Thiagarajar College of Engineering

Department of information technology

proudly presents

ITITIDES NOV'23

Space Exploration & Technology



DEPARTMENT OF INFORMATIONTECHNOLOGY

Vision

Evolve into a Centre of Excellence for Education and Research in Information Technology.

Mission

- Attaining academic excellence through a welldesigned curriculum adaptable to dynamic technological needs, competent faculty, and the innovative teaching-learning process.
- Promoting collaborative research through special interest groups, state-of-the-art research labs, and Industry Institute Interactions.
- Facilitating value-added courses to produce highly competent and socially conscious information technology professionals and entrepreneurs.



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Editors Desk

Dear Valued Readers,

Welcome to the newest release of our very own iTunes magazine! We are thrilled to keep you well-informed about the latest happenings in our department, all thanks to the incredible contributions from both our students and staff.

In every edition, we are delighted to bring you impeccably crafted articles, thoughtfully edited by our dedicated team. These articles serve as a valuable resource for staying current and enhancing your knowledge.

Our publication wouldn't be possible without the relentless efforts of our faculty coordinators and the esteemed iTunes leaders, Dr. D. Tamilselvi and Mrs. S. Thiruchadai Pandesswari. We extend our heartfelt gratitude to them for their guidance during this special period.

I would also like to express my sincere appreciation to the talented iTunes team for their remarkable design work and content curation. We are continually striving to exceed your expectations, and this edition is no exception.

Explore a diverse range of content in this edition, including the latest updates from the world of sports, immersive interviews in the realm of Augmented and Virtual Reality (AR/VR), insightful placement stories from our senior students, a glimpse into the vibrant activities within our clubs, captivating articles on space exploration, mindbending puzzles and aptitude tests to test your intellect, and the celebration of achievements by our IT Association members and event winners.

We've also included an inspiring list of achievements from both our staff and students. So, take your time, savor each page, and enjoy the comprehensive experience we've prepared for you in this edition. Thank you for your continued support and readership.

Sincerely

Editor



CELESTIAL DANCE

Beauty of Conjunctions

R oughly 13.8 billion years ago, our Universe began with the Big Bang theory from a singular point of infinite destiny. This

resulted in the expansion of space. over millions of years, clouds of hydrogen and helium gases were pulled together by gravity. As these clouds became denser, they collapsed inwards, leading to the birth of the first stars. These early stars the grouped to form the Galaxies. The intense pressure and the heat in the cores of these young stars ignited nuclear fusion, covering hydrogen into helium

and releasing energy. This is how "stars shine". Around young stars, disks of dust and gas remained. Over time, particles in these disks began to collide and stick together, forming larger and larger bodies. These eventually became planets, moons, asteroids, and other celestial objects.

Our Moon is believed to have formed about 4.5 billion years ago from a collision between Earth and a Mars-sized body. The debris from this collision eventually coalesced to form the Moon. This is how space has been created with various astonishment.

"Celestial events" refers to phenomena that occur in the sky and outer space .Every so often, as night falls, we're treated to a spectacular celestial show: the close approach of two or more luminous objects in the night sky. This magical rendezvous is known as a conjunction.At its core, a conjunction is an optical illusion. The objects involved aren't

physically close in space. Instead, from our vantage point on Earth, they appear to be neighbors for a fleeting moment. This cosmic dance can involve any celestial body - be it planets, stars, or our own moon.

Historically, conjunctions have been more than just astronomical phenomena. Ancient civilizations attached profound spiritual and prophetic meanings to these events. Some saw them as omens, while others believed they heralded significant changes. The legendary Star of Bethlehem, for instance, is theorized by some to have been a rare planetary conjunction.

Types of Conjunctions to Look Out For

Superior Conjunction: When Mercury or
Venus (our close-orbiting neighbors) are

on the opposite side of the Sun.

Inferior Conjunction: When Mercury or Venus position themselves directly between Earth and the Sun.

Triple Conjunction: A rare treat, this happens when two planets, or a planet and a star, meet thrice in the sky due to the intriguing retrograde motion of planets.

The beauty of conjunctions lies in their accessibility. One doesn't need high-powered telescopes to enjoy the show. A simple upward glance, perhaps aided with a pair of binoculars, can offer a breathtaking view.

The next time the sun sets and the stars emerge, remember to look up. You might just witness the cosmic ballet of a conjunction, where the universe reminds us of its vastness and splendor.



Okay. Campus interview sessions are approaching. This is the phase where you get to apply your theoretical knowledge, programming skills, and logical thinking to the practical demands of the real world. You get to interview with the companies of your dreams. There is absolutely no need to get nervous or question our life choices if we gradually prepare ourselves for them. My own placement preparation journey was rather short, as I was placed early in the season. So I hope to share some insights on how I prepared for and attended the interview and got the most out of it.

"Yeah, Mr. White. Yeah, SCIENCE!"
- Breaking Bad

Prior to attending interviews, I had done a lot of side projects that were relevant to that timeline. The kick I got when something I'd worked hard on finally worked was refreshing, and it drove me to take up more projects. Completing them gave me an upper hand when questions were asked regarding practical implementations.

The main advantage of doing side projects is that you really get to understand the concepts behind them and how they work. You get to debug errors and get your hands dirty. Interviewers are quick to identify whether you have really invested and worked on the project, rather than just piggybacking along.

They asked about the challenges that I have faced in implementing those projects and how I overcame them. I found myself clearly explaining the shortcomings. It also gave me the confidence to face any kind of question that was thrown at me regarding that domain.

It doesn't matter the scale or application of the project. If it interests you and the technical stack is relevant, you can go for it. The stacks I have worked on are now irrelevant and have been replaced by frameworks and automation tools. But they still give me a clear picture of how things work behind the scenes while I'm working with the new set of tools.

Moreover, understanding the parallel theoretical concepts was easier as I correlated them with the practical implementations. Theoretical concepts like networks, operating systems, database management systems, and OOPS had a lot of relevance in the implementations.

"Play the man, not the odds." - Suits

During the interview, I found it easy when I considered the interviewer to be my friend and not someone who held a personal grudge against me. We had a casual conversation, starting with my personal background and gradually moving to my areas of interest. This was my attitude towards the hiring manager: He wants to get the best out of me, and I'm going to help him by emphasizing the value I'll be adding to the company.

Even though you are equipped with the necessary skill set for the role, you have to sell yourself to the interviewer and convince him by presenting yourself without any hindrances. Many interviewers from MNCs would want to make you comfortable by cracking some jokes. Go with it and make some. It's kind of a double-edged sword. It gives you a chance to make a personal connection with the interviewer and sets you apart from the crowd. At the same time, you have to be careful not to demean yourself or the industry in any way.



"The Second He Reveals He's Evil We're Gone."
- Rick and Morty

I can't stress this part enough. Attitude plays a vital role in cracking any interview for any role. The moment he senses any kind of negligence on your part, he breezes through the interview with some personal questions and ends the interview. Make sure you express enthusiasm, adaptability, and professionalism.

Portray yourself as a confident and trustworthy person (it's easier to be than to pretend). Even if you're slightly less skilled, if you present yourself with an impeccable attitude, they'll be more than happy to have you on board.

Apart from these, I felt that it was important to know the basics of how every domain works, like blockchain and quantum computing, so that I could be comfortable talking about these niche areas.

Another unconventional advantage for me was that I used to watch a lot of English sitcoms and movies in my leisure time (that's why you see a lot of one-liners here and there). Along the way, I picked up fluency and became comfortable talking for longer periods of time. It also helped me become accustomed to the fact that corporations, following Western culture, go by their last name and not "sir" or "mam".

"You miss 100% of the shots you don't take. Wayne Gretzky"

- The Office

At the end of the day, interviews are just conversations between you and the industry to see whether you are a perfect fit for the company and vice versa. Even if you think cracking the company is hard, just give it a go. There is no need to be afraid or nervous. We can observe how we react under pressure and work on it. The best way to look at it is as an experience. Enjoy it. Learn from it. The more interviews you attend, the more prepared you'll become to confront the real world. Eventually, it'll become second nature.

"And I knew exactly what to do. But in a much more real sense, I had no idea what to do."

- The Office

There is no definitive guide to attending interviews that guarantees surefire success. We simply need to put in our maximum effort, go with our instincts, and hope for the best.

Best of luck on your campus interview journey! You've got this!



3hreeram 3



Name:	Bharath S K
Offer Type:	INTERNSHIP + FULL-TIME
Package:	12 LPA
Number of Round:	6
Difficulty:	Medium
Contact:	9360155501

Overall Experience

#Round 1: Aptitude Round

First round consisted of,

- > Technical
- > Quantitative
- > Logical
- > Verbal

Each section had a particular set of questions to be answered in a stipulated time. For aptitude sections, it is enough to cover basic aptitude questions like basic math and logical questions. In verbal section, reading comprehension and basic verbal questions were asked.

Technical topics include networks, DSA, basics of C, code debugging, OOPS and SQL.

#Round 2: Coding Round:

Coding question consisted of one easy and one medium problems. The only task is to understand the question and find the logic because both the questions seemed big but required very simple logic to be solved. There were around 15,17 testcases in each question respectively all were passed.

#Round 3: GD Round

Around 100 students were selected from the entire college, with approximately 4 panels and 4 shifts, each comprising 8 students per panel. The topics are provided upon entering the room, and participants are given time to think and take hints. There are five key sections on which marks are awarded: fluency, eye contact, voice pitch, clarity of points, and confidence.

Based on these criteria, marks will be awarded by each panel, and around 4 to 5 members will be selected for the next round.

My topic: Fake news impact in society



#Round 4: Coding Round(Written):

This round is not for all, only some students attended this round. In this round you will be given 3 questions

- 1. One box inside another box on clicking the small box the outer box colour should be change
- 2. Find the missing number in array(leetcode)
- 3. Longest-increasing subsequence (leetcode)

All these questions are easily answerable if one is well-prepared in Data Structures and Algorithms (DSA). To distinguish yourself from others, you should aim to present 3-4 approaches for each question. It is important to note that this round is not an elimination round, and all participants attending this round will also proceed to the next round.

#Round 5: Technical Interview

First, I was asked to introduce myself. I gave a brief introduction about myself and my areas of interest. Then, I explained the projects mentioned in my resume and the completed internship project. There were a few questions about the tech stack used for those projects and my approach.

The interviewer also asked about my preferred coding language. Some of the technical questions were as follows:

- "Tell me about some of the Bootstrap classes."
- "Find the missing number in the array?"
- "Basic questions on OOPS concepts."

Furthermore, I was instructed to code the website (on the laptop) that was given to me in the previous round. Although I couldn't complete it entirely, I ensured to explain the DSA questions clearly, which seemed to compensate for any incomplete sections.

During the interview, there were situational questions, and I was also asked why I wanted to join Caterpillar. I answered based on my perspectives and interests. Lastly, I was given the opportunity to ask any questions I had. The entire interview lasted around 30 minutes.

#Round 6: HR Interview

Followed by the technical interview, there was an HR interview. The HR went through my resume and asked some basic questions related to my projects and the hackathons I attended. They also inquired about my plans for higher studies and government exams. Additionally, they asked about the number of interviews I had attended before and where I see myself in the next 5 years.

It's notable that Caterpillar doesn't have any eligibility criteria like an 8 CGPA or 80 percent marks in 12th and 10th grades. This means that students who might not be eligible for placements in many other companies have a good chance at Caterpillar. The key is to prepare every day and approach the process confidently. You've got this!

Around 7 individuals secured full-time roles, and approximately 10 secured internships.



GAGAANYAAN

INDIA'S BOLD STEP INTO MANNED SPACE EXPLORATION

In terms of scientific invention and exploration, India has a long history. Indian Space Research The (ISRO) Organisation hopes to improve India's standing in the field research with the of space Gaganyaan, mission. Gaganyaan which means "Sky Craft" in English, is the name of India's first attempt at sending a person into space.

Historical Context:

The launch of India's first satellite, marked Aryabhata, in 1975 the beginning of the country's space exploration endeavors. Since then, the ISRO has achieved a great deal, including the renowned Mars Orbiter Mission (Mangalyaan) in 2013 and the missionsfocused Chandrayaan the Moon. Gagan yaan is the logical next step in this succession of largescale initiatives.





Mission Overview:

Gaganyaan's main objective is to launch Indian astronauts, known as "vyomanauts," into orbit by 2022. The mission's goals are unchanging even though the initial schedule may change:

Show that you can safely launch people into low Earth orbit (LEO) and return them. Boost India's technological prowess in the area of human spaceflight.

Key characteristics:

- Gaganyaan is a spacecraft that is intended to orbit the Earth 300–400 km above the surface. It will have safety features for the crew.
- life support systems, and a module to guarantee a secure re-entry and landing back on Earth.
- The manned mission is anticipated to last no more than seven days.

Additional Implications:

- The outcome of Gaganyaan's success might firmly establish India's place among the select few nations capable of sending people into space.
- create the foundation for more complex initiatives, including lunar bases or space stations.
- Inspire a new generation of scientists, engineers, and common people while boosting national pride.

Conclusion:

Despite its complexity and difficulties, the Gagan Yaan mission highlights India's dedication to space exploration and its aim to be a major participant in the new space age. The expedition, which the entire world is anxiously awaiting, includes more than a billion people's hopes and dreams in addition to astronauts.



1.THE CHANDRAYAAN-1 MISSION, LAUNCHED IN 2008, MADE A SIGNIFICANT DISCOVERY RELATED TO WATER MOLECULES ON THE MOON. HOWEVER, THIS FINDING WAS NOT INITIALLY MADE BY THE MOON IMPACT PROBE. WHAT INSTRUMENT ON CHANDRAYAAN-1 LED TO THE UNEXPECTED DISCOVERY, AND WHAT WAS THE NATURE OF THE FINDING?

2.INDIA'S ASTROSAT SATELLITE HAS BEEN PIVOTAL IN STUDYING VARIOUS ASTRONOMICAL PHENOMENA. NAME ONE SPECIFIC TYPE OF CELESTIAL OBJECT THAT ASTROSAT HAS OBSERVED, AND EXPLAIN WHY STUDYING THIS TYPE OF OBJECT IS PARTICULARLY CHALLENGING.

3.IN 2016, ISRO LAUNCHED A RECORD-BREAKING NUMBER OF SATELLITES USING A SINGLE ROCKET, THE PSLV-C37. BESIDES THE PRIMARY PAYLOAD, THE CARTOSAT-2 SERIES SATELLITE, HOW MANY NANO-SATELLITES WERE LAUNCHED, AND WHAT WAS THEIR COMBINED COUNTRY OF ORIGIN?

4.THE MARS ORBITER MISSION (MANGALYAAN) WAS CELEBRATED FOR ITS LOW COST. HOWEVER, IT FACED A CRITICAL MOMENT DURING ITS INSERTION INTO MARTIAN ORBIT. EXPLAIN THE CHALLENGE FACED DURING THE ORBITAL INSERTION AND HOW ISRO OVERCAME IT.

5.THE NAVIC (NAVIGATION WITH INDIAN CONSTELLATION) IS AN INDEPENDENT REGIONAL NAVIGATION SATELLITE SYSTEM DEVELOPED BY ISRO. HOW DOES NAVIC DIFFER FROM OTHER GLOBAL NAVIGATION SYSTEMS LIKE GPS, AND WHAT ADVANTAGES DOES IT OFFER IN THE INDIAN REGION?

6.THE INDIAN REGIONAL NAVIGATION SATELLITE SYSTEM (IRNSS), ALSO KNOWN AS NAVIC, HAS AN INDIGENOUS NAME FOR EACH OF ITS SATELLITES. IDENTIFY AND EXPLAIN THE SIGNIFICANCE OF THE NAMES OF ANY THREE NAVIC SATELLITES.

7.THE GSAT-30 COMMUNICATION SATELLITE, LAUNCHED BY ISRO IN 2020, REPLACED AN OLDER SATELLITE IN ORBIT. IDENTIFY THE SATELLITE THAT GSAT-30 REPLACED AND DISCUSS THE ROLE OF GSAT-30 IN INDIA'S COMMUNICATION INFRASTRUCTURE.

ENTER YOUR ANSWERS IN THE FOLLOWING LINK TO GET CASH REWARDS!!!



Highlights

Everything is connected through web applications, from banks to government organizations. Being a web developer, specifically a full-stack web developer, is the best option you have. A full-stack web developer knows both front-end and back-end development.

Usually, there are two types of full-stack web developers: MERN Stack and PHP Developers.

Before jumping into learning full-stack web development, you need to understand what you want to be. One thing I would like you to know is that there isn't any limit to what you can learn. If you want to learn MERN, you can also learn PHP. If you want to learn PHP, you can later learn MERN Stack Development. That's the beauty of being a programmer – you don't have any limit to learning new things.

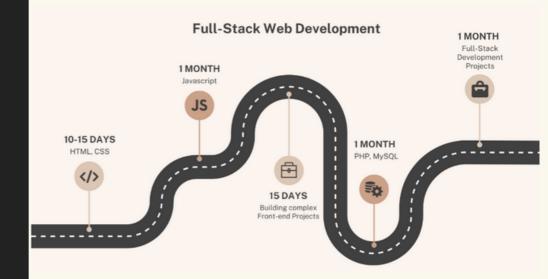
ROADMAP TO

Full Stack Web Development

Firstly, PHP Full-Stack Web Developer

This generally includes 5 languages: HTML, CSS, JavaScript, PHP, and MySQL.

- 1. HTML, CSS, and JavaScript are front-end languages used to display designs and the structure of a website and to send requests to the back-end.
- 2. PHP is the back-end language that takes requests from the front-end and executes functions. It's connected with your database to fetch, insert, update, and delete records from it. PHP is one of the more popular languages for making web applications. 78% of web applications on the internet are built using PHP, including Facebook, WordPress, Wikipedia, and much more.
- 3. MySQL is a database that you'll use to store and modify data using PHP.



ROADMAP TO

Full Stack Web Development

Secondly, MERN Stack

MERN is an abbreviation for MongoDB, Express.js, React.js, and Node.js.

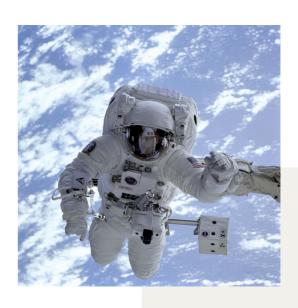
- 1. MongoDB is a NoSQL database that is used to store and fetch data. It is a highly scalable and flexible database that allows for easy use with other technologies.
- 2. Express.js is a web application framework for Node.js that makes the process of building web applications and APIs easy. It provides a set of tools and functionalities for handling requests and responses, routing, middleware, and more.
- 3. React is a JavaScript library for building real-time user interfaces. It's used to make websites dynamic and interactive. It makes your web application real-time.
- 4. Node.js is a JavaScript runtime that allows developers to run JavaScript code on the server-side. It provides a scalable and high-performance environment for building web applications and APIs.





DECODING THE EPIC TALE BEHIND SPACE TECH

he origins of space technology can be traced to the mid-20th century, with its advancement significantly accelerated by the intense Cold War competition between the United States and the Soviet Union.





What's Cold War then?

he Cold War was a period (lasted from late 1940s to the early 1990s) characterized by geopolitical tension between the United States and the Soviet Union, along with their respective allies in the Western Bloc and Eastern Bloc.

It earned its name because it did not involve direct large-scale military conflicts between the two superpowers but rather manifested through proxy wars in various regions. This conflict stemmed from an ideological and geopolitical struggle for global influence between the United States and the Soviet Union, following their roles as victorious Allies in World War II in 1945.

In addition to the arms race involving nuclear weapons and conventional military deployments, the struggle for dominance was also expressed through indirect means such as psychological warfare, propaganda campaigns, espionage activities, comprehensive trade restrictions, diplomatic exchanges in the realm of sports, and competitions in advanced technologies like the Space Race.

The Space Race Begins:

The Space Race was a key aspect of the Cold War. German engineer Wernher von Braun developed the V-2 rocket, the world's first long-range guided ballistic missile. After World War II, many German scientists, including von Braun, were brought to the United States to work on rocket technology.

It officially began on October 4, 1957, when the Soviet Union launched Sputnik 1, the world's first artificial satellite, into orbit. This event marked the start of the modern era of space exploration.

NASA's Formation:

In response to the Soviet success with Sputnik, the United States established the National Aeronautics and Space Administration (NASA) on July 29, 1958. NASA was tasked with leading the country's efforts in space exploration and technology development.

Human Spaceflight:

On April 12, 1961, Soviet cosmonaut Yuri Gagarin became the first human to travel into space and orbit the Earth aboard Vostok 1. This achievement was followed by the United States' Mercury and Gemini programs, which paved the way for the Apollo program.

The Apollo Program:

The Apollo program, initiated in the early 1960s, aimed to send astronauts to the Moon. On July 20, 1969, NASA's Apollo 11 mission successfully landed astronauts Neil Armstrong and Buzz Aldrin on the lunar surface, making Armstrong the first human to walk on the Moon.



The Dawn of Commercial Space Industry:

In recent decades, the space industry has seen increased participation from private companies. Companies like SpaceX, Blue Origin, and others have developed and launched their own spacecraft, leading to a new era of commercial space exploration.

Space technology continues to evolve, with ongoing missions to explore our solar system and beyond, as well as efforts to make space more accessible for scientific research, commercial ventures, and future human exploration of distant celestial bodies like Mars.



FUN RIDDLES

SPACE EXPLORATION

RIDDLE 01

I AM THE BEGINNING OF THE END AND THE END OF TIME AND SPACE, I AM **ESSENTIAL TO** CREATION, AND I SURROUND EVERY PLACE. WHAT AM !?



BE SINCERE & HAVE FUN

RIDDLE_02



WHICH ONE OF SANTA'S REINDEER CAN YOU SEE IN **OUTER SPACE?**



BE SINCERE & HAVE FUN

RIDDLE_03



WHAT DO YOU CALL A WIZARD FROM OUTER SPACE THAT CAN FLY?



BE SINCERE & HAVE FUN

RIDDLE 04



WHAT KIND OF MUSIC DO **ALIENS LIKE?**



BE SINCERE & HAVE FUN

FUN RIDDLES

SPACE EXPLORATION

RIDDLE 05

IT'S BEEN AROUND FOR MILLIONS OF YEARS, BUT IT'S NO MORE THAN A MONTH OLD. WHAT IS IT?

BE SINCERE & HAVE FUN

RIDDLE 06

WHY DID MICKEY MOUSE GO TO SPACE?

BE SINCERE & HAVE FUN

RIDDLE 07

WHY DID THE MOON SKIP DINER?

BE SINCERE & HAVE FUN

RIDDLE_08

BLACKER THAN BLACK, COLDER THAN COLD, SOME THINGS OUT HERE ARE WORTH MORE THAN GOLD, WHAT IS IT?

BE SINCERE & HAVE FUN

IN THE FOLLOWING LINK TO GET CASH REWARDS!!!



SCORELINES & STORYLINES:

Where passion meets performance

Step onto the field, feel the rush of adrenaline, and unleash your potential. Sports, a realm of camaraderie and triumph, nurtures discipline, teamwork, and resilience. It's where dreams take flight, bonds are forged, and life lessons are learned. Embrace the thrill, the challenge, and the joy of sports – a path to a healthier, empowered you.

INDIVIDUAL ACHIEVEMENTS (2023)

Varun Krishna V

- High jump -Gold(1st)
- Triple jump- Gold(1st)
- Long jump- Gold(1st)
- The Chief Ministers Trophy -High Jump(1st)



Berlin Shane Aishwarya L

- Running 400mts(3rd)
- Relay-4*100 (1st)



Janaki Raman P

- Running 400mts(3rd).
- Javelin (2nd).
- Cross country TRICHENDUR.



Sasi M

• Chess (2nd)



Mahalakshmi N

- Disc(2nd)
- shotput(2nd)
- Hammer(2nd)
- Javelin(3rd)





GROUP ACHIEVEMENTS (2023)

Girls:

- --> Zonal Ball Badminton Winners
- --> Zonal Basketball Winners
- --> Inter Department Kabaddi Winners
- -->Inter Department Kho-Kho Winners
- -->Inter Department Ball Badminton Winners
- -->Inter Department Hockey Winners

Boys:

- -->Inter Department Basketball Winners
- -->Inter Department Cricket Winners
- -->Inter Department Kho-Kho Runners



CONTACT US

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