKILLS BUT ALSO GAINED EXPOSURE TO THE LATEST TECHNOLOGICAL TRENDS. THE STUDENTS WERE JUDGED BY JURY PANEL ON THE PARAMETERS OF VIABILITY OF THEIR IDEAS, DEMONSTRATING STRONG POTENTIAL TO MAKE A MARK IN THEIR RESPECTIVE INDUSTRIES. THIS EVENT AIMED TO INSPIRE THE NEXT GENERATION OF ENGINEERS TO THINK CRITICALLY, INNOVATE BOLDLY, AND CONTRIBUTE TO THE ADVANCEMENT OF MODERN TECHNOLOGY.

INDUSTERIAL VISIT , SEMINAR, & WORKSHOP

THE DEPARTMENT OF ELECTRICAL & ELECTRONICS, GOEL INSTITUTE OF TECHNOLOGY & MANAGEMENT, LUCKNOW ORGANIZED AN EXPOSURE VISIT TO UTTAR PRADESH NEW & RENEWABLE ENERGY DEVELOPMENT AGENCY (UPNEDA), LUCKNOW ON 21ST SEPTEMBER, 2024, FOR EXPLORING SUSTAINABLE ENERGY INNOVATIONS AND STARTUP OPPORTUNITIES IN RENEWABLE ENERGY DEVELOPMENT. MORE THAN 50 STUDENTS WITH FACULTY COORDINATOR VISITED AND BENEFITTED BY INSIGHTFUL OVERVIEW OF RENEWABLE ENERGY TECHNOLOGIES, GOVERNMENT POLICIES, AND VARIOUS STARTUP OPPORTUNITIES IN THE FIELD. STUDENTS ENGAGED WITH EXPERTS ON SOLAR, WIND AND BIOENERGY SOLUTIONS AND LEARNED ABOUT UPNEDA'S ROLE IN PROMOTING CLEAN ENERGY INITIATIVES IN UTTAR PRADESH. THE EXPERIENCE INSPIRED STUDENTS TO CONSIDER ENTREPRENEURSHIP IN RENEWABLE ENERGY DEVELOPMENT, FOSTERING IDEAS FOR SUSTAINABLE BUSINESS MODELS AND CAREER PATHS IN THIS RAPIDLY GROWING SECTOR.

INDUSTERIAL VISIT , SEMINAR, & WORKSHOP

THE DEPARTMENT OF ELECTRICAL & ELECTRONICS, GOEL INSTITUTE OF TECHNOLOGY & MANAGEMENT, LUCKNOW ORGANIZED AN EXPOSURE VISIT TO UTTAR PRADESH NEW & RENEWABLE ENERGY DEVELOPMENT AGENCY (UPNEDA), LUCKNOW ON 21ST SEPTEMBER, 2024, FOR EXPLORING SUSTAINABLE ENERGY INNOVATIONS AND STARTUP OPPORTUNITIES IN RENEWABLE ENERGY DEVELOPMENT. MORE THAN 50 STUDENTS WITH FACULTY COORDINATOR VISITED AND BENEFITTED BY INSIGHTFUL OVERVIEW OF RENEWABLE ENERGY TECHNOLOGIES, GOVERNMENT POLICIES, AND VARIOUS STARTUP OPPORTUNITIES IN THE FIELD. STUDENTS ENGAGED WITH EXPERTS ON SOLAR, WIND AND BIOENERGY SOLUTIONS AND LEARNED ABOUT UPNEDA'S ROLE IN PROMOTING CLEAN ENERGY INITIATIVES IN UTTAR PRADESH. THE EXPERIENCE INSPIRED STUDENTS TO CONSIDER ENTREPRENEURSHIP IN RENEWABLE ENERGY DEVELOPMENT, FOSTERING IDEAS FOR SUSTAINABLE BUSINESS MODELS AND CAREER PATHS IN THIS RAPIDLY GROWING SECTOR.

PLACEMENT

GOEL GROUP OF INSTITUTIONS LUCKNOW

POSITIONED IN THE BAND OF 51-100 IN INNOVATION CATEGORY

4 STAR RATING IIC 5- 2022-23

Congratulations

Ayush Mishra
Btech EE 2024

Akshanshu verma
Btech EE 2024

Deepak Maurya
Btech EE 2023

Varun Beverages Ltd

Graduate Engineer Trainee

2.40 LPA

GOEL INSTITUTE OF TECHNOLOGY AND MANAGEMENT LUCKNOW
GITM.GOEL.EDU.IN

PLACEMENT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GROUP OF INSTITUTIONS
LUCKNOW
POSITIONED IN THE BAND OF 51-100 IN INNOVATION CATEGORY
4 STAR RATING
IIC 5- 2022-23
Congratulations
PTC INDUSTRIES
ASPIRE • INNOVATE • ACHIEVE
Kamlesh Yadav
Btech ME 2024
Anuj Kr. Yadav
Btech EE 2024
Alekh Yadav
Btech EE 2024
Engineer Trainee
2.50 LPA
GITM
GIPS

PLACEMENT


GOEL
GROUP OF INSTITUTIONS
LUCKNOW
nirf
POSITIONED IN THE BAND OF
51-100
IN INNOVATION CATEGORY
4 STAR RATING
IIC 5- 2022-23
Congratulations
vms
ENGINEERING + ARCHITECTURE
as
Graduate Engineer Trainee
2.82
LPA
Satish Chaurasiya
B.Tech (EE) 2024
GITM
GIPS
GOEL INSTITUTE OF PHARMACY & SCIENCES
INSTITUTE OF PHARMACEUTICAL SCIENCES
GOEL


GOEL
GROUP OF INSTITUTIONS
LUCKNOW
nirf
POSITIONED IN THE BAND OF
51-100
IN INNOVATION CATEGORY
4 STAR RATING
IIC 5- 2022-23
Congratulations
PTC
INDUSTRIES
ASPIRE • INNOVATE • ACHIEVE
as
Graduate Engineer Trainee
2.50
LPA
Meraj Alam
B.Tech (EE) 2024
GITM
GIPS
GOEL INSTITUTE OF PHARMACY & SCIENCES
INSTITUTE OF PHARMACEUTICAL SCIENCES
GOEL

PLACEMENT


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GROUP OF INSTITUTIONS
LUCKNOW
POSITIONED IN THE BAND OF 51-100 IN INNOVATION CATEGORY
4 STAR RATING
IIC 5- 2022-23
Congratulations
Prity Yadav
B.Tech (EC) 2024
TRINITY TOUCH
as
Graduate Engineer Trainee
Amit Verma
B.Tech (EC) 2024
2.52 LPA
GITM
GIPS
INSTITUTE OF PHARMACEUTICAL SCIENCES


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GROUP OF INSTITUTIONS
LUCKNOW
POSITIONED IN THE BAND OF 51-100 IN INNOVATION CATEGORY
4 STAR RATING
IIC 5- 2022-23
Congratulations
Akash Chauhan
B.Tech (EC) 2024
SHAIL
as
Associate-Service Engineering
Amit Verma
B.Tech (EC) 2024
2.50 LPA
GITM
GIPS
INSTITUTE OF PHARMACEUTICAL SCIENCES