



# Adsul's Technical Campus

## Department of Computer Engineering

# INSPERIA

## The News Bulletin

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### Institute Mission

To establish state-of-the-art facilities and create a conducive environment for transforming the rural minds into competent, skilled, professional, researchers, technically sound, innovative aptitude, and ethics through value-based education to develop the nation for global competitiveness.

### Institute Vision

To be a most preferred Rural Technical Campus in the region by creating competent multifaceted Engineers and Professionals ready to serve the industry and society at large.

### Objectives of Institute

- To provide quality education with futuristic trends in engineering and technology
- To ensure continual improvement in quality management system
- To impart innovative teaching and learning

### Department Vision

To strive for excellence in the field of Computer Engineering through creative problem solving related to societal needs.

### Department Mission

**M1:** Establish strong fundamentals, domain knowledge and skills among the students with analytical thinking, conceptual knowledge, social awareness, expertise in the latest tools and awareness to advanced software.

**M2:** Establish leadership skills, team spirit and high ethical values among the students.

**M3:** Guide students towards research and development, and a willingness to learn by connecting themselves to the global society.

**M4:** Encourage students to become free-lancers.

### Message from HoD Desk

We focus in imparting the core science underlying the computing aspects, so that students cope easily with today's modern and upgrading technologies.

We also strive to bridge the theory- practice gap by applying continuous effort in teaching, learning and by periodically measuring the outcomes. The department inculcates technical, analytical and communication skills in students that would suffice for any job in the current challenging world. The Department provides suitable environment that enables students to follow their instincts of learning and doing innovative things.

The department has always been recognized for excellence in teaching and outstanding students' performance at global level and for the excellent placement record in various international/national companies. All over the world, the alumni of the department occupy top positions in IT industries like Infosys, TCS, Tech-Mahindra, Cisco, Cognizant, Autos Syntel, Wipro and many more. The style and method of imparting education to students make them self-capable for life-long learning and ready for diversified carriers in IT Industry, Education, Research, Management and Entrepreneurship.



**Dr. S. S. Khan**  
Head of Department

## Silent feature of Department

- **Supportive learning for placement:** Placement learning is immersive and iterative. Support in the form of formative tasks and activities are crucial for student success, whilst being mindful of the need to ensure parity of student workload between modules of the same credit weighting. Placement assistance can offer students professional guidance and support to help them build successful careers. Students who might feel overburdened by the job search process might greatly benefit from placement assistance services.
- **Value added courses:** Value Added courses are career and market oriented, skill-enhancing courses that empower the students beyond their domain of study. The certificate programmes enable them to enrich their capability and enhance their employability. Value added courses are conducted for one week during the semester breaks by department faculty and external trainers.
- **Career oriented Add-On Courses:** Job-oriented courses are training and academic courses that prepare professionals for a particular career field or role. A traditional academic course may provide an overview of a certain topic or area, but a job-oriented course focuses on the knowledge and skills required for a particular job.
- **Teacher as Mentor:** The role of the Mentor Teacher is a complex blend of modelling, coaching, instructing, collaborating, and encouraging as candidates build competency in program standards. Mentor Teachers are expected to support candidates in developing the skills and knowledge to meet these standards.
- **Report writing and Paper Presentation:** A report is a specific form of writing, written concisely and clearly and typically organised around identifying and examining issues, events, or findings from a research investigation. Reports often involve investigating and analysing a problem and coming up with a solution.
- **Professional Development for Industrial Engagement:** There are three types of employee engagement: **cognitive**, **emotional**, and **physical**. When employees are cognitively engaged, they're committed to their job, when they're physically engaged, they're invested in their work, and when they're emotionally engaged, they have an emotional connection to their work.
- **Personality Development and Soft Skill Training:** Personality Development teaches us how to communicate and display ourselves as having caring skills. It also emphasizes personal management, grooming, health, and nutrition, as well as soft skills. This course educates students on the numerous aspects of self-development. Soft skills comprise pleasant and appealing personality traits as self-confidence, positive attitude, emotional intelligence, social grace, flexibility, friendliness and effective communication skills. **INTENDED AUDIENCE:** Students, Teachers, Professionals, Trainers, Leaders, and Employers.

## Program Educational Objectives (PEOs)

**PEO1:** To prepare globally competent graduates having strong fundamentals, domain knowledge, updated with modern technology to provide the effective solutions for engineering problems.

**PEO2:** To prepare the graduates to work as a committed professionals with strong professional ethics and values, sense of responsibilities, understanding of legal, safety, health, societal, cultural and environmental issues.

**PEO3:** To prepare committed and motivated graduates with research attitude, lifelong.

**PEO4:** To prepare the graduates with strong managerial and communication skills to work effectively as individual as well as in teams.

## Program Outcomes (POs)

**PO-1: Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering Programs.

**PO-2: Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

**PO-3: Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

**PO-4: Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

**PO-5: Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.

**PO-6: The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

**PO-7: Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

**PO-8: Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

**PO-9: Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

**PO-10: Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

**PO-11: Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

**PO-12: Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

## Program Specific Outcomes (PSOs)

**PSO1: Professional Skills:** The ability to apply knowledge of problem solving, algorithmic analysis, software Engineering, Data Structures, Networking, Database with modern recent trends to provide the effective solutions for Computer Engineering Problems.

**PSO2: Problem-Solving Skills:** The ability to inculcate best practices of software and hardware design for delivering quality products useful for the society.

**PSO3: Successful Career:** The ability to employ modern computer languages, environments, and platforms in creating innovative career paths.

## Industrial Visit

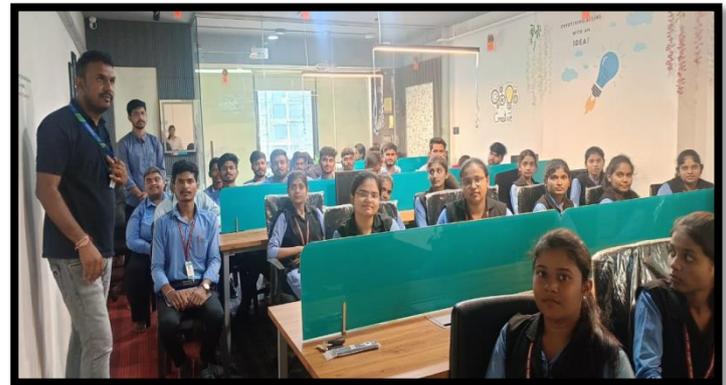
When it comes to grooming students to become accomplished professionals, industrial knowledge is essential. In response to this shift in the industry segments, academic institutions like any college affiliated to university practical learning of subjects through a variety of activities such as industrial visits, workshops, and seminars. The aims to build a learning intervention i.e. With practical, hands-on skill Enhancement knowledge to ensure that students' learning is not focused solely on theoretic approaches. This sort of training provides students with more on-the-job observation and exposure to current trends, applications of their learning, and other benefits. Such as -

- Networking opportunities equate to increased employability
- Enhanced learning experience

Growth in learning soft skills.

On 4<sup>th</sup> October, 2024, Journey start to Adsul Technical Campus, chas, Ahmednager: 7:00 AM. After we have travel to ProAzure Software Solution Kharadi, pune and reach the destination at 12:00 AM.

In Company we have studied the industrial working environment, how to they are gong actual working on project in the industry. To study the new technology like no need of code. Using this technology developer easily develop to software and outsourcing the projects. To study the developing the different websites and their related domain knowledge. Students have spent three hours in the company and discussed with their employee regarding the technology and working nature. The authority of the company also guide to our students, whenever any student ask the question, they have given the answer properly. Then after we have visit to jejuri reach the destination at 4:00 PM. We are back to return journey start at 5:30 PM. After Jejuri we have stay for dinner at shirur at 8:00 PM. Then we have start to journey in 9:00 PM and reach to destination our home town at 11:00 PM.



## Swachhata Din

The SSC Group of Department of Computer Engineering, Adsul's Technical Campus organized a campaign under the program "Swachhata Din" to clean the college premises on 2<sup>nd</sup> October 2024. The whole college was divided into some parts and each part was cleaned by the volunteers according to the schedule.

Swachhata Din, or Swachh Bharat Diwas, is celebrated on October 2<sup>nd</sup> to mark the importance of cleanliness and public health in India. It is a day to recognize the decade-long movement towards cleanliness and sanitation that is part of the Swachh Bharat Mission. The mission aims to make cleanliness a way of life and instill a sense of civic responsibility in every Indian. The Swachh Bharat Mission is a transformative initiative aimed at creating a clean and hygienic India.

Launched by the Government of India on October 2, 2014, this ambitious campaign strives to achieve the vision of a "Clean India" by addressing sanitation issues and promoting cleanliness across the nation. We will explore the various aspects of the Swachh Bharat Mission, its impact on society, and the measures taken to realize the mission's goals.

The Swachh Bharat Mission has many important goals, including:

### Cleanliness in public spaces

The mission encourages people to keep public spaces like streets, parks, and tourist areas clean.

### Clean toilets

The mission aims to build toilets in every household and in public institutions like schools and colleges.

### Waste management

The mission promotes proper waste management practices, including segregation, disposal, and recycling.

### Behavioral change

The mission aims to raise awareness about the importance of cleanliness and encourage people to adopt better practices.

The Swachh Bharat Mission has had a positive impact on India, including: Improved healthcare quality, reduced pollution levels, Improved environmental quality, and Economic growth.



## Dasara Festival

Navratri began on October 3<sup>rd</sup> with grand celebrations across the country. Though Navratri is celebrated four times a year, the most popular one is in October. This Navratri, celebrating the Dussehra festival, is called Sahradiya Navratri. Dussehra, a significant Hindu festival, holds dual importance as it commemorates two pivotal events: Lord Rama's triumphant return to Ayodhya after defeating the demon king Ravana and Goddess Durga's victory over the demon Mahishasura.

Due to the Hindu calendar, it needs to be clear whether the festival is on October 12 or 13. Here, you can get the festival date and shubh muhurat. This year, 2024, Dussehra falls on October 12! The auspicious Dashami tithi begins at 10:58 am on Saturday, October 12, and concludes at 9:08 am on Sunday.

As the festival falls on Saturday and the next day is Sunday, schools, offices, colleges, and banks are closed for these two days. Other holidays will differ based on the organization.

Highlighting the significance of celebrating festivals, a special assembly on Dussehra, the festival that resonates the victory of good over evil was presented by the students. The assembly began with the recitation of Gayatri Mantra followed by a thought highlighting that every evil can be terminated with goodness and goodwill, which always leads to peace and prosperity.

A soul stirring bhajan was presented by the students of the choir group followed by a short act by the students. The students presented scintillating Durga Vandana. More colours were added by the students of Engineering who were delighted to celebrate Dussehra with their teachers. They not only enjoyed listening to the story behind the festival but at the same time had a great time dressing up in the lovely attire of Garbha and dancing on the beats of foot tapping Garbha Songs. Students also learnt some beautiful craft work and made the effigy of Ravana with the help of fruits and vegetables. A student from the computer engineering department presented a video and a ppt was showcased highlighting the Navratra celebrations and the confluence of colours for each Navratra. Students spoke on the occasion on how one could have safe festivity without polluting the environment and keeping everyone safe from diseases.

Principal Dr. P. M. Patil wished everyone a bright and safe Dussehra and pleaded to keep safety and clean environment as their main concern while celebrating various festivals .



## Articles by Students

### Datafication

Datafication is the process of turning various aspects of life into data that can be analyzed, tracked, and used to make decisions. It's a technological trend that uses tools like AI, machine learning, and the Internet of Things (IoT) to transform actions into quantifiable data.

Datafication can be used in many ways, including:

#### Businesses

Datafication can help businesses understand customer preferences, track sales trends, and optimize inventory. For example, businesses can use datafication to analyze social media data to better understand customer sentiment.

#### Personalization

Datafication can be used to personalize the experience for customers. For example, streaming and retail services can use datafication to analyze viewing or shopping habits to recommend shows, movies, or songs.

#### Travel

Datafication can help people make more informed decisions when planning a vacation. For example, people can use datafication to compare prices, read reviews, and see trends in booking rates.

#### Financial operations

Datafication can help organizations manage financial activities by integrating data from different systems. For example, datafication can bring together Accounts Receivable and Accounts Payable systems into a single view.

#### What Makes Datafication the Way Forward for Businesses?

Before you formulate a datafication strategy, here are four key considerations to keep in mind:

##### 1. The Role of Data in Decision-making and Strategy Development

In the current business landscape, datafication has the potential to fundamentally change the way companies make decisions and formulate strategies. Data-driven insights can provide businesses with valuable information about their operations, customers and market trends. By analyzing data, businesses can pinpoint areas for improvement, streamline their operations and develop marketing strategies that are more effective.

##### 2. The Potential Benefits of Datafication for Businesses.

Businesses that embrace datafication can benefit in numerous ways, including increased efficiency, reduced costs and enhanced revenue. By leveraging data, companies can identify opportunities to optimize their operations, create new revenue streams and improve customer satisfaction. Additionally, businesses can offer more personalized experiences and targeted promotions, leading to increased customer loyalty and repeat business.

##### 3. The Impact of Datafication on Customer Experience and Engagement

Datafication has dramatically transformed how companies interact with their customers, enabling them to provide more personalized experiences and relevant content. Through the analysis of customer behavior data, companies can offer customized recommendations, real-time directions and targeted promotions. As a result, this level of personalization leads to a better customer experience, resulting in increased engagement and loyalty.

##### 4. The Competitive Advantage of Data-Driven Companies

Companies that are data-driven have a significant competitive advantage over their peers. By leveraging data to make better decisions, optimize their operations and deliver more personalized experiences to customers, these companies can create a level of sophistication that is challenging for competitors to replicate. As a result, data-driven companies often dominate their markets, leaving their competition struggling to keep up.

Gaurav Dengle  
Second Year 2024-25

## Computing Power

What makes a supercomputer so super? Can it leap tall buildings in a single bound or protect the rights of the innocent? The truth is a bit more mundane. Supercomputers can process complex calculations very quickly.

As it turns out, that's the secret behind computing power. It all comes down to how fast a machine can perform an operation. Everything a computer does breaks down into math. Your computer's processor interprets any command you execute as a series of math problems. Faster processors can handle more calculations per second than slower ones, and they're also better at handling really tough calculations.

Within your computer's CPU is an electronic clock. The clock's job is to create a series of electrical pulses at regular intervals. This allows the computer to synchronize all its components and it determines the speed at which the computer can pull data from its memory and perform calculations.

When you talk about how many gigahertz your processor has, you're really talking about clock speed. The number refers to how many electrical pulses your CPU sends out each second. A 3.2 gigahertz processor sends out around 3.2 billion pulses each second. While it's possible to push some processors to speeds faster than their advertised limits -- a process called overclocking -- eventually a clock will hit its limit and will go no faster.

Computer performance can also be measured in floating-point operations per second, or flops. Current desktop computers have processors that can handle billions of floating-point operations per second, or gigaflops. Computers with multiple processors have an advantage over single-processor machines, because each processor core can handle a certain number of calculations per second. Multiple-core processors increase computing power while using less electricity.

Even fast computers can take years to complete certain tasks. Finding two prime factors of a very large number is a difficult task for most computers. First, the computer must determine the factors of the large number. Then, the computer must determine if the factors are prime numbers. For incredibly large numbers, this is a laborious task. The calculations can take a computer many years to complete.

Future computers may find such a task relatively simple. A working quantum computer of sufficient power could calculate factors in parallel and then provide the most likely answer in just a few moments. However, quantum computers have their own challenges and wouldn't be suitable for all computing tasks, but they could reshape the way we think of computing power.



Supriya Garje  
Third Year 2024-25

## Space Robotics

Space robotics is the use of specialized robots to perform tasks in space, such as scientific experiments, space exploration, and on-orbit maintenance. Space robotics has the potential to make space missions less expensive and more accessible, allowing for more complex missions to be undertaken.

Here are some ways space robotics is used:

**On-orbit servicing:** Space robots can perform tasks like docking, refueling, repairing, and transporting.

**Planetary exploration:** Space robots can explore the surface of planets and moons, such as Mars.

**Satellite servicing:** Space robots can perform tasks like servicing satellites.

**Manufacturing:** Space robots can perform on-orbit assembly and manufacturing tasks.

Space robotics presents design, fabrication, and control challenges because of the harsh space environment. Some of these challenges include:

**Extreme environments:** Space robots must be able to operate in environments with low lighting, low or no atmosphere, intense temperatures, and rough terrains.

**Limited resources:** Space robots must be constrained by size, weight, and power (SWAP) needs.

**Human interaction:** Space robots can be controlled by a human, a computer, or they can be completely autonomous.

Space robots are a type of specialized robot that replaces humans in conducting scientific experiments, external vehicular activities, space exploration and other activities in space.

Advanced Space Exploration: Robotic explorers will continue to play a crucial role in exploring distant planets and moons. Missions like NASA's Perseverance rover on Mars demonstrate the capabilities of autonomous robots to conduct scientific research and pave the way for future human missions.

They can survive in space for many years and can be left out there—no need for a return trip! Plus, robots can do lots of things that humans can't. Some can withstand harsh conditions, like extreme temperatures or high levels of radiation.

The initial robot to be dispatched to space was Sputnik 1. The USSR launched it on October 4, 1957. And with it, Sputnik 1 holds the distinction of being the inaugural artificial Earth satellite and the foremost human-made entity to successfully achieve orbit around our planet.

Overcoming the challenges of working in space has led to many technological and scientific advances that have provided benefits to society on Earth in areas including health and medicine, transportation, public safety, consumer goods, energy and environment, information technology, and industrial productivity.



Snehal Shelke  
Final Year 2024-25

## ARYABHATTA

Aryabhata was a well-known astronomer and mathematician. He was born in the Indian state of Bihar, in the town of Kusumapura (now Patna).

The famous Gupta Empire was an ancient empire in India. Existing from the early 4th century CE to th, Aryabhata was a well-known astronomer and mathematician. He was born in the Indian state of Bihar, in the town of Kusumapura (now Patna). Despite his enormous contributions to mathematics, science, and astronomy, he has received no credit in the history of science. He authored his famous “Aryabhatiya” at the age of 25. He understood the idea of zero and how to employ huge numbers up to  $10^{18}$ . He was the first to compute the value of ‘pi’ to the fourth decimal point with precision. He was the one who came up with the formula for computing the areas of triangles and circles.

### About Aryabhata

Aryabhata’s birthplace and year are still conjectures based on his works and influences. It was said in one of his well-known books, Aryabhatiya, To be clear, the manuscript Aryabhatiya was published 3600 years into the Kaliyug, although his findings and writings were discovered much later. He always regarded Kusumapura, Pataliputra, which is now Patna, Bihar, to be his birthplace. The location of his birth and the family into which he was born is still unclear.

Pataliputra, the capital of the Gupta Empire’s Kusumapura province, was a prominent learning institution and the heart of a communication network. As a result, works from all over the world were easily transported to the location, allowing Aryabhata to make significant mathematical and astronomical advances. He was said to be the head of his Kusumapura school, Kulpa. Later, to pursue his passion for astronomy, he proceeded to Nalanda University in Pataliputra, where rumors of his becoming the president of his university persisted.

### Aryabhatiya

This book is also known as Arya-status-ash, which means “aryabhata’s 108” since there are 108 verses in the text. It’s written as a sutra, which is a collection of aphorisms, which is a short way of expressing a statement or a scientific principle.

These words, in the shape of 13 introduction verses, are his works that provide a means to recall difficult computations in a simple style. The first chapter, Gitikapada, includes 13 verses and is broken into four chapters or padas. It is about cosmology. In a maha yuga, the planetary revolutions are said to last up to 4.32 million years.

### Discoveries

Indian Mathematical Literature was widely mentioned in Aryabhatiya. The Vedic method of solving mathematical problems was investigated, and it is unexpected that it has lasted to the present day. Algebra, arithmetic, plane trigonometry, and spherical trigonometry were all studied in detail. He calculated using the Sanskritik tradition, which was popular throughout the Vedic period.

Aryabhata was awarded the title of ‘Father Of Algebra’ because of his remarkable grasp and explanation of planetary systems employing it. Aryabhata calculated the value of pi to two decimal places, which was 3.14. He also employed null coefficients and was well aware of the dangers of using zero in such a situation. In contrast to Brahmi numbers, he employed Sanskritic tradition, which was primarily denoted by letters and alphabets.

Snehal Shinde  
Final Year 2024-25

## Photo Gallery



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