

AVANTHI INSTITUTE OF ENGINEERING & TECHNOLOGY
(Autonomous)
MAKAVARAPALEM, NARSIPATNAM

Research Achievements of the Institute

AIETM has established a Research and Development (R&D) cell to foster and promote research within the institute. The Research and Development (R&D) cell serves as a hub for innovation, knowledge creation, and technological advancements. It plays a vital role in fostering a research-driven environment by encouraging faculty and students to engage in cutting-edge projects, publish research papers, and develop solutions for real-world challenges. The R&D cell collaborates with industries and academic institutions to enhance research capabilities and secure funding for innovative projects. Key activities include organizing workshops, conferences, and technical seminars to promote a culture of inquiry and continuous learning. By driving research initiatives and facilitating patents, the R&D cell significantly contributes to academic excellence and technological progress at AIETM. It is actively operating with the following objectives.

- Formulate policies and incentive norms to support research initiatives.
- Provide faculty and students with opportunities and platforms for research in emerging fields.
- Foster research awareness among faculty members and students.
- Encourage interdisciplinary research collaborations.
- Organize conferences, workshops, and seminars featuring experts from industries, R&D organizations, and reputed institutions to enhance understanding of research methodologies and practices.
- Motivate faculty to publish books, book chapters, and research papers, present at national/international conferences, deliver talks, and participate in workshops and Faculty Development Programs (FDPs).
- Encourage faculty to apply for patents and copyrights.

- Facilitate collaboration and interaction with researchers in both disciplinary and interdisciplinary fields.
- Support faculty in writing research proposals and participating in R&D activities leading to doctoral degrees.
- Allocate funding for in-house R&D projects involving faculty, research scholars, and students.
- Establish partnerships with industries and R&D organizations to enhance research activities.
- Seek grants from government, semi-government, and private agencies to support and promote research.
- Conduct research activities aimed at benefiting society.

Research and Development information

Number of Ph.D.: 13

No. of Ph.D. Scholar pursuing Ph.D.: 19

No of publications in Journals in last 5 years (faculty and Students) : 116

No of publications in National/ International Conferences in last 5 years : 6

(faculty and Students):

No of Books & Book Chapter published by Faculty: 10

No. of Seminar /Workshop conducted for staff and students: 23

No.of Patent Filled/Published /Granted : 17

Research Grants Received : 3

Number of awards and recognitions received for extension activities from government / government recognized bodies: 19

Workshops / Seminars Training programs / FDPs Conduced by R & D Cell

Research Papers published in Reputed Journals

Title of paper	Name of the author/s	Department of the teacher	Name of journal	Year of publication	ISSN NO
Fabrication and modelling of tribological performance of Al-Si/12Al ₂ O ₃ / 2MoS ₂ composite using taguchi technique	H.K. Vuddagiri Department of Mechanical Engineering, Avanthi Institute of Engineering and Technology, 531113 Narsipatnam, India	Mech. Engg.	International Journal of Automotive and Mechanical Engineering (Scopus, ESCI)	2021-22	IJAME ISSN: 2229-8649 (Print); 2180-1606 (Online)
Assessment of mechanical and tribological performance of hybrid Al/MoS ₂ /Al ₂ O ₃ composite by GFRA	Hari Kiran Vuddagiri Department of Mechanical Engineering, Avanthi Institute of Engineering and Technology, Makavarapalem(V), Narsipatnam-531113, Andhra Pradesh, India	Mech. Engg.	Metallurgical and Materials Engineering (Scopus, ESCI)	2021-22	2217-8961
Investigation of process parameters of AMEDM on Al/SiC composite using Taguchi approach	Dr. Challa. Suresh Associate professor, Avanthi College of Engineering and technology, Visakhapatnam, A.P, INDIA	Mech. Engg.	International Journal of Mechanical Engineering	2021-22	0974-5823
Implementation of hardware approach to OFDM-MDC pipeline FFT processor	T Pattala naidu Kandrakota Sandhya	Electronics and communication engineering (ECE)	international journal of research(IJR)	2021-22	e-ISSN-2348-6848 p-ISSN-2348-795X

Low-Power 4-bit universal shift register design using MTCMOS	Nadisetti leela bharathi T pattala naidu Dr Ennam Govinda	Electronics and communication engineering (ECE)	The international journal of analytical and experimental modal analysis	2021-22	0886-9367
breast cancer detection method utilizing UWB patch antenna	Dr E Govinda Dr Vemuri B.S srilatha indira dutt	Electronics and communication engineering (ECE)	Turkish journal of physiotherapy and rehabilitation(TJPR)	2021-22	2651-4451
Photo voltaic partial shading performance evaluation with DSTATCOM controller	Dr T Srinivasa rao	Electrical and Electronics engineering (EEE)	IEEE Power & Energy Society section IEEE Access (volume :10)	2021-22	
Box–Behnken Design: Optimization and Prediction of TI-6AL-7NB	M. Amareswari Reddy 1 , Prof. K. Venkata Subbaiah 2 , Dr. Challa. Suresh 3	Mechanical Engineering	JOURNAL OF ALGEBRAIC STATISTICS	2022	2464 - 2475
Design, Development and control of ateleoperated three-fingered Anthropomorphic robotic hand	K.V.N. S. Ramakrishna2	Mechanical Engineering	International Journal of All Research Education and Scientific Methods (IJARESM)	2023	2455-6211
Design and Fabrication of Solar Grass Cutter	K.V. N. S. Rama krishna1, M. Nithish2, M. Manikanta3, V. Dileep kumar4, L. Ganesh5	Mechanical Engineering	International Journal of All Research Education and Scientific Methods (IJARESM)	2023	2455-6212
Design of Advanced Encryption Standard (AES) Algorithm for Secure Applications	Setti Sirisha1, T.Pattalu Naidu2, Dr.Ennam Govindha3, Dr. R.Prasad Rao4	ECE	The International journal of analytical and experimental modal analysis	2023	0886-9367

Efficient Power Management and Delay Reduction in Positive Feedback Comparator Design	Gandipadala Ravali 1, Dr. R. Prasad Rao 2, Dr. E. Govinda 3	ECE	Industrial Engineering Journal	2023	0970-2555
DESIGN AND ANALYSIS OF RECTANGULAR & CIRCULAR PATCH ARRAY ANTENNA USING HFSS	1 S. PHANI VARAPRASAD, 2 Dr. R PRASAD RAO, 3 A RAMANA BABU	ECE	Industrial Engineering Journal	2023	0970-2555
NEURAL NETWORK BASED POWER FLOW ANALYSIS UNDER DATA UNCERTAINTY	Dr T Srinivasa rao	EEE	International Journal of Early Childhood Special education (INT-JECSE)	2022	1308-5581
IMPLEMENTATION OF FIVE LEVEL INVERTER FOR SINGLE STAGE GRID CONNECTED 1MW PV SYSTEM	Dr T Srinivasa rao	EEE	Neuro Quantology	July, 2022	DOI.10.48047/NQ.2022.20.7.NQ33523
IMPLEMENTATION OF FIVE LEVEL INVERTER FOR SINGLE STAGE GRID CONNECTED 1MW PV SYSTEM	Varahala Dora Petla	EEE	Neuro Quantology	July, 2022	DOI.10.48047/NQ.2022.20.7.NQ33523
A Low-Power 4-bit Universal Shift Register Design using MTCMOS	Nadisetti Leela Bharathi 1, T Pattalu Naidu 2, Dr Ennam Govinda 3	ECE	The International journal of analytical and experimental modal analysis	May-22	0886-9367
DESIGN AND ANALYSIS OF U SHAPE MSP ARRAY ANTENNA FOR SATELLITE APPLICATIONS USING CST	1 Dr. Rayavarapu Prasad Rao, 2 S. Phani Varaprasad, 3 D Srinivasa Rao, 4 M V Manikanta Sai	ECE	A Journal Of Composition Theory Volume XVI, Issue V, MAY 2023	2023	0731-6755

SECURE DATA TRANSACTION IN CLOUD USING BLOOM FILTERING TECHNIQUES	1. B GANESH, 2. K BHAVYA SINDHU	CSE	Industrial Engineering Journal, Volume: 52, Issue 6, June 2023	Jun-23	0970-2555
Reduce the Frequency Amplitude and Road Condition Implement on Vehicle Chassis	Yeduru Jaya Santhoshi Kumari	Mechanical Engineering	International Journal of Innovative Research in Science, Engineering and Technology	May-24	2319-8753
Design of Symmetrical and Unsymmetrical Aerofoil Using CFD Analysis	K. Nagaraju	Mechanical Engineering	International Journal of Innovative Research in Science, Engineering and Technology	Apr-24	2319-8753
Structural Analysis of an Off-Road Vehicle Suspension System Using CATIA and ANSYS	K. Sandhya	Mechanical Engineering	International Journal of Scientific Research in Engineering and Management (IJSREM)	May-24	2582-3930
Drone for Agricultural Monitoring Using Drone for Agricultural Monitoring Using CATIA and ANSYS	K. Sandhya	Mechanical Engineering	International Journal of Innovative Research in Science, Engineering and Technology	Apr-24	2319-8753
Parametric Modelling and Optimization of Cam Mechanism Using CATIA and ANSYS	B Rama Krishna	Mechanical Engineering	International Journal of Innovative Research in Science, Engineering	Apr-24	2319-8753

			and Technology		
Thermal and Structural Analysis of an Electronic Cooling Fan using CATIA and ANSYS	A N S Surya Prakash	Mechanical Engineering	International Journal of Innovative Research in Science, Engineering and Technology	Apr-24	2319-8753
SIMULATION AND OPTIMIZATION MATERIAL OF WIND TURBINE BLADE PROFILES USING CATIA AND ANSYS	A. N S SURYA PRAKESH	Mechanical Engineering	International Journal of Scientific Research in Engineering and Management (IJSREM)	May, 2024	2582-3930
Fabrication of Voice Controlled Robotic ARM	V Hari Kiran3 V Mounika1,	Mechanical Engineering	INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH IN TECHNOLOGY	June, 2024	2349-6002
Gear Train Optimization of High Speed Machinery by using CATIA and ANSYS	Y.Jaya Santhoshi Kumari 1, K.SriRama Kumar 2	Mechanical Engineering	International Journal of Scientific Research in Engineering and Management (IJSREM)	May-24	ISSN: 2582-3930
Implementation of Five Level Inverter for Single Stage Grid connected 1MW PV System	Dr T Srinivasa Rao1, Varahala Dora Petla2	Electrical & Electronics Engineering	Neuro Quantology	Jul-22	ISSN:1303-5150

Design of Five-level inverter with TSK based Single Stage controller for a Grid-connected PV System	Dr T Srinivasa Rao1, Varahala Dora Petla2	Electrical & Electronics Engineering	NCDT 2023 1st National Conference on Design Thinking: Trans-Disciplinary Challenges & Opportunities	7-8 July 2023	ISBN: 978-93-5915-224-0
NATURE'S PHARMACY: A DEEP LEARNING APPROACH FOR IDENTIFICATION OF MEDICINAL PLANTS	UPPE NANAJI	COMPUTER SCIENCE AND ENGINEERING	i-manager's Journal on Future Engineering & Technology	Jun-24	Vol. 19 No. 4
PERFORMANCE EVALUATION WITH SCALABILITY VARYING ON ENERGY CONSUMPTION IN S-DYMO, M-DYMO AND FB-B-DYMO ROUTING ALGORITHM IN MANETS	UPPE NANAJI * MOHAN RAO C. P. V. N. J. ** CHIRANJEEVI M. ***	COMPUTER SCIENCE AND ENGINEERING	i-manager's Journal on Wireless Communication Networks	5/23/2024	Vol. 12 No. 2
SECURITY-ANODR FOR PROVISIONING OF NEIGHBOUR SECURITY IN MANET	UPPE NANAJI * MOHAN RAO C. P. V. N. J. **	COMPUTER SCIENCE AND ENGINEERING	i-manager's Journal on Wireless Communication Networks	5/30/2024	Vol. 12 No. 2
A STUDY ON ENERGY CONSUMPTION AND IMPACT ON NETWORK LIFETIME USING ANODR AND DYMO ROUTING PROTOCOL IN MANETS USING QUALNET SIMULATOR	UPPE NANAJI	COMPUTER SCIENCE AND ENGINEERING	i-manager's Journal on Communication Engineering and Systems,	5/23/2023	Vol. 13 No 1

AN IMPACT DATA ANALYTICS AND DBMS ON HRM POLICIES AND BUSINESS PERFORMANCE	Polavarapu Ganesh 5	MBA	International Research Journal of Modernization in Engineering Technology and Science	6/1/2024	Volume:06 /Issue:06/June-2024 e-ISSN: 2582-5208
Floor planning for optimizing area using sequence pair and hybrid optimization	T. Pattalu Naidu	ELECTRONICS AND COMMUNICATION ENGINEERING	springer Multimedia Tools and Applications	10/17/2023	Volume 83 , pages 57199–57221
Medical image segmentation using an optimized three-tier quantum convolutional neural network trained with hybrid optimization approach	K. Ravi Kumar 4	ELECTRONICS AND COMMUNICATION ENGINEERING	springer Multimedia Tools and Applications	11-Sep-23	Volume 83, pages 38083–38108
ESP32 BASED SMART INFORMATION FOR THE ATM SYSTEM	K. Ravi Kumar 6	ELECTRONICS AND COMMUNICATION ENGINEERING	International Journal of Recent Scientific Research	December, 2023	Vol. 14, Issue, 12, pp.4448-4452
Processing and characterization of nano rubber toughened polylactide/ jute fiber composites	Dr V Hari Kiran	Mechanical Engineering	COGENT ENGINEERING	2024	2331-1983
Assessment on effect of thermal, mechanical, and water absorption properties of hybrid	Dr V Hari Kiran	Mechanical Engineering	The International Journal of Advanced Manufacturing Technology	2/21/2025	1433-3015
An empirical study on impact of artificial intelligence on human resource	Polavarapu Ganesh	MBA	International Journal of research publications and reviews	3/15/2025	volume - 6, issue 3

DESIGN AND ANALYSIS OF MICROSTRIP PATCH ARRAY ANTENNA FOR KU BAND APPLICATIONS	1S. PHANI VARAPRASAD, 2Dr. R PRASAD RAO, 3K V S GANESH, 4G SANDHYA	ECE	Mukt Shabd Journal	1/29/2025	2347-3150
DESIGN AND ANALYSIS OF SINGEL AND 2X2 MICROSTRIP PATCH ARRAY ANTENNA FOR HIGH GAIN WIFI APPLICATIONS	1Dr. R PRASAD RAO, 2S. PHANI VARAPRASAD, 3A RAMANA BABU, 4A HEMA KIRAN	ECE	Mukt Shabd Journal	1/30/2025	2347-3150

Patents filed / published / granted:

Sl.No.	Patent Application No.	Status of Patent (Published / Granted)	Inventor/s Name	Branch	Title of the Patent	Patent Published Date / Granted Date (DD/MM/YYYY)
1	2021104760	Granted	DR. SRINIVASARAO . TEGALA	EEE	ARTIFICIAL NEURAL NETWORKS BASED OPTIMAL CONTROL OF SMART GRIDS	8/22/2021
2	20212100839 6	Published	DR. SRINIVASARAO . TEGALA	EEE	DEVELOPMENT OF RENEWABLE SOLAR PV INVENTOR WITH GRID TIE FOR UTILITY POWER BASED ON IT	3/5/2021
3	20214100620 2	Published	UPPE NANAJI	CSE	ARTIFICIAL INTELLIGENCE APPROACH TO HEALTH CARE MONITORING SYSTEM USING INTERNET OF	2/26/2021

					THINGS	
4	20224106373 9	Published	S.Phani Varaprasad	ECE	CONTROLLER BASED DESIGN OF HYBRID ENERGY SYSTEM	11/18/2022
5	20224104935 5	Published	Dr.Challa Suresh	MECH	A Novel Model for Prediction of Patient Specific Dental Implantation Design Parameters	9/16/2022
6	20224104986 2	Published	DR. HARI KIRAN VUDDAGIRI	MECH	A SYSTEM TO ESTIMATE THE EROSION WEAR RATE AND VALIDATION OF A THEORETICAL MODEL WITH EXPERIMENTAL EROSION WEAR RATE RESULTS	9/9/2022
7	20224100495 1	Published	Dr.Challa Suresh	MECH	"A LEARNING SYSTEM FOR MANUFACTURING PROCESS OPTIMIZATION USING RESTRICTED BOLTZMANN MACHINES AND MULTI-OBJECTIVE EVOLUTIONARY MODEL"	2/4/2022
8	6416268	Published	Dr C P V N J Mohan Rao	CSE	UK DESIGN PATENT 17.AI-POWERED CLOUD- CONNECTED WEARABLE DEVICE FOR PERSONALIZED HEALTH MONITORING POSITION- 3	1/15/2025
10	20252101231 5	Published	Mr K NAGARAJU	MECH	Patent Title 10 : Smart hydraulic system with integrated predictive	2/28/2025

					maintenance and control	
11	20254101761 8	Published	Pattalunaidu Tamarana	ECE	Innovative VLSI Architectures and Methods for Advanced Applications in the Digital Era	3/14/2025
12	20254100327 3	Published	P. Varahala Dora	EEE	Design and control of energy efficient electrical vehicle charging stations	1/24/2025
13	20252101231 5	Published	Gorli Siva Ram	MECH	Smart hydraulic system with integrated predictive maintenance and control	3/21/2025
14	20254101995 2	Published	Dr.ABBURI SRINIVASA RAO	B S & H	Mathematical Modeling Framework for Climate Impact Assessment	3/21/2025
15	20254102097 1	Published	DR. HARI KIRAN VUDDAGIRI	MECH	System and Methods for Enhanced Education and Research Using interactive and adoptive technology platforms FILED	3/21/2025
16	20254100701 0 A	Published	Mrs.K.Rajani	EEE	Real-Time Monitoring and Management of Smart Electrical Grids Using IoT Applications	2/7/2025
17	.2025410190 23 A	Published	Dr R Prasada Rao	ECE	Empowering Energy Efficiency: IoT-driven Smart Meter Data Analysis with Machine Learning for Precise Energy Consumption Prediction	3/21/2025

Books and Chapters Published

Sl. No.	Name of the teacher	Title of the book/chapters published	Title of the proceedings of the conference	Name of the conference	Year of publication	ISBN/ISSN number of the proceeding	Name of the publisher
1	Dr C P V N J MOHAN RAO	Machine Learning and Internet of Things for Societal Issues	NA	NA	2021	ISSN 2191-6861	SPRINGER BOOK SERIES
2	Dr T SRINIVASA RAO	HIGH VOLTAGE ENGINEERING	NA	NA	2021	ISBN-978-1-78280-808-4	NOTION PRESS, CHENNAI
3	V HARI KIRAN		Material Today: proceedings	Third International Conference on recent advanced in materials and manufacturing 2021	2021	2214-7853	Elsevier Ltd
4	V HARI KIRAN J T CHINNA RAO K S S GURU DATTA M V D K RAJU		Material Today: proceedings	Third International Conference on recent advanced in materials and manufacturing 2021	2021	2214-7853	Elsevier Ltd
5	V HARI KIRAN B RAMA KRISHNA M V D K RAJU K S S GURU	Machine Learning and Big Data Analytics	Machine Learning and Big Data Analytics 2nd International Conference on Machine Learning and Big Data Analytics-ICMLBDA, IIT Patna,		2022	978-3-031-15175-0	Springer

	DATTA		India, March 2022 ICMLBDA 2022				
6	Dr R PRASADA RAO	Analog and Digital Circuits			2023	978-93-5757- 340-5	Sipinternational publishers
7	Dr V Hari Kiran A N S Surya Prakash N V Ashok Kumar S Rishikesh	MODELING, ANALYSIS AND FABRICATION OF HOTEL SERVICING ROBOT	IIP Series, Volum e 3, Book 4 , Part 4 , Chapt er 1		2024	e-ISBN: 978- 93-5747-908-0	IIP Series
8	VARAHALA DORA PETLA	GRID INTEGRATION OF RENEWABLE ENERGY SYSTEM WITH ARTIFICIAL NEURAL NETWORK CONTROL	IIP Series, Volum e 3, Book 4, Part 3, Chapte r 3	Futuristic Trends in Renewable & Sustainable Energy	2024	e-ISBN: 978- 93-6252-602-1	IIP Series
9	Dr E Govind Dr K Ravi Kumar S Venkata Anand	Wireless Communication & Applications			2024	978-93-6492- 659-1	S S Links
10	Dr R Prasada Rao P Varahala Dora Dr M Semal Sekhar S Phani Varaprasad	Introduction to Basic Electronics and Circuits			2024	978-93-6492- 079-7	S K Research Group of Companies

Research Grants

Name of the Project/ Endowments, Chairs	Name of the Principal Investigator/ Co-investigator	Department of Principal Investigator	Year of Award	Amount Sanctioned	Duration of the project	Name of the Funding Agency	Type (Government/non-Government)
Design and Hardware Implementation of Solar Induction Motor drive water Pumping Applications	Dr T Srinivasa Rao	EEE	2021-22	5.25 Lakh	2 Years	M/s Suryavardhan Integrations , Visakhapatnam	Non-Government
Preparing of Manufacturing drg with 3D models for machine parts and FEA analysis	Dr V Hari Kiran, K Sriram Kumar, KVNS Rama Krishna	Mechanical Engineering	2023-24	5.16 lakhs	1 year	R Radiant Engineering Services, Visakhapatnam	Non Government
DC Charger Power Module 20kw	Dr T Srinivasa rao, P Varahala Dora	EEE	2023-24	2 Lakh	2 Years	PHYTEC Embedded Pvt Ltd, Bangalore	Non Government
