MALLA REDDY ENGINEERING COLLEGE FOR WOMEN

Autonomous Institution – UGC, Govt. of India

Accredited by NBA & NAAC with 'A+' Grade

NIRF Indian Ranking, Accepted by MHRD, Govt. of India | Band – Excellent, National Ranking by ARIIA

Maisammaguda, Dhulapally, Secunderabad - 500 010, Telangana

A.Y : 2022-23 VOL.2

Under

Student Chapter IEEE, IETE & Technical Association Electropheenix

ELEKTOR

HALF YEARLY TECHNICAL MAGAZINE

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

E E E

www.mallareddyecw.com

DEPARTMENT VISION

- To develop competitive industry ready electrical engineers by establishing traditions, which will foster creativity and growth of excellence to effectively meet the technological requirements..

DEPARTMENT MISION

- To develop proficiency by imparting application oriented knowledge and inculcate analytical thinking to solve the technological problems associated with analyzing, designing and testing electrical systems.

ABOUT THE DEPARTMENT

The Department of Electrical & Electronics Engineering is accredited by NBA, with an intake of 60 students. The Dept. has state of the art laboratories with latest softwares like MATLAB, ORCAD,SCI LAB, PSPICE and Multisim. We have well qualified faculty members. Several faculty members have received their best teacher awards from institutions of International repute and have been working on research and development projects and regularly publish their work in international journals and conferences. EEE department faculty teams attained patent rights for their technological innovations. The Dept. established IEEE, ISTE student chapters under which it organizes National Level Technical Symposium -FUTURE SASTRA & State Level Technical Symposium- MEDHA every academic year. The Dept. organized National conference on "Emerging Trends in Electrical Systems & Engineering" NCETESE, International Conference on "Emerging Trends in Electrical Systems & Engineering"(ICETESE) every year since 2014, The Dept. organizes Faculty Development Programs, Refresher courses and workshops in different streams and Student Development Programs like Workshops, intra college conferences, Industrial visits , Guest lectures and our students actively participate in hackathon programmers conduct at state and National level. Our students are actively participated and won prizes in curricular activities organized by other colleges. The Dept. also organizes regular student seminar sessions of two hours per week for I to IV B.Tech student to enhance their all round performance.

The Dept. also offers value added certification Courses on oxford, Microsoft, CISCO certificationthrough Oxford University, Microsoft Innovation Centre and CISCO Networking Academy respectively. The College Offers Campus Recruitment Training Programmes in collaboration withTIME and FACE Institutions. The Department also publishes the Registered Journal "International Journal of Research in Signal Processing, Computing and Communication-System Design (IJRSCSD) with an ISSN: 2395-3187.

PO'S

PO1	Engineering knowledge	An ability to apply knowledge of mathematics (including probability, statistics and discrete mathematics), science, and engineering for solving Engineering problems and modeling
PO2	Problem analysis	An ability to design, simulate and conduct experiments, as well as to analyze and interpret data including hardware and software components
PO3	Design / development of solutions	An ability to design a complex electronic system or process to meet desired specifications and needs
PO4	Conduct investigations of complex problems	An ability to identify, formulate, comprehend, analyze, design synthesis of the information to solve complex engineering problems and provide valid conclusions.
PO5	Modern tool usage	An ability to use the techniques, skills and modern engineering tools necessary for engineering practice
PO6	The engineer and society	An understanding of professional, health, safety, legal, cultural and social responsibilities
PO7	Environment and sustainability	The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental and demonstrate the knowledge need for sustainable development.
PO8	Ethics	Apply ethical principles, responsibility and norms of the engineering practice
PO9	Individual and team work	An ability to function on multi-disciplinary teams.
PO10	Communication	An ability to communicate and present effectively
PO11	Project management and finance	An ability to use the modern engineering tools, techniques, skills and management principles to do work as a member and leader in a team, to manage projects in multi-disciplinary environments
PO12	Life-long learning	A recognition of the need for, and an ability to engage in, to resolve contemporary issues and acquire lifelong learning

PSO'S

The graduates of the department will attain:

PSO1: Analyze, Design and Implement application specific electrical system for complex engineering problems, Electrical And Electronics Circuits, Power Electronics and Power Systems by applying the knowledge of basic science, Engineering mathematics and engineering fundamentals

PSO2: Apply modern software tools for design, simulation and analysis of electrical systems to engage in life- long learning and to successfully adapt in multi disciplinary environments

PSO3: Solve ethically and professionally various Electrical Engineering problems in societal and environmental context and communicate effectively

PEO'S

PEO1-PROFESSIONAL DEVELOPMENT

To develop in the students the ability to acquire knowledge of Mathematics, Science & Engineering and apply it professionally within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability and sustainability with due ethical responsibility.

PEO2-CORE PROFICIENCY

To provide ability to identify, formulate and solve engineering problems with hands on experience in various technologies using modern tools necessary for engineering practice to satisfy the needs of society and the industry.

PEO3- TECHNICAL ACCOMPLISHMENTS

To equip the students with the ability to design, experiment, analyze and interpret in their core applications through multi disciplinary concepts and contemporary learning to build them into industry ready graduates.

PEO4- PROFESSIONALISM

To provide training, exposure and awareness on importance of soft skills for better career andholistic personality development as well as professional attitude towards ethical issues, team work, multidisciplinary approach and capability to relate engineering issues to broader social context.

PEO5- LEARNING ENVIRONMENT

To provide students with an academic environment and make them aware of excellence, leadership, written ethical codes and guidelines and the life-long learning to become a successful professional in Electronics and Communication Engineering

MESSAGES

Founder Chairman's Message

Ch. Malla Reddy
Founder Chairman, MRGI
Hon'ble Minister, Govt. of Telangana State

MRECW has made tremendous progress in all areas and now crossing several milestones within a very short span of time and now I feel very happy to know that the students and faculty of the EEE department of MRECW are bringing out the volume-1 of the Technical magazine Elektor in A.Y 2022-23. As I understand this magazine is intended to bring out the inherent literary talents in the students and the teachers and also to inculcate leadership skills among them. I am confident that this issue will send a positive signal to the staff, students and the persons who are interested in the educational and literary activities

Principal's Message

I congratulate the department of EEE, MRECW for bringing out the first issue of the prestigious Q yearly department technical MagazineElektor in A.Y 2022-23, I am sure that the magazine will provide a platform to the students and faculty members to expand their technical knowledge and sharpen their hidden literary talent and will also strengthen the all round development of the students. I am hopeful that this small piece of literary work shall not only develop the taste for reading among students but also develop a sense of belonging to theinstitution as well. My congratulations to the editorial board who tookthe responsibility for the arduous task most effectively. I extend best wishes for the success of this endeavor.

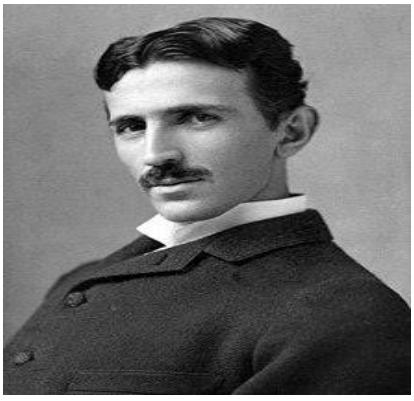
Dr. Y. Madhavee Latha
Principal

HOD'S MESSAGE

It is an occasion of great pride and satisfaction for the department ofEEE, MRECW to bring out the first issue of the half yearly of the Technical magazine Elektor in A.Y 2022-23, it gives me immense pleasure to note that the response to the magazine has been over whelming. The wide spectrum of articles gives us a sense of pride that our students and faculties possess creative potential and original thinking in ample measures. Each article is entertaining interesting and absorbing. I applaud the contributors for their stimulated thoughts and varied hues in articles contributed by them.

Dr. S.Vijaya Madhavi
HOD EEE

SCIENTIST OF THE HALF YEAR



Nikola Tesla

Nikola Tesla (1856–1943) was a Serbian-American inventor, electrical engineer, mechanical engineer, and futurist, best known for his contributions to the design of the modern alternating current (AC) electrical supply system. Tesla's work laid the foundation for numerous advancements in electrical engineering and other fields, earning him a lasting legacy as one of the most influential inventors in history.

Key Contributions and Inventions:

1. Alternating Current (AC) Power System: Tesla championed AC over Thomas Edison's direct current (DC) power system. AC power is more efficient for transmitting electricity over long distances, and it became the standard for electrical power distribution worldwide.

2. Tesla Coil: This device generates high-voltage electricity and has applications in radio technology, wireless transmission, and electrical research. It remains iconic in science demonstrations today.

3. Radio Technology: Although Guglielmo Marconi is often credited with inventing the radio, Tesla made significant contributions to early radio transmission and wireless communication.

4. Induction Motor: Tesla invented the induction motor, which operates on AC power and revolutionized industrial machinery by making it more efficient and reliable.

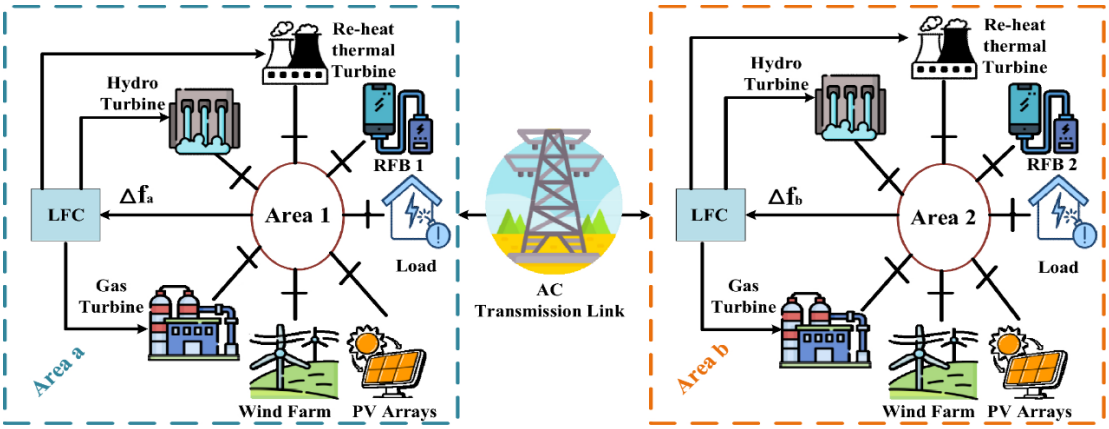
5. Wireless Power Transmission: Tesla had a vision of transmitting power wirelessly across the globe. His experiments at the Wardenclyffe Tower in New York aimed to provide free, wireless electricity to the world but were never fully realized.

6. Hydroelectric Power: Tesla's ideas were crucial in the development of the first hydroelectric power plant at Niagara Falls, which marked a major milestone in large-scale electricity generation.

7. X-ray and Remote Control: Tesla experimented with X-rays before they were officially discovered and was also a pioneer in the development of remote control technologies.

Tesla's ideas on renewable energy, wireless communication, and power transmission remain relevant today. The Tesla electric car company, founded by Elon Musk and others, was named in his honor, emphasizing his role as a visionary in electricity and innovation. Many of his once-outlandish concepts, such as wireless communication, have become commonplace technologies today.
Tesla is remembered as a genius who transformed the landscape of electrical engineering and whose forward-thinking ideas shaped the modern world.

A Fuzzy Sliding Mode Controller for AGC of Multi Area Deregulated Power System

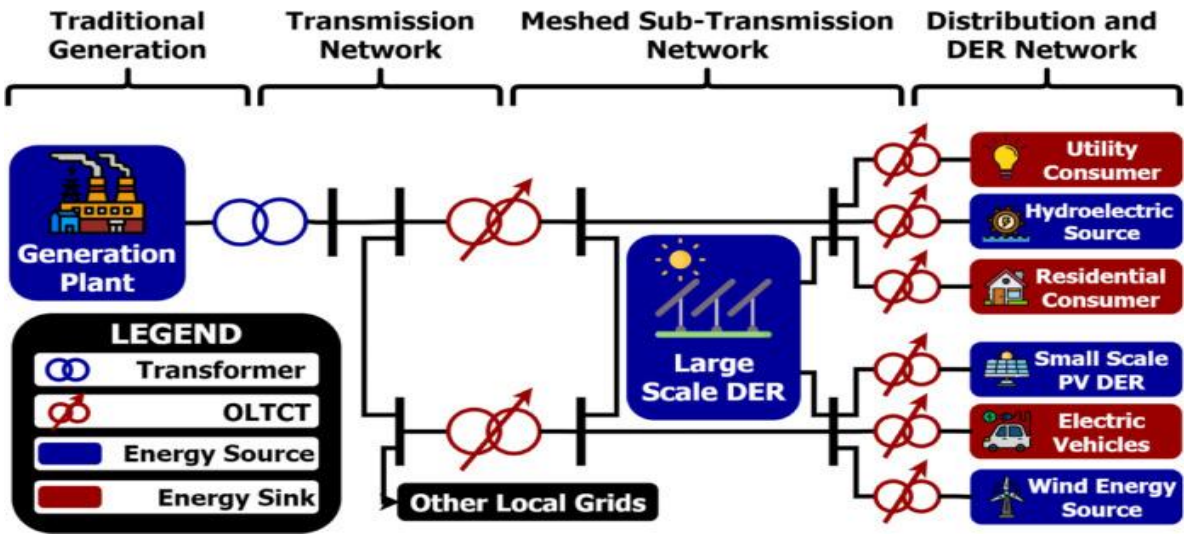


Two problems: Parameter uncertainty and chattering effect present in Control signal are have a great deal in performance of system with the designed controllers. This paper presents Fuzzy Sliding Mode Controller (FSMC) for Multi Area Load Frequency Control problem or Automatic Generation Control (AGC) in a De-regulated environment. The first problem is addressed by designing a sliding mode controller and the second one is dealt by designating fuzzy logic controller. The sliding surface is a function of area control error. The trajectory of surface on sliding hyper plane is controlled by well-defined fuzzy rules. This affects changes in system states there by a desired dynamic response is achieved. Performance of 2-Area system with FSMC is compared with Multi Resolution Wavelet based Controller (proposed previously by the same authors) and with PI controller. Two problems: Parameter uncertainty and chattering effect present in Control signal are have a great deal in performance of system with the designed controllers. This paper presents Fuzzy Sliding Mode Controller (FSMC) for Multi Area Load Frequency Control problem or Automatic Generation Control (AGC) in a De-regulated environment. The first problem is addressed by designing a sliding mode controller and the second one is dealt by designating fuzzy logic controller. The sliding surface is a function of area control error. The trajectory of surface on sliding hyper plane is controlled by well-defined fuzzy rules. This affects changes in system states there by a desired dynamic response is achieved. Performance of 2-Area system with FSMC is compared with Multi Resolution Wavelet based Controller (proposed previously by the same authors) and with PI controller.

This paper presents a new controller based on Fuzzy logic and sliding mode concepts. Fuzzy logic system has got advantages of fine tuning and model free methodology. Sliding mode control performance is naturally robust and can take care of nonlinearities of the system inherently. By integrating the advantages of both these controllers this new algorithm is proposed. The main feature of this proposed algorithm is by properly defining Fuzzy Rules control parameters can be brought on to the sliding surface and the trajectory of the sliding surface can be adjusted for desired controller response. The performance of FSMC is evaluated on a two area Thermal-Thermal power system under deregulated environment.

Dr. G Dinesh Kumar,
Department of EEE

Methodology to Prevent Voltage Collapse During On Load Tap Changing Transformer Operation under Network Contingencies



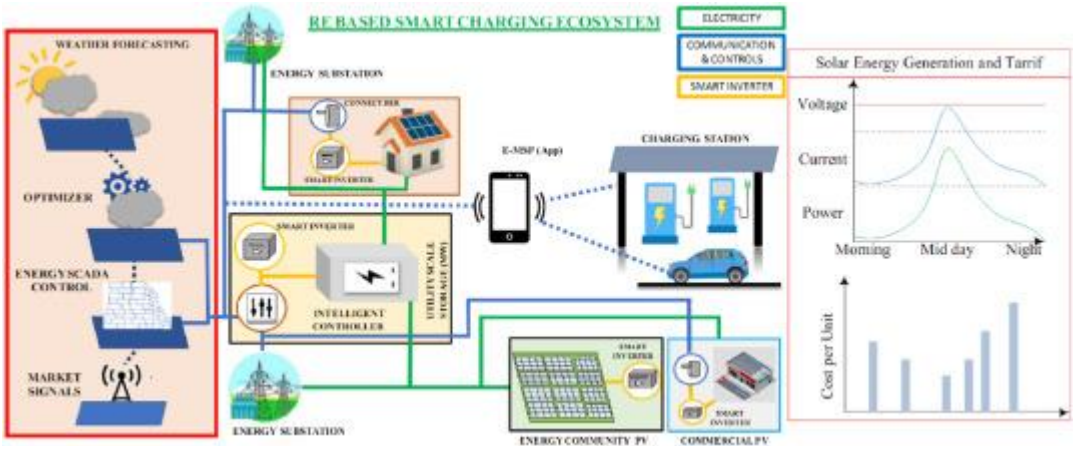
In power system when the load centers experience abnormal operating conditions, the voltage reduction would be reflected in the distribution system. The operation of OLTCs would restore the distribution system's voltage, but each tap would increase the MWs and MVARs, which would eventually cause the system's reactive power to increase. The process eventually may lead to voltage collapse. Thus, the operation of certain OLTCs has a significance influence on voltage instability.

The system status is computed from the output of the On-Line State Evaluator. If the system is insecure, then the appropriate control action must be taken based on the observed limit violations. Figure 1 shows a block schematic of a few functions performed in the Energy Control Centre (ECC).If the output is not secure, then the system is considered vulnerable

Dr T.S.N.G. Sarada Devi
Department of EEE

STUDENT ARTICLES

Smart Charging System for EVs Using Renewable Energy Sources



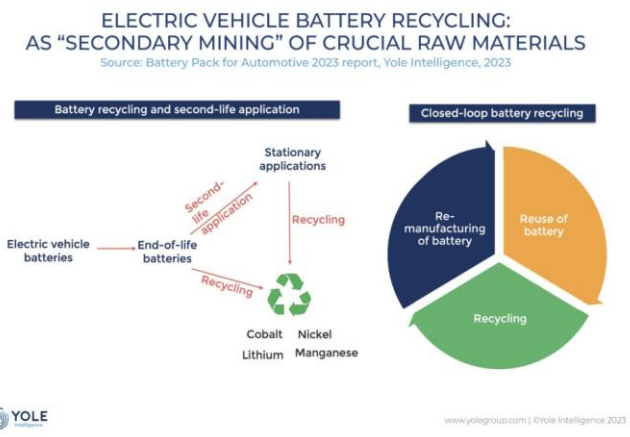
With the rapid growth of electric vehicles (EVs) as a sustainable alternative to conventional internal combustion engine vehicles, the demand for efficient and eco-friendly charging systems has become a critical issue. Currently, most EV charging systems depend on electricity generated by traditional power grids, which often rely on fossil fuels. To address this, integrating renewable energy sources into EV charging stations can significantly reduce carbon emissions and increase the sustainability of the transportation sector. This project proposes a smart charging system that uses renewable energy sources such as solar and wind power, alongside a smart controller to optimize energy usage, costs, and environmental impact.

Renewable Energy Sources: The system integrates renewable energy sources like solar photovoltaic (PV) panels and wind turbines installed at the charging station. These renewable energy systems can generate clean electricity that is either directly used to charge EVs or stored in on-site battery storage units for later use. **Smart Controller**: A key component of the system is a smart controller that continuously monitors various parameters such as: **Weather conditions, Grid load and electricity prices, Grid load and electricity prices.**

Vehicle-to-Grid (V2G) Capabilities: The V2G functionality allows bidirectional power flow between the EV and the grid. During periods of high grid demand, the system can discharge stored energy from EV batteries back into the grid. This helps balance grid load and can provide financial incentives to EV owners through demand-response programs or energy arbitrage.

N.Manaswini
20RH1A0222
III EEE

Recycled Battery Packs for Low-Cost EVs



Electric vehicles (EVs) are considered key to the future of sustainable transportation, but the high cost of lithium-ion battery packs remains a major barrier to their widespread adoption, particularly in low-income markets. At the same time, electronic waste (e-waste) is becoming a growing environmental concern, with millions of tons of discarded devices containing valuable and reusable materials like lithium-ion batteries. This project proposes a solution that addresses both challenges: using recycled lithium-ion batteries from e-waste to create low-cost battery packs for EVs. By repurposing these batteries, the project aims to lower the overall cost of EV production while reducing environmental harm caused by improper disposal of e-waste.

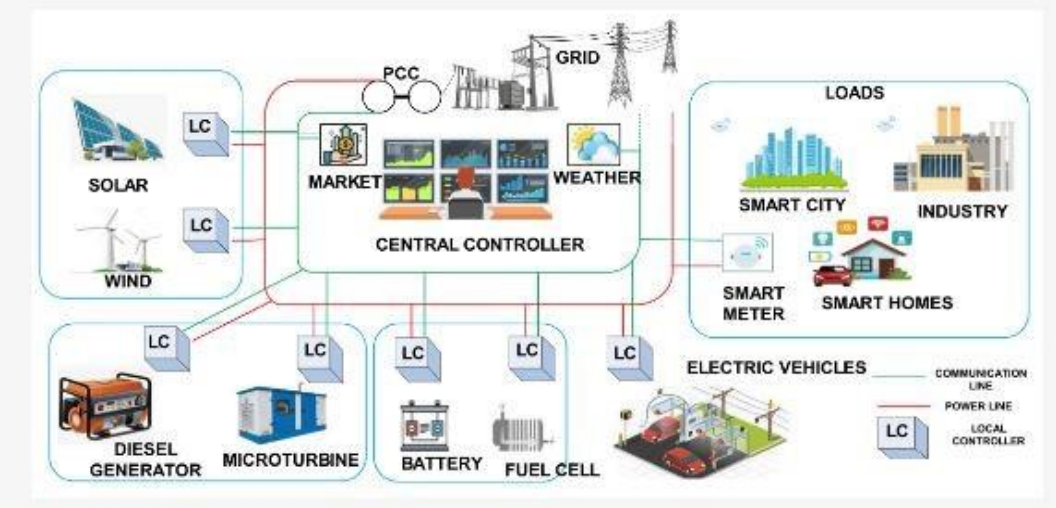
Battery Recycling Process: The recycling process begins with the collection of used lithium-ion batteries from e-waste sources such as laptops, smartphones, power tools, and other electronics. These batteries are carefully dismantled to extract individual cells that are still functional. The cells undergo testing to determine their capacity, charge cycles, and overall health. Cells that meet the required performance standards are selected for repurposing into EV battery packs.

Battery Pack Design: The selected cells are assembled into a battery pack with a custom-designed Battery Management System (BMS). The BMS is critical for ensuring the safety and efficiency of the battery pack.

Cost-Effective Manufacturing: By leveraging recycled cells, the cost of producing these battery packs is significantly lower than using newly manufactured lithium-ion cells. This reduction in production costs can help lower the price of EVs, making them more accessible to budget-conscious consumers or markets where affordability is a key concern.

Navyasri Sandanala
20RH1A0223
III EEE

Smart Grid Optimization Using Machine Learning



The increasing complexity of modern power systems, combined with the growing demand for energy and the integration of renewable sources, necessitates innovative approaches to optimize grid performance. Smart grids, characterized by their use of digital communication technology and real-time data analytics, offer a promising solution. This project aims to enhance the operational efficiency of smart grids by employing machine learning algorithms to analyze diverse datasets, predict energy consumption patterns, and optimize grid operations. By improving efficiency, reducing peak loads, and facilitating the integration of renewable energy sources, this project seeks to create a more resilient and sustainable energy infrastructure.

Machine Learning Algorithms:

Supervised Learning: Train supervised learning algorithms (e.g., regression models, decision trees) using historical energy consumption data and weather variables to predict future energy usage.

Unsupervised learning: Implement clustering techniques to identify consumption patterns and categorize users based on their energy usage profiles.

Reinforcement Learning: Utilize reinforcement learning algorithms to dynamically adjust grid operations in response to changing conditions and optimize resource allocation.

This project aims to revolutionize the operation of smart grids by leveraging machine learning technologies to optimize performance and enhance energy efficiency. By analyzing diverse datasets and predicting energy consumption patterns, the system not only improves grid reliability but also fosters a sustainable energy future through the effective integration of renewable energy sources and demand response initiatives. The successful implementation of this project could serve as a model for smart grid optimization globally, contributing to the resilience and sustainability of energy systems.

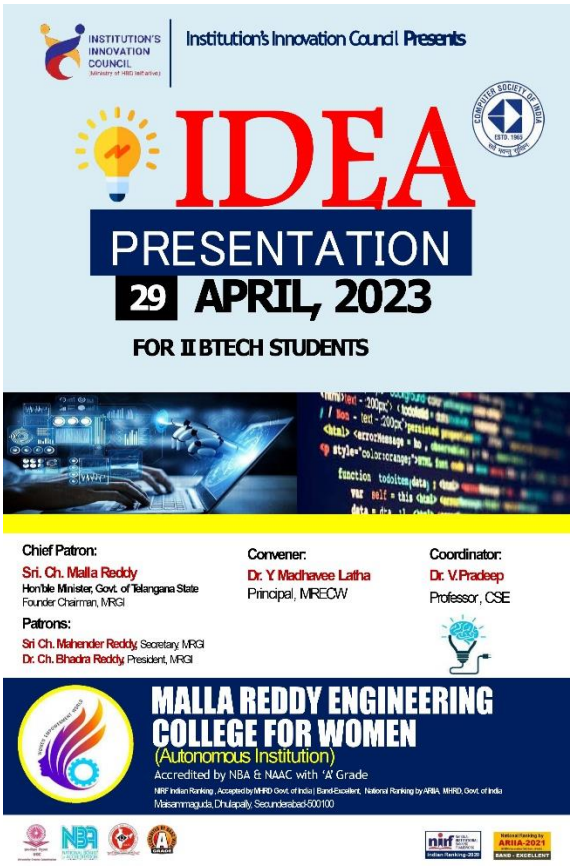
Riya sahu
20RH1A0236
III EEE

EEE PLACEMENT DATA 2019-23 BATCH

S. No	STUDENT NAME	ENROLLMENT NUMBER	COMPANY PLACED
1	NAGA SUSHMA VEMULA	19RH1A0258	SIEMENS(MENTOR GRAPHICS)
2	SANJANNAGARI SRIVIDHYA	19RH1A0247	PUBLICIS SAPIENT
3	YEDUGANI VAISHALI	19RH1A0260	PUBLICIS SAPIENT
4	KOMPELLA VENKATA SUBBALAKSHMI	19RH1A0230	TCS-DIGITAL
5	YOCHANA RAJAN	19RH1A0246	TCS-DIGITAL
6	BANNE HARSHITHA	19RH1A0204	ACCENTURE
7	BANOTH KUNDANA	19RH1A0205	ACCENTURE
8	KEERTHI.BODLA	19RH1A0210	ACCENTURE
9	BOMPALLY SREEYA	19RH1A0213	ACCENTURE
10	YAMINI CHERUKURI	19RH1A0214	ACCENTURE
11	DHARMAPURI KOUSALYA	19RH1A0216	ACCENTURE
12	GUMMADI AARTHI	19RH1A0222	ACCENTURE
13	JARUPULA SHAILU	19RH1A0225	ACCENTURE
14	KETHAVATH YAMINI	19RH1A0229	ACCENTURE
15	KOTHA SAI SOWBHAGYA LAKSHMI	19RH1A0232	ACCENTURE
16	MAMIDI MOUNIKA	19RH1A0235	ACCENTURE
17	MIRYAL AKHILA	19RH1A0237	ACCENTURE
18	SUPRIYA MOTHUKOORI	19RH1A0239	ACCENTURE
19	MUDAVATH AMEENA	19RH1A0240	ACCENTURE
20	SALIGANTI ANUSHA	19RH1A0248	ACCENTURE
21	DRUVI SHIHORA	19RH1A0251	ACCENTURE
22	RAMYA MANASA SOMAGUTTA	19RH1A0253	ACCENTURE
23	SANJANA SAI ERALA	20RH5A0201	ACCENTURE
24	KUNJA SAI SHIVANI	20RH5A0204	ACCENTURE
25	ARCHANA THOTAPALLY	20RH5A0205	ACCENTURE
26	BOBBILI TULASI	19RH1A0209	HCL
27	SAI SUDHA DONIPALLI	19RH1A0218	HCL
28	VARSHITHA GUNIGANTI	19RH1A0223	HCL
29	SANDHYA	19RH1A0249	HCL
30	AISHWARYA GAJANAVENI	20RH5A0202	HCL
31	ALUGUBELLI SIRI	19RH1A0201	DXC Technology
32	ANKU KUMARI	19RH1A0202	DXC Technology
33	BOBBA NAGA ANKITHA	19RH1A0208	DXC Technology

34	SINDHU BOMMA	19RH1A0212	DXC Technology
35	LAVANYA DIRISALA	19RH1A0217	DXC Technology
36	GUDELLI LAHARIKA	19RH1A0221	DXC Technology
37	PRIYANKA KEESARI	19RH1A0228	DXC Technology
38	KOTAGIRI VASAVI	19RH1A0231	DXC Technology
39	MALOTH HIMA BUNDU	19RH1A0234	DXC Technology
40	RUCHITHA MEDI	19RH1A0236	DXC Technology
41	MODUGU NIKITHA	19RH1A0238	DXC Technology
42	NARA SHRAVANI	19RH1A0244	DXC Technology
43	POGULA SHARMILA	19RH1A0245	DXC Technology/CTS
44	AKANKSHA REDDY SAREDDY	19RH1A0250	DXC Technology
45	THANDU MAMATHA	19RH1A0255	DXC Technology
46	VATTEPU PRASANNA	19RH1A0257	DXC Technology
47	KAMMARI NIHARIKA	19RH1A0227	COGNIZANT
48	BHATLAPENUMARTHI ASRITHA SRI BHANU	19RH1A0206	QUALIZEAL
49	MANASAJUVVAJI	19RH1A0226	VALUE MOMENTUM
50	MULINTY DEEPTHI	19RH1A0242	PROLIFICS
51	BOGA. KEERTHANA	19RH1A0211	TCS-NINJA/CTS
52	MULA. CHANADAN	19RH1A0241	TCS-NINJA
53	NAGENDLA DRAKSHAYANI	19RH1A0243	TCS-NINJA
54	SAI ESWARI SIDDU	19RH1A0252	TCS-NINJA
55	MADUPLLI PAVITRA	19RH1A0233	GENYSOFT

MEMORABLE EVENTS

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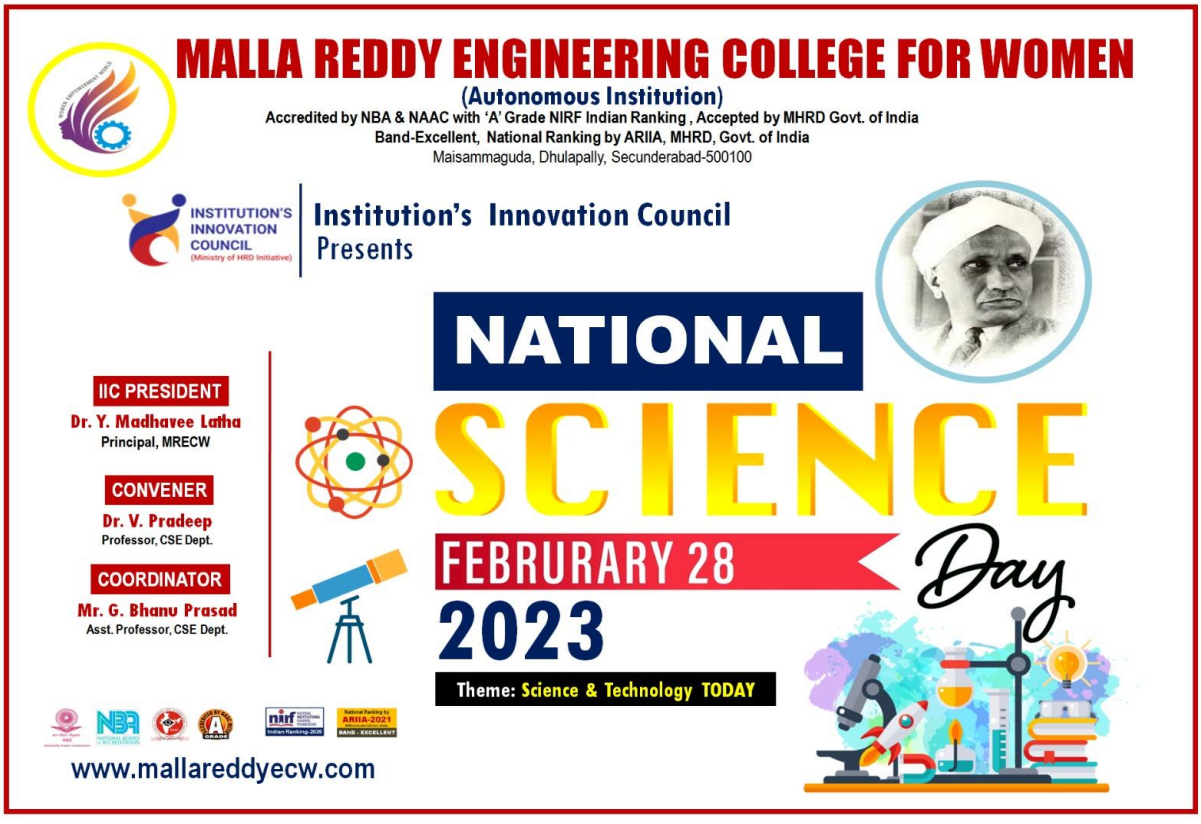
Date: 11th March, 2023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IMPORTANT WEBSITES

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