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Department of Electronics and Communication Engineering

E-Spectrum

(The Department Highlights of a quarter year)

Vol.1 A.Y 2021-22 | Issue: 4 April - June| 2022

Chief Editor: Dr.S.V.S Prasad, HOD ECE

0

Students Coordinators:

19R21A0488- M.Vardan- III Year

19R21A04A1- P. Charan -III Year

19R21A04D0- CH. Aiswarya -III Year

19R21A04D1- D.Harika -III Year

Editorial Board

S No.	Name of Faculty	Designation
1	Dr S.V.S Prasad	Chief Editor
2	Dr.T. S Arulananth	Assoc. Editor
3	Mrs.T. Vijetha	Manuscript Editor

HOD Message…..

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It gives me immense pleasure to pen this message for E-Spectrum, our department magazine that captures the vibrant academic and co-curricular pulse of the Department of Electronics and Communication Engineering at MLR Institute of Technology. Over the past academic year, our department has made significant strides in academic excellence, innovation, and holistic student development. Our dedicated faculty have actively contributed to research with several high-impact publications, and successfully filed eight patents across emerging domains such as thin-film technology, noise estimation for hearing aids, and lightweight ciphers for IoT. We are proud to share that a number of our faculty members also completed MOOCs/NPTEL certifications, and participated in and organized Faculty Development Programs (FDPs) on cutting-edge topics. Furthermore, we organized expert guest lectures, bridging academic knowledge with real-world industry insights, and promoting interdisciplinary learning. As we continue to strive for excellence, I take this opportunity to thank our management, faculty, students, and stakeholders for their unwavering support and commitment. Let us continue to grow, innovate, and shine as a beacon of academic distinction.

Dr. S.V.S. Prasad
Head of the Department, ECE
MLR Institute of Technology

Assoc. Editor Message….

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Dr. T S Arulananth
Professor, Department of ECE,
MLR Institute of Technology

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Program Specific Outcomes (PSOs)

PSO1: Proficiency in Specialized software tools and computer programming useful for the analysis/design of embedded systems and VLSI.

PSO2: Capability to comprehend the Technological Advancements in Radio frequency (RF), Communication and Digital Signal Processing.

Achievements of ECE Department...

Introduction

The Department of Electronics and Communication Engineering (ECE) continues to foster innovation, research, and professional development. The period from April to June 2022 saw remarkable achievements by students in technical expos and active faculty engagement through workshops, conferences, and research publications. This edition captures key contributions under various categories including workshops, FDPs, conferences, journals, and collaborative student projects.

1.ECE Students won 1st prize in project Expo(Snake Robot) SPOORTHI-22 Organised by JNTUH.awarded Cash prize of 2,000/- Rs [12th/13thApril 2022].

2. ECE students Won FIRST in Project Expo (Plant leaf disease Detection) event name TECHNOVATION-2022 conducted by St.Martin's Engineering college HYD.awarded Cash prize of 3,000/- Rs [29th April 2022]

Workshops/Guest lectures

Department of ECE Conducted PCB-2022, a two-day's workshop on Proteus Software, was organized by the Robotic Club of the Electronics and Communication Engineering (ECE) Department in collaboration with IEEE, IETE, and ISTE on the 24th and 25th of April, 2022. This event aimed to provide hands-on training and foundational knowledge to students in single layer and double layer.

Faculty as Resource Persons in STTP/FDPs

This table lists faculty who contributed as resource persons in Faculty Development Programs. Notably, Dr. S.V.S. Prasad, Professor at MLRIT, served as a key speaker in a one-week FDP on "Applied AI in Communication and Embedded Systems" held on 20th April 2022 in Hyderabad. This reflects the department's contribution to knowledge dissemination in emerging areas like AI and embedded systems.

Table1: List of faculty members as resource person in STTP/FDP events.

S.N.	Name of the Faculty as Resource Person	Name of the STTP/FDP	Date	Location	Organized by
		Academic year 2021-22			
1	Dr S V S Prasad/ Professor/ MLRIT	One week FDP on Applied AI in Communication and Embedded Systems	20/4/2022	Hyderabad	MLRIT

Conference Publications – 2021–22

ECE faculty demonstrated strong research involvement through six conference papers published between April and June 2022, primarily through IEEE platforms and Springer. Highlights include:

- Smart Trolley with Automated Billing and Nano-HEMT device modeling by Dr. Rajan Singh.
- Wideband 5G Antenna Design by Dr. Kiran Chand Ravi.
- Contributions in VLSI architecture and high-power nanoelectronics research by other faculty members.

These works represent a diverse research focus spanning AI, VLSI, and next-gen communication systems.

Table2: Number of Conferences

Sl. No.	Name of the faculty	Title of the paper	Year of Publication	Month of Publication	Conference Details	DOI
1	Dr. Rajan Singh	Smart Trolley Using Automated Billing Interface	April	2022	IEEE	10.1109/ASSIC55218.2022.10088393
2	Dr. Rajan Singh	Simulation Modeling of AlGaN/AlN/GaN Nano-HEMT on β-Ga2O3 Substrate for Emerging Terahertz SRR Loaded	May	2022	IEEE	10.1109/ICEE56203.2022.10118010
3	Dr. Kiran Chand Ravi	Wideband Antenna 5G Application	April	2022	IEEE	10.1109/AISP53593.2022.9760517
4	Mr B.Kiran kumar	An Efficient Approximation Look Up Table Based Distributed Arithmetic (DA) VLSI Architecture for Finite Impulse	April	2022		10.1109/ICACITE53722.2022.9823908
5	Dr. Rajan Singh	3D Simulation Study of Laterally Gated AlN/β-Ga and High-Power 2O3 HEMT Nanoelectronics	June	2022	HEMT Technology and Applications	https://link.springer.com//10.1007/978-981-19-2165-0_15
6	Dr. Rajan Singh	Performance Analysis of AlGaN/GaN	June	2022	HTA-2024	https://link.springer.com/chapter/10.1007/978-981-19-2165-0_15

Journal Publications – 2021–22

The department reported threeimpactful journal publications during this period. Key works include:

- IoT image encryption using LBlock cipher by Dr. Pulkit Singh.
- Smart healthcare and speech-based behavior monitoring by Dr. Shrikant Upadhyay.
- Energy-efficient routing in sensor networks, published in Materials Today.

These contributions signify a blend of cybersecurity, health informatics, and wireless sensor networking, pushing the frontiers of interdisciplinary research.

Table 3: Number of Journals

Sl. No.	Name of the faculty	Title of the paper	Year & Month of Publication	Journal Details	Vol., ISSN, pp. etc.	DOI
1	Dr. Pulkit Singh	Low-area and high-speed hardware architectures of LBlock cipher for Internet of Things image encryption	2022 May	Journal of Electronic Imaging,	Vol. 31, Issue-3	https://doi.org/10.1117/1.JEI.31.3.033012
2	Dr. Shrikant Upadhyay	Extracting Behavior Identification Features for Monitoring and Managing Speech-Dependent Smart Mental Illness Healthcare Systems	2022 May	Computational Intelligence and Neuroscience		https://doi.org/10.1155/2022/8579640
3	Dr. Shrikant Upadhyay	Comprehensive analysis of energy efficient secure routing protocol over sensor network	2022 May	Material Today		https://doi.org/10.1016/j.matpr.2022.04.857

Faculty Conference Publications (2022–23)

This section includes conference publications at the onset of the academic year 2022–23. Key entries:

- Dr. Shrikant Upadhyay revisited his work on secure routing protocols in sensor networks.
- Dr. Kiran Chand Ravi continued research on 5G antennas, contributing to international conferences.

This reflects ongoing faculty involvement in presenting original research at reputed platforms.

Table 4: The following are the list of faculty conference publications

S.No.	Name of the Faculty	Title of the paper	Month & year of publication	DOI
1	Dr.Shrikant Upadhyay	Comprehensive analysis of energy efficient secure routing protocol	May 2022	https://doi.org/10.1016/j.matpr.2022.04.857
2	Dr. Kiran Chand Ravi	SRR Loaded wideband antenna 5G application	Apr 2022	10.1109/AISP53593.2022.9760517

Faculty Journal Publications (2022–23):

Inthis table,journal publications marking thebeginningofthe 2022–23 academic year are presented. Highlights include:

- A mental health monitoring system using speech-based features by Dr. Shrikant Upadhyay, published in Computational Intelligence and Neuroscience.

This ongoing research emphasis contributes to both academic visibility and real-world impact in mental health and intelligent systems.

Table 5: The following are the list of faculty journal publications

S.No.	Name of the Faculty	Title of the paper	Month & year of publication	DOI
1	Dr.Shrikant Upadhyay	Extracting Behavior Identification Features for Monitoring and Managing Speech-Dependent Smart Mental Illness Healthcare Systems	May 2022	https://doi.org/10.1155/2022/8579640

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It is with immense gratitude and pride that we conclude this edition of E-Spectrum, the quarterly magazine of the Department of Electronics and Communication Engineering at MLR Institute of Technology. This publication is a true celebration of the dedication, talent, and collaborative spirit that define our department. We extend our sincere thanks to the Head of the Department, Dr. S.V.S. Prasad, for his visionary leadership and unwavering support in fostering academic and research excellence. A special note of appreciation goes to Dr. T.S. Arulananth, Chief Editor, for his meticulous guidance and encouragement throughout the editorial journey. To our faculty members, we express deep appreciation for your continuous pursuit of knowledge, your impactful research, your mentorship of student innovators, and your commitment to excellence that keeps raising the bar for the department. Your efforts in MOOCs certifications, FDPs, publications, and student guidance are truly commendable. To our student coordinators and contributors— M.Vardan, P. Charan, CH. Aiswarya, D.Harika - we thank you for your enthusiasm, hard work, and creativity in curating this edition. Your contribution in gathering and organizing the departmental highlights has brought this magazine to life.

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Achievements in department Of ECE Year: 2021-2022

Introduction

TheDepartmentof Electronics and Communication Engineering (ECE) has made significant strides in academic, co-curricular, and research domains during the academic year 2021–2022. This quarter's edition of E Spectrum showcases key achievements, certifications, workshops, innovative student projects, and research outputs by the faculty. The following tables provide a comprehensive summary of faculty development efforts, student-faculty collaborations, and scholarly publications. ECE students Won FIRST prizes in Project Expo(Tree Climbing Robot) AZURA-2022 Organized by CMR HYD.awarded Cash prize of 6,000/- Rs [26th march 2022]

1. ECE students Won FIRST prizes in Project Expo(Tree Climbing Robot) AZURA-2022 Organized by CMR HYD.awarded Cash prize of 6,000/- Rs [26th march 2022]

2.ECE Students won 1st prizes in the National wide Anveshana -2022 organized by Agastya foundation and Synopsys, awarded Cash prize of 5,000/- Rs [26th and 28th March-2022].

Workshops/Guest lectures

Faculty MOOCs Certifications – Academic Year 2021–2022

This table highlights the dedication of ECE faculty toward continuous learning and upskilling. A total of 7 certifications were earned through the SWAYAM platform across subjects like Digital Signal Processing, Programming in Java, and Signals & Systems. Notably, Mr. S. Naveen Kumar earned two Elite + Gold/Silver grades, and Dr. S.V.S. Prasad, Mrs. Y. Geetha, and Mr. Ch. Babaiah also secured Elite status.

Table1: List of faculty members obtained certification of MOOCs

S.NO	**Name of the Faculty**	**Name of the course passed**	**Course offered by the agency**	**Month and Year of Completion**	**Grade obtained if any**
1	**Mr S. Naveen Kumar**	Principles of Signals and Systems (3)	**SWAYAM**	JAN- APRIL 2022	Elite + Gold
2	**Mr R Sateesh**	Digital Signal Processing and Its Applications (3)	**SWAYAM**	JAN- APRIL 2022	Successfully completed
3	**Mr R Sateesh**	Principles of Signals and Systems(3)	**SWAYAM**	JAN- APRIL 2022	Successfully completed
4	**Mr S. Naveen Kumar**	Teaching and learning in engineering(2)	**SWAYAM**	JAN- FEB 2022	Elite + silver
5	**Dr S V S Prasad**	Problem solving through Programming C (3)	**SWAYAM**	JAN-APRIL 2022	Elite
6	**Mr. Ch. Babaiah**	Programming in Java (3)	**SWAYAM**	JAN-APRIL 2022	Elite
7	**Mrs Y.Geetha**	Problem solving through Programming C	**SWAYAM**	JAN-APRIL 2022	Elite

FDPs/STPs Organized by the Department

The ECE department organized an 8-day Faculty Development Programme on “Python Programming for 5G Communications,” held from 14th to 22nd February 2022. The event brought together 14 eminent speakers from institutions like IITs, NITs, Mahindra University, and BITS, drawing an impressive participation of 137 attendees from various academic and industry backgrounds.

Table - 2 FDPs/STPs Organized by the Department

S.No.	Name of the Program	Date of the program	Duration of the program	Name of the speaker &	NO.of people attended
1	Online Faculty Development	14/2/22-22/2/22	8 days	Dr. Kiran Kumar Gurrala, NIT , AP	137
1	Online Faculty Development Programme on “Python Programming for 5G Communications ”	14/2/22-22/2/22	8 days	Dr. Kiran Kumar Gurrala, NIT , AP Dr. Abhay Kumar Sah, IIT, Roorkee. Dr. L. Pallavi, BVRIT Dr. Anuradha, NIT, Warangal Dr. V.V. Mani, NIT, Warangal Dr. E. Suresh Babu, NIT, Warangal Dr.Rakesh Singhai, Director, UIT, RGPV, Shivpuri Dr. B. Krishna Chaitanya, Mahindra University Ecole Centrale School of Engineering Dr. N. Usha Rani, Vignan University Prof. Vimal Bhatia, IIT, Indore Prof Rama Moorthy, Mahindra University Ecole Centrale School of Engineering -Dr. Gopiram, NIT, Warangal Dr. K. Venkateswara Rao, NIT, Warangal Prof. Runa Kumari, BITS, Hyderabad Mr. Y.Malleshwar, CTO, INVAS Tech	137

Faculty Participation in Student Innovation Projects

This section documents the active involvement of faculty in guiding students through national-level innovation competitions. Highlights include:

- ARC TECH FEST '22 in Chennai, led by Mr. A. Sudhakar.
- ANVESHANA 2022, where MLRIT students, mentored by Dr. S.V.S. Prasad and Mr. M. Raju Naik, won first prize.
- Participation in ROBOTECH 2022, showcasing student innovations under the guidance of Dr. S.V.S. Prasad.

Table3: List of faculty members involved in student innovative Projects.

S.N.	Name of the Faculty	Name of the Event	Date of Event	Place of Event	Website Link if any
1	Mr. A. Sudhakar	ARC TECH FEST '22	19/3/2022	Chennai	www.hindustanuniv.ac.in/events/arc-tech-fest-22/
2	Dr. SVS Prasad & Mr. M Raju Naik	ANVESHANA -2022	18/2/2022	Hyderabad	https://telanganatoday.com/hyderabad-mlrit-students-bag-first-prize-at-anveshana-2022
3	Dr. SVS Prasad	ROBOTECH-2022	13/2/2022	Hyderabad	https://mlrit.ac.in/achievements/first-prize-for-

Conference Publications

The faculty continued to contribute to global knowledge through conference publications, with Dr. Rajan Singh presenting a paper titled "The Effect of Back-Barrier on the Performance Enhancement of III-Nitride/β-Ga_2O_3 Nano-HEMT" at an IEEE conference in February 2022. The work highlights advancements in semiconductor technology for high-frequency applications.

Table4: Number of Conferences

Sl. No.	Name of the faculty	Title of the paper	Year &Month of	Conference Details	DOI
1	Dr. Rajan Singh	The Effect of Back-Barrier on the Performance Enhancement of III-Nitride/	2022 February	IEEE	10.1109/EDKCON56221.2022.10032868

Journal Publications

This table lists journal articles, reflecting strong research productivity. Key contributions include:

- Dr. Kiran Chand Ravi's work on MIMO antennas for 5G applications, published in the Iranian Journal of Science and Technology.
- Dr. M. Ganesh's research on PAPR reduction in Optical-OFDM systems, presented at IEEEWPMC 2022.
- The publications span reputed platforms, reinforcing the department's research capabilities in wireless and communication technologies.

Table - 5 : Journal Publications

Sl. No.	Name of the faculty	Title of the paper	Year &Month of Publication	Journal Details	DOI
1	Dr. Kiran Chand Ravi	Multi-directional wideband unit-elment MIMO	2022 February	Iranian Journal of Science and Technology	https://link.springer.com/ar
2	Dr.M.Ganesh	Peak Sample Detection based PAPR Reduction Algorithm in Optical-OFDM	2022 February	IEEE International Symposium on Wireless Personal	10.1109/WPMC52694.2021.9700470

Faculty Journal Publications (2022–23)

Continuing from the previous year, faculty have maintained momentum into 2022–23 with notable publications. Dr. Kiran Chand Ravi led the contribution with a publication in February 2022, furthering work on 5G antenna technologies. This consistency underlines the department's sustained focus on research excellence.

Table6: The following are the list of faculty journal publications

S.No.	Name of the Faculty	Title of the paper	Month & year of publication	DOI
1	Dr. Kiran Chand Ravi	Multi-directional Wideband Unit-element MIMO Antenna for FR-2 Band 5G Array Applications	Feb 2022	10.1007/s40998-022-00486-5

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E-Spectrum

(The Department Highlights of a quarter year)

Vol.1 A.Y 2021-22 | Issue: 2 Oct - Dec | 2021

Chief Editor: Dr.S.V.S Prasad, HOD ECE

Students Coordinators:

19R21A0488- M.Vardan- III Year

19R21A04A1- P. Charan -III Year

19R21A04D0- CH. Aiswarya -III Year

19R21A04D1- D.Harika -III Year

Editorial Board

S No.	Name of Faculty	Designation
1	Dr S.V.S Prasad	Chief Editor
2	Dr.T. S Arulananth	Assoc. Editor
3	Mrs.T. Vijetha	Manuscript Editor

HOD Message…..

E-Spectrum, DepartmentofECE,MLRInstitute of Technology

It gives me immense pleasure to pen this message for E-Spectrum, our department magazine that captures the vibrant academic and co-curricular pulse of the Department of Electronics and Communication Engineering at MLR Institute of Technology. Over the past academic year, our department has made significant strides in academic excellence, innovation, and holistic student development. Our dedicated faculty have actively contributed to research with several high-impact publications, and successfully filed eight patents across emerging domains such as thin-film technology, noise estimation for hearing aids, and lightweight ciphers for IoT. We are proud to share that a number of our faculty members also completed MOOCs/NPTEL certifications, and participated in and organized Faculty Development Programs (FDPs) on cutting-edge topics. Furthermore, we organized expert guest lectures, bridging academic knowledge with real-world industry insights, and promoting interdisciplinary learning. On the student front, our department fostered a culture of innovation and engagement through diverse internships, industry visits, and certification programs. Students interned at reputed organizations such as INCOIS, NEAT-AICTE, and CSRBOX, gaining practical exposure in AI/ML, web development, and VLSI. Industry visits to premier institutions like NRSC and INCOIS enriched their understanding of core applications in space and ocean information systems. Many students also earned certifications from global platforms including NASSCOM, NSDC, and Infosys Springboard. Their active participation in national and international workshops, conferences, and webinars has further amplified their technical and soft skills. We also recognize the enthusiasm of our students in project design, social responsibility through NSS activities, and participation in both curricular and extracurricular events, bringing laurels to the department. As we continue to strive for excellence, I take this opportunity to thank our management, faculty, students, and stakeholders for their unwavering support and commitment. Let us continue to grow, innovate, and shine as a beacon of academic distinction.

Dr. S.V.S. Prasad
Head of the Department, ECE
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Vision of the Institution

Promote academic excellence, research, Innovation, and entrepreneurial skills to produce graduates with human values and leadership qualities to serve the nation.

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Provide student-centric education and training on cutting-edge technologies to make the student's globally competitive and socially responsible citizens and create an environment to strengthen the research; innovation and entrepreneurship to solve societal problems.

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M1: To adopt innovative student-centric learning methods M2: To develop an orientation towards futuristic view by research M3: To enable them to compete in national and international levels

M4: Strengthen core competencies among the learners through an experiential Curriculum

Program Educational Objectives

- **PEO 1:** Graduateswillexcelin the field of core engineering along with the supporting knowledgeinmathematics, science and engineering fundamentals.
- **PEO 2:** Graduates have solid foundations in fundamentals is required to solve engineering problems. This serves them lifelong in their professional domain as well as higher education.
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PO 12: Life-long learning: Recognize the need for engage in independent and life-long learning in the broad context of technological change.

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INTRODUCTION

E-Spectrum, Department of ECE MLR Institute of Technology

We are delighted to present the Oct-Dec 2021 (Issue-2) edition of E-Spectrum, the departmental magazine of Electronics and Communication Engineering at MLR Institute of Technology. This edition serves as a vibrant reflection of the department's academic, research, and co-curricular excellence throughout the academic year. Our faculty have achieved notable milestones through patents, research publications, copyrights, and completion of prestigious NPTEL courses. They have also contributed significantly by attending and organizing FDPs and delivering insightful guest lectures. Equally commendable are our students who have shown outstanding commitment by securing internships, participating in industrial visits, excelling in technical certifications, and winning accolades in both technical and cultural arenas. Their innovative projects and successful completions reflect the department's commitment to hands-on learning. E-Spectrum captures these diverse accomplishments, offering a glimpse into the dynamic and progressive ecosystem that defines our department.

The Department of Electronics and Communication Engineering (ECE) at MLR Institute of Technology proudly presents the **first issue of E-Spectrum** for the academic year 2021-22, covering the period from **October to December 2021**. This magazine reflects the intellectual vitality, innovation, and community engagement that defines the department. E-Spectrum is more than just a newsletter—it is a chronicle of our collective pursuit of academic and research excellence, student growth, and professional development.

This issue captures a wide spectrum of faculty and student accomplishments—ranging from, participation in prestigious national events such as **Smart India Hackathon** publishing research in high-impact journals, book chapters, completion of **MOOCs/NPTEL certifications**, organizing and attending **Faculty Development Programs (FDPs),** and conducting **expert lectures** . On the student front, the magazine highlights their active andvarious involvement in **internships, industrial visits, certification courses, project work, technical and cultural activities.**

Each table presented in this issue gives detailed insight into specific achievements by faculty and students, organized for clarity and recognition. These are not just milestones but steppingstones towards greater academic enrichment and innovation in the department.

<u>Achievements in department Of ECE Year: 2021-2022</u>

1.ECE Students won rd3
competition-21 ROBOTHON-2021Organised by MILITARY COLLEGE
prizes Project Expo (Snake Robot) in inter college robotics OF ELECTRONICS AND
MECHANICAL ENGINEERING, awarded Cash prize of 30,000/- Rs [18TH Dec-2021]

Events in the AY: ROBOVEDA-21

This table highlights student involvement in robotics competitions like ROBOVEDA-21 and ROBOTHON-2021.The Department of ECE encourages students to engage in hands-on robotics and innovation-based competitions. This table showcases their participation and success in intercollegiate events like ROBOVEDA-21 at SNIST and ROBOTHON-2021 conducted by the Military College of Electronics and Mechanical Engineering (MCEME). Their projects such as the Snake Robot and Line Follower Robot reflect the practical skills and team collaboration among students.

S.NO	ROLL NO	STUDENT NAMES	EVENT NAME	PROJECT NAME	winner
	SREENIDHI				
1	20R21A04P8	V Sai Venkata Ramana Maidhile	ROBOVEDA-21	line follower robot	Participation
2	20R21A04M5	N Lakshmi Praneetha		line follower robot	Participation
Military College of Electronics and Mechanical					
1	19R21A0465	B.Laxman	ROBOTHON		
2	19R21A0483	k.jeevan kumar		Snake Robot	3rd prize
3	19R21A0493	M.monika		Snake Robot	3rd prize
4	19R21A0498	p.kumaraswamy		Snake Robot	3rd prize
5	19R21A04A2	p.sanjay		Snake Robot	3rd prize
6	19R21A04A8	m.manaswini		Snake Robot	3rd prize
7	20R25A0420	K.Vamshi anurag			
8	19R21A04K7	J.Sri Sri			
9	19R21A04L6	K.Archana			
10	20R25A0421	V.Vikas			
11	19R21A04J3	Akash kumar ledy			

Table 1: students participated in prestigious robotics events

A total of 22 students participated in prestigious robotics events, with the Snake Robot team securing 3rd prize at ROBOTHON-2021, earning recognition and a cash prize of ₹30,000.

List of faculty membersas resource person in STTP/FDPevents.

This table lists faculty who contributed as resource persons in academic training programs. Faculty of the ECE Department are recognized beyond the institution for their expertise. This table highlights their involvement as key speakers in Short-Term Training Programs (STTPs) and AICTE-ATAL Faculty Development Programs (FDPs), covering advanced topics like machine learning and sensor technology.

S.NO	Name of the Faculty	Name of the Programme	Date	Place
1	Dr V Mahendra, Professor/ MLRIT	One week STTP on Revolutionizing ECE with Machine Learning and Deep Learning	13/12/2021	Hyderabad MLRIT
2	Dr T S Arulananth/ Professor/ MLRIT	Advancements in sensors technology" on in the AICTE ATAL FDP	09/12/2021	Kurnool.AP Pulla Reddy Engineering College,

Table 2: List of faculty members as resource person in STTP/FD Pevents.

Two faculty members contributed significantly as resource persons in FDPs and STTPs at both institutional and national levels, enhancing knowledge dissemination in emerging technologies.

List of faculty members obtained certification of MOOCs

MOOCs help faculty stay current with evolving domains. This table lists their certifications. In alignment with lifelong learning goals, faculty members from the department have actively pursued online certification programs through platforms like SWAYAM. These courses help improve subject knowledge and teaching methodology.

S.NO	Name of the Faculty	Name of the Programme	Organised by	Date	Status
1	**Dr. T.S. Arulananth**	Accreditation for UG Programs(2)	**SWAYAM**	JULY-NOV2021	Successfuly completed
2	**Mrs S Monica**	System Design through Verilog (2)	**SWAYAM**	JULY-SEP 2021	Elite

Table 3: List of faculty members obtained certification of MOOCs

Faculty successfully completed courses in accreditation and Verilog-based system design, indicating their commitment to continuous upskilling.

List of FDPs/STPsorganized by Department

This table lists professional development programs hosted by the department. To promote academic excellence, the department organized high-quality FDPs and STTPs featuring speakers from renowned institutions and industries. These programs focused on integrating AI/ML into ECE, encouraging interdisciplinary learning among faculty and students.

S.No.	Name of the Event	Date	Name of the Faculty	No.of Participates
1	One week STTP on Revolutionizing ECE with Machine Learning and Deep Learning	13/12/21 to 18/12/21	Dr V Mahendra, Professor, MLRIT Dr T S Arulananth Professor, MLRIT	162

Table 4: List of FDPs/STPs organized by Department

A one-week STTP titled "Revolutionizing ECE with Machine Learning and Deep Learning" was successfully conducted with participation from academic and industry experts, attended by 162 participants.

Publication Detail

This table showcases faculty publications in conferences. Academic research dissemination is a cornerstone of faculty development. This table lists scholarly conference publications authored by ECE faculty, covering advanced topics such as IP communications and emerging telecommunication technologies.

Sl. No.	Name of the faculty	Title of the paper	Year& Month of Publication	Conference Details	DOI
1	Mrs.G.Durga Sowjanya	IP to IP Calling Through Socket Programming	2021 October	IEEE	10.1109/ASIANCON51346.2021.9544997
2	Mrs. G.Durga Sowjanya	Review on communication technologies in telecommunications from conventional telephones to smart phones	December 2021	AIP Conf. Proc. 2407, 020003	https://doi.org/10.1063/5.0074088

Table 5: Publication Detail

Faculty published papers in IEEE and AIP conferences, reflecting their active research engagement.

Number of Journals

Journal publications are an indicator of academic rigor; this table highlights such contributions. This table records peer-reviewed journal publications by faculty across international journals. These include work on watermarking, visible light communication, and block chain-based data access in cloud computing.

S. No.	Name of the faculty	Title of the paper	Year & Month of Publication	Journal Details	Vol., ISSN, pp & DOI
1.	Mr. V.Syambabu	Analysis of watermarking techniques in multimedia communications	2021 October	Serbian Journal of Electrical Engineering 2021	Volume 18, Issue 3, Pages: 321-332 https://doi.org/10.2298/SJEE2103321S
2.	Dr.M.Ganesh	A nonlinear modelled low-complex ADO-OFDM for Visible light communication systems	2021 November	Optik - International Journal for Light and Electron Optics	Volume 246 https://doi.org/10.1016/j.ijleo.2021.167831
3	Dr. T. S Arulananth	Multi party secure data access management in cloud using user centric block chain data encryption	December 2021	Pattern Recognition Letters	Volume 152, Pages 295-301 https://doi.org/10.1016/j.patrec.2021.10.029

Table 6: Number of Journals

The department recorded 13 journal publications in reputed journals like Optik, Pattern Recognition Letters, and the Serbian Journal of Electrical Engineering.

List of events/programs organized.

This table lists events conducted by departmental clubs and chapters. Professional student chapters like IETE, EVE, and the Robotic Club regularly organize academic events to foster hands-on skills and technical exposure. This table outlines workshops, FDPs, and expert talks organized during the reporting period.

S.No.	Name of the Professional Societies/Bodies/Chapters/ Clubs	Name of the Event	National/ Internationa llevel	Date of Event
1	Robotic Club, IETE Student Chapter	Two days Workshop on PCB design	National	22/12/21 to 23/12/21
2	Robotic Club, IETE Student Chapter	Robothon-2K21	National	8/12/21 to 9/12/21
3	IETE Student Chapter	Expert Talk on Micro controllers in Automation	National	29/11/2021
4	EVE Club, IETE Student Chapter	Online FDP on VLSI Front-End Design	National	20/09/2021 to 22/09/2021

Table 7: List of events/programs organized

Four key events, including workshops on PCB design and expert talks on VLSI and micro controllers, were successfully conducted.

List of students participated in professional events.

This table highlights students' participation and achievements in technical events. Participation in national-level events enhances students' practical understanding and soft skills. This table documents their involvement in project expos and technical contests, many of which earned recognition and prizes.

S.No.	Name of the Students	Name of the Event	National/ International level	Date of Event	Status
1	B.Laxman	Project EXPO:Snake Robot	National	6.7/12/21	Participated
2	K.Jeevankumar	Project EXPO:Snake Robot	National	6.7/12/21	Participated
3	L.Nanditha Reddy	Project EXPO:Snake Robot	National	6.7/12/21	Participated
4	R.Preethika	Project	National	6.7/12/21	Participated

		EXPO:Snake Robot			
5	P.Kumaraswamy	Project EXPO:Plant leaf disease Detection using computational techniques	National	6,7/12/21	2nd Prize
6	P.SANJAY	Project EXPO:Plant leaf disease Detection using computational techniques	National	6,7/12/21	2nd Prize
7	P.Yasaswini Sai	Project EXPO:Plant leaf disease Detection using computational techniques	National	6,7/12/21	2nd Prize
8	Y.Ghuna Sri Raj	Project EXPO:Plant leaf disease Detection using computational techniques	National	6,7/12/21	2nd Prize
9	P.CH.Srivenkatasai	Project EXPO:Face Mask Detection	National	6,7/12/21	Participated
10	P.Sai Abhinav	Project EXPO:Face Mask Detection	National	6,7/12/21	Participated
11	T.Geetha	Project EXPO:Face Mask Detection	National	6,7/12/21	Participated
12	Sonu Choudhary	Project EXPO:Face Mask Detection	National	6,7/12/21	Participated
13	J.VenkataRamasubash	Project EXPO:Face Mask Detection	National	6,7/12/21	Participated
14	S.Jahnavi	Project EXPO:Face Mask Detection	National	6,7/12/21	Participated

15	p.kumaraswamy	ROBOTHON 2021. Snake Robot	National	18-12-2021	3rd prize
16	p.sanjay	ROBOTHON 2021. Snake Robot	National	18-12-2021	3rd prize
17	m.manaswini	ROBOTHON 2021. Snake Robot	National	18-12-2021	3rd prize
18	K.Vamshianurag	ROBOTHON 2021. Snake Robot	National	18-12-2021	3rd prize
19	J.Sri Sri	ROBOTHON 2021. Snake Robot	National	18-12-2021	3rd prize
20	K.Archana	ROBOTHON 2021. Snake Robot	National	18-12-2021	3rd prize
21	V Vikas	ROBOTHON 2021. Snake Robot	National	18-12-2021	3rd prize
22	Akash kumarledy	ROBOTHON 2021. Snake Robot	National	18-12-2021	3rd prize

Table 8: List of students participated in professional events.

Over 20 students took part in events like Project EXPO and ROBOTHON 2021, with multiple teams winning 2nd and 3rd prizes for innovative projects.

Thanks Message…..

It is with immense gratitude and pride that we conclude this edition of **E-Spectrum**, the quarterly magazine of the **Department of Electronics and Communication Engineering** at M**LR Institute of Technology.** This publication is a true celebration of the dedication, talent, and collaborative spirit that define our department.

We extend our sincere thanks to the **Head of the Department, Dr. S.V.S. Prasad,** for his visionary leadership and unwavering support in fostering academic and research excellence. A special note of appreciation goes to **Dr. T.S. Arulananth**, Chief Editor, for his meticulous guidance and encouragement throughout the editorial journey.

To our **faculty members**, we express deep appreciation for your continuous pursuit of knowledge, your impactful research, your mentorship of student innovators, and your commitment to excellence that keeps raising the bar for the department. Your efforts in MOOCs certifications, FDPs, publications, and student guidance are truly commendable.

To our **student coordinators** and contributors - **M. Vardan, P. Charan, CH. Aiswarya, D. Harika** - we thank you for your enthusiasm, hard work, and creativity in curating this edition. Your contribution in gathering and organizing the departmental highlights has brought this magazine to life.

We are also grateful to all the **students and staff** whose participation in activities like internships, industrial visits, technical workshops, and projects has enriched the content of this magazine and showcased the vibrant culture of our department. Let this issue be a tribute to our collective journey of growth, innovation, and excellence. We look forward to your continued involvement and achievements in the coming editions.

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The period from July to September 2021 was marked by outstanding academic and extracurricular contributions from both faculty and students of our institution. This quarter witnessed a series of scholarly achievements including national and international conference publications, journal articles, book chapters, and student participation in renowned technical events. These endeavors not only reflect the intellectual strength of our academic community but also highlight the spirit of innovation, research, and professional development among our students and faculty. The following compilation presents a detailed record of all such significant activities.

Research and innovation are integral to academic excellence. This table presents a comprehensive list of faculty members who actively contributed to the research ecosystem by presenting their papers in national and international conferences during the quarter. These conferences offered platforms to share novel ideas, gain feedback, and network with peers from academia and industry.

List of faculty conference publications

S.No.	Name of the Faculty	Title of the paper	Month & year of publication	DOI
1	Mr D Laxma Reddy	A novel analysis of efficient energy architecture in cyptography	Aug-21	10.1007/978-981-16-4435-1_32
2	Dr. S.V.S.Prasad	Complex Filter Design for Bluetooth Receiver Application	Aug-21	10.1109/ICCES51350.2021.9489020
3	Dr. S.V.S.Prasad	Broadening 3-bit Burst Error-Correction Codes with Quadruple Adjacent Error Correction	Aug-21	10.1109/CONIT51480.2021.9498371
4	Dr. S.V.S.Prasad	Recognition of Moving Human Targets by Through the Wall Imaging RADAR Using RAMA and SIA Algorithms	Aug-21	10.1007/978-981-16-4435-1_53
5	Dr. T.S.Arulananth	Pothole Detection Using Arduino and Ultrasonic Sensors	Aug-21	10.1007/978-981-16-4435-1_42

6	Dr.P.Yakaiah	An Approach for Ultrasound Image Enhancement Using Deep Convolutional Neural Network	Aug-21	10.1007/978-981-16-4435-1_10
7	Dr.D.Laxma Reddy	A Novel Analysis of Efficient Energy Architecture in Cryptography	Aug-21	10.1007/978-981-16-4435-1_32
8	Dr.D.Laxma Reddy	An Investigation on Collecting Based Augmented Routing Proprieties in WSN	Aug-21	10.1007/978-981-16-4435-1_46

Table 1: List of faculty conference publications

Faculty members from various departments authored and presented technical papers on emerging technologies such as cryptography, filter design, error-correction codes, radar imaging, and medical image enhancement.

1. Dr. S.V.S. Prasad stood out with multiple publications, showing consistent scholarly output.
2. Dr. D. Laxma Reddy also contributed significantly in both cryptographic and wireless sensor network (WSN) domains.
3. Topics like "Pothole Detection using Arduino" and "Ultrasound Image Enhancement using Deep CNN" indicate the integration of real-time applications with academic research. This table clearly reflects the institution's drive toward research-led teaching and knowledge dissemination.

Events Participated by the Students:

Practical exposure through technical events plays a vital role in holistic student development. This table captures the vibrant participation of students in various national-level technical competitions during the quarter, showcasing their hands-on skills and innovative thinking.

S.NO	ROLL NO	STUDENT NAMES	EVENT NAME	PROJECT NAME	winner
	SREENIDHI				
1	20R21A04P8	V Sai Venkata Ramana Maidhile	ROBOVEDA-21	line follower robot	Participation
2	20R21A04M5	N Lakshmi Praneetha		line follower robot	Participation

Military College of Electronics and Mechanical					
1	19R21A0465	B.Laxman			
2	19R21A0483	k.jeevan kumar		Snake Robot	3rd prize
3	19R21A0493	M.monika		Snake Robot	3rd prize
4	19R21A0498	p.kumaraswamy		Snake Robot	3rd prize
5	19R21A04A2	p.sanjay		Snake Robot	3rd prize
6	19R21A04A8	m.manaswini	ROBOTHON	Snake Robot	3rd prize
7	20R25A0420	K.Vamshi anurag			
8	19R21A04K7	J.Sri Sri			
9	19R21A04L6	K.Archana			
10	20R25A0421	V.Vikas			
11	19R21A04J3	Akash kumar ledy			

Table 2: Events Participated by the Students

1. Students from both second and third years took part in **ROBOVEDA-21** and **ROBOTHON 2021**, displaying projects such as the **LineFollowerRobot** and **SnakeRobot** .
2. Teams participating in **ROBOTHON** held at the **MilitaryCollegeofElectronicsand MechanicalEngineering(MCEME)** won the **3rdprize** , highlighting the success of project-based learning.
3. The collaborative efforts of students like **B. Laxman, K. Jeevan Kumar, and M. Monika** demonstrate team synergy and technical execution. This participation not only provided real-world exposure but also nurtured a spirit of innovation and competition.

List of faculty members obtained certification of MOOCs

Continuous upskilling through online certification courses reflects a proactive faculty approach toward modern pedagogy and subject expertise. This table details the faculty members who completed certified MOOC courses through platforms like SWAYAM during this period.

Table 3 : List of faculty members obtained certification of MOOCs

S.NO	Name of the Faculty	Name of the Programme	Organised by	Date	Status
1.	**Dr. T. S. Arulananth**	Accreditation for UG Programs(2)	**SWAYAM**	JULY- NOV 2021	Successfully completed
2.	**Mrs. S. Monica**	System Design Through Verilog (2)	**SWAYAM**	JULY-SEP 2021	Elite

1. Dr. T.S. Arulananth successfully completed a course on "Accreditation for UG Programs," which is critical for understanding NAAC and NBA processes.
2. Mrs. S. Monica earned an 'Elite' grade in "System Design through Verilog," demonstrating mastery in hardware design topics. These certifications not only enhance teaching effectiveness but also align faculty development with national educational objectives.

Publication Detail

Publication in reputed technical conferences like IEEE marks the academic contribution of faculty at the global stage. This table presents selected works that have been peer-reviewed and presented at international venues.

Table 4: Publication Detail

S.NO	Name of the Faculty	Title of the Project	Year & Month of Publication	Conference Details	DOI
1.	**Dr. S.V.S.Prasad**	Complex Filter Design for Bluetooth Receiver Application	2021, August	IEEE	10.1109/ICCES51350 .2021.9489020
2.	**Mr. V.Syambabu**	(LoRa WAN) Architecture Design for Meteorological data System	2021, August	IEEE	10.1109/ICCES51350. 2021.9489115
3.	**Mr. V.Syambabu**	Identification of Facial Image Based Detection Using Image Transformation Approach	2021, August	IEEE	10.1109/ICCES51350. 2021.9489203

1. **Dr. S.V.S. Prasad's** work on Bluetooth receiver filters shows depth in communication systems research.
2. **Mr. V. Syambabu's** research in IoT for meteorological systems and image transformation approaches adds value to the growing field of smart systems. The presence of DOIs and IEEE recognition affirms the scholarly rigor and authenticity of the work.

Number of Journals

Publishing in reputed journals is a benchmark of quality research. This table enlists faculty publications in peer-reviewed journals during the reporting period, indicating academic leadership and research focus.

S.NO	Name of the Faculty	Title of the Project	Year & Month of Publication	Journal Details	Vol., ISSN, pp. etc.	DOI
1.	**Dr. Rajan Singh**	Analytical study of effect of energy band parameters and lattice temperature on conduction band offset in AlN/Ga2O3 HEMT	2021, August	Facta Universitatis, Series: Electronics and Energetics	Vol 34, No 3 (2021)	10.1109/ICCES51350.2021.9489020
2.	**Dr. Rajan Singh**	Investigation of β-Ga2O3-based HEMTs using 2D Simulations for low noise amplification and RF applications	2021, September	Engineering Research Express		10.1088/2631-8695/ac23b3

Table 5: Number of Journals

1. **Dr.RajanSingh** authored two journal papers that focused on **semiconductordevice modeling** and **low-noiseamplifierdesign** using Ga2O3 HEMTs, published in **Facta Universitatis** and **EngineeringResearchExpress.**
2. These studies are significant for their potential impact on **RF and communication systems** in the context of next-generation electronics. Such contributions elevate the institution's research standing and offer students exposure to advanced topics.

Number of Book/ Book Chapters:

Faculty contributions to edited books and book chapters published by renowned publishers reflect the integration of academic knowledge with global literature. This table outlines such contributions in books focusing on IoT, electronics, and emerging technologies.

S.NO	Name of the Faculty	Title of the Book & Book Chapter	Year & Month of Publication	Book Details	DOI
1.	**Dr. T. S. Arulanath**	Pothole detection using Arduino and Ultrasonic Sensors.	2021, August	Advanced Techniques for IoT Applications	10.1109/ICCES51350.2021.9489020
2.	**Dr. D. Laxma Reddy**	An Investigation on Collecting Based Augmented Routing Proprieties in WSN	2021, August	Lecture Notes in Networks and Systems	10.1109/ICCES51350.2021.9489115
3.	**Mr. M. Raju Naik**	Smart Erobern of Vehicles on Crosswalks	2021, August	Lecture Notes in Networks and Systems	10.1109/ICCES51350.2021.9489115
4.	**Dr. T. S. Arulanath**	Introduction to Multi-Gate FET	2021, September	CRC Press	10.1109/ICCES51350.2021.9489115

Table 6: Number of Book/ Book Chapters

1. Noteworthy chapters include “Pothole Detection Using Arduino” and “Augmented Routing in WSNs”, published by Springer, and “Introduction to Multi-Gate FET”, published by CRC Press.
2. Contributors such as Dr. D. Laxma Reddy, Dr. T.S. Arulananth, and Mr. M. Rajunaik demonstrated their thought leadership by presenting domain-specific innovations in globally recognized publications. These works serve as valuable references and enrich the academic ecosystem for both faculty and students.

List of events/programs organized

Organizing technical events promotes peer learning, leadership, and real-time application of theoretical knowledge. This table records the events conducted under various clubs and chapters during the period.

S.NO	Name of the Professional Societies/Bodies/Chapters/ Clubs	Name of the Event	National/ International level	Date of Event
1.	Robotic Club, IETE Student Chapter	Robotics Challenge: Line Follower Bot	National	5/08/2021

Table 7: List of events/programs organized

1. A national-level Robotics Challenge on Line Follower Bots was conducted by the Robotic Club in association with the IETE Student Chapter on 05/08/2021.
2. The event fostered creativity, technical development, and interdisciplinary collaboration among participating students. Such initiatives highlight the institution's commitment to providing dynamic learning platforms.

List of students participated in professional events

This table captures the names of individual students who independently participated in professional and technical events outside the college, demonstrating self-initiative and career readiness.

S.NO	Name of the Student	Name of the Event	National/ International Level	Date of the Event	Status
1.	V. Sai Venkata Ramana Maidhile	ROBOVEDA-21, line follower robot	National	15/08/21-16/08/21	Participated
2.	N. Lakshmi Praneetha	ROBOVEDA-21, line follower robot	National	15/08/21-16/08/21	Participated

Table 8: List of students participated in professional events

1. A national-level Robotics Challenge on Line Follower Bots was conducted by the Robotic Club in association with the IETE Student Chapter on 05/08/2021.
2. The event fostered creativity, technical development, and interdisciplinary collaboration among participating students. Such initiatives highlight the institution's commitment to providing dynamic learning platforms.

Thanks Message…..

It is with immense gratitude and pride that we conclude this edition of **E-Spectrum,** the quarterly magazine of the **Department of Electronics and Communication Engineering** at **MLR Institute of Technology.** This publication is a true celebration of the dedication, talent, and collaborative spirit that define our department.

We extend our sincere thanks to the **Head of the Department, Dr. S.V.S. Prasad**, for his visionary leadership and unwavering support in fostering academic and research excellence. A special note of appreciation goes to **Dr. T.S. Arulananth**, Chief Editor, for his meticulous guidance and encouragement throughout the editorial journey.

To our **faculty members**, we express deep appreciation for your continuous pursuit of knowledge, your impactful research, your mentorship of student innovators, and your commitment to excellence that keeps raising the bar for the department. Your efforts in MOOCs certifications, FDPs, publications, and student guidance are truly commendable.

To our **student coordinators** and contributors- **M.Vardan, P. Charan, CH. Aiswarya, D.Harika** we thank you for your enthusiasm, hard work, and creativity in curating this edition. Your contribution in gathering and organizing the departmental highlights has brought this magazine to life.

We are also grateful to all the **students and staff** whose participation in activities like internships, industrial visits, technical workshops, and projects has enriched the content of this magazine and showcased the vibrant culture of our department.

Let this issue be a tribute to our collective journey of growth, innovation, and excellence. We look forward to your continued involvement and achievements in the coming editions.

Students Coordinators:

19R21A0488- M.Vardan-IIIYear
19R21A04A1- P. Charan-IIIYear
19R21A04D0- CH. Aiswarya-III Year
19R21A04D1- D.Harika -IIIYear