SDG 9

INDUSTRY, INNOVATION AND INFRASTRUCTURE

INTRODUCTION

SDG 9 calls on nations and institutions to build resilient infrastructure, promote inclusive and sustainable industrialisation, and foster innovation — recognising that technology and industry are the engines of long-term, equitable development. At SRM University-AP, this goal sits at the heart of the institution's academic and research identity.

Over 2025–26, the University advanced SDG 9 through frontier research spanning quantum technology, artificial intelligence, industrial IoT, sustainable manufacturing and advanced materials; through state-of-the-art laboratories and testbeds such as the Amaravati Quantum Reference Facility; through a vibrant innovation and incubation ecosystem that connects students to industry and startups; and through 154 SDG 9-aligned events, workshops and outreach activities that carried technology, entrepreneurship and scientific awareness from the campus into the wider community. Together, these efforts reflect SRM-AP's growing role as a hub for deep-technology research and industry-relevant innovation in South India.

THE QUANTUM RESEARCH CENTRE

Established in 2026, the Quantum Research Centre (QRC) reflects SRM University-AP's mission to lead in quantum nanotechnology and build a globally recognised research ecosystem in South India. Faculty from interdisciplinary departments conduct cutting-edge research spanning quantum electronics, quantum materials and device fabrication, quantum machine learning and key distribution, quantum many-body and gravity simulations, and quantum biology — serving as a shared platform where startups, researchers and industry partners from India and abroad can test, benchmark and validate quantum computing components before large-scale deployment.

SRM-AP is the first academic institution in India to host a Quantum Reference Facility (QRF) on campus, established through an MoU with the Government of Andhra Pradesh under the Amaravati Quantum Valley Project. The resulting Amaravati Quantum Reference Facilities (AQRF) — comprising the Amaravati 1S and 1Q systems — are India's first indigenous, open-access quantum computing platforms, designed and assembled through a domestic supply chain spanning seven institutions across six cities, and functioning as a fully instrumented hardware testbed for validation and certification of quantum components under real operating conditions.





INNOVATION, RESEARCH & INFRASTRUCTURE

1st in India	**2**	**154**	**100+**
Academic Quantum Reference Facility	*Indigenous Quantum Systems (1S & 1Q)*	*SDG 9-Aligned Events (2025–26)*	*Student & Startup Projects Showcased*

Innovation & Incubation Ecosystem

SRM-AP's Institution's Innovation Council (IIC) anchors a growing startup and incubation ecosystem. The IIC Regional Meet brought together more than 1,000 participants — including over 150 innovators and startups shortlisted under the YUKTI Innovation Challenge (YIC) 2025 and the AICTE Productization Fellowship (APF) 2025 — for technology showcases, innovation exhibitions and idea presentations. The ECE Open House Day 2.0 complemented this by showcasing over 100 innovative student projects and faculty-led startup initiatives to industry evaluators, reinforcing a culture of experiential, entrepreneurial engineering education.





Entrepreneurship & Industry Collaboration

The Paari School of Business's AMEYA management fest drew over 400 student participants into applied business challenges spanning strategy, finance and marketing, nurturing an entrepreneurial mindset. Across engineering departments, industry professionals co-taught specialised sessions — from Database Management Systems (1,515 students) to CI/CD and DevOps practice — directly connecting classroom learning with current industry technology practices. Workshops on microservices architecture, hardware security and BIM/GIS-integrated digital construction further deepened this academia–industry interface.





Frontier Technology & Research Capacity

Dedicated programmes built technical depth in emerging fields: advanced nanomaterials and AI-powered biomedical sensors, hands-on virtual reality and AI development, quantum computing and hardware, and data analytics and cybersecurity (DACS 2025). Combined with the University's quantum computing infrastructure, these initiatives position SRM-AP as a growing centre for research capacity-building in frontier and industrially relevant technologies.





OUTREACH

SRM-AP's Samaj Seva and community-engagement programmes extend the University's innovation capacity beyond the campus, using technology and entrepreneurship to strengthen livelihoods, market access and digital literacy in surrounding communities.

● Digital Empowerment of Kondapalli Artisans

MBA students (Group 5, "Brand Boosters") partnered with Jahnvi Kondapalli Wooden Toys — a family-run enterprise producing the UNESCO-recognised Kondapalli wooden toy craft — to design and launch a full e-commerce website with Razorpay payment integration, a WhatsApp Business catalogue and an optimised Instagram presence. Following a hands-on training and handover session, the artisans now independently manage online orders and payments, reducing their dependence on middlemen and opening a direct-to-customer national sales channel — a practical demonstration of SDG 9's promise of inclusive, technology-enabled industry.







● Agri-Link: Connecting Farmers and Markets

A student research team engaged 100 farmers and visited the Attaluru Palem Organic Farmers Producer Company to study how digital platforms could reduce middlemen dependence in agricultural supply chains. Field findings — high cultivation costs, payment delays and low digital literacy among farmers — informed the proposed Agri-Link platform, a direct farmer-to-market digital connection designed with local-language support and offline access to ensure real adoption. The initiative reflects SRM-AP students' application of technology and infrastructure thinking to real-world rural development challenges.





● Research for Digital Financial Infrastructure

A separate student research project, "The UPI Effect," examined how India's Unified Payments Interface — a public-good digital infrastructure processing over 20 billion transactions a month — accelerates financial inclusion (SDG 8) and resilient digital infrastructure (SDG 9). Drawing on a 126-respondent survey and national transaction data, the study found overwhelming user agreement that UPI has supported MSME growth and formalised India's cash-driven economy, while flagging network reliability and fraud security as the priority areas for future policy.

EVENTS AND INITIATIVES

154	97	57
Total SDG 9-Aligned Events, 2025–26	*Department & School-Organised Events*	*University-Wide & Alumni-Led Events*

Across the academic year, SRM-AP organised 154 SDG 9-aligned events spanning technical workshops, conferences, hackathons, industry talks and innovation showcases. The activities below — spanning quantum computing, AI, cybersecurity, industrial IoT and digital infrastructure — illustrate the breadth of this technology and innovation calendar.

● ECE Open House Day 2.0 – 2026

Department of ECE

The ECE Open House showcased more than 100 innovative student projects and faculty-led startup initiatives, giving participants a platform to demonstrate technology-based solutions to industry experts and academicians. The event emphasized practical implementation, innovation and real-world impact. Students gained exposure to emerging technologies while receiving feedback from professionals. The activity also strengthened industry–academia interaction and encouraged entrepreneurship and experiential learning.



● High-Efficiency Drive Systems: Current Applications and Emerging Solar-Driven Solutions

School of Engineering & Sciences

The lecture explored high-efficiency electric drive systems and their applications in industry and transportation. It covered advances in power electronics, motor-control techniques, solar photovoltaic integration and intelligent energy solutions. Participants were introduced to approaches for improving efficiency, reducing energy consumption and developing sustainable engineering systems. The session also highlighted emerging research and industry opportunities in renewable-energy-driven technologies.



● Two-Day Workshop on Advanced Nanomaterials and AI-Powered Microscale Sensors for Biomedical Applications

Department of ECE

The workshop brought together scientists and young researchers to explore advanced nanomaterials and AI-powered microscale sensors for biomedical applications. Participants were exposed to emerging research, technological applications and interdisciplinary approaches in advanced materials and sensing. Expert interactions provided opportunities for knowledge exchange and collaboration. The programme strengthened awareness of frontier technologies with potential applications in healthcare and other high-impact sectors.



● Hands-on VR and AI Development Workshop

IIC Student Club

The workshop provided participants with hands-on exposure to virtual reality, artificial intelligence and large-language-model concepts. Students learned how to build a small VR project and explored practical use cases and future opportunities in VR and AI. The activity moved beyond theoretical learning by encouraging participants to create and experiment with emerging technologies. It also introduced potential career and research pathways in rapidly developing technology fields.



● Young Innovators System Lab (YISL)

Inter-institutional AR/VR workshop

The Young Innovators System Lab workshop used a practical, project-based approach to introduce students to AR/VR technologies. Participants worked in teams to develop innovative VR projects and engage with cutting-edge tools. The programme brought together students from different institutions and encouraged creative problem-solving and collaborative learning. Its learning-by-doing approach helped participants translate technology concepts into prototype-oriented innovation.



● International Conference on Data Analytics and Cyber Security (DACS 2025)

International conference

DACS 2025 created an international platform for researchers, academicians, industry professionals and students to exchange ideas in data analytics, computing, AI, machine learning, cloud computing and cybersecurity. The conference supported research dissemination, technical discussions and academic–industry interaction. Participants presented research, received expert exposure and developed professional networks. The event also encouraged interdisciplinary collaboration around emerging digital technologies.



● Modernising Applications: Microservices, Agility and Smarter Deployments

Department of CSE

The workshop introduced students to modern software-development approaches based on microservices, agility and smarter deployment practices. Participants gained industrial exposure to contemporary application architectures and digital

development workflows. The activity helped connect academic learning with current technology practices used in software engineering. Such exposure supports students in understanding how scalable and modern digital systems are designed and deployed.



● Research Opportunities in Computer Science (ROCS)

Organised by SRM-AP ACM Student Chapter

The ROCS workshop exposed participants to recent developments and research opportunities in computer science and technology. It created a platform for students to learn about emerging research areas and future directions in the field. The event encouraged participants to engage with new technologies and consider further innovation-oriented work. Such exposure can strengthen research interest and contribute to the development of future technology capabilities.



● Digital Infrastructure Workflows: Integrating BIM and GIS for Civil Engineering Construction

Department of Civil Engineering

The seminar introduced students to modern digital construction workflows and the integration of Building Information Modelling and Geographic Information Systems. Participants learned how digital tools can support planning, construction, infrastructure management and data-driven decision-making. The session highlighted industry-standard platforms and emerging digital construction practices. It also exposed students to career opportunities in BIM, GIS and digital infrastructure management.



● Singularity Student Advanced Lab Launch & MISSION: Schrödinger's Cat Hackathon

1,200 participants | 27 Mar 2026 | Alumni Relations

The event combined the launch of the Singularity Student Advanced Lab with the MISSION: Schrödinger's Cat Hackathon. Alumni participated as judges, providing an innovation-focused platform for students to present and evaluate technology-oriented ideas. The large participation indicates broad student engagement. The activity demonstrates a practical environment for experimentation, problem solving and technological innovation.



● 3rd Research Scholars' Summit

250 participants | 10 Oct 2025 | Dean–Research

The 3rd Research Scholars' Summit brought together research scholars and senior academic experts for a dedicated technical and research-focused programme. The summit provided a platform for sharing research work, exchanging ideas and building scholarly interaction. Such activities strengthen the institutional research environment. It supports a culture of knowledge generation, collaboration and innovation.



● Intellectual Property Creation and Technology Transfer

97 participants | 05 Feb 2026 | Dean–Research

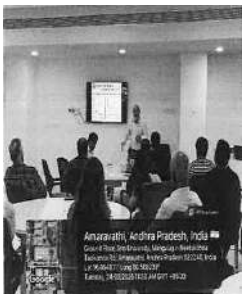
This workshop focused on intellectual property creation and technology transfer. The activity addressed the pathway from research outputs and inventions toward protection and potential transfer of technology. It therefore connects academic innovation with practical application and commercialisation. The programme is directly relevant to strengthening an innovation and technology-transfer ecosystem.



● Is AI Really Useful for Materials Science?

132 participants | 24 Feb 2026 | Dean–Research

The distinguished lecture examined the usefulness of artificial intelligence in materials science. It brought together AI and advanced materials as areas of contemporary technological development. The session helped participants engage with the role of computational approaches in materials-related research. This supports awareness and adoption of emerging technologies for scientific and engineering innovation.



● Quantum Computers and Hardware

180 participants | 15 Apr 2026 | Dean–Research

The lecture focused on quantum computers and their hardware, introducing participants to an emerging area of advanced computing technology. The topic addresses both the technological foundations and future potential of quantum systems. Exposure to such frontier technologies can strengthen technical awareness and research capacity. It contributes to a forward-looking innovation ecosystem.



● Designing the Future: 100 Use Cases on Advanced Quantum Machines

320 participants | 05 May 2026 | SRM-AP Quantum

Designing the Future explored 100 use cases on advanced quantum machine applications. The workshop created a technology-focused platform for discussing practical and future-oriented applications of quantum technologies. Its emphasis on use cases connects advanced research with potential real-world solutions. The activity reflects institutional engagement with frontier innovation and emerging technological systems.



● Innovating the Classroom with Blockchain Technology

18 participants | 24 Oct 2025 | Teaching Learning Centre

This session explored the use of blockchain technology in the classroom. It demonstrates the introduction of an emerging digital technology into teaching and learning practices. The activity provided an opportunity to understand how technology can be incorporated into educational processes. It supports digital innovation and institutional experimentation with new technology-enabled approaches.



● Industry Co-Teaching: Database Management Systems

1,515 participants | 04 Apr 2026 | Dept. of CSE

The co-teaching series brought an industry expert into the Database Management Systems course. This provided students with exposure to industry-oriented perspectives alongside academic instruction. Such engagement helps connect curriculum delivery with contemporary professional and technological practices. It strengthens the interface between higher education and the technology industry.



● Software Engineering & Project Management: CI/CD and DevOps Practices

236 participants | 25 Apr 2026 | Dept. of CSE

The industry expert talk addressed software engineering and project management with emphasis on continuous integration and continuous delivery/deployment and DevOps practices. These topics represent modern approaches to developing, integrating and deploying software systems. The session connected participants with current technology practices. It therefore supports digital infrastructure capability and industry-relevant technical knowledge.



● Next-Gen Communication: A Peek into Future Technologies

47 participants | 09 Oct 2025 | Dept. of ECE

Next Gen Communication examined future technologies in the communications domain. The technical event provided participants with exposure to emerging communication systems and technological developments. Such programmes help build awareness of the infrastructure required for increasingly connected digital environments. The activity is relevant to technological innovation and next-generation communication infrastructure.



Other Notable SDG 9 Initiatives

Event	Date	Participants	Focus
Code for Connection: App & Web Dev Contest	14 Feb 2026	789	12-hour hackathon for human-centred digital solutions
AMEYA 2026 – Management Fest	11–12 Feb 2026	422+	Entrepreneurship, strategy & innovation challenges for management students
QC² Quantum Computing Conclave 2026	24–26 Mar 2026	340	Building quantum-computing awareness among students & faculty
Hardware Under Attack: Trust & Security in the Silicon Era	25 Apr 2026	23	Webinar on hardware security and resilient computing architectures
19th National Frontiers of Engineering (NatFoE-25) & Engineer's Day	15–16 Sep 2025	National platform	Semiconductors, quantum tech and sustainable manufacturing symposium

RESEARCH & PUBLICATIONS

215	1.67	1,019	78
Scholarly Publications (2025–26)	*Field-Weighted Citation Impact*	*Citations Received*	*International Collaborations*

SRM-AP's SDG 9-mapped research output spans sustainable manufacturing, industrial IoT, additive manufacturing, circular economy and precision agriculture — with more than a third of publications co-authored internationally. The strongest and most industry-relevant contributions from 2025–26 include:

Publications

Integration of Edge-Enabled IoT in Vehicular Networks in Smart Cities — Highest-impact SRM-AP study of the cycle — applies edge computing and IoT to build resilient, data-driven urban transport infrastructure.

CSPGhost-YOLO: A Lightweight, Real-Time PCB Defect Detection System — An AI vision model that speeds up quality inspection on electronics production lines — direct application to smart manufacturing.

Interoperability Between OPC-UA and MQTT in Hybrid Industrial IoT (IIoT) Environments — Addresses a core industrial-automation bottleneck — getting factory-floor devices and cloud platforms to talk to each other.

Advancements in Smart Farming Using IoT, AI, Machine Learning and Deep Learning — Surveys how connected sensors and AI are modernising agricultural infrastructure and productivity.

Green Hydrogen Pathways for a Net-Zero Future: Technologies, Circular Economy Integration and Life-Cycle Performance — Maps the technology and infrastructure pathway for clean-energy industry transformation.

Decentralized Blockchain-Integrated IoT Framework for Enhancing Cybersecurity and End-to-End Trust — Strengthens the security backbone of connected industrial and infrastructure systems.

Intelligent Industrial IoT: A Data-Driven Approach for Smart Manufacturing and Predictive Maintenance — Demonstrates how real-time data can cut downtime and modernise manufacturing operations.

Influence of Welding Processes on Duplex Stainless Steel Parts Fabricated by Wire Arc Additive Manufacturing — Advances metal 3D-printing science for next-generation industrial fabrication.

Microstructural Analysis of Wire Arc Additive Manufactured Aluminium Alloy for Lightweight Structures — Supports lighter, more efficient structural components for industry and infrastructure.

DYNAMIC-TRUST: Blockchain-Enhanced Trust for Secure Vehicle Transitions in Intelligent Transport Systems — Builds trusted digital infrastructure for next-generation, connected transport networks.

Digital Twins and Cyber-Physical Systems: A New Frontier in Computer Modelling — Reviews how virtual replicas of physical systems are reshaping industrial design and operations.

Top research themes: Sustainable Manufacturing, Industrial IoT, 3D Printing, Precision Agriculture, Circular Economy, Blockchain, Bioeconomy, Sustainable Development Goals, Waste Management, Data Integrity.

CONCLUSION

From a first-of-its-kind quantum computing testbed to 215 research publications, from 154 innovation-focused events to community projects that carried e-commerce and digital platforms to artisans and farmers, SRM University-AP's SDG 9 contribution in 2025–26 connects research, technology and infrastructure directly to industry collaboration, entrepreneurship and social impact. As the Amaravati Quantum Valley Project matures and the University's innovation ecosystem continues to scale, SRM-AP is positioned to deepen its role as a driver of inclusive, sustainable industrialisation — for the region, and for India's technology future.