MARRI LAXMAN REDDY
INSTITUTE OF TECHNOLOGY AND MANAGEMENT
(AN AUTONOMOUS INSTITUTION)
(Approved by AICTE, New Delhi & Affiliated to JNTUH, Hyderabad)
Accredited by NBA and NAAC with 'A' Grade & Recognized Under Section2(f) & 12(B)of the UGC act,1956

ECE-DEPARTMENT
NEWS LETTER/MAGAZINE

ELECTRO PULSE

AY: 2025-26
JULY to DECEMBER 2025
Volume: 12

Mr. Marri Laxman Reddy - Chairman

"The pride of every student and staff would be in his/her college. A college reach heights of glory but without materials like college magazine the outside world may not know of it. The role of a college magazine is to promoting what an institute offers. It brings out into the open things which are unrevealed. It brings to light the names of the unsung heroes and their mighty deeds. I am happy that there is a dedicated team of staff and students who have brought out the magazine of our college. They have presented the stupendous achievements of Marri Laxman Reddy Institute of Technology and Management, in the fields of academics, research, sports and extra circular activities, in a nice way. Dazzle represents the collective work of team. I wish the magazine a grand success".

Dr. P. Sridhar Ph.D, M. Tech, MISTE **- Director**

"It is a great pleasure to see a creative expressions of students who had contributed to Electro Pulse, MLRITM has grown abundantly in the recent past. It continues to sustain its growth. People reading this magazine will realize the tremendous changes that are happening in the MLRITM campus. The magazine is presenting a glimpse of the growth of the institution on many fronts. The college has been simply unstoppable in its progress as it has been actively involved in various activities that have brought to light the hidden talents of the college students and staff. The highly qualified and dedicated members of staff have always stood shoulder with the management and have carried out their duties with a level of commitment. This magazine has recorded achievements of staff members and students. I wish the management, staff and students of the college success in their future endeavours".

Dr. R. Murali Prasad Ph. D, M. TECH, MISTE – **Principal**

"It gives me immense pleasure to extend my best wishes to the Department for maintaining the technical Magazine-Electro Pulse, which serves as a platform for students and faculty to showcase their innovative ideas, research contributions, and technical expertise. In today's rapidly evolving technological landscape, staying updated with emerging trends is crucial, and this magazine will foster knowledge-sharing and creativity among budding engineers. I encourage students to actively participate, explore new concepts, and contribute towards advancements in their respective fields. May this initiative continue to inspire and empower young minds for a brighter future".

Dr. N. Srinivas Ph. D, MIEEE, FIETE, LISTE – **HOD-ECE**

"I am happy to learn that MLRITM College of Engineering is coming out with the half yearly college magazine. Efforts such as this will provide an opportunity for the staff and students to participate in technical events, industrial visits, seminars, workshops, sports etc. Such value additions are very much essential for the young technocrats, engineers and scientists, to demonstrate their ideas for a developed India. I sincerely appreciate and congratulate the chairman, Principal, the editorial team and the entire management of the college for their unrelenting efforts in compiling this magazine".

Vision of the Institute

To be a globally recognized institution that fosters innovation, excellence, and leadership in education, research, and technology development, empowering students to create sustainable solutions for the advancement of society.

Mission of the Institute

To foster a transformative learning environment that empowers students to excel in engineering, innovation, and leadership.

To produce skilled, ethical, and socially responsible engineers who contribute to sustainable technological advancements and address global challenges.

To shape future leaders through cutting-edge research, industry collaboration, and community engagement.

Quality Policy

- Ensure excellence in education through innovative teaching and continuous improvement.
- Promote ethical, skilled, and employable graduates who drive sustainable technologies.
- Encourage research, industry collaboration, and community engagement for societal benefit.

Vision of the Department

To provide quality technical education in Electronics and Communication Engineering through research, innovation, striving for global recognition in specified domain, leadership, and sustainable societal solutions.

Mission of the Department

- **DM1:** To create a transformative learning environment that empowers students in electronics and communication engineering, fostering excellence in technical skills and leadership.
- **DM2:** To drive innovation through research, deliver a transformative education grounded in ethical principles, and nurture the development of professionals
- **DM3:** To cultivate strong industry partnerships, and engaging actively with the community for societal and technological progress.

Program Educational Objectives (PEO) for the UG Program

PEO 1: Have successful careers in Industry.

PEO 2: Show excellence in higher studies/ Research.

PEO 3: Show good competency towards Entrepreneurship.

Program Outcomes (POs) for the UG Program

Engineering Graduates will be able to:

PO1: Engineering Knowledge: Apply knowledge of mathematics, natural science, computing, engineering fundamentals and an engineering specialization as specified in WK1 to WK4 respectively to develop to the solution of complex engineering problems.

PO2: Problem Analysis: Identify, formulate, review research literature and analyze complex engineering problems reaching substantiated conclusions with consideration for sustainable development. (WK1 to WK4)

PO3: Design/Development of Solutions: Design creative solutions for complex engineering problems and design/develop systems/components/processes to meet identified needs with consideration for the public health and safety, whole-life cost, net zero carbon, culture, society and environment as required. (WK5)

PO4: Conduct Investigations of Complex Problems: Conduct investigations of complex engineering problems using research-based knowledge including design of experiments, modelling, analysis & interpretation of data to provide valid conclusions. (WK8).

PO5: Engineering Tool Usage: Create, select and apply appropriate techniques, resources and modern engineering & IT tools, including prediction and modelling recognizing their limitations to solve complex engineering problems. (WK2 and WK6)

PO6: The Engineer and The World: Analyze and evaluate societal and environmental aspects while solving complex engineering problems for its impact on sustainability with reference to economy, health, safety, legal framework, culture and environment. (WK1, WK5, and WK7).

PO7: Ethics: Apply ethical principles and commit to professional ethics, human values, diversity and inclusion; adhere to national & international laws. (WK9)

PO8: Individual and Collaborative Team work: Function effectively as an individual, and as a member or leader in diverse/multi-disciplinary teams.

PO9: Communication: Communicate effectively and inclusively within the engineering community and society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations considering cultural, language, and learning differences

PO10: Project Management and Finance: Apply knowledge and understanding of engineering management principles and economic decision-making and apply these to one's own work, as a member and leader in a team, and to manage projects and in multidisciplinary environments.

PO11: Life-Long Learning: Recognize the need for, and have the preparation and ability for i) independent and life-long learning ii) adaptability to new and emerging technologies and iii) critical thinking in the broadest context of technological change. (WK8)

Program Specific Outcomes (PSOs) for the UG Program

1. **Professional Skills:** An ability to analyze and design analog & digital systems for a given specification and function.
2. **Problem-solving and Applications Skills:** An ability to solve and implement functional blocks of hardware-software co-designs problems for VLSI, signal processing and communication applications.
3. **Successful Career:** Gain the hands-on competency skills in Computing Tools for electronics and communication systems for the entry level position to meet the requirements of the Employer.

Program Educational Objectives (PEOs) for the PG program

PEO1: To achieve professional success in the embedded systems domains by applying technical knowledge in academic, industry and entrepreneurial roles.

PEO2: To excel in research and innovation through deep understanding of industrial needs and emerging technologies for developing real-world solutions.

PEO3: To improve knowledge and skills for career growth by upholding integrity and embracing lifelong learning globally.

PEO4: To exhibit leadership, professionalism, and communication skills in multidisciplinary towards the sustainable development**.**

Program Outcomes (POs) for the PG program

1. **Research / Investigation:** An ability to independently carry out research /investigation and development work to solve practical problems.
2. **Report Preparation:** An ability to write and present a substantial technical report/document
3. **Domain Mastery (Embedded Systems):** Students should be able to demonstrate a degree of mastery in Embedded Systems
4. **Application of Engineering Principle:** Acquire and apply engineering principles to design embedded systems and processes that address complex real-world problems.
5. **Modern Tools & Societal Impact:** Use modern tools to conduct experiments, apply technical skills, and develop solutions for societal challenges and sustainable development.
6. **Lifelong Learning & Adaptability:** Recognize the value of lifelong learning and proactively engage in ongoing professional development by embracing and integrating emerging technologies.

EDITORIAL TEAM	
Chief Editor	**Dr. N. Srinivas**
Faculty Coordinators	Dr. B. Koteswara Rao Mrs. P. Sandhya
Student Coordinators	Ms. K. Apoorva (UG) Mr. B. Naveen Kumar (PG)
Publisher	Marri Laxman Reddy Institute of Technology and Management

Faculty achievements and awards

Dr. N. Srinivas, Professor & HOD, was selected as Editor for the IETE Journal of Research, New Delhi, on 14th July 2025.

Events organised

A Career Guidance Program coordinated by *Mrs. Nagajyothi*, with *Mr. S. Mani Mohan Trinath* as resource person, was held on 22nd July 2025, attended by 120 participants.

An expert talk "What's Beyond ChatGPT" coordinated by *Dr. N. Srinivas*, featuring *Mr. Sree Harish Mandadi (CISCO, USA)*, was conducted on 25th July 2025, with 120 participants.

Faculty research publications & presentation

Dr. B. Koteswara Rao presented *"Intelligent Gesture-based Robotic System with MEMS and RF Technology for Enhanced Motion Control using ESP32 CAM"* at the 8th International Conference on Computing Methodologies and Communication (Scopus Indexed), held 23rd–25th July 2025 at *Surya Engineering College, Erode, India*.

G. Siva Sankar Varma presented *"Design and Performance Evaluation of I²C and AMBA AXI Protocols for Embedded System Integration"* at the same conference on 23rd–25th July 2025.

Faculty FDPs / Seminars Attended

Faculty members Dr. N. Srinivas, R. Raja Kishore, Pranali Surkar, Dr. B. Koteswara Rao, and Dr. R. Prabhakar attended a workshop on Research Metrics and Intellectual Property Rights held at MLRITM from 7th to 12th July 2025.

Patents published

Mrs. S. K. Hima Bindu published a patent on 11th July 2025, titled *"Intelligent Solar Panel Monitoring System with Cloud-Integrated Fault Detection."*

Research grants

Dr. G. Amarnath received an AICTE-sponsored Research Grant of ₹2,50,000 for the project *"AI & ML-Driven Robotics: Perception, Planning, and Autonomous Control System"*, credited on 23rd June 2025.

Research proposals submitted

Mrs. Nagajyothi submitted a research proposal for institutional and academic advancement in July 2025.

Student internships & certifications

Students successfully participated in various internships and certification programs, strengthening industry readiness.

Nalla Vikram (247Y1D5504) completed summer internship training from 14-07-2025 to 26-07-2025 on RTL Design and Synthesis for Custom IP Blocks at Veramasa India Private Limited. P. Meghana-247Y1D5505 completed summer internship training from 14-07-2025 to 26-07-2025 on Design & Development of a Semi-Humanoid Robotics Assistant at ANVI Robotics Pvt Ltd. R. Abhilash-247Y1D5506 completed summer internship training from 14-07-2025 to 26-07-2025 Antenna Systems Design Intern – RF & Communication at SANSI RF and Communication Systems Private Limited

Student participation in conferences / workshops:

V. Abhinay (227Y1A0402) won 2nd Prize in the "Udbhav 2025 – The Founder's Formula: Design, Validate & Scale Market-Winning Products" Workshop, conducted at IIIT Hyderabad on 17th–18th July 2025.

Co-curricular activities

J. Bhuvana Chandra (227Y1A04D8) and K. Swathi (227Y1A04I5) participated in the Career Guidance Program on GATE, conducted on 22nd July 2025 at MLRITM.

Extra-curricular activities:

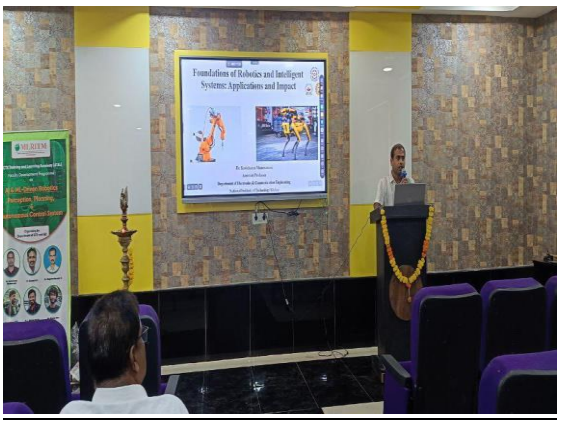
V. Abhinay (227Y1A0402) also excelled in the Udbhav 2025 competition, securing 2nd prize at IIIT Hyderabad.

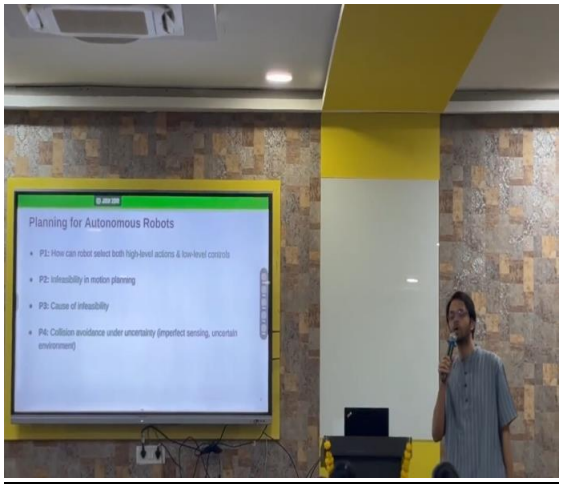
Professional memberships & society activities

Faculty and student members of IEEE/IETE organized the expert lecture "What's Beyond ChatGPT" on 25th July 2025, featuring *Mr. Sree Harish Mandadi (CISCO, USA)*.

EVENTS ORGANIZED:

AI & ML-Driven Robotics: Perception, Planning, and Autonomous Control System a one-week AICTE sponsored ATAL FDP is conducted from 28th July to 2nd August 2025 with total 50 participants from different parts of the States have registered and 50 are participated. The speakers for the 6-day workshop on "AI & ML-Driven Robotics: Perception, Planning, and Autonomous Control System" were Dr. Kavicharan Mummaneni, NIT Silchar, Dr. G. Amarnath, Professor MLRITM, Dr. Nagamanikandan Govindan, Assistant Professor IIIT Hyderabad.





DEPARTMENT ORIENTATION PROGRAM

The Department of Electronics & Communication Engineering at Marri Laxman Reddy Institute of Technology & Management organized a Department Orientation Program for B.Tech III Semester students on 4th August 2025. The event aimed to introduce students to departmental academic plans, examination structures, faculty expertise, professional opportunities, and co-curricular activities, preparing them for a successful academic journey ahead.

Department of ECE has organized Star Alumni Interaction Program with Ravi Sadam 207Y1A0436 Programmer and Analyst at Amazon on 23rd August at AROHA AV Centre.

STUDENT ACHIEVEMENTS

Proud moment for ECE to share that G. Karthikeya 237Y1A04E7, has successfully Registered his own start up with the valuable support of the IICand Centre for Ariel Defence, Space Research Centre MLRITM-RAL teams.

FACULTY ATTENDED FDP

Dr. N. Srinivas, S. Sindhu Rekha, V. Koteswara Rao, A. Anil Kumar, K. Manikanta, G.S.S. Varma, D. Rupa Kumar, nearly 20 faculty from the department has attended Faculty Development Programs conducted in the college MLRITM and few of the online FDP's namely AI & ML-Driven Robotics: Perception, Planning, and Autonomous Control System a one-week AICTE sponsored ATAL FDP is conducted from 28th July to 2nd August 2025 and Joy of AI in Action: Applying Traditional and Agentic AI to Real-World Problems.


ATAL/2025/175269687

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 Mrs. SURE SINDHU REKHA, Assistant Professor of MARRI LAXMAN REDDY INSTITUTE OF TECHNOLOGY AND MANAGEMENT has successfully participated & completed AICTE Training And Learning (ATAL) Academy Faculty Development Program on AI & ML-Driven Robotics: Perception, Planning, and Autonomous Control System at MARRI LAXMAN REDDY INSTITUTE OF TECHNOLOGY AND MANAGEMENT from 28/07/2025 to 02/08/2025.

AMARNATH GAINI
Professor Level (AICTE Institute), Coordinator
MARRI LAXMAN REDDY INSTITUTE OF TECHNOLOGY AND MANAGEMENT

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


ATAL/2025/1765786627

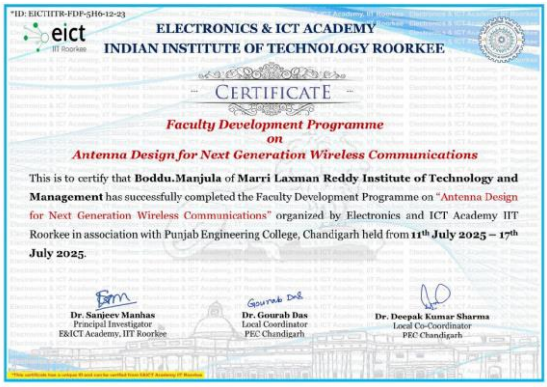
ALL INDIA COUNCIL FOR TECHNICAL EDUCATION
Nelson Mandela Marg, Vasant Kunj, New Delhi -110070
AICTE Training and Learning (ATAL) Academy

Certificate

It is certified that Dr. Srinivas Nallagonda, Professor of Marri Laxman Reddy Institute of Technology and Management has successfully participated & completed AICTE Training And Learning (ATAL) Academy Faculty Development Program on 5G: FUTURE IMPACT, AI COHERENCE AND ADHERANCE TO DIGITAL CONNECTIVITY at VIVEKANANDA INSTITUTE OF TECHNOLOGY from 25/08/2025 to 30/08/2025.

NALUGURU UDAYA KUMAR
Associate Professor Level (AICTE Institute), Coordinator
VIVEKANANDA INSTITUTE OF TECHNOLOGY

Dr. Sunil Luthra
Director & Bureau Head
Training and Learning Bureau, AICTE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ELECTRONICS & ICT ACADEMY
INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

CERTIFICATE

Faculty Development Programme
on
Antenna Design for Next Generation Wireless Communications

This is to certify that **Boddu.Manjula** of **Marri Laxman Reddy Institute of Technology and Management** has successfully completed the Faculty Development Programme on "Antenna Design for Next Generation Wireless Communications" organized by Electronics and ICT Academy IIT Roorkee in association with Punjab Engineering College, Chandigarh held from **11th July 2025 – 17th July 2025.**

Dr. Sanjeev Manhas
Principal Investigator
E&ICT Academy, IIT Roorkee

Dr. Gourab Das
Local Coordinator
PEC Chandigarh

Dr. Deepak Kumar Sharma
Local Co-Coordinator
PEC Chandigarh

Repuri Rajakishore Assistant Professor achieved a Certified Entrepreneurship Educator on 18- August 2025.

RESEARCH PROPOSALS:

Dr. N. Srinivas Professor, Head of the ECE department has submitted a research proposal on 24-08-2025 to DST titled Centre for Quantum Information and Computation-Integrated Learning and Laboratory Implementation of Quantum Technologies.

PAPERS PUBLISHED:

D.Malathi Rani Assistant Professor presented a paper entitled Intelligent Alzheimer Disease Identification using Hybrid Inspection V3 with MLP methods in the International Conference on modern Sustainable systems held during 12-14 August 2025 at Universiti Teknolgy MARA.

Dr. K. Kavitha Assistant Professor presented a paper entitled Optimizing Ergodic Rate and BER in PD-NOMA System Over Rayleigh/Rician Fading Channels in 2025 IEEE 2nd International Conference on Information Technology, Electronics and Intelligent Communication Systems (ICITEICS) during 30th to 31st August 2025 at Vemana Institute of Technology , Bengaluru.

M. Rajesh (237Y1D5501) and K. Anil Kumar (237Y1D5502) presented research papers at the IEEE International Conference on Emerging Trends in Signal Processing and Computational Intelligence, held at Government Junior College, Kozhikode, India, on 5th December 2025. M. Rajesh, along with I. Adumbabu, presented the

paper titled *"Design and Implementation of an IoT-Based Heart Rate and Temperature Monitoring System Using ThingSpeak,"* while K. Anil Kumar, with Dr. N. Srinivas, presented *"YOLO-Based Driver Monitoring System with Drowsiness and Alcohol Detection."* Both papers were accepted and indexed in Scopus, reflecting the research contributions of the M.Tech students.

STUDENTS INDUSTRIAL VISITS

On 1st August 2025, a group of students from MLR Institute of Technology and Management (MLRITM) had the opportunity to visit T Works, Hyderabad, India's largest prototyping center. The visit aimed to provide students with real-world exposure to innovation, design, and prototyping processes that complement their academic learning.

ICT STUDIO VIDEO LECTURES:

ICT videos presented by the faculty in the month of August.

SN	Name of Faculty	Course/Topic Name	YouTube Link
1.	Mr. Rupa Kumar	Introduction, database system applications	https://www.youtube.com/watch?v=v4V847faOEg
2.	Mrs. D. Rajitha	Introduction to wireless communication	https://www.youtube.com/watch?v=dQzcykql5ws
3.	Mr. K. Nagaraju	Introduction to Machine Learning	https://www.youtube.com/watch?v=ei-CJTaNF-o
4.	Mrs. S. Sindhu Rekha	Introduction to Embedded System	https://www.youtube.com/watch?v=AnjWrxyhQWc
5.	Mr. A. Anil Kumar	Introduction to Embedded System Design	https://www.youtube.com/watch?v=iceYgW9Y6lo
6.	Ms. Pranali Surkar	Introduction to IC technology	https://www.youtube.com/watch?v=L8yVZMir4Jk
7.	Mrs. Nagajyothi	Feedback and its effects	https://www.youtube.com/watch?v=N61msKKX5zI
8.	Mrs. D. Malathi Rani	Introduction to Machine Learning	https://www.youtube.com/watch?v=p7Wpy9cla0I
9.	Mr. A. Anil Kumar	History of Embedded System	https://www.youtube.com/watch?v=jKdCsTYqIW8

PROJECT PRESENTATIONS

Students J Anjali, J. Bhuvana Chandra, V Nishitha, M. Shivamani, D.Sree Datta Karthikeya Varma, K. Swathi from the Department have participated in a workshop Hands on Workshop Full wave Simulation CAD Tools: CST Microwave Studio conducted by KL University on 30-8-2025.


AZIZ Nagar Campus

CERTIFICATE
OF PARTICIPATION

Organized by Department of ECE KLH Aziz Nagar Campus
This Certificate is Presented to

J ANJALI

Marri Laxman Reddy Institute of Technology and Management

in recognition of participation in

Hands on Workshop
Fullwave Simulation CAD Tools: CST Microwave Studio
on 30th August 2025

Dr. K. Sai Kumar, ASSISTANT PROFESSOR, KLEF, HYDERABAD
Dr. Thirupathaiah Kola, IEEE SB COUNSILOR, KLEF, HYDERABAD
Mr. Parth Agarwal, TECHNICAL DIRECTOR, JYOTI ELECTRONICS
Dr. B. Anil Kumar, HEAD OF DEPARTMENT, ECE, KLEF, HYDERABAD
Head of the Department, Electronics & Communication Engineering, Koneru Lakshmaiah Education Foundation, Deemed to be University, Hyderabad-500075, T.S. India.

CERTIFICATE

OF PARTICIPATION

Organized by Department of ECE KLH Aziz Nagar Campus

This Certificate is Presented to

J. BHUVANA CHANDRA

MARRI LAXMAN REDDY INSTITUTE OF TECHNOLOGY AND MANAGEMENT

in recognition of participation in

Hands on Workshop

Fullwave Simulation CAD Tools: CST Microwave Studio on 30th August 2025

Dr. K. Sai Kumar, ASSISTANT PROFESSOR, KLEF, HYDERABAD
Dr. Thirupathaiah Kola, IEEE SB COUNSELOR, KLEF, HYDERABAD
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M.Shivamani

Marri Laxman Reddy Institute of Technology and Management

in recognition of participation in

Hands on Workshop

Fullwave Simulation CAD Tools: CST Microwave Studio on 30th August 2025

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Organized by Department of ECE KLH Aziz Nagar Campus

This Certificate is Presented to

D.Sree Datta Karthikeya Varma

Marri Laxman Reddy Institute of Technology and Management

in recognition of participation in

Hands on Workshop

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CERTIFICATE

OF PARTICIPATION

Organized by Department of ECE KLH Aziz Nagar Campus

This Certificate is Presented to

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in recognition of participation in

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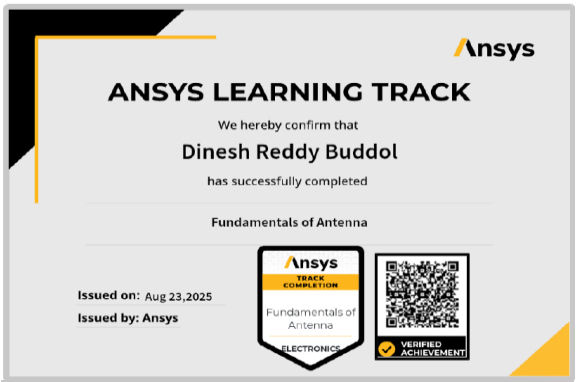
Head of the Department, Electronics & Communication Engineering, Koneru Lakshmaiah Education Foundation, Deemed to be University, Hyderabad-500075, T.S. India.

Few Students K Dileep Varma, E Sai Teja, D Dinesh, M. Mounika successfully completed the Fundamentals of Antenna course and received certificates on 22nd August conducted by Ansys.



Ansys

ANSYS LEARNING TRACK

We hereby confirm that

Dinesh Reddy Buddol

has successfully completed

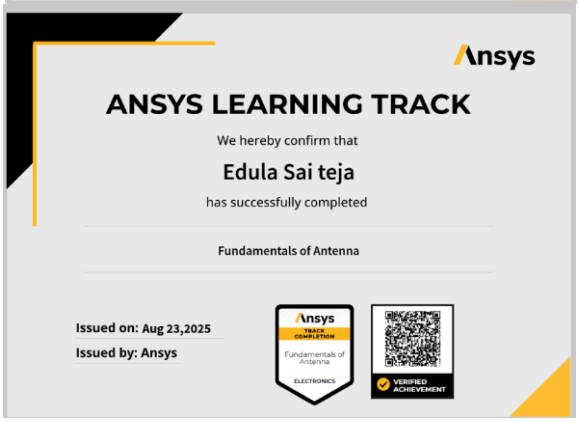
Fundamentals of Antenna

Issued on: Aug 23,2025

Issued by: Ansys

Ansys TRACK COMPLETION Fundamentals of Antenna ELECTRONICS

VERIFIED ACHIEVEMENT



Ansys

ANSYS LEARNING TRACK

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Edula Sai teja

has successfully completed

Fundamentals of Antenna

Issued on: Aug 23,2025

Issued by: Ansys

Ansys TRACK COMPLETION Fundamentals of Antenna ELECTRONICS

VERIFIED ACHIEVEMENT

CO-CURRICULAR ACTIVITIES

Department of ECE students G. Karthikeya (237y1A04E7) and N. Karthik Reddy (247Y5A0419) have conducted hands-on experience with Drone sparying Modern Tech Empowering Rural Framing, Warangal.

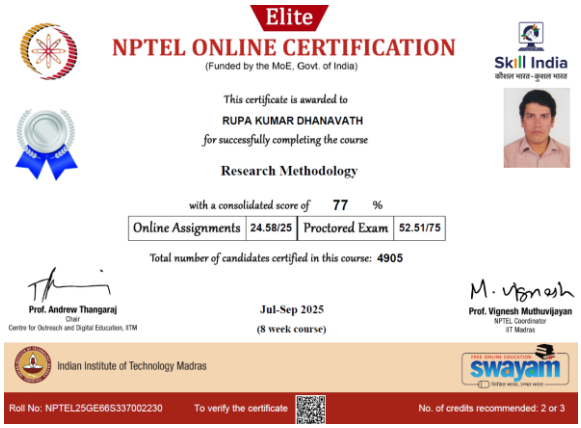
INTERACTION WITH OUTSIDE WORLD– INVITED TALKS/KEYNOTE ADDRESS

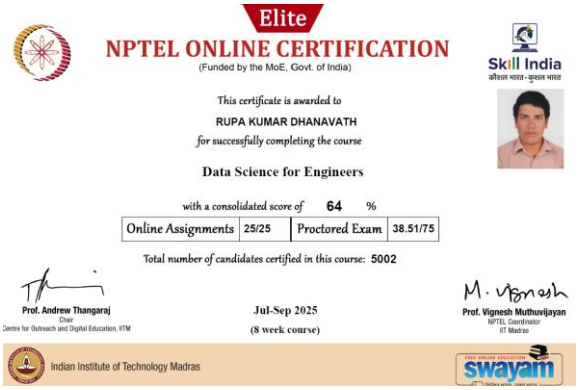
Mr. R Raja Kishore, Asst. Prof, Dept. of ECE, MLRITM attended an ATAL - FDP-Smarter Tomorrow: AI and Data Science in Action to

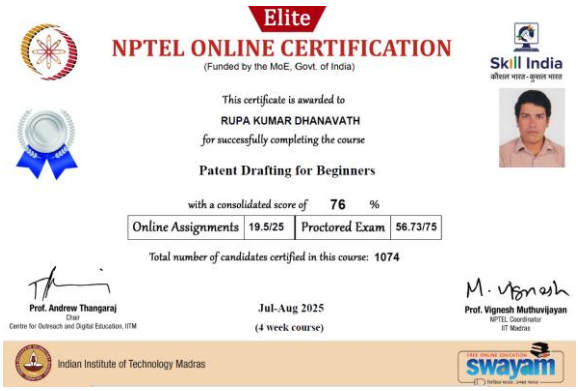
present lecture on the topic Data visualization with Matplotlib from 23rd to 25th September 2025 at MLRIT with 50 participants.

FACULTY ACHIEVEMENTS AND AWARDS

Mr. D. Rupa Kumar received a NPTEL-Elite Certificate & Silver Certificates for the NPTEL courses Research Methodology, Data Science for Engineers and Patent Drafting for Beginners conducted by IIT Madras in September 2025.


Elite
NPTEL ONLINE CERTIFICATION
(Funded by the MoE, Govt. of India)
Skill India
This certificate is awarded to
RUPA KUMAR DHANAVATH
for successfully completing the course
Research Methodology
with a consolidated score of 77 %
Online Assignments 24.58/25 | Proctored Exam 52.51/75
Total number of candidates certified in this course: 4905
Prof. Andrew Thangaraj
Jul-Sep 2025
(8 week course)
Prof. Vignesh Muthuvijayan
Indian Institute of Technology Madras
swayam
Roll No: NPTEL25GE66S337002230
To verify the certificate
No. of credits recommended: 2 or 3


Elite
NPTEL ONLINE CERTIFICATION
(Funded by the MoE, Govt. of India)
Skill India
This certificate is awarded to
RUPA KUMAR DHANAVATH
for successfully completing the course
Data Science for Engineers
with a consolidated score of 64 %
Online Assignments 25/25 | Proctored Exam 38.51/75
Total number of candidates certified in this course: 5002
Prof. Andrew Thangaraj
Jul-Sep 2025
(8 week course)
Prof. Vignesh Muthuvijayan
Indian Institute of Technology Madras
swayam


Elite
NPTEL ONLINE CERTIFICATION
(Funded by the MoE, Govt. of India)
Skill India
This certificate is awarded to
RUPA KUMAR DHANAVATH
for successfully completing the course
Patent Drafting for Beginners
with a consolidated score of 76 %
Online Assignments 19.5/25 | Proctored Exam 56.73/75
Total number of candidates certified in this course: 1074
Prof. Andrew Thangaraj
Jul-Aug 2025
(4 week course)
Prof. Vignesh Muthuvijayan
Indian Institute of Technology Madras
swayam

Mrs. Pranali Surkar Asst Professor, ECE department received a NPTEL-Elite Certificate & Silver Certificates for the NPTEL courses System Design through Verilog conducted by IIT Madras in September 2025.


Elite
NPTEL ONLINE CERTIFICATION
(Funded by the MoE, Govt. of India)
Skill India
This certificate is awarded to
PRANALI DILIP SURKAR
for successfully completing the course
System Design Through Verilog
with a consolidated score of 66 %
Online Assignments 24/25 | Proctored Exam 42/75
Total number of candidates certified in this course: 2095
Jul-Sep 2025
(8 week course)
Dr. Salil Kashyap
Coordinator, Centre for Educational Technology, IIT Guwahati
Indian Institute of Technology Guwahati
swayam

EVENTS ORGANIZED

A Three day Workshop on “Smarter Tomorrow: AI and Data Science in Action” sponsored by AICTE-VAANI scheme In Telugu Language is conducted from 23rd to 25th September 2025 with total 50

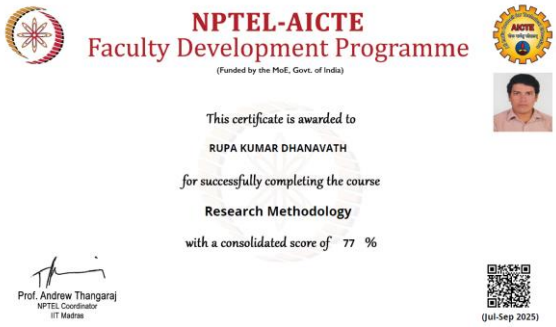
participants. The speakers for the 3-day workshop were Dr. P. Sridhar, Director, MLRITM, Hyderabad Prof. Raju. Bhukya, Dept of CSE, NITW, India Mrs. B. Pushpa, Deputy Manager (IT), Midhani, Hyderabad Mr. R Raja Kishore, Asst Professor, Dept of ECE, MLRITM, Hyderabad.

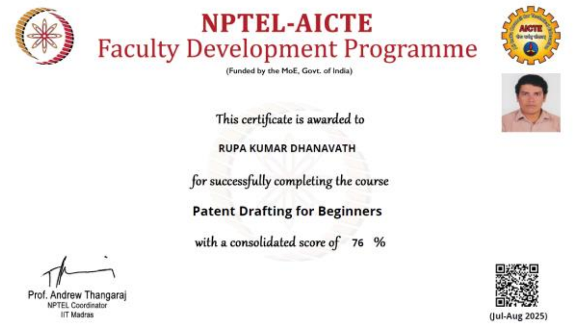
PAPERS PUBLISHED

Dr. B. Koteswara Rao, Asst Professor of ECE department published a paper in a conference Innovative Digital Technologies & Applications Sustainable Society Development 2025 titled Digital Design of 32-Bit CRC conducted on 27th and 28th September.

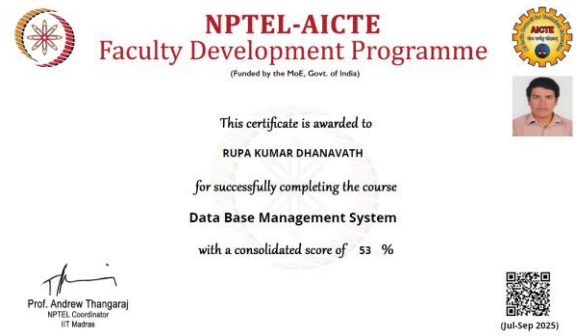
FACULTY ATTENDED FDP

D. Rupa Kumar, and Pranali Surkar from the department has attended NPTEL Faculty Development Programs namely Research Methodology, Data Science for Engineers and Patent Drafting for Beginners conducted by IIT Madras in September 2025. 2025.





NPTEL-AICTE
Faculty Development Programme
(Funded by the MoE, Govt. of India)
This certificate is awarded to
RUPA KUMAR DHANAVATH
for successfully completing the course
Patent Drafting for Beginners
with a consolidated score of 76 %
Prof. Andrew Thangaraj
NPTEL Coordinator
IIT Madras
(Jul-Aug 2025)



NPTEL-AICTE
Faculty Development Programme
(Funded by the MoE, Govt. of India)
This certificate is awarded to
RUPA KUMAR DHANAVATH
for successfully completing the course
Data Base Management System
with a consolidated score of 53 %
Prof. Andrew Thangaraj
NPTEL Coordinator
IIT Madras
(Jul-Sep 2025)

NPTEL-AICTE
Faculty Development Programme
(Funded by the MoE, Govt. of India)
This certificate is awarded to
PRANALI DILIP SURKAR
for successfully completing the course
System Design Through Verilog
with a consolidated score of 66 %
Prof. Andrew Thangaraj
NPTEL Coordinator
IIT Madras
(Jul-Sep 2025)
Roll No: NPTEL25EE180S637004545
Duration of NPTEL course : 8 Weeks

FACULTY ACHIEVEMENTS AND AWARDS:

Proud to announce that Dr.D. Rupa Kumar, Assistant Professor of ECE department, received a Gold Certificate for NPTEL for OBE and Accreditation from IISC Bangalore in October 2025.

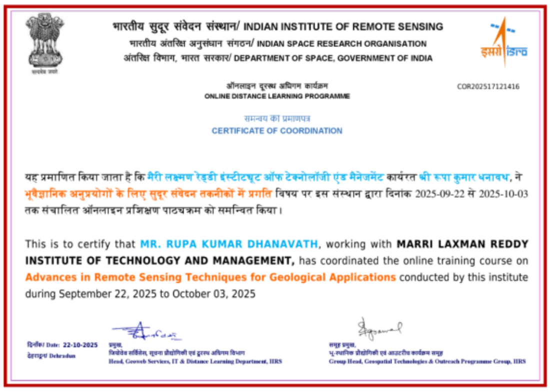
Elite
NPTEL ONLINE CERTIFICATION
(Funded by the MoE, Govt. of India)
This certificate is awarded to
RUPA KUMAR DHANAVATH
for successfully completing the course
OBE and Accreditation
with a consolidated score of 90 %

Online Assignments	21.88/25	Proctored Exam	67.75/75

Total number of candidates certified in this course: 1602
Jul-Oct 2025
(12 week course)
Prof. L. Umanand
NPTEL Coordinator & Chair, Centre for Continuing Education, IISc Bangalore
Indian Institute of Science Bangalore
Roll No: NPTEL25GE79S1158210067
To verify the certificate
No. of credits recommended: 3 or 4

EVENTS ORGANIZED:

Dr. D. Rupa Kumar, Assistant Professor of ECE department has coordinated the online training course on Advances in Remote Sensing Techniques for Geological Applications conducted by this institute during September 22, 2025 to October 03, 2025 with 50 students participated.



भारतीय सुदूर संवेदन संस्थान/ INDIAN INSTITUTE OF REMOTE SENSING
भारतीय अंतरिक्ष अनुसंधान संगठन/ INDIAN SPACE RESEARCH ORGANISATION
अंतरिक्ष विभाग, भारत सरकार/ DEPARTMENT OF SPACE, GOVERNMENT OF INDIA
ऑनलाइन दूरस्थ अधिगम कार्यक्रम
ONLINE DISTANCE LEARNING PROGRAMME
COR202517121416
समन्वय का प्रमाणपत्र
CERTIFICATE OF COORDINATION

This is to certify that MR. RUPA KUMAR DHANAVATH, working with MARRI LAXMAN REDDY INSTITUTE OF TECHNOLOGY AND MANAGEMENT, has coordinated the online training course on Advances in Remote Sensing Techniques for Geological Applications conducted by this institute during September 22, 2025 to October 03, 2025

दिनांक/ Date: 22-10-2025
देहरादून/ Dehradun

Dr. D. Rupa Kumar, Assistant Professor of ECE department has coordinated the online training course on Remote Sensing and Digital Image Analysis conducted by this institute during 25th August 2025 to 19th September 2025 with 50 students.

भारतीय सुदूर संवेदन संस्थान/ INDIAN INSTITUTE OF REMOTE SENSING
भारतीय अंतरिक्ष अनुसंधान संगठन/ INDIAN SPACE RESEARCH ORGANISATION
अंतरिक्ष विभाग, भारत सरकार/ DEPARTMENT OF SPACE, GOVERNMENT OF INDIA

ऑनलाइन दूरस्थ अधिगम कार्यक्रम
ONLINE DISTANCE LEARNING PROGRAMME

COR202516521416

सम्मान का प्रमाणपत्र
CERTIFICATE OF COORDINATION

यह प्रमाणित किया जाता है कि मैरी लक्ष्मण रेड्डी इंस्टीट्यूट ऑफ टेक्नोलॉजी एंड मैनेजमेंट कार्यरत श्री रूपा कुमार धनावथ, ने रिमोट सेंसिंग और डिजिटल इमेज विश्लेषण। विषय पर इस संस्थान द्वारा दिनांक 2025-08-25 से 2025-09-19 तक संचालित ऑनलाइन प्रशिक्षण पाठ्यक्रम को समन्वित किया।

This is to certify that **MR. RUPA KUMAR DHANAVATH**, working with **MARRI LAXMAN REDDY INSTITUTE OF TECHNOLOGY AND MANAGEMENT**, has coordinated the online training course on **Remote Sensing and Digital Image Analysis.** conducted by this institute during August 25, 2025 to September 19, 2025

दिनांक/ Date: 22-10-2025
देहरादून/ Dehradun

समूह प्रमुख, विभागीय सर्विसेज, सूदूर प्रौद्योगिकी एवं दूरस्थ अधिगम विभाग
Head, Geoweb Services, IT & Distance Learning Department, IIRS

समूह प्रमुख, भू स्थानिक प्रौद्योगिकी एवं आउटरीच कार्यक्रम समूह
Group Head, Geospatial Technologies & Outreach Programme Group, IIRS

NPTEL/MOOC COURSES

Mr. G. Siva Sankar Varma Assistant Professor, of ECE department completed NPTEL course on Machine Learning and Deep Learning – Fundamentals and Applications conducted by IIT Guwahati from July to October.

Elite
NPTEL ONLINE CERTIFICATION
(Funded by the MoE, Govt. of India)
Skill India

This certificate is awarded to
G SIVA SANKAR VARMA
for successfully completing the course
Machine Learning and Deep Learning - Fundamentals and Applications
with a consolidated score of 62 %

Online Assignments	22.78/25	Proctored Exam	39/75

Total number of candidates certified in this course: 1755

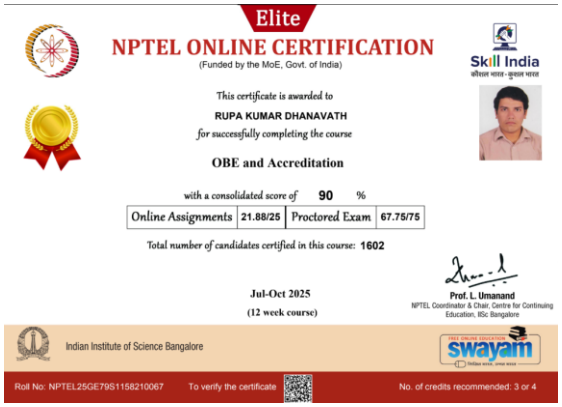
Jul-Oct 2025
(12 week course)

Dr. Salil Kashyap
Coordinator, Centre for Educational Technology, IIT Guwahati

Indian Institute of Technology Guwahati
swayam

Roll No: NPTEL25EE181S1258209059 To verify the certificate No. of credits recommended: 3 or 4

Dr. D. Rupa Kumar, Assistant Professor of ECE department completed NPTEL course on OBE and Accreditation conducted by IISC Bangalore from July to October.



Elite
NPTEL ONLINE CERTIFICATION
(Funded by the MoE, Govt. of India)
Skill India

This certificate is awarded to
RUPA KUMAR DHANAVATH
for successfully completing the course
OBE and Accreditation
with a consolidated score of 90 %

Online Assignments	21.88/25	Proctored Exam	67.75/75

Total number of candidates certified in this course: 1602

Jul-Oct 2025
(12 week course)

Prof. L. Umanand
NPTEL Coordinator & Chair, Centre for Continuing Education, IISc Bangalore

Indian Institute of Science Bangalore
swayam

Roll No: NPTEL25GE79S1158210067 To verify the certificate No. of credits recommended: 3 or 4

FACULTY ATTENDED FDP:

Mr.P.Mahesh, Assistant Professor of ECE department has attended Faculty Development Program on Cyber Security, conducted by ExcelR Edtech Pvt. Ltd. in collaboration with Saraswati College of Engineering from 13th October to 17th October.

SARASWATI College of Engineering
EXCELR Raising Excellence

Certificate Of Participation
Awarded To
Padigela Mahesh
For attending the Faculty Development Program on Cyber Security,
conducted by ExcelR Edtech Pvt. Ltd. in collaboration with
Saraswati College of Engineering, Kharghar &
Jawaharlal Nehru New College of Engineering, Shivamogga
Program Date: 13th October 2025 to 17th October 2025

Dr. Manjusha Deshmukh, Principal, Saraswati College of Engineering, Kharghar
Dr. Y Vijaya Kumar, Principal, Jawaharlal Nehru New College of Engineering, Shivamogga
Ram Tavva, CEO, ExcelR Edtech Pvt. Ltd.

Mrs. Nagajyothi Assistant Professor of ECE department has attended an Online course conducted during 25 August 2025 to 19 September 2025 by (Concerned IIRS Nodal Centre- Marri Laxman Reddy Institute of Technology and Management).

अंतरिक्ष विभाग/DEPARTMENT OF SPACE
भारत सरकार/GOVERNMENT OF INDIA
भारतीय अंतरिक्ष अनुसंधान संगठन/INDIAN SPACE RESEARCH ORGANISATION
भारतीय सुदूर संवेदन संस्थान, देहरादून/INDIAN INSTITUTE OF REMOTE SENSING, DEHRADUN

नामांकन सं./ Enrolment No.: 20251652841396

CERTIFICATE OF MERIT
ONLINE COURSE

यह प्रमाणपत्र
MRS. NAGAJYOTHI
को "रिमोट सेंसिंग और डिजिटल इमेज विश्लेषण" में ऑनलाइन पाठ्यक्रम पूर्ण करने पर प्रदान किया जाता है।
इस ऑनलाइन पाठ्यक्रम का आयोजन 2025-08-25 से 2025-09-19 (कुल पाठ्यक्रम की अवधि = 16 घंटे) के दौरान किया गया।

THIS CERTIFICATE IS
AWARDED TO
MRS. NAGAJYOTHI
ON COMPLETION OF THE ONLINE COURSE ON
"Remote Sensing and Digital Image Analysis."
THIS ONLINE COURSE WAS CONDUCTED DURING 25 August 2025 to 19 September 2025 (Total course duration = 16 hrs).
(Concerned IIRS Nodal Centre- MARRI LAXMAN REDDY INSTITUTE OF TECHNOLOGY AND MANAGEMENT)

Online Exam Grade: A
Attendance: 88 %

Date: 22-10-2025
Place: Dehradun
समन्वयक, विश्वविद्यालय/संस्थान
Coordinator, University/ Institution
निदेशक/ Director
आई.आई.आर.एस, देहरादून/ IIRS, Dehradun

Mr. G. Siva Sankar Varma Assistant Professor of ECE department has attended NPTEL Faculty Development Program.

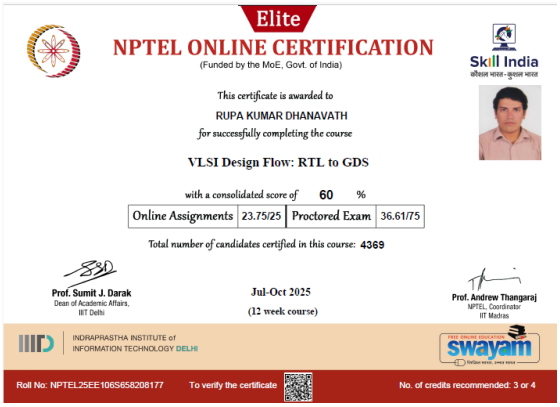
FACULTY INTERACTION WITH OUTSIDE WORLD– INVITED

TALKS/KEYNOTE ADDRESS:

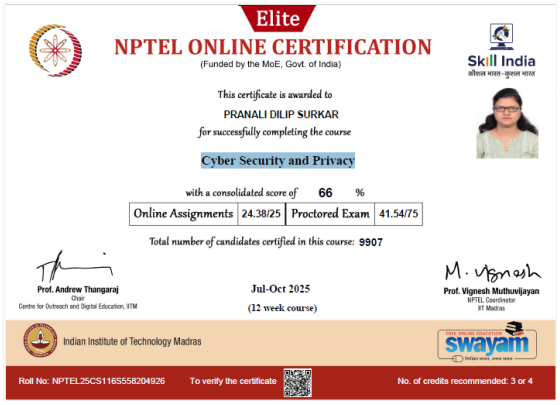
Mr. R. Raja Kishore Assistant Professor of MLRITM in ECE department attended the IIC Regional meet event as a Guest Lecture on the topic Innovation and Excellence conducted at MLRITM on 25th November.

FACULTY ACHIEVEMENTS AND AWARDS:

Dr. Rupa Kumar Assistant Professor in the ECE Department has received an ELITE Certificate in VLSI Design Flow: RTL to GDS from IIT Madras in November.



Mrs. Pranali Surkar Assistant Professor of ECE Department has received an ELITE Certificate in Cyber Security and Privacy from IIT Madras in November.



NPTEL/MOOC COURSES:

Few faculty from the department of ECE have completed the following NPTEL/MOOC courses in the minth of November. A list of faculty is mention below.

S.No	Name of the faculty	Name of MOOC Course	Month and Year	Name of theorganization
1	Dr K.Manikanta	Introduction to Machine Learning	November	IIT MADRAS
2	Dr. D Rupa Kumar	VLSI Design Flow:RTL to GDS	November	IIT Madras
3	Dr. D. Rupa Kumar	Ethics in Engineering Practice	November	IIT KHARAGPUR
4	Mrs. Pranali Surkar	Cyber Security and Privacy	November	IIT Madras
5	Dr. D. Rupa Kumar	Analog Communication	November	IIT KHARAGPUR
6	Dr. D. Rupa Kumar	Introduction to Industry 4.0 and Industrial Internet of Things	November	IIT KHARAGPUR
7	Mrs. Pranali Surkar	Computer Architecture and Organization	November	IIT KHARAGPUR
8	Mrs. S K Hima Bindhu	Programming in Java	November	IIT KHARAGPUR
9	Dr K.Manikanta	Python for Data Science	November	IIT MADRAS
10	Dr. D. Rupa Kumar	Research Methodology	November	IIT MADRAS
11	Dr. D. Rupa Kumar	Data Science for Engineers	November	IIT MADRAS
12	Dr. D. Rupa Kumar	Patent Drafting for Beginners	November	IIT MADRAS

Elite

NPTEL ONLINE CERTIFICATION

(Funded by the MoE, Govt. of India)

Skill India

This certificate is awarded to

RUPA KUMAR DHANAVATH

for successfully completing the course

Ethics in Engineering Practice

with a consolidated score of 71 %

Online Assignments	22.92/25	Proctored Exam	48/75

Total number of candidates certified in this course: 4112

Aug-Oct 2025

(8 week course)

Prof. Haimanti Banerji

Coordinator, NPTEL

IIT Kharagpur

Indian Institute of Technology Kharagpur

swayam

Roll No: NPTEL25MG141S1258210828 To verify the certificate No. of credits recommended: 2 or 3

Elite

NPTEL ONLINE CERTIFICATION

(Funded by the MoE, Govt. of India)

Skill India

This certificate is awarded to

PRANALI DILIP SURKAR

for successfully completing the course

Computer Architecture and Organization

with a consolidated score of 69 %

Online Assignments	23.38/25	Proctored Exam	45.75/75

Total number of candidates certified in this course: 2122

Jul-Oct 2025

(12 week course)

Prof. Haimanti Banerji

Coordinator, NPTEL

IIT Kharagpur

Indian Institute of Technology Kharagpur

swayam

Roll No: NPTEL25C Ask AI Assistant mmended: 3 or 4

Elite

NPTEL ONLINE CERTIFICATION

(Funded by the MoE, Govt. of India)

Skill India

This certificate is awarded to

S K HIMABINDHU

for successfully completing the course

Programming In Java

with a consolidated score of 85 %

Online Assignments	24.94/25	Proctored Exam	60/75

Total number of candidates certified in this course: 26183

Jul-Oct 2025

(12 week course)

Prof. Haimanti Banerji

Coordinator, NPTEL

IIT Kharagpur

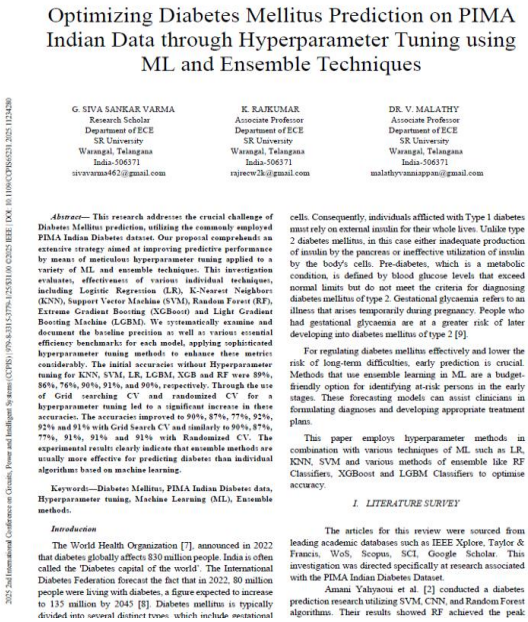
Indian Institute of Technology Kharagpur

swayam

Roll No: NPTEL25CS110S358201125 To verify the certificate No. of credits recommended: 3 or 4

PAPER PUBLISHED IN CONFERENCES:

Mr. G Siva Sankar Varma Assistant Professor, of ECE department attended an online International Conference on Circuits, Power and Intelligent Systems (CCPIS) on November 2nd 2025, where his paper got published in the indexing Google scholar titled Optimizing Diabetes mellitus prediction through hyper parameter tuning using ML and Ensemble techniques.



Optimizing Diabetes Mellitus Prediction on PIMA Indian Data through Hyperparameter Tuning using ML and Ensemble Techniques

G. SIVA SANKAR VARMA
Research Scholar
Department of ECE
SR University
Warangal, Telangana
India-506371
sivavarma462@gmail.com

K. RAJKUMAR
Associate Professor
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DR. V. MALATHY
Associate Professor
Department of ECE
SR University
Warangal, Telangana
India-506371
malathyvaniappa@gmail.com

Abstract— This research addresses the crucial challenge of Diabetes Mellitus prediction, utilizing the commonly employed PIMA Indian Diabetes dataset. Our proposal comprehends an extensive strategy aimed at improving predictive performance by means of meticulous hyperparameter tuning applied to a variety of ML and ensemble techniques. This investigation evaluates, effectiveness of various individual techniques, including Logistic Regression (LR), K-Nearest Neighbors (KNN), Support Vector Machine (SVM), Random Forest (RF), Extreme Gradient Boosting (XGBoost) and Light Gradient Boosting Machine (LGBM). We systematically examine and document the baseline precision as well as various essential efficiency benchmarks for each model, applying sophisticated hyperparameter tuning methods to enhance these metrics considerably. The initial accuracies without Hyperparameter tuning for KNN, SVM, LR, LGBM, XGB and RF were 89%, 86%, 76%, 90%, 91%, and 90%, respectively. Through the use of Grid searching CV and randomized CV for a hyperparameter tuning led to a significant increase in these accuracies. The accuracies improved to 90%, 87%, 77%, 92%, 92% and 91% with Grid Search CV and similarly to 90%, 87%, 77%, 91%, 91% and 91% with Randomized CV. The experimental results clearly indicate that ensemble methods are usually more effective for predicting diabetes than individual algorithms based on machine learning.

Keywords—Diabetes Mellitus, PIMA Indian Diabetes data, Hyperparameter tuning, Machine Learning (ML), Ensemble methods.

Introduction

The World Health Organization [7], announced in 2022 that diabetes globally affects 830 million people. India is often called the 'Diabetes capital of the world'. The International Diabetes Federation forecast the fact that in 2022, 80 million people were living with diabetes, a figure expected to increase to 135 million by 2045 [8]. Diabetes mellitus is typically divided into several distinct types, which include gestational cells. Consequently, individuals afflicted with Type 1 diabetes must rely on external insulin for their whole lives. Unlike type 2 diabetes mellitus, in this case either inadequate production of insulin by the pancreas or ineffective utilization of insulin by the body's cells. Pre-diabetes, which is a metabolic condition, is defined by blood glucose levels that exceed normal limits but do not meet the criteria for diagnosing diabetes mellitus of type 2. Gestational glycaemia refers to an illness that arises temporarily during pregnancy. People who had gestational glycaemia are at a greater risk of later developing into diabetes mellitus of type 2 [9].

For regulating diabetes mellitus effectively and lower the risk of long-term difficulties, early prediction is crucial. Methods that use ensemble learning in ML are a budget-friendly option for identifying at-risk persons in the early stages. These forecasting models can assist clinicians in formulating diagnoses and developing appropriate treatment plans.

This paper employs hyperparameter methods in combination with various techniques of ML such as LR, KNN, SVM and various methods of ensemble like RF Classifiers, XGBoost and LGBM Classifiers to optimise accuracy.

I. LITERATURE SURVEY

The articles for this review were sourced from leading academic databases such as IEEE Xplore, Taylor & Francis, WoS, Scopus, SCI, Google Scholar. This investigation was directed specifically at research associated with the PIMA Indian Diabetes Dataset.

Amani Yahyaou et al. [2] conducted a diabetes prediction research utilizing SVM, CNN, and Random Forest algorithms. Their results showed RF achieved the peak

2025 2nd International Conference on Circuits, Power and Intelligent Systems (CCPIS) | 979-8-3315-3779-1/25/$31.00 ©2025 IEEE | DOI: 10.1109/CCPIS65251.2025.11234280

PAPERS PUBLISHED IN JOURNALS

Dr. K. Manikanta Assistant Professor, of ECE department published a paper in IEEE, in November titled Study of Digital Circuit Characteristics using GAA-Nanowire FET.

Study of Digital Circuit Characteristics using GAA-Nanowire FET

1st Mounika Sreeram
School of Electronics Engineering
VIT-AP University, Inavolu, besides AP Secretariat
Amaravati AP, India
mounikadurvvari123@gmail.com

2nd Manikanta Kurivella
Department of Electronics and Communication Engineering
Marri Laxman Reddy Institute of Technology and Management
Hyderabad-500043,India
manikanta.kurivella123@gmail.com

3rd Umakanta Nanda
School of Electronics Engineering
VIT-AP University, Inavolu, besides AP Secretariat
Amaravati AP, India
uk_nanda@yahoo.co.in

4th Niroj Kumar Patra
School of Electronics Engineering
VIT-AP University, Inavolu, besides AP Secretariat
Amaravati AP, India
niroj.24mvd7017@vitapstudent.ac.in

Abstract—The continuous scaling of CMOS technology has introduced significant challenges such as increased leakage power, short-channel effects, and degraded subthreshold performance. To overcome these limitations, advanced transistor architectures like Gate-All-Around Nanowire Field-Effect Transistors (GAA-NWFETs) have emerged as promising alternatives due to their superior electrostatic control and scalability. This paper presents a comprehensive study on the digital circuit characteristics of GAA-NWFETs, focusing on their electrical performance and suitability for logic design. Key device metrics such as ON-current (I_{ON}), OFF-current (I_{OFF}), subthreshold slope (SS), drain-induced barrier lowering (DIBL), and I_{ON}/I_{OFF} ratio are extracted using TCAD simulations. The results demonstrate enhanced switching behavior and reduced leakage, confirming the potential of GAA-NWFETs in high-performance, low-power digital circuits. Furthermore, digital building blocks like inverter circuits are analyzed to evaluate their static and dynamic performance using the proposed device structure. The findings validate the feasibility of GAA-NWFET-based circuits for next-generation integrated systems, offering a pathway toward energy-efficient nanoelectronics designs.

Index Terms—GAA-NWFET, Digital Circuits, Low Power Design, Short-Channel Effects, TCAD Simulation

I. Introduction

With the continuous scaling of semiconductor devices, traditional MOSFET architectures face significant challenges such as increased short-channel effects (SCEs), leakage currents, and degraded performance. To address these limitations, Gate-All-Around (GAA) Nanowire FETs (GAA-NWFET) [1]–[3] have emerged as a promising alternative due to their superior electrostatic control, reduced leakage, and enhanced scalability. These multi-gate transistors offer improved subthreshold slope, higher drive current, and reduced power dissipation, making them well-suited for next-generation low-power digital circuits. The study of digital circuit characteristics using GAA-NWFETs is crucial for understanding their impact on circuit performance, including switching speed, noise margins, power consumption, and propagation delay.

Recent advancements in Gate-All-Around Nanowire Field-Effect Transistors (GAA-NWFETs) have significantly influenced the design of high-performance and energy-efficient digital circuits. Owing to their superior electrostatic control, GAA-NWFETs have emerged as promising candidates for sub-5nm technology nodes. Several researchers have investigated device optimization, modeling, and application of GAA-NWFETs in logic and memory circuits.

Huang et al. [4] proposed a single-drain GAA silicon nanowire FET fabricated through low-thermal-budget processes such as nanosecond laser crystallization and far-infrared laser annealing. Their fabricated device achieved a subthreshold swing of 65 mV/dec and high drive currents for both NMOS and PMOS, demonstrating suitability for monolithic 3D integration and neuromorphic computing applications.

In another study, Sreenivasulu and Narendar [5] examined the impact of asymmetric and symmetric spacer length variation in silicon-on-insulator (SOI) junctionless vertically stacked nanowire FETs. Their results indicated a substantial improvement in the I_{ON}/I_{OFF} ratio (2.19×10^8) with an optimized 25 nm drain-side spacer, enhancing the switching characteristics and noise margin of CMOS inverter circuits. This work is pivotal in understanding spacer engineering for digital logic performance.

Gupta et al. [6] explored the analog and linearity characteristics of a 20 nm GAA-GaN/Al_2O_3 nanowire MOSFET, emphasizing its relevance to high-frequency and low-power analog applications. Their study reported a switching ratio of 10^8, low subthreshold swing (67 mV/dec), and improved transconductance. Additionally, the device showed low harmonic distortion, confirming its applicability in linear analog circuits.

Another notable work by Baishya et al. [7] introduced a gate-engineered charge plasma GAA nanowire FET for analog amplifier applications. The proposed structure utilized a dual-material gate and gate stack configuration, leading to

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Faculty Attended FDP:

A list of faculty mentioned below have attended the following Faculty Development Programs in the month of November.

S.No	Name ofthefaculty	Designation	Titleofthe Seminar/Workshop/Conference	Place	Dates
1	B Manjula	Assistant Professor	Overview of Geographical Information System	ISRO	November 2025
2	Pranali Surkar	Assistant Professor	Cyber Security and Privacy	IIT Madras	November 2025
3	Dr. D. Rupa Kumar	Assistant Professor	Ethics in Engineering Practice	IIT KHARAGPUR	November 2025
4	Dr. D. Rupa Kumar	Assistant Professor	Introduction to Industry 4.0 and Industrial Internet of Things	IIT KHARAGPUR	November 2025
5	Dr. D Rupa Kumar	Assistant Professor	VLSI Design Flow:RTL to GDS	IIT Madras	November 2025

CERTIFICATE OF ATTENDANCE

ONLINE COURSE

MRS. BODDU MANJULA

THIS CERTIFICATE IS AWARDED TO MRS. BODDU MANJULA ON ATTENDED THE ONLINE COURSE ON "Overview of Geographical Information System"

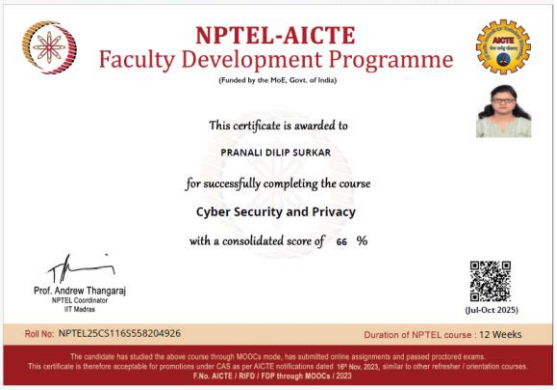
THIS ONLINE COURSE WAS CONDUCTED DURING 06 October 2025 to 29 October 2025 (Total course duration = 14 hrs).

(Concerned IIRS Nodal Centre- MARRI LAXMAN REDDY INSTITUTE OF TECHNOLOGY AND MANAGEMENT)

Attendance: 100 %

Date: 14-11-2025

Place: Dehradun



NPTEL-AICTE

Faculty Development Programme

(Funded by the MoE, Govt. of India)

This certificate is awarded to

PRANALI DILIP SURKAR

for successfully completing the course

Cyber Security and Privacy

with a consolidated score of 66 %

Prof. Andrew Thangaraj

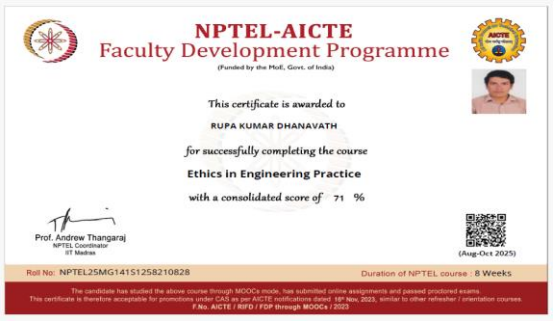
NPTEL Coordinator

IIT Madras

(Jul-Oct 2025)

Roll No: NPTEL25CS1165558204926

Duration of NPTEL course : 12 Weeks



NPTEL-AICTE

Faculty Development Programme

(Funded by the MoE, Govt. of India)

This certificate is awarded to

RUPA KUMAR DHANAVATH

for successfully completing the course

Ethics in Engineering Practice

with a consolidated score of 71 %

Prof. Andrew Thangaraj

NPTEL Coordinator

IIT Madras

(Aug-Oct 2025)

Roll No: NPTEL25MG141S1258210828

Duration of NPTEL course : 8 Weeks

INITIATIONS TOWARDS SLOW LEARNERS AND ADVANCED LEARNERS:

Slow Learners of about 43 students are identified from the department and arranged imposition classes in November.

S.NO	ROLLNUMBER
1	237Y1A0402
2	237Y1A0405
3	237Y1A0413
4	237Y1A0438
5	237Y1A0450
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8	237Y1A0470
9	237Y1A0483
10	237Y1A0498
11	237Y1A04A0
12	237Y1A04G8
13	237Y1A04H0
14	247Y5A0418
15	247Y5A0424
16	227Y1A04B3
17	227Y1A04C2
18	227Y1A04E7
19	227Y1A04I2
20	237Y1A0417
21	237Y1A0419
22	237Y1A0434
23	237Y1A0440
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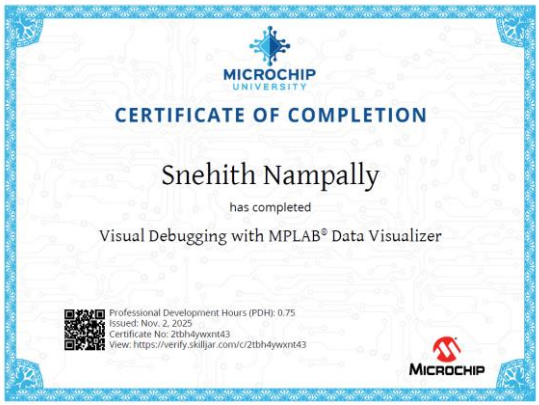
34	237Y1A04E8
35	237Y1A04F2
36	237Y1A04F4
37	237Y1A04F7
38	237Y1A04F9
39	237Y1A04G6
40	237Y1A04H1
41	237Y1A04H5
42	237Y1A04H8
43	237Y1A04I0

STUDENT INDUSTRY VISITS:

Karthikeya Gundlapally has attended one day Regional meet and received a participation certificate hosted by Gokaraju Rangaraju Institute of Engineering and Technology Hyderabad on 25th November.

STUDENT INTERNSHIPS/ STUDENT CERTIFICATIONS

Snehith Nampally bearing roll number 247Y1A0439 has completed online course on Visual Debugging with MPLAB® Data Visualizer organized by Microchip University on November 2nd 2025.



Bethala Daniel Joseph bearing roll number 247Y1A0415 has completed online course on 8 Bit Microcontrollers: Architecture of the PIC1610 organized by Microchip University on November 2nd 2025.

FACULTY ACHIEVEMENTS AND AWARDS:

Dr. Rupa Kumar Assistant Professor in the ECE Department has received NPTEL Champion Star and NPTEL Enthusiasts in December 2025 from IIT Madras.

Mrs. Pranali Surkar Assistant Professor of ECE Department has received NPTEL Discipline Star and NPTEL Beleiver in in December 2025 from IIT Madras and IIT Guwahati.

EVENTS ORGANIZED:

Dr. R Raja Kishore, Assistant Professor, from Dept of ECE, as the Co-Convener organized Smart India Hackathon Grand Finale 2025 with All Evaluators appointed by AICTE on 8th and 9th December 2025 where almost around more than 100 participants from different parts of INDIA have attended.

PAPER PUBLISHED IN CONFERENCES:

Dr. K Kavitha Assistant Professor, of ECE department attended 5th IEEE International Conference on Mobile Networks and Wireless Communications (ICMNWC-2025) at Sri Siddhartha Institute of Technology, Tumakuru in association with IEEE Bangalore Section on 10th and 11th December 2025, where the paper got published in the Scopus indexing titled Energy Efficient FD Cooperative SWIPT-NOMA System Over Rayleigh Fading Channel.

PAPERS PUBLISHED IN JOURNALS:

Dr. K. Manikanta Assistant Professor, of ECE department published a paper in IEEE, in November titled Study of Digital Circuit Characteristics using GAA-Nanowire FET.

Study of Digital Circuit Characteristics using GAA-Nanowire FET

1st Mounika Sreeram
School of Electronics Engineering
VIT-AP University, Inavolu, besides AP Secretariat
Amaravati AP, India
mounikaduvvuri123@gmail.com

2nd Manikanta Kurivella
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3rd Umakanta Nanda
School of Electronics Engineering
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4th Niroj Kumar Patra
School of Electronics Engineering
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Amaravati AP, India
niroj.24mvd7017@vitapstudent.ac.in

***Abstract*—The continuous scaling of CMOS technology has introduced significant challenges such as increased leakage power, short-channel effects, and degraded subthreshold performance. To overcome these limitations, advanced transistor architectures like Gate-All-Around Nanowire Field-Effect Transistors (GAA-NWFETs) have emerged as promising alternatives due to their superior electrostatic control and scalability. This paper presents a comprehensive study on the digital circuit characteristics of GAA-NWFETs, focusing on their electrical performance and suitability for logic design. Key device metrics such as ON-current (I_{ON}), OFF-current (I_{OFF}), subthreshold slope (SS), drain-induced barrier lowering (DIBL), and I_{ON}/I_{OFF} ratio are extracted using TCAD simulations. The results demonstrate enhanced switching behavior and reduced leakage, confirming the potential of GAA-NWFETs in high-performance, low-power digital circuits. Furthermore, digital building blocks like inverter circuits are analyzed to evaluate their static and dynamic performance using the proposed device structure. The findings validate the feasibility of GAA-NWFET-based circuits for next-generation integrated systems, offering a pathway toward energy-efficient nanoelectronics design.**

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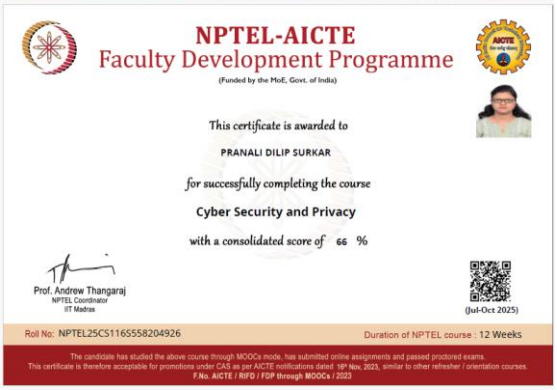

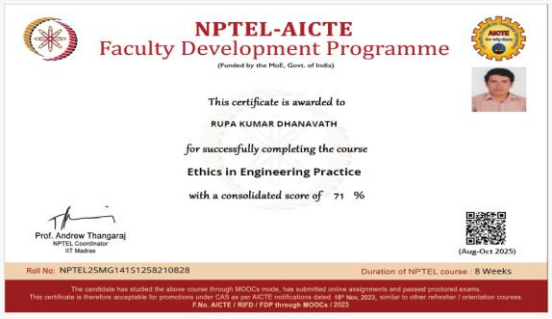

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25	237Y1A0456
26	237Y1A0464
27	237Y1A0466
28	237Y1A0481
29	237Y1A0496
38	237Y1A04F9

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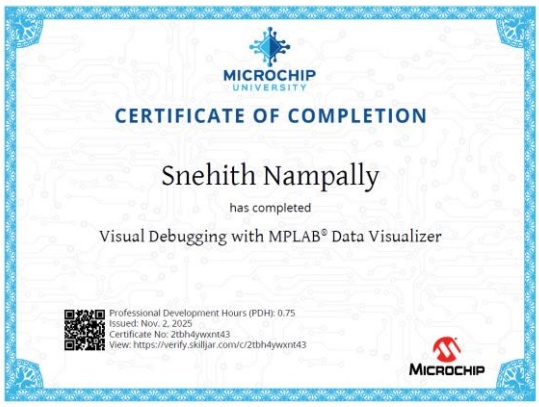

Bethala Daniel Joseph bearing roll number 247Y1A0415 has completed online course on 8 Bit Microcontrollers: Architecture of the PIC1610 organized by Microchip University on November 2nd 2025. Mangalagiri Rajesh (247Y1D5502) and Nalla Vikram (247Y1D5504) secured placements at **Unistring Tech Solutions Private Limited** on 18-11-2025 with a package of 2.7 LPA. Nacham Sathvik (247Y1D5503) was placed at **Integer Telecom Services (India) Pvt Ltd** on 21-11-2025 with a package of 3 LPA. P. Meghana (247Y1D5505) and Rangineni Abhilash (247Y1D5506) secured placements at **KT Semicon Pvt Ltd** on 28-10-2025 with a package of 3.5 LPA.