

# 2025 MCA NEWSLETTER



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**NEHRU COLLEGE  
OF ENGINEERING & RESEARCH CENTRE**  
(AN AUTONOMOUS INSTITUTION AFFILIATED TO APJAKTU)  
NAAC ACCREDITED | ISO 9001 CERTIFIED INSTITUTION



DOB 15/12/1939

DOD 09/06/2009

Our Founder Chairman

**Sri. P.K.Das**

The Bishmacharya of Education



## **Adv. Dr. P. Krishnadas**

### **Chairman & Managing Trustee – NGI**

I am pleased to extend my warm greetings to all readers of the MCA NCERC Department Newsletter 2025. This publication reflects the dedication, creativity, and academic excellence of our students and faculty, who continue to strive for innovation in the ever-evolving field of computer applications. I commend the editorial team for their sincere efforts and encourage our students to make the best use of emerging technologies, uphold ethical values, and contribute meaningfully to society. I wish the MCA NCERC Department continued success and excellence in all its future endeavors.



## **Prof. Dr. K. G. Viswanadhan**

### **Principal – NCERC**

It gives me great pleasure to share my message for the MCA NCERC Department Newsletter 2025. This newsletter is a testimony to the vibrant academic environment, innovative initiatives, and collaborative spirit of the department. I appreciate the dedicated efforts of the faculty and students in achieving academic excellence, embracing research, and engaging in co-curricular and professional activities.



## **Dr. Sudheer S Marar**

### **HoD – MCA Department**

It is a matter of great pride to present my message for the MCA NCERC Department Newsletter 2025. This newsletter showcases the collective efforts, achievements, and innovative pursuits of our students and faculty, reflecting the department's commitment to academic excellence and professional growth. In an era of rapid technological advancement, our department continuously strives to nurture technical competence, critical thinking, and ethical values among students. I congratulate the editorial team for their dedicated work and encourage our students to remain curious, adaptable, and industry-ready.

## **VISION**

To create a school of distinction for the PG students, prepare them to be industry-ready, and achieve Academic excellence by continuous endorsement of the Faculty team in terms of Academics, Applications & Research.

## **MISSION**

The Department of Computer Applications strives to provide quality and competency- based education and fine-tune the younger generation through Curricular, Co-Curricular and Extracurricular activities so as to encounter the Professional and Personnel challenges ahead with Pragmatic skills & courage, thereby 'Creating the True Citizens'.

We intend to facilitate our students to assimilate the latest technological know-how and to imbibe discipline, culture and spiritually, and to mould them into technological giants, dedicated research scientists and intellectual leaders of the country who can spread the beams of light and happiness among the poor and the underprivileged.

M1. To provide quality and competency- based Education

M2. To fine-tune the younger generation through Curricular, Co-Curricular and Extracurricular activities

M3. To encounter the Professional and Personnel challenges ahead with Pragmatic skills & courage, thereby 'Creating the True Citizens'.

# MASTER OF COMPUTER APPLICATIONS (MCA)

60 seats



**M**aster of Computer Applications (MCA) is basically designed to meet the growing demand for qualified professionals in the field of Information Technology. As a postgraduate course, it equally focuses on providing a sound theoretical background as well as good practical exposure to students in the relevant areas of Computer Applications. The program is inclined more toward Application Development and thus has more emphasis on latest programming language and tools to develop better and faster applications.

The Software development as well as Software Service business is dynamic and fast growing. Hence, the MCA programme is designed keeping in view the requirements of industry. The programme aims at the understanding of the fundamentals of computing among the students so that they can compete in the present-day global situation. Students are trained in the fields of Systems Designing,

Application Software Development, Enterprise Resource Planning, Computer Networks, System Administration, Web Designing and Development, Database Administration, Parallel and Vector Processing, Data Mining and Warehousing, Wireless and Mobile systems, Technology Management etc.

The MCA program prepares students to take up positions as System analysts, Systems designers, Programmers and Managers in any field related to IT/ITES. The program, therefore, aims at imparting comprehensive knowledge with equal emphasis on theory and practice. Unlike other courses, the MCA students are encouraged to spend a full semester working in the industry giving them a perfect insight into the situations of the IT world. Meanwhile, the course curriculum will have enough flexibility to enable a student to undertake Advance studies as well as Research, in various Computing Domains later on.

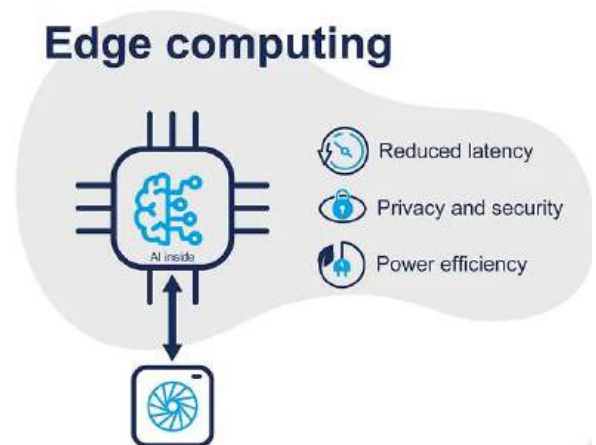
## Digital Marketing Technologies – Abin R Nair



Digital marketing evolved significantly through AI and data analytics. Businesses personalized marketing campaigns based on user behavior and preferences. Targeted advertising improved customer engagement. Marketing automation tools optimized content delivery and performance analysis. Social media platforms leveraged algorithms to enhance visibility and reach. Real-time analytics supported strategic decisions. Privacy regulations influenced marketing strategies. Ethical data usage became essential for maintaining consumer trust.

## Edge AI – Intelligent Processing at the Edge – Althaf N

Edge AI combines artificial intelligence with edge computing to process data locally rather than relying solely on cloud infrastructure. By 2025, Edge AI will become essential for applications requiring real-time decision-making, such as autonomous vehicles, industrial automation, and smart surveillance. Localized data processing reduces latency, improves responsiveness, and enhances privacy since sensitive data need not be transmitted to central servers. Industries such as manufacturing will use Edge AI to monitor machinery in real-time, predict maintenance needs, and optimize production processes. Autonomous vehicles will rely on edge-based sensors to make split-second decisions, ensuring safety and efficiency. In healthcare, wearable devices powered by Edge AI will analyze patient data locally to provide instant alerts, improving preventive care and emergency response. Challenges remain in implementing Edge AI, including hardware limitations, energy efficiency, and integration with cloud systems. Nevertheless, advancements in specialized processors and AI models will overcome these barriers. Edge AI in 2025 is poised to enhance operational efficiency, reduce dependence on centralized networks, and deliver smarter, faster, and safer technology solutions across industries.



## Quantum Cryptography – Securing Data in the Quantum Era – Anju R



Quantum cryptography is expected to become a cornerstone of cybersecurity by 2025, addressing vulnerabilities posed by quantum computing to traditional encryption methods. Quantum key distribution (QKD) enables theoretically unbreakable encryption, allowing secure communication even in highly sensitive sectors such as finance, defense, and healthcare. Financial institutions will adopt quantum-resistant encryption to protect transactions and prevent data breaches. Governments will deploy quantum cryptography for secure diplomatic communications and critical infrastructure protection. The combination of quantum

technologies and classical cryptographic systems will provide multi-layered security, ensuring resilience against increasingly sophisticated cyberattacks. Despite promising security capabilities, quantum cryptography faces challenges, including high costs, infrastructure requirements, and integration with existing networks. Continuous research is focused on developing practical, scalable, and affordable quantum encryption solutions. By 2025, quantum cryptography will redefine the standards for secure digital communication, ensuring privacy in the quantum computing era.

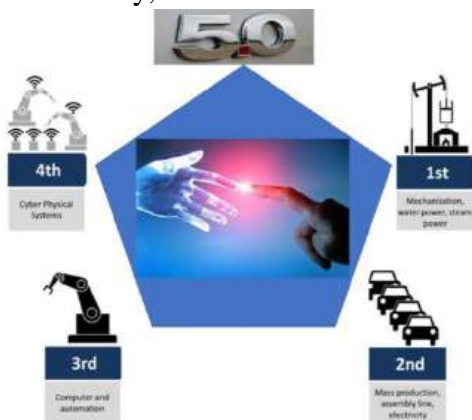
## AI-Driven Drug Discovery – Bharath B

AI-driven drug discovery is transforming pharmaceutical research by accelerating the identification of potential treatments and reducing costs. By 2025, AI algorithms will analyze massive datasets from chemical compounds, clinical trials, and genomic studies to predict drug efficacy and safety with unprecedented speed and accuracy. Pharmaceutical companies will utilize AI to optimize molecular structures, simulate clinical outcomes, and identify previously overlooked therapeutic candidates. AI-driven platforms will reduce the average drug development timeline from years to months, enhancing responsiveness to global health challenges, including pandemics. Collaborative AI systems will integrate with laboratory automation to streamline testing, quality control, and data analysis. Challenges include regulatory approval, validation of AI predictions, and ethical considerations in clinical applications. Nonetheless, AI-driven drug discovery promises to revolutionize healthcare by improving treatment accessibility, reducing costs, and facilitating precision medicine tailored to individual patient needs.



## Smart Manufacturing – Industry 5.0 – Deepak D

By 2025, smart manufacturing will evolve into Industry 5.0, emphasizing human-robot collaboration, sustainability, and customization. Unlike previous industrial paradigms, Industry 5.0 combines advanced automation with human creativity, enabling efficient production that meets individual customer needs while reducing environmental impact. Robotics, IoT, and AI will coordinate with human operators to perform complex assembly tasks with precision and safety. Predictive analytics will optimize supply chains, reduce downtime, and minimize waste. Digital twins will simulate production processes to test improvements virtually before implementation, ensuring operational efficiency and cost-effectiveness. Sustainability will become a core component, with manufacturers using energy-efficient machines, renewable energy, and circular economy practices. Industry 5.0 will not only increase productivity but also enhance job quality, emphasizing human oversight and creativity in technologically advanced production environments.



## Brain-Computer Interfaces (BCI) – Hidayathul Mufeeda S

Brain-computer interfaces (BCIs) will advance rapidly by 2025, enabling direct communication between the human brain and external devices. BCIs promise breakthroughs in healthcare, accessibility, and human augmentation, allowing individuals to control prosthetics, computers, or other machines through thought alone. Medical applications will include assisting patients with neurological disorders, spinal injuries, or mobility impairments. BCIs will enhance rehabilitation, enable remote monitoring, and improve quality of life for individuals with physical limitations. Beyond healthcare, BCIs will find applications in immersive virtual environments, gaming, and productivity tools. Ethical and privacy concerns, such as unauthorized brain data access and mental privacy, will require regulation and secure protocols. Advances in non-invasive sensors, neural decoding, and AI integration will address technical limitations. By 2025, BCIs will bridge human cognition with technology, unlocking transformative possibilities for healthcare, communication, and human-computer interaction.



## Renewable Energy Technologies – Jishnu S

By 2025, renewable energy technologies will be critical to global sustainability efforts. Solar, wind, hydro, and bioenergy systems will achieve greater efficiency and integration, reducing reliance on fossil fuels and mitigating climate change. Energy storage solutions, such as advanced batteries and smart grids, will optimize supply and demand balance, enabling stable and reliable power delivery. Governments and private sectors will invest in decentralized energy systems, microgrids, and energy-sharing platforms, empowering communities and enhancing resilience. Challenges such as high initial costs, land use, and intermittency will be addressed through technological innovation and supportive policies. Renewable energy adoption in 2025 will drive environmental sustainability while creating economic opportunities and energy security worldwide.



## Advanced Robotics in Healthcare – Karthika K S

Robotics will become increasingly integral to healthcare by 2025, assisting in surgery, rehabilitation, patient care, and logistics. AI-powered surgical robots will enhance precision, reduce invasiveness, and minimize recovery times, transforming surgical procedures. Robotic exoskeletons will assist patients with mobility impairments, enabling rehabilitation and improved independence. Autonomous service robots will support hospitals in routine tasks such as medication delivery, sanitation, and patient monitoring, reducing workload and increasing operational efficiency. Ethical considerations, patient safety, and regulatory approvals will guide adoption. By combining robotics with AI, healthcare systems in 2025 will improve treatment outcomes, operational efficiency, and patient experiences.



## Space Technologies and Exploration – Mohammed Anas P

By 2025, space technology will advance significantly, with increased private and government participation in exploration, satellite deployment, and research. Reusable rockets, autonomous spacecraft, and satellite constellations will expand global connectivity and scientific knowledge. Commercial space ventures will focus on tourism, resource exploration, and orbital manufacturing. Satellites will provide enhanced global communications, earth observation, and climate monitoring. Collaborative international missions will drive scientific discoveries and technological innovation in space navigation, propulsion, and life support systems. Challenges include cost, safety, and sustainability of orbital debris. Continued investment and innovation will ensure that space technology in 2025 contributes to economic growth, scientific advancement, and planetary sustainability.



## AI in Financial Services – Mridula M

Artificial intelligence will dominate financial services by 2025, transforming banking, investment, insurance, and fintech operations. AI-powered algorithms will support fraud detection, risk assessment, credit scoring, and customer personalization, enhancing efficiency and accuracy. Investment firms will use AI-driven analytics to predict market



trends, optimize portfolios, and automate trading strategies. Chatbots and virtual assistants will improve customer service, providing real-time guidance and transaction support. Regulatory compliance and anti-money-laundering processes will also benefit from AI automation. Challenges such as ethical AI use, data privacy, and model transparency will require careful governance. With responsible implementation, AI in finance will improve operational efficiency, reduce risk, and enhance customer experiences, driving the next generation of financial innovation.

## **Digital Twins in Industry – Nimya S**

Digital twin technology will become mainstream in 2025, enabling organizations to create virtual replicas of physical systems, processes, or products. These digital models facilitate monitoring, simulation, and predictive analytics, enhancing decision-making and operational efficiency. Industries such as manufacturing, energy, and construction will use digital twins to simulate production lines, optimize workflows, and identify potential system failures before they occur. In urban planning, digital twins of smart cities will enable traffic optimization, energy management, and disaster preparedness. Healthcare applications include patient-specific digital models for personalized treatments and surgical planning. Integration challenges include data accuracy, computational requirements, and cybersecurity. With continued advancements in IoT, AI, and cloud computing, digital twins in 2025 will drive innovation, reduce costs, and improve safety and performance across multiple domains.



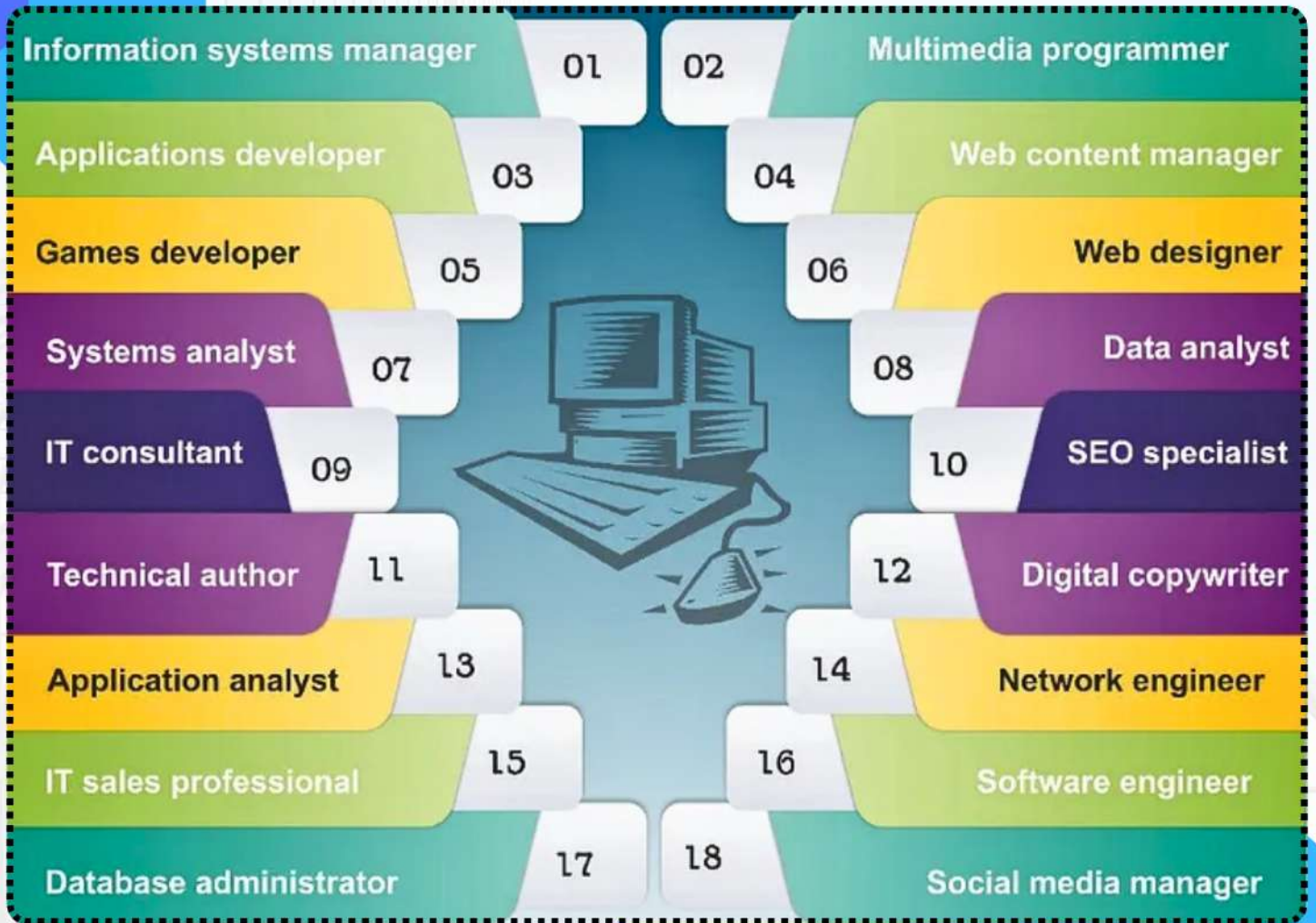
## **AI in Climate Change Mitigation - Unnimaya V**

Artificial intelligence will play a critical role in climate change mitigation by 2025. AI algorithms will analyze vast datasets to predict environmental changes, optimize renewable energy deployment, and improve resource management. Smart grids powered by AI will balance electricity demand and supply from renewable sources efficiently. AI-driven climate models will forecast extreme weather events, guiding disaster preparedness and policy decisions. Agriculture will benefit from AI-enabled precision farming, minimizing water use, reducing fertilizer waste, and increasing crop resilience. Challenges include data availability, algorithm transparency, and equitable access to AI solutions. When applied responsibly, AI in 2025 will support sustainable development, reduce greenhouse gas emissions, and provide actionable insights to combat climate change globally.



# MASTER OF COMPUTER APPLICATIONS

# CAREER SCOPE





Pizada Release



Prayaana



MCA 23-25 BATCH



Technical Events

## MCA @ NCERC



Technical Talk



Social Extension Activity



NeCTAR International Conference



Industrial Visit

## DEPARTMENTAL ACTIVITIES

Your education goes well beyond your coursework. Extracurricular activities can form a vital part of your experience, here at MCA-NCERC, creating unique opportunities for friendship and learning. The department believes that, the co-curricular & extra-curricular activities complement the studies. The Department houses 5 major Clubs, viz. Readers Club, Celluloid Club, Publication Bench, Travel Club, and Social Extension Activities Club. Each Club mentored by Senior Faculty member devices activities which makes a strong impact in the character molding of the student community. Readers Club organizes activities related to Readership Assimilation among the students. The club designs talk shows, discussion forums and Book sharing environments with a defined

mission to spread the love of reading and enhance the student insight to the literary world.

Celluloid Club emerges as the Most Significant Bit in the current scenario where the Video, Audio and all Media, makes its marvel through digital techniques. The club initiates Multimedia based projects with some creative value. Students get a chance to discuss their ideas on creative filming and take up all activities as in-house projects. The club has already produced 5 successful projects, including a Documentary, a Music Album, A feature Film and an award winning DoccuFiction. The club initiates the Nehru Campus Film Festival, launching a screening venue for some Classic Campus-Films of India.

# MASTER OF COMPUTER APPLICATIONS



**Python  
Programming**



**Web  
Programming**



**Data Structure**



**Data Science**

## MCA PRACTICAL COURSES



**Java**



**Networking**



**MongoDB**



**Mobile App  
Development**

# MASTER OF COMPUTER APPLICATIONS

e-Commerce & Digital Marketing



Innovation & Technology Management



NoSQL Programming



## MCA

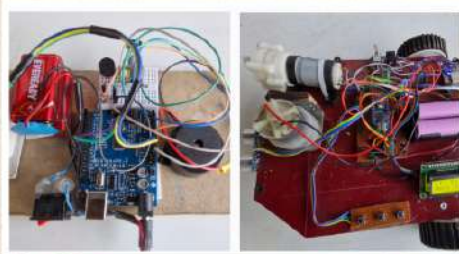
### ADD-ON COURSES

Web & App Development



Machine Learning with Python





# MCA Events





# MCA Events



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# DEPARTMENT OF MCA



## DREAM JOB ACHIEVERS 2025



FROM CAMPUS DREAMS  
TO  
CORPORATE SCENES  
WE MADE IT!



Moulding True Citizen  
Since 1968



**SAJLA P K**  
ACADEMOR,  
SMARTLOUNGE



**SHABINA V**  
PENTAGON SPACE



**SANJAY A B**  
ACADEMOR



**SOBHITHA S P**  
AXIS BANK



**MRIDULA M**  
AXIS BANK,  
PENTAGON SPACE, AABASOFT,  
ADDROIT TECHNOLOGIES,  
BRIGHT EDUCATION PVT LTD



**SREEMA R**  
BRIGHT EDUCATION  
PVT LTD



**UNNI MAYA V**  
AABASOFT



**SHAFEENA K I**  
SMARTLOUNGE



**SANDRA P G**  
SMARTLOUNGE



**VISMAYA S**  
Q SPIDERS, AXIS BANK,  
ACADEMOR,  
BRIGHT EDUCATION PVT LTD



**IFRA NASRIN A**  
SMARTLOUNGE



**ASNA A T**  
SMARTLOUNGE



**BHAVANA K N**  
ACADEMOR



**HIDAYATHUL MUFEEDA S**  
SMARTLOUNGE



**SUJINA E S**  
Q SPIDERS, ACADEMOR,  
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**A M MOHAMMED FARHAN**  
COGNIFYZ,  
NETLINC TECHNOLOGIES



**ADHRIJA T S**  
PENTAGON SPACE,  
BRIGHT EDUCATION PVT LTD



**AISWARYA G**  
ACADEMOR



**AJMAL V M**  
BRIGHT EDUCATION  
PVT LTD



**ALHAF N**  
AXIS BANK,  
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**ANJANA V S**  
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**APARNA DAS S**  
ENGLISH EDGE



**ARUN SURESH**  
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**ASHISH T A**  
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**ASHLIN JAMES**  
BRIGHT EDUCATION PVT LTD,  
INTERNSUP



**BHARATH B**  
AXIS BANK,  
BRIGHT EDUCATION PVT LTD



**JISHNU S**  
AXIS BANK,  
BRIGHT EDUCATION PVT LTD



**K AKASH**  
BRIGHT EDUCATION  
PVT LTD



**KARTHIKA K S**  
AXIS BANK, PENTAGON SPACE,  
AABA SOFT,  
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**MANEESHA C M**  
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PVT LTD



**MOHAMMED ANAS P**  
ENGLISH EDGE,  
ACADEMOR



**MOHAMMED SADHIK M S**  
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BRIGHT EDUCATION  
PVT LTD



**SREEDHANYA T S**  
AXIS BANK,  
BRIGHT EDUCATION PVT LTD



**NANDANA C**  
BRIGHT EDUCATION  
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**NASRIN M**  
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**NIMYA S**  
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**PRANAV SUNNY**  
ACADEMOR



**REVATHI K R**  
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